

METHODOLOGY M/LU-REDD+ **consistent with international agree-** **ments under the UNFCCC**



Carbon Programme

Version 3.1

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Acronyms and abbreviations

BAU	Business as Usual
CCMP	Climate Change Mitigation Programme or Project
CDM	Clean Development Mechanism
COP	Conference of the Parties
CSE	Carbon Stocks Enhancement
DEF	Avoided Deforestation
DEG	Avoided Forest Degradation
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
GHG	Greenhouse Gas(es)
GIS	Geographic Information System
GPG	Good Practice Guidance
GPS	Global Positioning System
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LMA	Leakage Management Area
LPA	Leakage Potential Area
MRV	Measurement, Reporting, and Verification System
NDC	Nationally Determined Contributions
NFI	National Forest Inventory
NFMS	National Forest Monitoring Systems
PDD	Project Description Document
PES	Payments for Environmental Services
QA/QC	Quality Assurance and Quality Control
REDD+	Reducing Emissions from Deforestation and Forest Degradation and other actions in this sector
SDGs	Sustainable Development Goals
SFM	Sustainable Forest Management
SIS	Safeguards Information System
UNFCCC	United Nations Framework Convention on Climate Change

Terms and definitions

The terms and definitions providing guidance for thorough understanding of this methodology are included in the *Terms and Definitions of the Voluntary Certification Programme of Cercarbono* document, available at www.cercarbono.com, section: Documentation.

For this methodology, the following terms are especially applicable:

- **Activity data:** data on the magnitude of a human activity that generates emissions or removals during a given period of time.
- **Carbon stocks enhancement (Forest restoration):** set of actions aimed at increasing carbon stored in forest ecosystems through the establishment, regeneration, or growth of woody species—native or functional, of tree and/or shrub habit—within areas classified as non-stable forest and non-forest, with the objective of reaching the condition of stable forest in accordance with the national forest definition. This activity, framed under the CSE (Carbon Stocks Enhancement) segment of REDD+, generates net GHG removals and contributes to the recovery of ecosystem services such as carbon sequestration, water regulation, soil protection, and biodiversity. Under this activity, forest harvesting shall not be permitted, even if limited or intended for sustainable purposes.
- **Deforestation:** detectable, direct, and human-induced change in forest cover to another land cover type within a given period. For purposes of the consistency principle, the definition of deforestation established by the country in its FREL/FRL or as approved by the jurisdictional programme shall be adopted. The minimum mappable area shall be one (1) hectare or as indicated in the applicable FREL/FRL.
- **Eligible area:** geographic extent where the programme or project activity (Greenhouse Gas (GHG) removal or GHG emission reduction) is implemented, in which direct intervention on the land and its associated resources by the Climate Change Mitigation Programme or Project (CCMP) occurs.
- **Emission factor:** coefficient representing the amount of GHG emitted to the atmosphere per unit of activity. In forest lands, this factor is applied to activity data associated with emission processes such as deforested areas, biomass removed, timber extraction, or fertilizer use, among others, enabling estimation of emissions attributable to each source.
- **Forest:** land area permanently covered by trees, according to the minimum area, tree canopy cover, and tree height at maturity parameters established by each country before the United Nations Framework Convention on Climate Change (UNFCCC), or as approved by the jurisdictional programme.
- **Forest conservation:** actions aimed at preserving the established vegetation cover within a given area, so that it is not subject to management or removal of said vegetation, directly contributing to its stability or ecological function. This REDD+ activity is not included within the scope of this methodology.
- **Forest cover:** area covered by vegetation that meets the forest definition.
- **Forest degradation:** persistent reduction of carbon content due to anthropogenic activities in an area that remains classified as forest. For purposes of the consistency principle, the definition of degradation established by the country in its selected FREL/FRL shall be adopted.

The minimum mappable area (understood as an area representing forest composition, structure, and contiguity) shall be three (3) hectares or as indicated in the selected FREL/FRL.

- **Forest land:** land-use category that includes all lands with woody vegetation consistent with the thresholds used to define forest.
- **Forest Reference Emission Level / Forest Reference Level (FREL/FRL)¹:** benchmarks established under the UNFCCC to assess each country's performance in implementing REDD+ activities in accordance with Decision 12/CP.17. Information contained in FREL/FRL shall be transparent, accurate, complete, and consistent, and shall be prepared in accordance with the most recent IPCC guidance adopted or promoted by the Conference of the Parties (COP) of the UNFCCC.
- **Functional species:** plant species that performs a key ecological role within an ecosystem, contributing to essential functions related to nutrient cycling, soil retention, pollination, shading, water cycle regulation, or invasive species control, and capable of surviving, growing, and reproducing under the bioclimatic and ecological conditions of the implementation site. It is not necessarily a native species, although it may be.
- **GHG reduction:** result of processes through which GHG emissions to the atmosphere are decreased (or avoided) as a consequence of human activities.
- **GHG removal:** result of processes through which GHG are removed from the atmosphere and durably stored in carbon pools as a consequence of human activities.
- **Harmonization:** process that ensures technical and methodological compatibility among projects, jurisdictions, and the national level, using common elements such as data, analysis periods, definitions, among others, so that results are consistent, transparent, and comparable.
- **Jurisdiction:** territory within which climate change mitigation targets are established and over which a government (national or subnational) has authority or competence. The jurisdiction constitutes the territorial basis for establishing deforestation reduction and CCMP targets. Jurisdictions are normally considered at the national level (entire country) or subnational level (as defined by each country, such as departments, states, provinces, among others).
- **Native species:** any plant species (within the context of this methodology) originating from a given geographic location.
- **Natural forest:** forest ecosystem characterized by the presence of woody species with diverse vegetation structure and high diversity of fauna and flora. According to the degree of intervention, natural forests are classified as primary and secondary forests.
- **Nesting:** mechanism through which local or independent REDD+ projects are integrated into jurisdictional or national frameworks, ensuring consistency with Forest Reference Emission Levels / Forest Reference Levels (FREL/FRL) and avoiding double counting.

¹ In addition to FREL/FRL submitted to the UNFCCC (United Nations Framework Convention on Climate Change), CCMPs may be based on national or subnational (jurisdictional) FREL/FRL, provided that official approval has been granted by the competent national authority. Even if not registered with the UNFCCC, such reference levels may be validly used in:

- National or subnational jurisdictional REDD+ programmes;
- CCMPs integrated into or aligned with jurisdictional frameworks.

For a jurisdictional FREL/FRL to be considered valid, it shall be technically aligned with IPCC (Intergovernmental Panel on Climate Change) guidelines, supported by official institutional endorsement, and coherent with national monitoring and reporting systems (MRV – Measurement, Reporting, and Verification System; NFMS – National Forest Monitoring Systems; and national GHG inventories).

- **Non-eligible area:** geographic extent that does not meet the characteristics required to implement programme or project activities in accordance with the applicable methodology. The CCMP shall only identify and control this area but shall not intervene in it.
- **Non-forest:** areas that do not have forest cover under any land-use planning category according to national regulations. It shall be demonstrated that they have not had forest cover for at least ten years prior to the CCMP start date. For these areas to be eligible, they shall be adjacent to areas classified as stable forest or non-stable forest within the CCMP area, thereby ensuring ecological connectivity and alignment with the objectives of the REDD+ mechanism. Changes in their cover shall be recorded and monitored during both the projection period and monitoring events.
- **Non-stable forest:** area that remains under a land cover different from stable (primary) forest from the beginning (t1) to the end (t2) of the historical period; it shall belong to a forest land-use planning category in accordance with national regulations. It shall be demonstrated that it has not been stable forest (due to recurrent disturbance processes or climatic events) for at least ten years prior to the CCMP start date. Changes shall be recorded during both the projection and monitoring periods.
- **Overlap:** intersection between areas included in a programme or project registered in Cercarbono and other programme(s) or project(s) registered either in Cercarbono, in other standards, or in national programmes.
- **Primary forests:** forest areas that have not been significantly altered by human activities and maintain their original ecological dynamics.
- **REDD+ activity:** climate change mitigation activity contemplated under the mechanism for Reducing Emissions from Deforestation and Forest Degradation and other actions in this sector (REDD+). In the context of Cercarbono, REDD+ activities included—consistent with paragraph 70 of Decision 1/CP.16 of the UNFCCC—are:
 - Reduction of GHG emissions due to Avoided Deforestation (**DEF** segment).
 - Reduction of GHG emissions due to Avoided Forest Degradation (**DEG** segment).
 - Carbon stocks enhancement (**CSE** segment).
 - Sustainable Forest Management (**SFM** segment).
- **Removal factor:** coefficient expressing the amount of GHG removed from the atmosphere or fixed in carbon pools per unit of activity data and per year. In forest lands, this factor is applied to activity data associated with carbon stocks increase processes such as above- and below-ground biomass growth, soil organic carbon accumulation, and natural regeneration. The removal factor shall accurately represent the biophysical dynamics of carbon accumulation in the selected carbon pools.
- **Secondary forests:** forest areas previously disturbed by anthropogenic activities and currently undergoing natural or assisted regeneration.
- **Segment:** in the context of climate change mitigation programmes or projects, area or group of areas dedicated to the same type of mitigation activity (DEF - DEG - SFM - CSE). In REDD+ projects, each segment may consist of one or more segment components and is located within one or more strata.
- **Segment component:** area or portions of areas (with the same activity, in this case REDD+) that form part of a segment (programme or project activities) within areas categorized as eligible strata (stable forest, non-stable forest, and non-forest) present in the programme or

project, which may be considered as a unit for purposes of analysis, calculations, inventories, monitoring, or management, among others.

- **Settlements:** includes all urbanized lands, including transport infrastructure (including fluvial and terrestrial access roads) and human settlements of any size, located within the total CCMP area.
- **Stable forest:** area that remains covered by natural (primary) forest from the beginning (t1) to the end (t2) of the historical, projection, and monitoring periods. It shall be demonstrated that the area has been natural forest for at least ten years prior to the CCMP start date, in compliance with the forest definition. In these areas, activities aimed at reducing deforestation and forest degradation shall be implemented.
- **Stratum:** in land-use sector climate change mitigation programmes or projects, the set of areas sharing specific common characteristics that allow classification of the types of eligible areas present in the CCMP.
- **Sustainable Forest Management:** use and administration of forests or forest areas in a manner and at a rate that maintains and/or enhances their biodiversity, productivity, regeneration capacity, vitality, and potential to fulfill relevant ecological, economic, and social functions at local, national, and global levels, without causing damage to other ecosystems. This activity (under the SFM segment) contributes to reducing GHG emissions by minimizing forest degradation and may contribute to maintaining carbon stocks and the role of forests as carbon sinks. It aims to avoid GHG emissions and enhance forest carbon stocks, generating a measurable and verifiable net benefit in areas classified as stable forest and non-stable forest.
- **Total CCMP area:** geographic extent under legal title² that encompasses both the eligible area (where programme or project activity(ies) are implemented) and the non-eligible area.

² The CCMP holder shall demonstrate that it holds the legal right to use and title over the area where the CCMP is established and/or the authority to manage GHG emissions, GHG emission reductions, and/or GHG removals generated therein.

Summary

This methodology has been developed considering official sources and international standards relevant to the REDD+ mechanism. It provides the necessary elements for the design and implementation of Climate Change Mitigation Programmes or Projects (CCMP) focused on reducing Greenhouse Gas (GHG) emissions from Avoided Deforestation (DEF), Avoided Forest Degradation (DEG), and forest utilization (through Sustainable Forest Management – SFM), as well as on GHG removals through restoration processes (through Carbon Stocks Enhancement – CSE). These activities are eligible for results-based payments or other similar compensation mechanisms due to the integration of climate change mitigation actions.

To this end, the CCMP shall be developed within the framework of the principles set out in **Section 2**, as well as those established in the current version of the *Cercarbono's Protocol for voluntary carbon certification*, complying with the objective and scope (**Section 3**) and the eligibility conditions established therein (**Section 4**). This methodology sets out the guidelines for establishing the baseline scenario (**Section 8**) and the project scenario (**Section 9**), including the GHG emission sources (also leakages **Section 9.3**) and carbon pools applicable to each scenario. It also provides the necessary means to estimate total GHG removals underpinning forest restoration activities or total GHG emission reductions resulting from project activities that avoid the conversion of forests to other land uses (**Section 10**), and establishes monitoring requirements consistent with the national (or subnational) scale within which the CCMP is implemented (**Section 17**).

This methodology presents an action framework adaptable to the implementation of REDD+ activities, recognizing, respecting, and supporting different modalities and scales of implementation (at the level of independent projects or programmes, or at the level of jurisdictional programmes—national and/or subnational), taking into account the autonomy, regulatory and technical efforts, and determinations adopted by countries in fulfilling their commitments under the UNFCCC and Article 6 of the Paris Agreement. In this context, the methodology is applied without prejudice to State sovereignty or to decisions adopted at the national or jurisdictional level regarding REDD+, land use, emissions accounting, or climate commitments, and is compatible with the regulatory, technical, and institutional frameworks defined by each country. Furthermore, it promotes respect for the governance of participating social groups and compliance with other voluntary carbon market requirements, such as permanence, safeguards compliance, and contribution to the Sustainable Development Goals (SDGs).

1 Introduction

Forests represent 31% of the planet's land surface, covering 4.06 billion hectares, distributed across the four principal climatic zones—boreal, temperate, subtropical, and tropical (Food and Agriculture Organization of the United Nations (FAO), 2024). Approximately one third of this area corresponds to primary forests, characterized by minimal human intervention and high levels of structural and functional biodiversity. These ecosystems harbor most terrestrial biodiversity, and their management generates multiple benefits. Sustainable forest management contributes significantly to inclusive economic growth, poverty reduction, and the strengthening of territorial governance.

Beyond these benefits, forests play a fundamental role in climate change mitigation by reducing Greenhouse Gas (GHG) emissions associated with deforestation and forest degradation processes, as well as by enhancing carbon sequestration through the increase of forest carbon stocks. These actions are framed within the strategy known as Reducing GHG Emissions from Deforestation, Forest Degradation, and other forest-related activities (REDD+).

According to FAO (2024), although deforestation rates have significantly declined in some countries, sustained and strengthened human action remains necessary to address its underlying drivers. Furthermore, activities such as ecological restoration and Sustainable Forest Management (SFM) must be promoted to address stressors including wildfires, pests, diseases, and other pressures arising from the growing demand for timber and non-timber forest products.

In this context, the REDD+ mechanism, adopted under the framework of the UNFCCC, constitutes an integral component of global climate change mitigation strategies. Through this mechanism, interventions implemented at the project or programme level—either independently or under jurisdictional programmes—led by communities, governments, companies, and/or civil society organizations, play a key role in channeling climate finance toward in situ mitigation actions. These interventions not only contribute to reducing emissions from deforestation and forest degradation, but also promote ecological restoration, Sustainable Forest Management, and Carbon Stocks Enhancement (CSE) in forest ecosystems, in alignment with the commitments assumed by countries.

For mitigation outcomes generated at the project or programme level (including jurisdictional programmes) under the REDD+ mechanism to be real, effective, and environmentally robust, they shall be quantified and verified through rigorous, consistent, and transparent methodologies and procedures. Such contributions shall be aligned with the guidance established by the UNFCCC, as well as with national strategies, policies, and commitments, including Climate Action Plans, Nationally Determined Contributions (NDCs), and other sectoral and territorial planning instruments. This coherence ensures that mitigation actions are internationally recognized and effectively contribute to global emission reduction goals.

In this regard, and to foster an enabling environment for mitigation, countries have mobilized financing through international cooperation agreements, bilateral mechanisms, and green taxation instruments, while simultaneously promoting the effective participation of all authorized

and relevant stakeholders in the formulation and implementation of REDD+ Climate Change Mitigation Programmes or Projects (CCMP).

Within this context, Cercarbono, through its carbon programme, has updated this methodology to facilitate access for communities, governments, companies, and individuals to the implementation of initiatives aimed at GHG removals or emission reductions through Climate Change Mitigation Programmes or Projects (CCMP) integrating REDD+ activities, for the generation of high environmental integrity “Carboncer” carbon credits.

This methodology has been designed considering the following characteristics:

- Compatibility with the official Measurement, Reporting, and Verification (MRV) systems of each country and jurisdiction, as applicable, promoting coherence between the project or jurisdictional programme level and national reporting to the UNFCCC.
- Robust technical foundation, based on academic and regulatory sources (both governmental and voluntary carbon market), scientific literature, expert input, and methodologies recognized by certification programmes, initiatives, and international agreements.
- Alignment with the guidelines established by the UNFCCC on REDD+, including decisions adopted by the Conference of the Parties (COP), and incorporation of robust mechanisms for managing leakage, non-permanence, and uncertainty risks in the quantification of baseline and project scenarios and in the mitigation outcomes of a REDD+ CCMP.
- Verifiability, in accordance with ISO 14064-3:2019, and in an articulated manner with Cercarbono’s regulatory and technical framework.

2 Principles

CCMPs applying this methodology shall comply with and make reference to the relevant principles and to the manner in which they have been applied, in accordance with the current version of **Cercarbono’s Protocol** and the guidelines of ISO 14064-2:2019. Nevertheless, consultation of this standard is recommended, as it contains expanded concepts, explanations, and useful criteria elements that complement the provisions established in **Cercarbono’s Protocol**. This ensures that the Cercarbono carbon credits (Carboncer) generated by these CCMPs are real, measured, permanent, additional, net of leakage, verified by an accredited independent third party, and free from double counting.

The principles listed herein constitute a specific application of the general programme principles to REDD+ CCMPs.

Reliability

Data, parameters, and models used to calculate, account for, and monitor GHG removals and GHG emission reductions shall originate from recognized sources and be technically and scientifically supported.

The methodology requires that results faithfully reflect the local reality of the CCMP. Therefore, priority should be given to data obtained through direct sampling, applying statistically robust data management and processing approaches to ensure representativeness. However,

acknowledging the logistical and economic limitations that some project proponents or developers may face, the use of complementary technologies—such as data derived from remote sensing methods (spectral or structural) and Geographic Information Systems (GIS)—is permitted for monitoring and spatial analysis purposes. These tools shall be coherently integrated with primary or secondary data, always ensuring statistical relevance and representativeness for the specific conditions of the CCMP area.

The methodology allows the combined use of different data sources, provided they meet traceability, consistency, and conservativeness requirements. In this regard, **Table 1** provides guidance on key information inputs required for quantifying baseline and project scenarios, specifying their origin (local or default) and the most appropriate scale of application (international, national, subnational, or local), as well as the possibility of estimation and comparison across levels, depending on their availability and quality.

Table 1. Type of information required for calculations in baseline and project scenarios

Measure	Local scale		Subnational*, national, or international scale	
	Information or process from representative forest inventories.	Remote sensing information specific to the project area**	Information or estimation process of representative forest inventories or with default values.	Default remote sensing information on the project area.
Dasometric variables: diameters, heights, and tree densities per area	X	X	X	X
Emission factors by type of carbon pool	X		X	
Emission factors other than changes in carbon stocks of the pools (from emission sources)	X		X	
Taxonomic variables of present species: scientific names of families, genera, and species	X			
Average wood densities	X		X	
Biomass expansion factors	X		X	
Allometric equations	X		X	

Measure	Local scale		Subnational*, national, or international scale	
	Information or process from representative forest inventories.	Remote sensing information specific to the project area**	Information or estimation process of representative forest inventories or with default values.	Default remote sensing information on the project area.
Stratum or area according to land-use planning		X		X
Topographic variables: slope, altitude, curvature, others		X		X
Property-level variables		X		X
Estimation of activity data: deforestation or forest degradation rates	X	X	X	X
Thematic validation of activity data in the project area		X		X

* This scale shall take precedence over the national scale, provided that the data used are supported by stronger technical evidence and their coherence with the country's official inputs—such as the National Forest Inventory (NFI) and the Forest Reference Emission Level / Forest Reference Level (FREL/FRL), as applicable—is ensured.

** Remote sensing technologies such as LiDAR, multispectral imagery, among others, enable the generation of high-resolution dasometric information. In such cases, this information may be considered equivalent to that derived from forest inventories, provided that it is complemented by a design consistent with *the Guidelines for the Use of Models in Baseline Carbon Quantification in the Land-Use Sector*.

Note: Items highlighted in bold are those subject to selection according to the FREL/FRL applied.

Once a local value has been estimated for a given variable (susceptible to measurement at broader scales), as illustrated in **Table 1**, the principles of consistency and conservativeness shall be applied, such that outlier data³ are adjusted to the ranges established by default values. This adjustment shall maintain methodological coherence, safeguard the integrity of the estimates, and be duly documented.

Comparable data may include parameters contained in the Good Practice Guidance (GPG) of the Intergovernmental Panel on Climate Change, preferably in its most recent version. However, the use of previous versions shall be accepted where their relevance and applicability to the CCMP context are technically justified. Likewise, other recognized scientific sources shall be considered valid, such as peer-reviewed academic journal articles and approved theses from accredited

³ Which form part of the population but are excluded, since, from a statistical standpoint, they may distort the precision of the results.

postgraduate programmes, provided they contribute technically sound and methodologically consistent information.

Conservativeness

Conservative assumptions, values, and procedures shall be applied to ensure that GHG emissions from the CCMP are not underestimated and that GHG removals and GHG emission reductions generated by the implementation of the CCMP are not overestimated.

Data, parameters, assumptions, and procedures applied in calculations shall be technically sound, consistent, transparent, and reproducible. Where multiple values are available for the same parameter within the same scale (local, regional, or national), the value representing the most conservative scenario in terms of climate benefit quantification shall be selected. The selection (or update) of each value shall be supported by best available practices, including traceability of its source, description of the method of determination, and a clear technical justification of its applicability and consistency with the CCMP context.

Consistency

Assumptions, data, values, and procedures used by the CCMP to calculate GHG emissions, GHG removals, and GHG emission reductions shall be technically valid, coherent, comparable, and reproducible.

For REDD+ activities, this principle applies at two levels:

- **Internal Consistency** (ISO 14064-2, Principle 4.4): This refers to temporal, spatial, and methodological coherence within the CCMP itself. It implies that estimation, reporting, and monitoring methods shall be uniform throughout both the historical and projection periods.

If data are missing for specific years, interpolation, extrapolation, surrogate data, or overlap methods shall be applied to maintain time-series consistency, in accordance with the 2003 IPCC Good Practice Guidance for LULUCF and consistent with the 2006 IPCC Guidelines for AFOLU, including relevant updates from the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. In addition:

- The total CCMP area shall remain constant throughout the historical period.
 - If the area changes, a full and consistent recalculation and update of the data series shall be performed.
 - The sum of all stratum areas (stable forest, non-stable forest, and non-forest) within the CCMP shall equal the total eligible area throughout both the historical period and the period in which results are estimated.
 - A mass balance shall exist between GHG emission sources, carbon pools, and the emissions reported in all years of the historical and projection periods.
 - Methods implemented for estimating emission factors and activity data shall correspond to the methods used for other years within both the historical and projection periods.
- **Exogenous Consistency:** This refers to the comparability and/or alignment across international, national, subnational, jurisdictional, and local measurement and reporting levels with respect to factors, assumptions, definitions, methods, and parameters used in the design and implementation of the CCMP. Compliance with this principle is essential to ensure

environmental integrity, prevent double counting, and guarantee acceptability of results within compliance markets (such as Article 6 of the Paris Agreement).

Exogenous Consistency Requirements

The CCMP baseline scenario shall be developed through a robust and technically grounded methodological reconstruction of the implementation area, in accordance with the principles defined in this methodology and based on the following priority references:

- The selected and officially approved FREL/FRL⁴ (national, subnational, or jurisdictional);
- Officially recognized jurisdictional programmes authorized by the national authority for the area in which the CCMP is implemented;
- ***Cercarbono’s Guidelines for using Models in Baseline Carbon Quantification in the Land Use Sector***;
- Notably, the National or Subnational MRV System, where operational, and formally adopted by the country.

Consistency and alignment shall be verified between:

- The forest definition adopted by the country, consistent with its commitments under the UN-FCCC;
- The correspondence between land-use types, cover classes, and forest classes applied in the CCMP and those reported in the FREL/FRL;
- Stratification, monitoring, and spatial validation methods, including sampling protocols, accuracy levels, and update intervals;
- Relevant carbon pools and emission sources (including leakage);
- Compatibility with the official MRV system regarding reporting formats, spatial and temporal aggregation levels, REDD+ activity coverage, and coherence with data reported to the National GHG Inventory or Nationally Determined Contributions (NDCs);
- Any other parameter used in the baseline scenario equations and corresponding results.

This consistency is particularly critical for CCMPs developed as part of jurisdictional programmes or sharing their area of influence, where full methodological compatibility must be ensured and overlaps, duplications, accounting errors, and reporting scale conflicts must be avoided. Accordingly, the CCMP shall consider provisions regarding geographic overlap in accordance with the ***Guidelines for Mapping Presentation and Analysis***⁵, as well as Cercarbono’s normative documents, in order to prevent duplication and safeguard the environmental integrity of reported results.

⁴ Within the framework of this methodology, one or more FREL/FRL may be used, provided that they are official and applicable to the temporal period of the REDD+ CCMP activity data. Where the project implementation or monitoring period overlaps with more than one applicable FREL/FRL in force, each corresponding FREL/FRL shall be applied to the temporal interval for which it is valid, through a methodologically consistent reconstruction at the project level.

In all cases, calculations shall be performed in accordance with the official procedures established in each applicable FREL/FRL, ensuring baseline consistency, additionality, and the environmental integrity of the CCMP. The use of multiple FREL/FRL shall not be considered a methodological change, provided that temporal and procedural coherence is maintained, and shall be transparently documented in the Monitoring Report and, where applicable, in the PDD (Project Description Document).

⁵ Available at www.cercarbono.com, section: Documentation.

In practice, consistency verification is based on ensuring that local (project or programme) estimates fall within the confidence interval (mean \pm standard error) of broader national or jurisdictional estimates. Priority sources for this comparison are, in order:

- FREL/FRL levels (national and subnational/jurisdictional);
- National or Subnational GHG Inventories;
- The current version of the IPCC Good Practice Guidance presenting lower uncertainty levels.

Where a local value falls outside the acceptable error range relative to the national or international reference, the official value (national or international) may be applied, provided a robust technical justification supports its representativeness and applicability.

Where a parameter lacks reported values at the national or international level, or lacks a defined uncertainty margin, it may be evaluated through technically supported alternative procedures, including the use of spatial or analytical inputs such as risk maps, provided their validity is ensured through traceability, transparency, consistency, and conservativeness principles. In such cases, documentation shall include the information sources used, adopted assumptions, and technical justifications supporting the estimate.

Under no circumstances shall the use of alternative procedures or risk maps imply modification of the applicable FREL/FRL or reference value, unless such inputs have been previously accepted or adopted by the competent national or jurisdictional authority.

Finally, where a discrepancy exists between a local value and an international value, but the local value is consistent with the recognized national or subnational reference (including jurisdictional schemes), the latter shall prevail, in coherence with the principle of national sovereignty over REDD+ methodological decisions and national climate accounting.

Transparency

Information used by the CCMP shall be genuine, clear, honest, justified, appropriate, understandable, truthful, timely, transparent, robust, sufficient, and auditable, relating to procedures, assumptions, processes, and inherent limitations of the CCMP, in order to guarantee the reliability and credibility of its GHG removal and emission reduction results.

Data, assumptions, and methods used for constructing the baseline scenario and corresponding monitoring of results shall be permanently and publicly available to allow reconstruction of any calculation contained in the CCMP Project Description Document (PDD). The availability of this information is fundamental to evaluating the aforementioned principles. At a minimum, such information shall include:

- Definitions used for quantifying activity data, emission factors, methods, and projection procedures;
- Methodologies, technological tools, statistical procedures, and information systems used for area identification, area estimation, area change detection, emission/removal factor determination, projections, and uncertainty calculation;
- Data used for area identification, area estimation, area change detection, emission factors (including leakage or reversals), removal factors, projections, and uncertainty calculation;

- Primary and secondary databases used, detailing their sources, dates, spatial and temporal aggregation levels, margins of error, and technical justification of applicability;
- Any other information necessary for data reconstruction.

3 Objective and Scope

This methodology is proprietary to Cercarbono’s carbon programme and has been developed for the formulation, implementation, and certification of Climate Change Mitigation Projects or Programmes under the REDD+ mechanism (REDD+ CCMP). It establishes the technical and procedural guidelines necessary for:

- The design and implementation of REDD+ CCMPs under three modalities (see **Section 3.2**);
- The identification and selection of the most appropriate baseline scenario;
- The determination of relevant GHG emission sources and applicable carbon pools;
- The quantification, monitoring, and reporting of net GHG emissions, reductions, or removals associated with the CCMP;
- The implementation of social and environmental safeguards compliance measures;
- The structuring of the technical documentation required for validation and verification processes;
- The registration, verification, and issuance of carbon credits (Carboncer) under the certification programme.

This methodology is further characterized by the following elements:

- It defines a procedure for identifying and selecting the baseline scenario⁶, ensuring coherence with the Forest Reference Emission Levels / Forest Reference Levels (FREL/FRL) submitted to the UNFCCC or officially approved at the jurisdictional level by the country in which the REDD+ CCMP is implemented.
- It integrates recommendations based on the guiding principles of the Cercarbono programme (such as completeness, reliability, conservativeness, consistency, evidence, accuracy, and transparency) to ensure that the design and implementation of the REDD+ CCMP maintain high standards of environmental integrity.
- It is aligned with the international regulatory framework on mitigation, including decisions adopted by the Conference of the Parties (COP) to the UNFCCC, the Paris Agreement (particularly the Article 6.4 mechanism), the Warsaw Framework for REDD+, and the Cancun Safeguards⁷, among other relevant instruments.
- In jurisdictional programmes, it is intended for use by titleholders or authorized entities (governments or institutions) seeking to ensure that their accounting is consistent with the applicable FREL/FRL recognized by the country in which the REDD+ CCMP is implemented. Such consistency shall consider the REDD+ activities, carbon pools, and GHG emission sources included in those FREL/FRL, as well as any that may be additionally incorporated, provided they are aligned with the criteria and provisions established in this methodology and are not subject to regulatory restrictions.

⁶ Supported by the *Guidelines for using Models in Baseline Carbon Quantification in the Land Use Sector* issued by Cercarbono.

⁷ As established in the current version of the *Safeguarding Principles and Procedures of Cercarbono Certification Programme*.

- CCMPs shall calculate GHG removals or GHG emission reductions based on the 100-year Global Warming Potentials (GWP) from the IPCC Assessment Report adopted by the host country in the submission of its Nationally Determined Contributions (NDCs), taking into account the ***Guidance on the Use of Global Warming Potential Values (GWP)***⁸ values in its current version, according to the historical period established by the CCMP.
- Mitigation outcomes resulting from GHG removals or GHG emission reductions may be considered within the host country’s NDC (see provisions on this matter in the current version of ***Cercarbono’s Protocol*** for voluntary carbon certification).

This methodology incorporates the concept of “**Harmonization**”⁹, referring to the framework under which REDD+ projects may be integrated (nested¹⁰) within equivalent jurisdictional and national programmes through tools such as methodological reconstruction, area exclusion, and consistency requirements. This ensures that the design and implementation of REDD+ activities under the modality of CCMPs integrated within a jurisdictional programme are carried out in compliance with safeguards and with adequate leakage management, articulated with the elements established in the Warsaw Framework for REDD+, including:

- Applicable subnational/national accounting;
- National/jurisdictional REDD+ strategy or action plan;
- National Forest Monitoring Systems (NFMS);
- Safeguards Information Systems (SIS); and
- Nationally Determined Contributions (NDCs) and national reporting.

Furthermore, this methodology operationalizes the concept of consistency (see **Section 2**) and recommends steps for methodological reconstruction, in alignment with regulations governing established and operational MRV systems in different countries.

3.1 Scope

This methodology is specific and applicable to the Cercarbono certification programme and is addressed to any natural or legal person, public or private, intending to establish a REDD+ CCMP in order to access results-based payments or similar compensation mechanisms, as well as to contribute to international climate change mitigation within the framework of voluntary projects, as a result of actions generating GHG emission reductions or GHG removals through REDD+ activities.

This methodology is applicable to CCMPs located in countries that have submitted national or subnational¹¹ Forest Reference Emission Levels or Forest Reference Levels (FREL/FRL) to the

⁸ Available at www.cercarbono.com, section: Documentation.

⁹ In this manner, mitigation results generated at different scales are consistent, transparent, and comparable, in accordance with Decisions 13/CP.19 and 14/CP.19 of the UNFCCC (United Nations Framework Convention on Climate Change).

¹⁰ Nesting, supported by harmonization, facilitates vertical integration across scales, enabling results from independent or local CCMPs (Climate Change Mitigation Programme or Project) to be incorporated in an orderly and verifiable manner into national and jurisdictional mitigation commitments. This integration acknowledges that CCMPs may coexist independently, provided that they are linked to national or jurisdictional efforts, thereby contributing both to market credibility and to the consolidation of each country’s climate strategies.

¹¹ This includes approved jurisdictional programmes.

UNFCCC¹², as well as in jurisdictions that have developed officially approved subnational FREL/FRL applicable within their scope of competence. Such FREL/FRL shall maintain consistency with:

- National GHG Inventories;
- Relevant GHG emission sources and carbon pools;
- The REDD+ activities considered in the respective FREL/FRL;
- The measures and actions proposed by each country in its Nationally Determined Contributions (NDCs) under the Paris Agreement.

GHG emission reduction or GHG removal results from REDD+ activities that a CCMP intends to achieve through its implementation shall be consistent with the national or subnational scale. Complementary GHG emission reductions or GHG removals from REDD+ activities (such as carbon pools and emission sources not included in the referenced FREL/FRL) to those established in a national or subnational context, may be considered mitigation outcomes, provided that applicable regulations do not prohibit their inclusion.

The CCMP shall provide an annual disaggregation of mitigation outcomes derived from each REDD+ activity, specifying those that may contribute to NDCs¹³. This disaggregation shall be supported in the certification report and recorded in the registry platform, and shall be taken into account by Cercarbono for determining and tracking the final use of credits.

This methodology ensures consistency between the REDD+ CCMP baseline scenario and the selected FREL/FRL. It is also consistent with ISO 14064-2:2019 and articulated with Cercarbono's regulatory framework, in accordance with applicable international commitments and guidance.

In this regard, and in accordance with the Cancun Agreements adopted under the UNFCCC¹⁴ through Decision 1/CP.16, the following REDD+ activities were defined:

- 1) Reduction of GHG emissions from Avoided Deforestation;
- 2) Reduction of GHG emissions from Avoided Forest Degradation;
- 3) Conservation of forest Carbon Stocks;
- 4) Sustainable Forest Management; and
- 5) Enhancement of forest Carbon Stocks.

In line with the above, this methodology includes four of the REDD+ activities established in the Cancun Agreements, considering the following characteristics and operational definitions for their application:

¹² The UNFCCC requested countries to develop the following four elements to undertake REDD+ activities in a manner that fits their national processes and priorities: 1) National strategy or action plan (1/CP.16 15/CP.19); 2) National forest monitoring system (4/CP.15 1/CP.16 11/CP.19); 3) Safeguards information system (12/CP.17, 1/CP.16, 12/CP.19); and 4) FREL/FRL (4/CP.15, 1/CP.16, 12/CP.17, 13/CP.19).

¹³ This methodology defines exclusively the technical guidelines for quantifying REDD+ results. The allocation, use, or potential claim of such results for NDCs (Nationally Determined Contributions), results-based payments, or other mechanisms shall be governed by the provisions of the applicable certification standard, the corresponding registry, and relevant national or jurisdictional frameworks, ensuring the avoidance of double counting or double use.

¹⁴ <https://unfccc.int>.

- a) **Reduction of GHG emissions from Avoided Deforestation (DEF):** This corresponds to the avoidance of GHG emissions resulting from deforestation processes (understood as the conversion of forest land to non-forest land). Quantification of this activity is based on the sum of the differences between gross annual deforestation emissions projected in the baseline scenario and emissions observed during the results period. This activity may only occur on areas classified as stable forest.
- b) **Reduction of GHG emissions from Avoided Forest Degradation (DEG):** This corresponds to the avoidance of GHG emissions that would have resulted from forest degradation, defined as the persistent reduction of carbon content in areas that remain classified as forest. Quantification corresponds to the sum of the differences between gross annual degradation emissions projected in the baseline scenario and actual emissions during the results period. Forest degradation may result from fragmentation due to wildfires¹⁵, fuelwood extraction (firewood and charcoal production), grazing, or the establishment of agricultural or similar activities that do not result in land-use conversion. This activity may only occur on areas classified as stable forest¹⁶.
- c) **GHG removals from Carbon Stocks Enhancement (CSE):** This corresponds to the implementation of forest restoration processes resulting in an increase in carbon stocks levels relative to the baseline scenario. Quantification of GHG removals is based on the positive difference between carbon stocks estimated under the project scenario and those under the baseline scenario during the results period. This activity may only occur on areas classified as non-stable forest or non-forest.
- d) **Reduction of GHG emissions from Sustainable Forest Management (SFM):** This corresponds to the planned application of forest management practices to regulate and optimize timber extraction in order to avoid GHG emissions associated with forest degradation. This activity includes direct or indirect interventions that reduce the intensity and impact of selective logging, such as rational trail design, improvements in sawmilling processes, and proper management of logging residues. Quantification is based on the difference between gross degradation emissions projected in the baseline scenario (under conventional or unregulated management) and emissions observed during the results period. Implementation of this activity requires that the area be subject to an authorized forest harvesting regime, supported by previously approved forest management plans serving as the reference for planning, execution, and monitoring of CCMP actions. This activity may occur only on areas classified as stable forest and non-stable forest.

DEG activities are implemented in areas classified as stable forest, while SFM activities may be implemented in areas classified as either stable forest or non-stable forest. Both respond to different spatial, functional, and operational contexts and therefore cannot overlap within the CCMP. DEG activities are oriented toward avoiding unplanned degrading impacts, while SFM

¹⁵ Wildfires shall be considered only where they occur in primary or secondary forests.

¹⁶ Where the national or subnational FREL/FRL (including those derived from a jurisdictional approach) reports forest degradation, the significance threshold for degradation applied by the CCMP shall be aligned with the provisions established in such FREL/FRL. Where no such threshold is defined, a technical justification shall be provided.

activities seek to improve the efficiency of planned timber harvesting within a sustainable forest management context.

DEG and SFM activities are implemented on differentiated forest areas, according to the dominant land use and the carbon loss process to be avoided. SFM applies to areas with planned and authorized timber harvesting¹⁷—both in stable and non-stable forest—whereas DEG is implemented in areas without productive intervention and exposed to unplanned degradation processes. Accordingly, these activities respond to distinct spatial, functional, and operational contexts and shall not overlap within the CCMP.

Based on the foregoing, REDD+ CCMPs may be formulated by selecting the specific REDD+ activities to be implemented and monitored. Such delimitation ensures environmental integrity and traceability of the mitigation outcomes achieved. Below is a summary table of REDD+ activities that may be included:

Table 2. REDD+ activities eligible for inclusion by the CCMP developer

REDD+ Activity	Included	Explanation
Avoided Deforestation (DEF)	Optional	Comprises the loss of forest area that results in a land-use change. The minimum threshold to define this conversion shall be aligned with the national definition of deforestation and with the criteria established in the country's FREL/FRL, or those of the competent jurisdiction (in the case of jurisdictional REDD+). In the absence of a specific definition, the CCMP must justify the threshold used based on official or scientific sources ¹⁸ . The estimation of deforestation is carried out during the projection period under the following assumptions: 1) Baseline scenario: Projected deforestation that would have occurred in the absence of project activities, based on the historical trend of forest loss calculated during the historical period. 2) Project scenario: Actual emissions from deforestation occurring in the CCMP area during the results period are quantified and compared with the projections of the baseline scenario in order to determine the avoided emissions attributable to its implementation.
Avoided Forest Degradation (DEG)	Optional	Comprises the persistent decrease in carbon content at specific points of a stable forest area without implying a land-use change. Degradation may be continuous or punctual, of variable intensity, and partially and irregularly affect aboveground biomass or carbon pools in the intervened area. The characterization and quantification of degradation shall be carried out in accordance with the criteria and thresholds established by the country in its FREL/FRL or other applicable official documents or regulations. In the absence thereof, the CCMP must justify the criterion or threshold used based on official or scientific sources. If this activity is included, it shall be estimated during the projection period under the following assumptions: 1) Baseline scenario: Projected forest degradation that would have occurred in the absence of project activities, based on the historical trend

¹⁷ Provided that it is lawful under the applicable national regulatory framework and is planned and regulated through technical instruments formally approved by the competent authority.

¹⁸ Provided that it complies with the requirements established under the principle of reliability (see **Section 2**).

REDD+ Activity	Included	Explanation
		<p>observed during the historical period, considering the frequency, intensity, and spatial patterns of recorded degrading events.</p> <p>2) Project scenario: Actual emissions from forest degradation occurring in the CCMP area during the results period are quantified and compared with the projections established in the baseline scenario, in order to estimate the avoided emissions attributable to the implementation of the project.</p>
<p>Carbon Stocks Enhancement (CSE)</p>	<p>Optional</p>	<p>Comprises the increase in carbon content stored in carbon pools within non-stable forest and non-forest areas—i.e., areas that historically have not maintained continuous forest cover or have been subject to degradation or conversion to other land uses.</p> <p>Its inclusion depends on the technical, operational, and administrative capacity of the CCMP to design, implement, and monitor interventions that result in a measurable and attributable increase in carbon stocks.</p> <p>If this activity is included, it shall be estimated during the projection period under the following assumptions:</p> <p>1) Baseline scenario: Projected evolution of carbon stocks in the absence of project activities, considering the initial condition of carbon pools and their natural dynamics without planned intervention.</p> <p>2) Project scenario: Change in carbon stocks is quantified as a direct result of CCMP activities and compared to the baseline scenario, in order to estimate the net removals attributable to the CCMP.</p>
<p>Sustainable Forest Management (SFM)</p>	<p>Optional</p>	<p>Refers to the reduction of GHG emissions associated with timber harvesting practices which, in the absence of improved management, would generate degradation in stable and non-stable forest areas. This activity is based on the comparison between emissions derived from conventional management (baseline scenario) and those generated under a Sustainable Forest Management (SFM) scheme implemented by the CCMP.</p> <p>Its inclusion depends on the technical, operational, and administrative capacity of the CCMP to identify, plan, implement, and monitor management improvements in a differentiated and verifiable manner. This differentiation shall be supported by empirical evidence from the historical period, including extraction records, harvesting intensity, and associated degradation patterns.</p> <p>If this activity is included, it shall be estimated during the projection period under the following assumptions:</p> <p>1) Baseline scenario: Projection of the continuation of conventional or unregulated forest management observed during the historical period, characterized by a progressive decrease in carbon content in forest carbon pools due to inefficient or high-impact extraction techniques. This projection shall be based on historical harvesting patterns, extraction intensity, and documented degradation trends in the reference area.</p> <p>2) Project scenario: Actual emissions resulting from implementation of Sustainable Forest Management are quantified and compared with baseline projections in order to estimate the avoided emissions attributable to the CCMP. Under this scenario, carbon content in the carbon pools remains stable or exhibits a significantly lower decrease than</p>

REDD+ Activity	Included	Explanation
		that projected in the absence of the improvements introduced by the CCMP.
Conservation of Forest Carbon Stocks	No	This activity takes place in stable forest areas that remain so during the historical period, where carbon content remains stable or increases naturally during the projection period. Under this methodology, this REDD+ activity is not considered.

Note: Once the CCMP area has been classified into stable forest, non-stable forest, and non-forest, the areas must be segmented according to the REDD+ activities to be implemented, ensuring mutual spatial and temporal exclusion among them. Consequently, areas projected for Avoided Deforestation may not coincide with those assigned to Avoided Forest Degradation, Carbon stocks Enhancement, or Sustainable Forest Management. A CCMP must include at least one REDD+ activity defined in accordance with this segmentation.

Areas within a given CCMP that generate GHG mitigation under this REDD+ methodology shall not simultaneously participate in other GHG mitigation initiatives resulting in the issuance of credits or other climate instruments, in order to prevent situations of double counting.

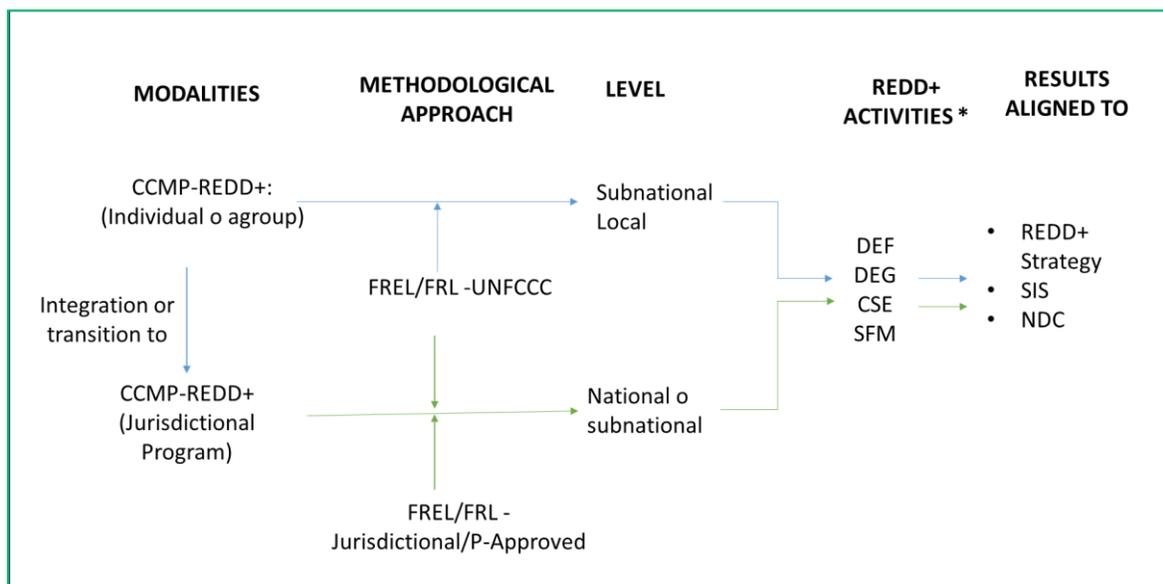
This methodology defines the technical framework for the quantification and monitoring of REDD+ results. Validation, verification, registration, and the potential issuance of carbon units shall be governed by Cercarbono’s regulatory provisions and the applicable registry system.

3.2 Modalities for the Implementation of REDD+

Cercarbono allows flexible implementation of REDD+ CCMPs, which may be developed under the following modalities (see **Figure 1**):

- a) As individual or grouped CCMPs operating independently and in consistency with the FREL/FRL submitted to the UNFCCC.
- b) Within jurisdictional programmes approved by the competent national or subnational authority, with FREL/FRL submitted to the UNFCCC or officially approved at national level.
- c) As CCMPs (individual or grouped) that are integrated into a jurisdictional programme—either from their initial formulation or through subsequent transition—provided that the criteria set out in **Section 3.2.3** are fulfilled.

Figure 1. Harmonization framework for REDD+ CCMPs implementation of



In all cases, CCMPs shall maintain methodological consistency with the adopted baseline and with the REDD+ activities defined in the FREL/FRL submitted to the UNFCCC or, as applicable, those approved within jurisdictional programmes authorized by the competent national or subnational authority. Additionally, CCMPs shall comply with the UNFCCC REDD+ mechanism guidelines and with the requirements established in this methodology regarding monitoring, leakage management, performance, and safeguards compliance (including effective participation and benefit sharing), thereby ensuring compliance with the minimum elements of the Warsaw Framework for REDD+, as previously indicated. Furthermore, CCMPs shall ensure appropriate articulation with National GHG Inventories and with the host country’s Nationally Determined Contributions (NDCs).

3.2.1 CCMPs Consistent with FREL/FRL Submitted to the UNFCCC

CCMPs (individual and/or grouped) implemented under this modality shall be aligned with the applicable regulatory framework of the country in which the REDD+ CCMP is implemented. In this regard, the following shall be considered:

- The provisions established in the FREL/FRL submitted to the UNFCCC, including baseline establishment (historical or reference period, REDD+ activities considered, selected carbon pools, and results period).
- Alignment of data, parameters, and monitoring methods with available National Forest Monitoring Systems (NFMS).
- Compliance with the requirements established in **Section 3.2** applicable to this modality.

Where activities other than those contemplated in the FREL/FRL are included, they may be considered provided that no regulatory or legal restrictions prohibit their inclusion. In such cases, these activities shall be identified, analyzed, and their results accounted for independently, in accordance with the provisions established in this methodology.

Under this modality, the holder¹⁹ shall determine whether the mitigation outcomes achieved are to be allocated to the international voluntary carbon market, to a national market, and/or whether they constitute compliance-grade units eligible for international transfer pursuant to Article 6 of the Paris Agreement²⁰ toward the achievement of NDCs or related compensation mechanisms. In each case, applicable implementation and documentation requirements shall be fulfilled.

3.2.2 CCMPs under the Framework of Jurisdictional REDD+ Programmes

This modality corresponds to the implementation of CCMPs within the context of a jurisdictional REDD+ programme developed at the national or subnational level (departmental, regional, provincial, or other political-administrative division recognized by the country in which the CCMP is implemented), led by competent national or subnational²¹ government authorities legally empowered to support or implement such programmes²², contributing to sustainable development and the improvement of livelihoods within legally established territories.

Jurisdictional REDD+ programmes shall comply with the following guidelines:

- Be aligned with decisions adopted by the Conference of the Parties (COP) to the UNFCCC and with the requirements of the Warsaw Framework for REDD+.
- Demonstrate compliance with applicable national legislation, including provisions related to climate change, environmental governance, land tenure, and collective rights.
- Demonstrate legal and administrative competence²³ (with explicit regulatory backing) to implement a jurisdictional REDD+ programme, including the capacity to engage in commercial or contractual activities, as applicable.
- Adopt a FREL/FRL submitted to the UNFCCC²⁴ or, where applicable, adopt a jurisdictional FREL/FRL²⁵ approved by the competent national (or subnational) authority and consistent with the national carbon accounting system.
- Align with the National REDD+ Strategy, National Action Plan, or, where applicable, the jurisdictional REDD+ strategy approved for the relevant territory or administrative jurisdiction. The programme shall also identify and describe the technical, institutional, and operational

¹⁹ The holder is the natural or legal person, whether public or private, provided that they hold the legal rights over the GHG emission reductions or removals generated. Carbon tenure and rights over environmental benefits within the CCMP area shall be demonstrated (e.g., land titles, agreements with communities, among others).

²⁰ Where such results are internationally transferred under Article 6, the corresponding adjustments shall be applied in accordance with UNFCCC (United Nations Framework Convention on Climate Change) guidance and applicable national provisions.

²¹ These entities are key to the implementation of this modality, given the role they typically play in forest areas (e.g., classification, administration, governance), as well as their influence or geographic proximity to social groups (including indigenous communities) and other actors responsible for land management or use.

²² At the jurisdictional level, legal frameworks may be created and/or approved to enable implementation of this modality, integrating relevant and binding stakeholders as appropriate.

²³ Where a jurisdictional programme does not intend to generate or claim carbon credits under this modality, it may support the authorization of the areas or projects included within its scope so that their respective holders may manage the generation and free commercialization of carbon credits.

²⁴ This is particularly relevant where no jurisdictional-level FREL/FRL exists.

²⁵ For this purpose, the programme shall take into account the provisions established in the relevant sections of this methodology.

capacities of the governmental entities²⁶ responsible for its implementation, including roles, competencies, and inter-institutional coordination mechanisms.

- Clearly define the ownership²⁷ (titularity) of the rights to manage the carbon credits generated, through legally valid instruments or schemes such as property titles, acquisition, transfer, or assignment of rights over such management, or other legally valid mechanisms within the applicable jurisdiction. This definition shall specify whether ownership corresponds to the jurisdictional programme, to each participating public and private²⁸ actor (particularly where social groups such as Indigenous communities or others are involved), whether centralized or shared ownership arrangements are established²⁹, or whether a central entity³⁰ independent from participating parties is designated. All of the above shall be carried out under due diligence and consensus, in line with compliance with the Safeguards Principles and Procedures of Cercarbono’s certification programme, including Free, Prior and Informed Consent (FPIC), benefit-sharing plans, among others.
- Consider costs associated with the design, operation, and monitoring of the jurisdictional programme as part of its financial structure, including long-term sustainability mechanisms.
- The implementation scale of the jurisdictional programme may involve multiple land areas, owners, or administrators within one or several jurisdictions³¹ (provided they have competence³² and approval therein). However, the REDD+ CCMP implementation area shall be equal to or smaller than the administrative area of the jurisdiction³³ (national or subnational) and shall not overlap with an independent and/or separate CCMP from the jurisdictional programme.
- The holder of the mitigation outcomes generated by the jurisdictional programme may determine their destination, in a manner similar to that established in **Section 3.2.1**

3.2.3 CCMPs Integrated into a Jurisdictional Programme

CCMPs (individual or grouped) may be integrated into or transition toward a jurisdictional REDD+ programme approved by the competent national or subnational authority. To do so, they shall comply with a set of technical and operational requirements ensuring methodological, accounting, and institutional coherence with the respective programme.

Alignment of the CCMP baseline with the jurisdictional programme may:

- **Be achieved without substantial modifications**, if the following conditions are met:
 - The FREL/FRL used by the CCMP is the same as that approved before the UNFCCC;
 - The REDD+ activities addressed are equivalent to those of the jurisdictional programme;

²⁶ At the subnational government level, it shall demonstrate the degree of effective decentralization of powers and decision-making authority, as well as compliance with national REDD+ regulations and other applicable public financing and budgetary legislation.

²⁷ This shall be in line with compliance with **Section 4.4** of this methodology.

²⁸ It shall also include formal legitimacy of this type of actor to participate in the jurisdictional programme.

²⁹ A legal act shall establish legal authority over the jurisdictional programme.

³⁰ Under a constitution agreed upon and regulated by the parties participating in the jurisdictional programme.

³¹ In the case of a national jurisdictional program.

³² To this end, you must provide evidence that the participants (public or private) in the CCMP-REDD+ approve the jurisdictional program.

³³ In the subnational case: state, province, region, among others.

- The same carbon pools have been selected;
 - The CCMP GHG accounting system is integrated with or compatible with the jurisdictional accounting system.
- **Require technical redesign of the CCMP, if differences exist in:**
- The FREL/FRL used (whether developed by the jurisdictional programme and nationally approved, or different from that originally used by the CCMP);
 - The selected REDD+ activities;
 - The carbon pools considered;
 - The CCMP accounting system not being harmonized with that of the jurisdictional programme.

In such cases, the CCMP holder shall agree with the government or managing entity³⁴ of the jurisdictional programme on the appropriate manner of aligning the baseline and other technical elements.

Integration may be subject to a validation process required by the jurisdictional programme. Furthermore, aspects such as leakage assessment shall thereafter be addressed under the broader jurisdictional programme approach.

Any CCMP seeking integration into or transition toward a jurisdictional programme shall demonstrate, at a minimum, the following:

- **Methodological consistency:** The CCMP shall demonstrate that its baseline, carbon pools, emission sources, quantification methodologies, and REDD+ activities are aligned with the parameters established under the corresponding jurisdictional programme. In case of methodological divergences between the CCMP and the jurisdictional programme, a transparent technical adjustment or conversion shall be applied to harmonize approaches without generating overestimation or double counting.
- **Traceability of prior results:** The CCMP shall provide documented evidence of issued credits and of the REDD+ areas or activities that generated such outcomes. A reconciliation mechanism shall be applied to prevent results already credited at the CCMP level from being re-counted or claimed at the jurisdictional level.
- **Spatial and temporal integrity:** The CCMP areas shall be clearly delineated and georeferenced within the territory covered by the jurisdictional programme. It shall be demonstrated that no spatial or temporal overlaps exist with other jurisdictional REDD+ activities that would compromise the uniqueness of the mitigation outcome.
- **Institutional alignment:** The CCMP holder shall obtain explicit consent from the jurisdictional programme and/or the responsible national or subnational authority. An operational agreement shall be established defining roles, responsibilities, and coordinated reporting mechanisms between the CCMP and the jurisdictional programme.

³⁴ Public, mixed, or delegated institution responsible for coordinating, administering, and reporting on programme implementation at the national or subnational level.

Cercarbono may issue complementary guidance or require additional documentation to support and validate the transition of a CCMP toward a jurisdictional programme. Likewise, Cercarbono may incorporate, in whole or in part, technical and regulatory guidelines established and made available by a jurisdictional programme, provided that these guarantee environmental integrity, traceability of results, and consistency with national regulatory and methodological frameworks.

The holder³⁵ of mitigation outcomes generated under the jurisdictional programme may determine their destination, in a manner similar to that established in **Section 3.2.1**.

3.3 Technical and Programme Compliance

The following documents forming part of Cercarbono's regulatory framework³⁶, in their current versions, are complementary and indispensable for the application of this methodology:

- Cercarbono's Protocol for Voluntary Carbon Certification.
- Procedures of the Cercarbono Certification Programme.
- Terms and definitions of the Cercarbono voluntary carbon certification programme of Cercarbono.
- Tool to Demonstrate Additionality of climate change mitigation initiatives.
- Cercarbono Guidelines for the Management of Permanence and Reversal Risk in Climate Change Mitigation Initiatives in the Land-Use Sector.
- Tool for the Assessment of Non-Permanence Risk and Determination of Carbon Buffer in Land-Use Sector Initiatives.
- Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals.
- Guidelines for Mapping Presentation and Analysis.
- Safeguarding Principles and Procedures of Cercarbono's Certification Programme.
- Guidelines for using Models in Baseline Carbon Quantification in the Land Use Sector.
- Conceptual Framework on Spatial Risk Analysis of Deforestation and Forest Degradation in REDD+ Activities.

As well as the following methodological tools under the Clean Development Mechanism (CDM)³⁷:

- *AR-Tool 12 - Methodological tool: Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities.*
- *AR-Tool 14 - Methodological tool: Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.*

³⁵ The initial CCMP holder may retain ownership of the credits generated within its area of intervention or may authorize the subnational or national government, the coordinating body, or the managing entity responsible for the programme to act as the credit holder. In both cases, this shall only occur where a formal agreement exists with the jurisdictional programme authority and where technical and accounting alignment requirements have been fulfilled (e.g., baseline reconciliation and avoidance of double counting risks).

For this purpose, an integration agreement—typically with the jurisdictional authority—shall be required, formally recognizing the project's rights to issue credits within the framework of the programme.

³⁶ Documents available at www.cercarbono.com, section: Documentation. Additionally, the CCMP shall incorporate new technical tools developed by Cercarbono for the land-use sector that were not previously listed and that become available during subsequent CCMP verification events.

³⁷ Or those that replace them under the mechanism of Article 6.4 or complement them under the Cercarbono regulatory framework. This comment applies to any reference to any CDM methodological document mentioned throughout this document.

- *AR-Tool 15 - Methodological tool: Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity.*
- *AR-Tool 16 - Methodological tool: Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities.*
- *AR-Tool - Annex 16: Estimation of direct nitrous oxide emission from nitrogen fertilization.*

3.4 Compliance with Applicable Legal Provisions

Within the framework of this methodology, the REDD+ CCMP shall fully consider and comply with all applicable legislation, regulations, measures, and circumstances (national, regional or jurisdictional, local, social, environmental, technological, among others) relevant to the implementation of its activities, supported by robust and verifiable evidence. In this regard, the CCMP shall consider the provisions established in the current version of the ***Safeguarding Principles and Procedures of Cercarbono Certification Programme***.

The REDD+ CCMP holder shall demonstrate that the areas where the CCMP is implemented possess the required licenses, permits, or environmental management plans, and comply with all applicable legal provisions or regulations according to the type of activity, implementation approach, and technology used within the competent jurisdiction, prior to the initiation of validation and verification activities.

GHG emission reductions and/or GHG removals achieved by the CCMP shall, where applicable, be registered in the national registry of the country in which it is implemented (provided they correspond to the GHG mitigation commitments assumed by that country), in alignment with international Measurement, Reporting, and Verification (MRV) efforts for climate change mitigation initiatives.

3.5 Compliance with General Provisions Established by the UNFCCC in Relation to the REDD+ Mechanism

In alignment with the elements established by the UNFCCC for the implementation of the REDD+ mechanism, Cercarbono has developed tools and systems to ensure compliance with fundamental information, monitoring, and transparency requirements.

In this regard, Cercarbono has developed an internal-use cartographic monitoring tool that enables real-time tracking of eligible areas registered and verified for each programme or project activity (including REDD+) from which climate change mitigation outcomes are generated. Through this tool, Cercarbono shall conduct ongoing cartographic monitoring of active CCMPs. In the event of updates or developments requiring action, reports shall be generated and addressed to the respective holders.

Additionally, through its registry platform, Cercarbono stores and publishes technical and administrative information for each registered CCMP, including information on:

- Compliance with social and environmental safeguards at the level of each registered CCMP;
- Contributions to the Sustainable Development Goals (SDGs) of each CCMP, as reported and validated.

These components strengthen traceability and transparency of the mitigation outcomes achieved, enabling effective articulation with the elements that countries must develop—or have already developed—to comply with the REDD+ mechanism. Cercarbono shall update these systems in accordance with regulatory requirements of the country where the CCMP is implemented or with the requirements of the voluntary carbon market.

4 Eligibility and Inclusion Requirements

4.1 Preliminary Assessment

The preliminary assessment of the CCMP aims to provide a guiding framework for the initial characterization of the territorial, socioeconomic, and environmental context, in order to substantiate the feasibility of the intervention and guide the selection of REDD+ activities. This assessment shall include an initial review of activity data relevant to the baseline, particularly those associated with historical deforestation³⁸ and forest degradation. To this end, the CCMP holder shall:

- Align, where applicable, with the National or jurisdictional REDD+ Strategy or Action Plan of the country in which the CCMP is implemented.
- Compile relevant secondary information on historical deforestation and forest degradation dynamics, as well as on socioeconomic variables related to agents and underlying drivers of land-use change, in order to identify stable forest areas with potential for implementing DEF, DEG, or SFM activities.
- Analyze available activity data at local, subnational, or national scale, as applicable, to establish historical trends of carbon loss or gain across different carbon pools.
- Identify non-stable forest and non-forest areas with potential for implementing CSE activities, as well as stable and non-stable forest areas with a history of non-sustainable timber harvesting where SFM implementation may be viable, supported by secondary information analysis and participatory processes³⁹ (such as interviews, workshops, and community mapping).
- Assess the technical, institutional, and economic feasibility of the REDD+ CCMP, evaluating the potential to modify historical deforestation or degradation trends, the level of support from local stakeholders and governance structures, and the potential carbon credit revenues relative to estimated CCMP costs.
- Determine land tenure and land administration arrangements and propose a preliminary stakeholder engagement scheme between holders and/or entities responsible for CCMP implementation, including communication and implementation of the benefit-sharing plan, where applicable.

The preliminary assessment shall conclude with the identification of eligible REDD+ activities to be implemented by the CCMP, as well as an initial proposal for geospatial delimitation of the areas involved (project area, reference area, and leakage potential area).

³⁸ Without restricting your analysis to exclusively unplanned events.

³⁹ In line with compliance with the provisions of the Cercarbono Safeguards document.

4.1.1 Analysis of Agents and Drivers of Forest Loss

The analysis of agents and drivers of forest loss builds upon the preliminary assessment (**Section 4.1**) and shall be supported by the National or jurisdictional REDD+ Strategy or Action Plan of the country in which the CCMP is implemented, where available.

Additionally, the analysis shall be grounded in the identification of spatial patterns of pressure on land use, in accordance with the principles and criteria established in the ***Conceptual Framework on Spatial Risk Analysis of Deforestation and Forest Degradation in REDD+ Activities***.

Risk maps developed under this Framework shall be used as spatial evidence to support the plausibility and localization of identified agents and drivers, without affecting the magnitude of estimated emissions or the quantitative establishment of the baseline.

This analysis shall consider both agents associated with non-sustainable forest use and those with potential to promote sustainable management or leverage conservation processes, integrating sociocultural aspects, cultural preservation, and the livelihoods of social groups present in the area.

The process is iterative and shall be updated as more reliable and current information becomes available. In its first version, the analysis shall provide inputs for:

- Initial formulation of the REDD+ activity portfolio;
- Spatial delimitation of CCMP areas;
- Temporal delimitation of the CCMP;
- Preliminary definition of the location of REDD+ activities.

Subsequent iterations are recommended to be conducted annually, in accordance with the circumstances of the CCMP. This means that the first diagnosis of drivers and agents shall be conducted during consolidation of the Project Description Document (PDD). After the first verification, one calendar year shall be counted, local-level dialogues shall be undertaken, and socio-economic factor information shall be reprocessed to analyze emerging behaviors of agents and drivers.

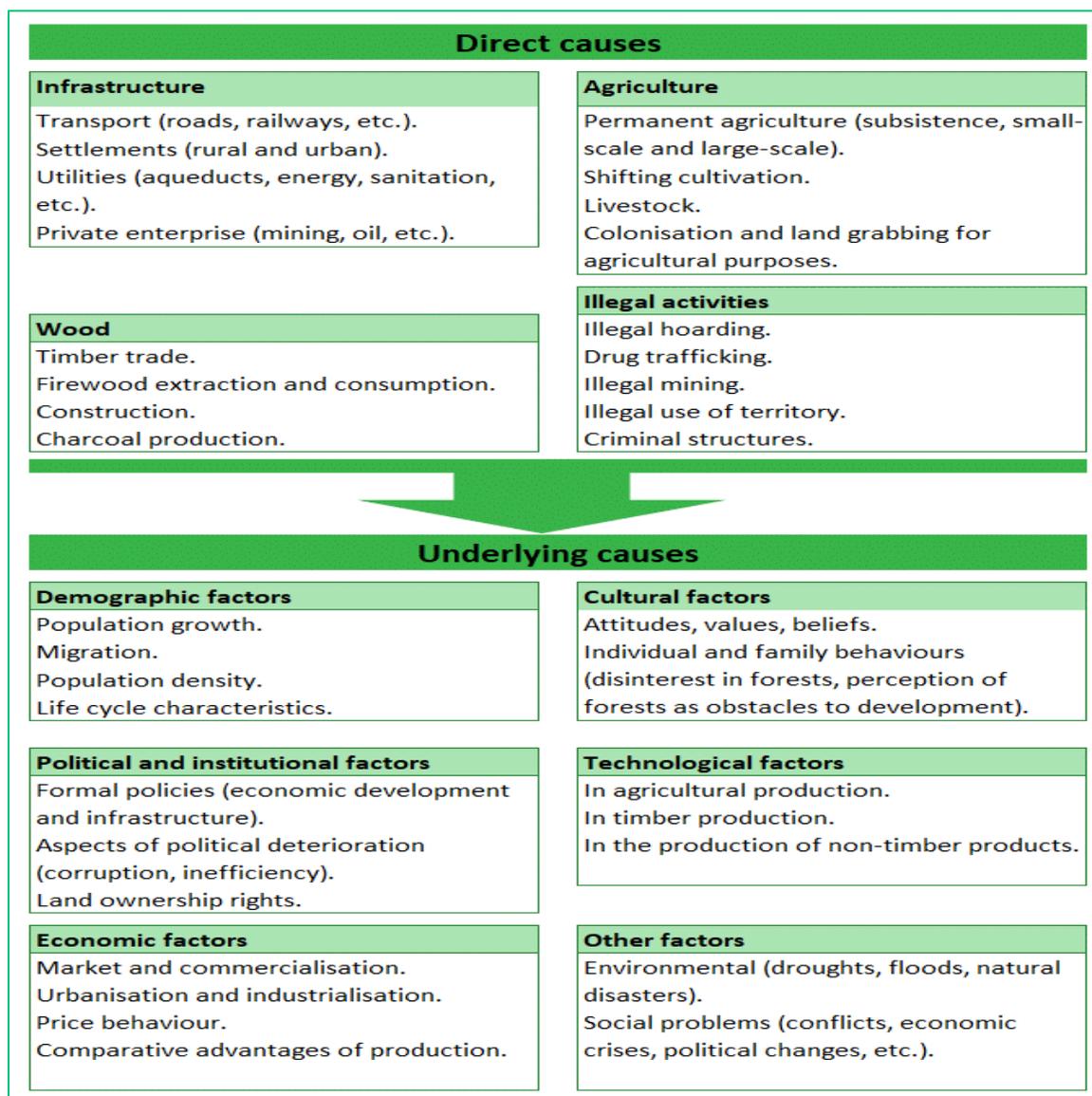
For CCMPs including Avoided Forest Degradation (DEG), a specific analysis of agents and drivers of forest degradation shall be conducted in a manner analogous to that undertaken for deforestation, supported by reliable information (see Reliability principle), including secondary information (e.g., Armenteras et al., 2018):

- A diagnosis of processes associated with selective logging (and associated extraction systems), fuelwood extraction, forest fires, extensive grazing within forests, agricultural expansion, and illicit crops.
- A characterization of indirect drivers such as technological and economic pressures (markets, incentives, illegal activities), institutional and political factors (regulations on land use and tenure), cultural aspects (perceptions and ancestral practices), demographic factors (population growth), and biophysical factors (presence of valuable or vulnerable species).
- An assessment of the intensity and trend of these drivers, ideally based on representative surveys and participatory diagnostics within the CCMP area.

The analysis shall also integrate prospective scenarios considering potential changes in policies, markets, infrastructure, or social dynamics that may alter observed trends.

Identified drivers (**Figure 2**) shall be classified as, direct causes (immediate actions generating forest cover loss) and underlying causes (social, economic, demographic, technological, political, institutional, and cultural factors that determine them). Both categories shall be characterized and described at the REDD+ CCMP scale, considering their historical behavior and potential future trajectories, using diverse sources such as expert consultations, scientific literature, institutional studies, and participatory workshops.

Figure 2. Direct and underlying drivers of deforestation



Source: Adapted from Geist & Lambin (2002).

For characterization of deforestation agents and drivers within the CCMP area, integration of remote sensing imagery analysis with field-validated social dynamics information is recommended. This combined approach strengthens understanding of territorial processes and their linkage to land-use change patterns.

Spatial analysis may be supported through the use of mappable indicators linked to specific economic activities (e.g., agricultural expansion, road infrastructure, forest extraction), serving as proxies for pressure on forests.

The delimitation of the analysis of agents and drivers of deforestation shall be based on identification of micro-watersheds overlapping with or adjacent to the project area—or a smaller area where a restricted spatial distribution of such agents and drivers operating within the project area can be demonstrated—which shall constitute the reference area (**Section 6.2**). **Table 3** provides a reference framework of observable and measurable variables that can be used in the analysis of agents and causes of deforestation.

Table 3. Example of mapping indicators and data sources for major deforestation drivers

Activity/driver of deforestation	Mapping indicator	Common data sources (national level)	Common data sources for GHG emissions estimation (national level)	Examples of other indirect data
Commercial agriculture	Large areas logged, post-harvest land use.	Historical satellite imagery (e.g., Landsat).	Traditional forest inventories / field measurements.	Commodity prices, agricultural censuses, share of gross domestic product, exports, among others.
Subsistence farming, smaller crops, and rotational crops	Small logged areas, usually associated to rotation cycles.	Historical satellite images with high temporal density or high resolution to determine rotation pattern.	Traditional forest inventories / field measurements and targeted surveys.	Population growth in rural and urban areas, agricultural imports and exports, land use practices, among others.
Expansion of infrastructure	Road network, new mines, and built areas.	Historical satellite images.	Traditional forest inventories / field measurements.	Growth in urban and rural population, infrastructure development programs, import and export prices of raw materials (mining).
Industrial or commercial harvesting of forest products	Small-scale canopy damage, logging roads and associated infrastructure.	Historical satellite imagery analyzed in conjunction with concession areas. Direct analysis for recent years.	Traditional forest inventories / field measurements and harvest estimates from commercial forestry activities. GHG emission factors can be measured consistently over each historical period.	Rural and urban population growth, percentage of energy users and sources of energy, consumption patterns and their changes.

Activity/driver of deforestation	Mapping indicator	Common data sources (national level)	Common data sources for GHG emissions estimation (national level)	Examples of other indirect data
Extraction of forest products for subsistence, local and regional markets	Very small-scale canopy damage, understory impacts, footpaths.	<ul style="list-style-type: none"> – Limited historical data. – Information from local studies or national <i>proxies</i>. – Only long-term cumulative changes can be observed by satellite imagery. 	<ul style="list-style-type: none"> – Limited historical data. – Information from local scale studies. – Community-based monitoring has a key role. – Other indirect methods of measuring carbon stocks changes can be employed. 	Land use practices (e.g., agricultural burning), links to other activity data attributable to burning, fire prevention and natural fires.
Other disturbances (e.g., uncontrolled fires)	Burn scars and associated impacts.	Historical fire-related satellite data, analyzed in conjunction with Landsat-type data.	Emissions can be estimated regularly and measured consistently for different periods depending on data availability.	<p>Historical records and early fire warnings.</p> <p>Databases from environmental authorities.</p> <p>Related climate records (droughts, extreme temperatures, etc.).</p>

Source: Adapted from Kissinger et al., 2012.

4.2 Area Eligibility

Eligibility of the area of a REDD+ CCMP shall be supported by the initial land classification analysis⁴⁰ (stable forest, non-stable forest, non-forest, and settlements), as well as by the analysis of agents and drivers of deforestation or forest degradation and the feasibility of modifying the trajectories associated with their direct or underlying causes. Based on this analysis, eligible and non-eligible areas shall be determined.

Eligible areas within a CCMP shall meet the following conditions:

- They shall be classified as forest land, under the categories of stable forest or non-stable forest⁴¹. Stable forest shall be eligible for REDD+ activities of type DEF, DEG, or SFM. Non-stable forest shall be eligible for REDD+ activities of type CSE or SFM. The forest definition shall be aligned with international frameworks and with that adopted by the corresponding national or subnational authority.
- CCMPs may include non-forest areas adjacent to stable forest or non-stable forest exclusively for the implementation of CSE activities, provided that their technical and geospatial inclusion is justified.

⁴⁰ This classification represents the minimum criterion for recognition of the total area of the CCMP, supported by satellite image analysis (using solid and verifiable data) and other guidelines outlined in the following sections.

⁴¹ See definitions in the section: Terms and definitions.

- Areas where the CCMP is implemented may include wetlands⁴² (such as mangroves, freshwater wetlands, and peatlands), provided they have significant woody cover⁴³ and that measures are adopted to control or discount potential displacement of emissions outside the ecosystem (leakage).
- The holder shall demonstrate tenure or legitimate rights of use and management over the areas where REDD+ activities are implemented, whether on an individual, community, or institutional basis.
- As a general rule, implementation of a REDD+ CCMP shall not be permitted in legally protected areas or areas subject to land-use restrictions incompatible with REDD+ activities⁴⁴.
- CCMP areas shall not present spatial or temporal overlap with other mitigation initiatives pursuing equivalent objectives.
- Implementation of complementary REDD+ activities within the framework of other initiatives shall be permitted, provided that results are generated and accounted for independently and in accordance with the principles established in this methodology.
- REDD+ activities shall be spatially delineated and structured by segments. Eligibility of mitigation outcomes shall be subject to the temporal criteria established in ***Cercarbono's Protocol*** for voluntary carbon certification and to the corresponding verification.
- All information declared regarding eligibility shall be supported by verifiable documentation.

The retroactive period permitted for the CCMP start date, as well as milestones for its consideration and the validity period of eligible mitigation outcomes, are defined in ***Cercarbono's Protocol***, based on the date of execution of the verification process.

The CCMP holder shall provide clear and disaggregated evidence demonstrating that areas within the proposed boundaries contain stable forest, non-stable forest, or non-forest cover at the project start date and shall substantiate the eligibility of each category.

Corresponding geospatial information shall be presented clearly and in a structured manner, following the ***Guidelines for Mapping Presentation and Analysis***.

Eligible areas (stable forest, non-stable forest, and/or non-forest) shall be determined based on traceable cross-referencing of the information presented.

Non-eligible areas correspond to settlement areas where population centers, access roads, and other infrastructure are established. These areas are usually located within the spatial boundaries of the CCMP but shall be excluded from eligible areas.

The following table presents the structure under which the CCMP shall present information on eligible and non-eligible areas. See equations supporting these area calculations in **Section 6.2**.

⁴² This type of ecosystem can be considered in mitigation scopes other than the REDD+ mechanism.

⁴³ In line with the definition of forest adopted by the country where the CCMP is implemented.

⁴⁴ Geographically defined areas that have been designated, regulated, and managed by public entities to achieve specific conservation objectives. CCMP may only be implemented when the competent authority determines that it is compatible with this and authorizes such implementation.

Table 4. Presentation of the total REDD+ CCMP Area

Eligible Area (A_{Eligible})	Baseline (ha)	Project (ha)
Stable forest	Stable forest areas	<ul style="list-style-type: none"> – Avoided Deforestation (DEF) segment. – Avoided Forest Degradation (DEG) segment. – Carbon Stocks Enhancement (CSE) segment.
Non-stable forest	Non-stable forest areas	<ul style="list-style-type: none"> – Sustainable Forest Management (SFM) segment. – Carbon Stocks Enhancement (CSE) segment.
Non-forest	Non-forest areas	<ul style="list-style-type: none"> – Carbon Stocks Enhancement (CSE) segment.
Non-eligible Area ($A_{\text{Non-eligible}}$)		
Settlements*	Settlement areas (ha)	
Total CCMP Area		
Eligible area	Total eligible areas (ha)	
Non-eligible area (when applicable)	Total non-eligible areas (ha)	
Total (ha)	Total eligible areas + Total non-eligible areas	

* Refers to non-forest areas. See definition in the Terms and Definitions section.

To support the eligibility of the areas, the CCMP shall carry out:

4.2.1 Eligibility Analysis Based on Cartographic Instruments

Eligibility analysis based on historical forest cover shall comprise the following stages:

4.2.1.1 Collection of Cartographic Information

The cartographic presentation of the CCMP shall comply with the guidelines for assessing the quality of geographic data established in the **Guidelines for Mapping Presentation and Analysis**. The final scale of the products and the relevance of information sources shall be considered in accordance with the size of discrete areas included as eligible and the total CCMP area.

4.2.2 Identification and Classification of Areas

The CCMP shall classify its area according to land cover into stable forest, non-stable forest, non-forest, and settlements, based on analysis of land cover and changes occurring over a minimum period of ten years. This classification is fundamental for determining area eligibility and shall be supported by geospatial documentation, satellite imagery, and verifiable evidence covering the entirety of the CCMP area, both at the project start date and for the project’s legal substantiation.

The process shall begin with the preliminary analysis (**Section 4.2.1**), which defines a transitional study region to characterize historical land cover and establish the basis for selecting REDD+ activities (segments) to be implemented. Cartographic interpretation should be complemented with thematic validation at the CCMP scale in order to improve classification accuracy and local relevance.

Quantification of activity data shall be aligned with the selected Forest Reference Emission Levels / Forest Reference Levels (FREL/FRL) and with the National Forest Monitoring Systems (NFMS), in

accordance with Decisions 4/CP.15, 1/CP.16, and 11/CP.19 of the UNFCCC, ensuring annual data coverage during the historical period.

Where official data do not cover all years of the historical period or do not provide adequate resolution or quality for the CCMP area, the developer may:

- Generate the missing information through methodological approaches compatible with the selected FREL/FRL or through technically justified approaches;
- Apply procedures of the national NFMS, where compatible with UNFCCC decisions; or
- Use alternative methodological approaches for area classification, provided they are technically and supported by documentation and, to the extent possible, aligned with the guidelines of this methodology.

In all cases, a clear, reproducible, and technically robust methodology shall be applied for classification and delineation of land cover within the CCMP area, consistent with established eligibility criteria.

As a complementary reference, the ***Guidelines for Mapping Presentation and Analysis*** provides essential technical criteria for appropriate application.

4.3 Compatibility with Land-Use Categories, Territorial Planning Instruments, and Applicable Environmental Legislation

The CCMP shall demonstrate that the proposed REDD+ activities are compatible with current land-use categories⁴⁵ and territorial planning or zoning instruments at both subnational and national levels in the country where the CCMP is implemented.

The CCMP may submit as evidence a land-use compatibility certificate issued by the competent authority, confirming (through an administrative act) the conformity of the initiative with applicable planning instruments.

If the CCMP is developed in environmentally protected areas, it shall additionally obtain authorizations, licenses, or permits issued by the competent environmental authority, verifying compatibility of the CCMP with applicable management instruments and zoning frameworks.

The CCMP shall conduct a comparative assessment of land-use guidelines resulting from territorial planning or zoning instruments, existing programmes, and the proposed project activities. This assessment shall be descriptive and shall demonstrate geographic compatibility of the activities. For each CCMP action, the applicable planning or zoning instrument under which it is implemented shall be reported, and its contribution to official institutional efforts shall be described.

Furthermore, the CCMP implementation plan shall be consistent with the national or jurisdictional REDD+ strategy or action plan, ensuring compatibility between REDD+ activities and land-use categories defined for national or subnational accounting areas.

⁴⁵ If a particular country does not have such a classification, it may use those established by the IPCC.

The CCMP shall identify, document, and periodically evaluate compliance with all applicable legislation and regulations (local, regional, and national), including those related to territorial planning, land use, protected areas, forest management, and environmental governance.

4.4 Holdership

The CCMP holder shall demonstrate the capacity to act over the areas where the REDD+ CCMP will be implemented, either by virtue of ownership or by obtaining the express authorization of the legal holder or duly recognized legal representative of the areas involved. This requirement applies both to the formulation phase of the Project Description Document (PDD) and to monitoring periods generating mitigation outcomes.

Where the CCMP is developed in areas inhabited or administered by peasant communities, Indigenous Peoples, Afro-descendant communities, or other ethnic or collective social groups, in addition to demonstrating land ownership or tenure as established in this methodology, the validity and legality of the representation of those signing contracts, agreements, or arrangements on behalf of such communities or groups shall be robustly demonstrated.

For this purpose, documentation shall be provided evidencing the existence and/or validity of:

- Legally valid identification documents of the representatives;
- Evidence of legitimate and current designation of the signing representatives, in accordance with internal representation mechanisms recognized by the community or collective;
- Certifications or endorsements issued by competent governmental authorities (e.g., environmental authorities, ethnic authorities, territorial entities, or state entities responsible for Indigenous or collective affairs) supporting both land tenure and representativeness of signatories;
- Evidence that such representation and the agreements executed comply with the applicable legal framework in the jurisdiction where the CCMP is implemented;
- Documentary support demonstrating the existence of Free, Prior, and Informed Consent (FPIC), where applicable, in accordance with the prevailing national and international legal framework.

The above contributes to compliance with the ***Safeguarding Principles and Procedures of Cercarbono's Certification Programme***, under which agreements or contracts are supported to guarantee administrative capacity.

For privately owned land or areas, the following shall be submitted:

- An express authorization issued by the owner, legal possessor, or lawful holder, specifying the delimitation of the authorized area;
- A copy of the property title, in the case of natural persons;
- For legal entities, documentation demonstrating the current legal representation of the person signing on behalf of the holder.

Additionally, in line with ***Cercarbono Official Communication No. 05***, CCMPs directly involving or integrating local or ethnic communities shall conduct a ***Governance Analysis***, documented in a specific report forming part of the CCMP documentation, describing and addressing:

- The current governance structure applicable to the community, including how it is defined, who governs the territory, how governing authorities are selected, the duration of their mandate, and the scope of their functions;
- The scope and validity of legal representation in relation to the community and the CCMP territories;
- Legal recognition of ownership over collective territories, citing relevant legal instruments (titles, decrees, resolutions, deeds, or similar) granting such territories to the communities owning the area where the CCMP is implemented;
- The scope of any mandate agreement (if applicable) between the involved community or communities and the CCMP developer/representative;
- A description of land ownership and legal representation of collective territories where mitigation activities will be implemented.

The CCMP shall provide documentary support for all listed documentation, particularly regarding the validity of the legal representation of the signatories. The Governance Analysis document is a requirement of Cercarbono for approval of CCMP registration.

If the CCMP is implemented in private areas (i.e., lands not under community ownership but owned by a natural or legal person), a Governance Analysis shall not be required. In the case of natural persons, a copy of the legal property title shall suffice. For legal entity holders, evidence of legal incorporation or existence and validity of legal representation shall be required.

In the case of officially recognized jurisdictional or subnational programmes, CCMP ownership shall not necessarily reside in a single territorial actor nor be formalized through rights assignment mechanisms typical of individual CCMPs. In such cases, institutional or administrative representation recognized by the competent national or subnational authority in the corresponding jurisdiction shall be deemed valid. Such representation shall be supported by official instruments (such as decrees, resolutions, inter-institutional agreements, or enabling regulatory frameworks) defining the competencies of the coordinating, managing, or executing entity over the intervention area. Individual property titles or mandate contracts shall not be required, provided it is demonstrated that the programme operates under a legitimate, coordinated, and articulated scheme with relevant territorial, environmental, and social entities, in accordance with applicable national or subnational regulations and territorial governance principles.

However, where the jurisdictional programme includes territories inhabited, titled, or managed by ethnic communities (including Indigenous Peoples, Afro-descendant communities, or peasant communities), their effective and documented participation shall be ensured in planning, implementation, monitoring, and benefit-sharing mechanisms. Such participation shall be supported by formal agreements, consultation protocols, minutes of agreement, or equivalent instruments reflecting application of Free, Prior, and Informed Consent (FPIC), where legally applicable (in compliance with safeguards), and legitimacy of representatives in accordance with each community's internal governance mechanisms.

Furthermore, in collective territories included within a jurisdictional programme, ownership of carbon credits generated by mitigation activities shall not be automatically assumed by the programme's coordinating entity. Assignment, transfer, or co-ownership of such credits shall require explicit, legitimate, and voluntary agreements with the respective communities. In the absence

of such agreements, credits shall be considered directly owned or co-owned with the communities, in accordance with their degree of participation, the location of activities, and the national legal framework. This methodology recognizes that benefits derived from such credits shall be distributed fairly and transparently, in line with principles of equity, traceability, and community governance, and in accordance with the ***Safeguarding Principles and Procedures of Cercarbono's Certification Programme***.

In all cases, the CCMP shall provide verifiable evidence of legal tenure over the intervention area as an essential requirement for implementation.

4.5 General Objective of the CCMP

The objective of the CCMP shall be described in the PDD, presenting the main expected positive impact resulting from implementation of its activities and the expected mitigation potential.

At a minimum, it shall include the selected REDD+ activities, the geographic location of programme or project activity implementation, the stakeholders involved and the implementation period of project activities.

5 Additionality

Additionality shall be demonstrated by applying the most recent version of the ***Cercarbono Tool for Demonstrating Additionality of Climate Change Mitigation Initiatives***.

The additionality analysis shall consider the following dimensions: financial, institutional, technical and common practice.

Where one or more of these dimensions are relevant, the CCMP shall substantiate its additionality through sufficient, documented, and verifiable justification, consistent with the CCMP context and Cercarbono requirements.

6 Delimitation of the CCMP

Delimitation of the REDD+ CCMP entails precise definition of the elements that specify its geographic, temporal, technical, and accounting scope. This delimitation is essential to ensure the CCMP's methodological coherence, traceability of mitigation outcomes, and environmental integrity.

Certain elements shall be considered fixed once the CCMP has been validated and may not be modified without undergoing a new validation process. These include:

- Start date and duration of the CCMP;
- Declared REDD+ activities and their typology;
- GHG emission sources and carbon pools included in the accounting.

Other elements may be modified during the CCMP lifecycle, depending on its implementation modality, provided that procedures established in Cercarbono's Protocol for voluntary carbon certification are followed, including:

- Inclusion or exclusion of participants;
- Adjustments to spatial boundaries (e.g., addition of new areas);
- Reconfiguration of the implementation structure, provided that the principles of additionality and permanence are maintained.

Any modification after validation shall be duly justified, documented, and validated by a Validation and Verification Body (VVB), in accordance with applicable procedures.

6.1 Temporal Boundaries of the CCMP

Temporal boundaries of the CCMP shall be explicitly defined in the PDD. Only verified GHG emission reductions or GHG removals within these boundaries are eligible for credits issuance.

Temporal boundaries shall be determined based on the diagnosis of agents and drivers of forest loss and on monitoring of activity data. They shall be defined in terms of:

- **Start date of the CCMP** (day.month.year): the date on which the first direct action is implemented in the program or project area that generates mitigation results; that is, the date on which GHG emission reductions or GHG removals resulting from actions in the territory begin.
- **Historical period (for the analysis of historical emissions)⁴⁶** (day.month.year to day.month.year): period, normally not less than ten (10) years prior to the start date of the CCMP, during which the areas of stable forest, non-stable forest, non-forest land, and settlements within the CCMP area are determined.
For the avoided deforestation activity, this period shall be consistent with that established in the selected FREL/FRL. For other REDD+ activities, a different period may be applied, provided that it is duly justified and includes a reference to how such activities are defined and accounted for at the national level.
- **Projection period** (day.month.year to day.month.year): the time range (in years) for which projections are made in the baseline and project scenarios, based on the historical period. The initial year of this period must coincide with the start date of the CCMP, covering the crediting period.
- **Results period** (day.month.year to day.month.year): the time range (in years) during which the CCMP activities are monitored and the results of these actions are measured in terms of GHG emission reductions from deforestation, forest degradation of carbon content in forests, or sustainable forest management and/or in terms of GHG removals due to carbon increases in carbon pools. The duration of this period is equal to the duration of the CCMP crediting period.
- **CCMP Duration** (day.month.year to day.month.year): the period (in years) from the start of project actions to their conclusion. CCMP holders and developers shall ensure that the duration of the initiative is consistent with the provisions set out in **Cercarbono Protocol**.
During this period, the CCMP must ensure the permanence of the net mitigation benefits achieved. This permanence implies maintaining the state of the forest cover that gave rise to these benefits, even if the CCMP ceases to generate new carbon credits. For this purpose, the

⁴⁶ It shall be aligned with the selected FREL/FRL.

CCMP shall establish formal commitments by the holders or responsible parties of the areas, which must include at least the following components:

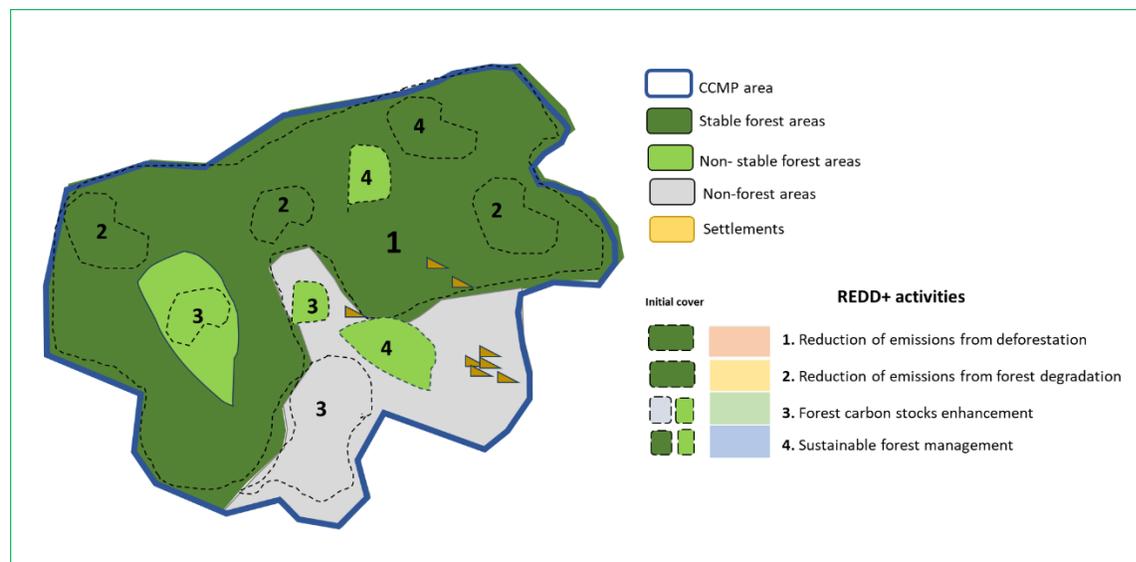
- **Monitoring:** implementation of monitoring mechanisms based on technologies such as remote sensing, with a frequency comparable to that of regular verification cycles, to demonstrate the stability of forest cover. At the same time, Cercarbono will support this component throughout the CCMP duration through its internal cartographic monitoring tool⁴⁷, conducting annual monitoring of the CCMP areas. The results of this monitoring will be consolidated in publicly available reports (especially when changes occur with respect to verified results and afterwards) through the CCMP's Mini site in EcoRegistry.
 - **Reporting:** periodic presentation (in line with monitoring) of accessible and verifiable reports documenting the maintenance of the coverages, including geospatial metadata, comparative analyses, and evidence of compliance with commitments.
- **Compensation:** definition of corrective measures in case of cover loss or reversal of benefits, which may include the restoration of the affected area, the implementation of equivalent actions in other areas under the holder's control, the purchase of credits from other initiatives with similar results and in the same sector, or the use of reserve credits (including the obligation to replenish them), to offset the deficit. The latter is in line with the ***Cercarbono Guidelines for the Management of Permanence and Reversal Risk in Climate Change Mitigation Initiatives in the Land-Use Sector*** and **Reversal management Section** of the ***Procedures of the Cercarbono Certification Programme***.
 - **Verification periods** (day.month.year to day.month.year): periods within the results period in which GHG removal results or GHG emission reductions are verified by an independent third party. A CCMP shall have a maximum interval of three years between successive verifications. See related considerations in the current version of ***Cercarbono's Protocol***.
 - **Crediting period** (day.month.year to day.month.year): defined in accordance with the provisions established in the current version of ***Cercarbono's Protocol***. It must be the same for the baseline and project scenarios and their reassessment.

6.2 Spatial Boundaries

The CCMP shall identify and delineate the following areas within its implementation context, as illustrated in **Figure 3**.

⁴⁷ With this tool, Cercarbono seeks to monitor, in an independent manner, the fulfillment of the permanence obligations and to strengthen the environmental integrity of the certified mitigation results.

Figure 3. Example of spatial delineation of the total CCMP area, integrating all land-cover categories as per initial classification and the REDD+ activities (segments) covered under this methodology



Note 1. In the list of REDD+ activities, the color palette shown on the left margin corresponds to the classification of areas according to their initial land-cover condition (stable forest, non-stable forest, and non-forest). The color palette shown on the right corresponds to the colors used in the analysis of the segments associated with each REDD+ activity (Sections 8.2.1; 8.2.2; 9.1.1 and 9.1.2). For purposes of simplifying the example, the reference area was not considered. Certain areas by REDD+ activity type may or may not be contiguous. Areas outlined with dashed lines and containing a number represent segment components.

The spatial boundaries of the CCMP shall be explicitly defined in the PDD. The CCMP area shall consist of:

- **Total CCMP Area:** comprises all surfaces included within the spatial boundaries and shall be classified into two main categories as described below.
- **Eligible CCMP Area⁴⁸:** surface or set of surfaces, whether contiguous or spatially separate⁴⁹, upon which CCMP activities may be implemented and where quantification of GHG removals, emissions, and leakage is conducted. It shall be composed exclusively of those surfaces that, according to the prior land-cover classification and the eligibility framework of this methodology, correspond to stable forest, non-stable forest, and non-forest. A CCMP may consist exclusively of eligible areas; in such cases, no non-eligible areas shall be considered.
- **Non-Eligible CCMP Area:** surface that does not meet the criteria for implementation of CCMP activities and is therefore not considered for GHG-related results accounting. It corresponds to surfaces classified as settlements.

$$A_{CCMP} = A_{Eligible} + A_{Non-eligible}$$

Equation 1⁵⁰

⁴⁸GHG emission and removal factors (Sections 6.5.1 and 6.4.1) and activity data (Sections 8.3 y 9.2) shall be representative of this area, including the strata identified in the baseline and project scenarios (stable forest, non-stable forest, and non-forest).

⁴⁹ See guidance in the **Guidelines for Mapping Presentation and Analysis**.

⁵⁰ This equation is used exclusively for the characterization and control of the CCMP's spatial boundaries and does not form part of the GHG accounting.

Variable	Description	Units	CCMP activities*			
			DEF	DEG	SFM	CSE
A_{CCPM}	Total CCMP area within the defined spatial boundaries.	ha	NA	NA	NA	NA
$A_{Eligible}$	Total eligible CCMP area (corresponding to the sum of the areas of all eligible strata k defined under this methodology), where REDD+ activities are implemented.	ha	X	X	X	X
$A_{Non-eligible}$	Total non-eligible CCMP area. $A_{Non-eligible} = 0$ where no non-eligible areas exist.	ha	NA	NA	NA	NA

* DEF: Avoided Deforestation; DEG: Avoided Forest Degradation; CSE: Carbon stocks Enhancement; and SFM: Sustainable Forest Management. NA: Not Applicable. This notation applies to all tables containing these abbreviations in this methodology.

$$A_{Eligible} = \sum_{k \in K} A_{Stratum,k}$$

Equation 2

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Eligible}$	Total eligible CCMP area within the defined spatial boundaries. It corresponds to the sum of all areas classified as stable forest, non-stable forest, and non-forest.	ha	X	X	X	X
$A_{Stratum,k}$	Total area of eligible stratum k (stable forest, non-stable forest, and non-forest), as defined in Equation 3 .	ha	X	X	X	X
K	Sets of eligible strata.	NA	NA	NA	NA	NA

General Spatial Architecture of a REDD+ CCMP

The spatial delineation of the CCMP under this REDD+ methodology adopts a hierarchical three-level structure composed of:

- Eligible strata
- Segments
- Segment components

This architecture ensures full spatial traceability of GHG accounting, from the most general project level down to the most detailed spatial unit where emissions and removals are quantified.

- **Eligible strata** constitute the macro-level spatial division of the CCMP and are derived directly from the initial land-cover classification within the project's spatial boundaries. The strata:
 - Define the overall spatial structure of the CCMP;
 - Correspond to spatially delineated polygons sharing the same initial land-cover condition;
 - Provide the framework for allocating REDD+ activities through the establishment of segments.

Under this methodology, three eligible strata are defined⁵¹:

- Stable Forest Stratum;
- Non-Stable Forest Stratum;
- Non-Forest Stratum.

Once defined, eligible strata shall be applied consistently across both the baseline and project scenarios. The initial land-cover classification determines which REDD+ activity types may be implemented within each stratum.

$$A_{stratum,k} = \sum_{i=1}^n A_{k,i}$$

Equation 3

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Stratum,k}$	Total area of eligible stratum k (stable forest, non-stable forest, and non-forest), derived from the initial land-cover classification.	ha	X	X	X	X
$A_{k,i}$	Area of polygon i belonging to eligible stratum k .	ha	X	X	X	X

- **Segments** are operational spatial units within eligible strata in which CCMP activities are implemented and where GHG accounting takes place. Each segment:
 - Shall be fully contained within a single eligible stratum;
 - Shall correspond to a single REDD+ activity type (DEF - DEG - SFM - CSE).

A segment constitutes the minimum unit from which avoided emissions, removals, and leakage are aggregated for calculating the CCMP GHG balance.

Spatially, segments shall be mutually exclusive with respect to other segments defined within the same stratum, such that any given point in the territory belongs to only one segment, thereby preventing any form of double counting or spatial overlap.

A segment results from its preliminary identification during the analysis of agents and drivers of forest loss and its confirmation through activity data analysis. A segment may encompass part or the entirety of an area within an identified eligible stratum (see **Equations 4** and **5**). Segment areas shall be the same across baseline, project, and monitoring scenarios to prevent any form of double counting in reported results.

⁵¹ The classification of eligible strata constitutes a prior and independent step from the spatial risk analysis. The **Conceptual Framework for Spatial Risk Analysis of Deforestation and Forest Degradation in REDD+ Activities** is applied exclusively within the Stable Forest and Non-Stable Forest strata and does not modify the definition or eligibility of such strata.

Where selected segments (DEF - DEG - SFM - CSE) exhibit significant heterogeneity (e.g., different forest types, distinct logging and timber extraction systems, or relevant land-cover variations), stratification of those areas is recommended. Such stratification shall be justified and documented in the PDD. Any subsequent modification to this stratification shall constitute a material change and shall require revalidation.

Selection and spatial delineation of REDD+ segments shall be consistent with the eligible stratum in which they are implemented, ensuring correspondence between the initial land-cover condition and the assigned activity type. Within this framework, the same activity type may exist across more than one stratum, in particular:

- Carbon Stocks Enhancement (CSE) segments may be established in both the Non-Stable Forest Stratum and the Non-Forest Stratum;
- Sustainable Forest Management (SFM) segments may be established in both the Stable Forest Stratum and the Non-Stable Forest Stratum, where initial land-cover conditions and eligibility rules so allow.

This does not alter the fundamental rule that each individual segment shall be contained within a single stratum, as defined by its initial land-cover classification.

A CCMP may include one or multiple types of segments, depending on the initial land-cover classification and the eligibility conditions established in this methodology.

Segment areas (and their components, where applicable) shall be consistently identified in the baseline, project, and monitoring scenarios, maintaining spatial traceability of each intervention unit and preventing at the same time any form of double counting in GHG results.

Each segment shall enable periodic monitoring of attributable changes, and its size shall be technically justified based on ecological, operational, and risk dynamics associated with the implemented activity. Segments shall only be subject to monitoring once the CCMP has been implemented. The holder or developer may use the classification contained in the selected FREL/FRL, harmonizing it with the REDD+ segments established in this methodology.

The following equation expresses the general rule for spatial allocation of segments within each eligible stratum of the CCMP:

$$\sum_{s \in Sk} A_{Seg,s,k} \leq A_{Stratum,k}$$

Equation 4

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Seg,s,k}$	Area of segment s (DEF-DEG-SFM-CSE) contained within eligible stratum k (stable forest, non-stable forest, and non-forest), corresponding to a single REDD+ activity type.	ha	X	X	X	X

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Stratum,k}$	Total area of eligible stratum k , derived from the initial land-cover classification.	ha	X	X	X	X
S_k	Set of REDD+ segments defined within eligible stratum k .	NA	X	X	X	X

Where the CCMP design assigns the entirety of eligible stratum k to segments, **Equation 5** shall be interpreted as a **particular case** and shall not replace the applicability of **Equation 4**. This condition shall only be met when the total eligible area of stratum k has been fully distributed among all segments belonging to set S_k .

$$A_{stratum,k} = \sum_{s \in S_k} A_{Seg,s,k}$$

Equation 5

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Stratum,k}$	Total area of eligible stratum k (stable forest, non-stable forest, and non-forest), derived from the initial land-cover classification.	ha	X	X	X	X
$A_{Seg,s,k}$	Total area of segment s (DEF-DEG-SFM-CSE) contained within eligible stratum k , corresponding to a single REDD+ activity type.	ha	X	X	X	X
S_k	Set of REDD+ segments defined within eligible stratum k .	NA	X	X	X	X

Where a segment is not subdivided into components, its total area shall be calculated as the sum of the areas of the polygons composing it, in accordance with the following equation:

$$A_{Seg,s,k} = \sum_{i=1}^{Ns,k} A_{s,k,i}$$

Equation 6

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Seg,s,k}$	Total area of segment s (DEF-DEG-SFM-CSE) contained within eligible stratum k (stable forest, non-stable forest, and non-forest).	ha	X	X	X	X
$A_{s,k,i}$	Area of polygon i belonging to segment s within stratum k .	ha	X	X	X	X
Ns,k	Number of polygons composing segment s within stratum k .	NA	X	X	X	X

- **Segment components** are (optional) area portions corresponding to the same REDD+ activity forming together a segment. Segment components allow for finer spatial disaggregation without modifying the operational structure of segments. ***This classification shall only be required*** when:
 - A segment contains multiple spatially disconnected polygons; or
 - It is necessary to differentiate sub-units within the same segment due to relevant differences in biophysical conditions, management practices, or other characteristics influencing carbon stocks and fluxes, while maintaining the same activity type of the segment.

Accordingly, where a segment is subdivided into components pursuant to the above criteria, the total area of the segment shall be calculated as the sum of the areas of its components, according to following equation:

$$A_{Seg,s,k} = \sum_{f=1}^{N_{cp,s,k}} A_{s,k,f}$$

Equation 7

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$A_{Seg,s,k}$	Total area of segment s (DEF-DEG-SFM-CSE) within stratum k (stable forest, non-stable forest, and non-forest).	ha	X	X	X	X
$A_{s,k,f}$	Area of segment component f of segment s within eligible stratum k .	ha	X	X	X	X
$N_{cp,s,k}$	Number of segment components f of segment s within stratum k .	NA	X	X	X	X

In addition to the above spatial boundaries or classifications, the REDD+ CCMP shall identify and delineate the following areas within the context of implementation, as illustrated in **Figure 4**.

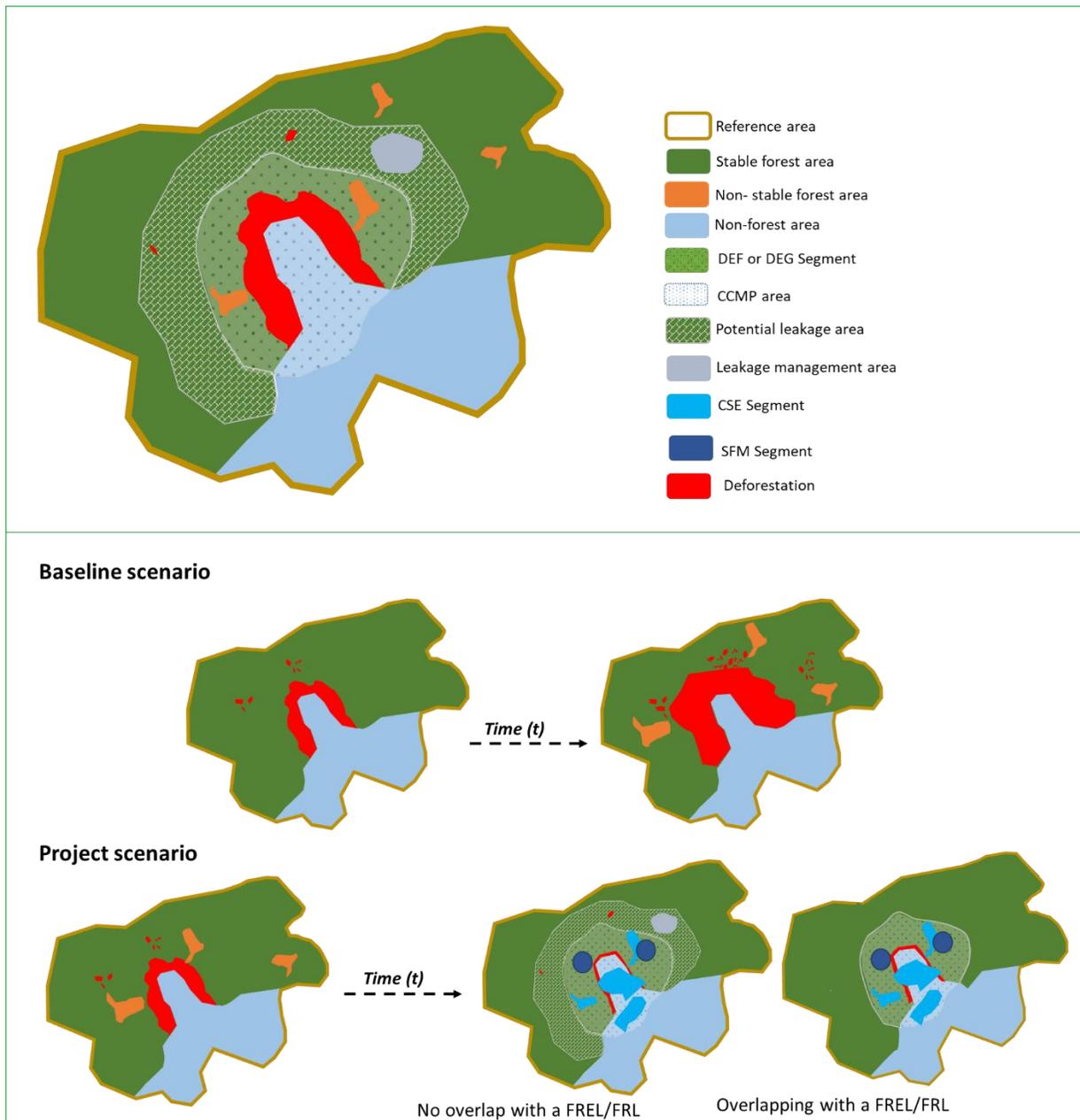
- **Reference Area:** geographic region where analyses of agents and drivers of deforestation and forest degradation are conducted. It corresponds to the broader region encompassing the CCMP and is delineated from the preliminary analysis stage, enclosing the other defined areas. The reference area shall be defined within a Geographic Information System (GIS). It shall include forest areas and may include non-stable forest and/or non-forest areas. Natural causes of deforestation shall be excluded from this area. The reference area shall not be subject to monitoring; however, it shall be reassessed in the event of baseline scenario revalidation. Delineation of the reference area shall be established consistently with existing applicable national or jurisdictional Forest Reference Emission Levels / Forest Reference Levels (FREL/FRL); in their absence, or where they do not explicitly define a spatial unit of analysis, delineation shall be primarily based on identification of micro-watersheds overlapping with or adjacent to the CCMP area, in accordance with nationally available technical guidelines.

In regions where official micro-watershed delineations do not exist or are not used as planning or analytical units, the CCMP may employ technically justified alternative territorial units. These may include subnational administrative divisions, environmental planning units, ecological life zones, landscape units, or any other spatial framework capable of adequately representing the dynamics of deforestation agents and drivers.

In all cases, the selected reference area shall:

- Be selected conservatively, ensuring that activity data reflect actual conditions and that its boundaries are not expanded or reduced in a manner that would overestimate GHG emission reductions;
- Be representative of the CCMP area and validated against official sources or empirical data;
- Be technically and geographically justified;
- Adequately reflect the spatial dynamics of agents and drivers of forest cover loss;
- Be consistent with the scale and scope of the CCMP; and
- Be aligned, to the extent possible, with territorial units used in the selected national or jurisdictional FREL/FRL.

Figure 4. Spatial delineation of the CCMP implementation area



– **Leakage Area:** as a result of the analysis of agents and causes of deforestation and forest degradation, the potential distribution of the actors responsible for these dynamics is defined, based on which a potential leakage area and a leakage management area are determined. This area is subject to activity data monitoring; the (potential) leakage area shall:

- Be covered by forest at the start of the CCMP;
- Be located within the Reference Area but outside the CCMP area;
- Be monitored to detect emissions attributable to displacement of activities resulting from CCMP intervention

Where the leakage area totally or partially overlaps with the active accounting area of the selected FREL/FRL, the CCMP shall demonstrate:

- That no double counting exists between emissions estimated as leakage and those included in the FREL/FRL;
- That the overlapping area is not being used to issue credits under jurisdictional programmes;
- That technical evidence (cartographic and documentary) is provided to substantiate the accounting independence of the CCMP.

If the above conditions are not met, the leakage area shall be redefined.

- **Leakage Management Area (LMA):** A sub-area located within the leakage area and surrounding the CCMP area, where actions are implemented to prevent, reduce, or compensate for leakage emissions. Net GHG emissions associated with CCMP activities and generated outside its spatial boundaries shall be quantified and reported during each monitoring (results) period, in accordance with the provisions of **Section 9.3**.

The function of the Leakage Management Area may change where such provisions are already incorporated in the selected FREL/FRL.

- **Implementation Area:** The geographic area within the CCMP where selected REDD+ activities and leakage management actions are implemented. Within this area, GHG removals or emission reductions are directly generated relative to the baseline scenario.

6.3 Confirmation of Activities

As indicated in **Section 3.1**, REDD+ activities (DEF - DEG - SFM - CSE) may be implemented independently or in combination within the same CCMP, provided that eligibility conditions, spatial coherence, and technical compatibility requirements established in **Sections 3** and **4** of this methodology are met.

Identification, delineation, and monitoring of segments shall be based on activity data that shall annually cover the historical, projection, and results periods, and include relevant changes according to the implemented REDD+ activity, particularly:

- Transitions from stable forest to non-forest;
- Transitions from stable forest to non-stable forest;
- Transitions from non-stable forest and non-forest to stable forest.

Such data shall enable:

- Identification and classification of areas according to their land cover in the baseline and project scenarios;
- Provide a basis for the selection of the most appropriate REDD+ activity type;
- Annual monitoring of land-cover changes in accordance with the criteria established for each REDD+ activity.

Construction of activity data and identification of land-cover transitions shall be consistent with the applicable Forest Reference Emission Level / Forest Reference Level (FREL/FRL).

The holder or developer may use land-cover classes, operational definitions, and transition rules established in the selected FREL/FRL, harmonizing them with the eligible strata and REDD+ activities defined in this methodology.

Where the CCMP requires application of other methodologies developed or approved by Cercarbono (for example, the Forestry–Agriculture methodology) to implement carbon stocks enhancement activities through restoration or forest landscape establishment, segments in which such activities are implemented shall be explicitly identified and excluded from REDD+ accounting, in order to prevent any situation of double counting.

Any modification to the set of REDD+ activities initially defined for the CCMP (including removal of an activity type or incorporation of a new one) shall constitute a material change in the programme or project design and shall be subject to a new validation process in accordance with Cercarbono procedures

6.4 Carbon pools

Carbon pools included in a CCMP are those that can be measured to assess carbon stocks in the baseline scenario and whose changes are assessed in the project scenario, associated to REDD+ activities (**Table 5**).

All carbon pools included by the CCMP in the baseline scenario shall be considered in the project scenario and within the same segments (in accordance with the principle of internal consistency). Furthermore, carbon pools shall not be added or removed without undergoing a validation process and shall remain fixed throughout the crediting period.

Carbon pools included in the baseline scenario and susceptible to change as a result of CCMP implementation shall correspond, at a minimum, to the following:

1. Significant carbon pools present in areas classified as stable forest and therefore capable of generating GHG emission reductions in the project scenario through avoided deforestation or avoided forest degradation.
2. Significant carbon pools present in stable forest and non-stable forest areas during the historical period and therefore capable of generating GHG emission reductions through Sustainable Forest Management.
3. Significant carbon pools present in non-stable forest and non-forest areas during the historical period and therefore capable of generating GHG removals in the project scenario through Carbon Stocks Enhancement (forest restoration).

Table 5. Carbon pools

Carbon pool	REDD+ Activities				Explanation
	DEF	DEG	SFM	CSE	
Above-ground biomass	Yes	Yes	Optional	Yes	Pool subject to project activities. Covers arboreal and non-arboreal woody biomass (trees, shrubs and herbaceous). Includes stems, stumps, branches, bark, seeds, and foliage.

Carbon pool	REDD+ Activities				Explanation
	DEF	DEG	SFM	CSE	
					Carbon content in aboveground biomass is expected to be maintained due to forest management on forest land that is maintained as forest and is expected to increase due to restoration practices in non-stable forest and non-forest areas.
Below ground biomass	Yes	Yes	No	Yes	Pool subject to project activities. Includes live root biomass greater than 2 mm in diameter. Carbon content in below ground biomass is expected to be maintained due to forest management on forest land maintained as forest and is expected to increase due to restoration practices in non-forest and non-forest areas.
Dead wood and coarse and fine litter	Optional	Optional	No	Optional	A pool that may be subject to project activities in cases where it is identified as a key pool and monitoring is feasible or improved accuracy of measurement of its removals is considered. Includes aboveground non-living wood, whether standing or fallen such as dead roots and stumps greater than 10 cm in diameter.
Timber products	No	No	Yes	No	Pool to be included if Sustainable Forest Management activity is included. It cannot be included in any of the other activities. Covers timber products as a result of harvesting and extraction.
Soil organic carbon (SOC)	Optional	Optional	Optional	Optional	Pool subject to project activities. Soil organic carbon content is expected to be maintained, due to avoided cover changes (deforestation or forest degradation). Includes organic carbon from mineral and organic soils at a minimum depth of 30 cm and roots less than 2 mm in diameter.

*Areas where REDD+ activities of type DEF, DEG, or SFM may be implemented.

**Areas where REDD+ activities of type CSE or SFM may be implemented.

**Only those non-forest areas that may undergo conversion to forest land as a result of implementation of a REDD+ activity of type CSE.

Note: Carbon pools identified as optional may be included where reliable data are available for their monitoring, where a significant and well-supported change hypothesis exists, and where their inclusion improves the accuracy of results without leading to overestimation. Where an optional carbon pool is excluded, such exclusion shall be explicitly justified in the PDD (Project Description Document) under the principle of conservativeness, indicating that its estimated contribution is marginal and does not materially affect the net emission reductions or removals of the CCMP.

The estimations of carbon content or carbon stocks change in the pools shall be carried out using methods corresponding to IPCC Tiers 2 or 3, which include the use of forest inventories, specific emission factors, locally derived change rates, or calibrated and validated predictive models. In this regard, parameters and models officially documented in the selected FREL/FRL may be used, provided that they comply with the quality and representativeness requirements established by the IPCC for these methodological tiers and are relevant for the biophysical and ecological conditions of the CCMP area.

6.4.1 GHG Removal Factors

CO₂ removals originate from the net and progressive increase in carbon stocks within the different pools considered under the baseline and project scenarios.

Under the baseline scenario, the existence of non-stable forest or non-forest areas is assumed, with trajectories of carbon loss, stagnation, or marginal recovery. In contrast, the project scenario incorporates activities generating net carbon accumulation in biomass, soils, and, where applicable, other pools.

In CSE activities—unlike the other REDD+ activities—carbon stocks in the pools are not considered static with respect to tree growth, but dynamic over time. Therefore, removals shall be estimated annually for all included carbon pools within eligible strata throughout the entire CCMP implementation period, in accordance with the principle of internal consistency. For CSE activities, fixed average factors shall not be used. Instead, Annual Current Increment rates or technically justified equivalent models shall be applied, both to construct the baseline scenario and to project the project scenario⁵².

Baseline removals may be excluded where it is conservatively demonstrated that they are null or marginal and that their exclusion does not result in overestimation. In CSE activities, results shall be quantified as net removals, defined as the difference between removals observed in the project scenario and those that would have occurred in the absence of the CCMP. In all cases, baseline removals shall be mandatorily excluded where net emissions exceed the crediting threshold, understood as the total mitigation potential of the CCMP above which carbon credits cannot be issued.

Removal factors may be determined from the following sources:

- Direct field measurements (permanent plots and forest inventories, soil/sediment cores, biomass increment surveys);
- Peer-reviewed scientific literature demonstrating applicability to the local context;
- Growth and biomass accumulation models validated and calibrated for site-specific conditions;
- Official databases or national institutions (e.g., forest research institutes, universities, environmental ministries), provided reported values have methodological backing and correspond to local conditions;
- IPCC Tier 1 default factors, permitted only where demonstrated to be conservative relative to local measurements or nationally peer-reviewed scientific literature, and preferably limited to secondary carbon pools.

6.4.1.1 Minimum Components of Removal Factors, by Ecosystem and Activity

Removal factors shall include, as applicable to the ecosystem and mitigation activity implemented, at a minimum:

- Aboveground biomass increment (trees, shrubs, herbaceous vegetation);
- Belowground biomass accumulation (roots, rhizomes);
- Soil organic carbon accretion through organic inputs and reduced oxidation;

⁵² It depends on the woody tree species to be established and their management.

- Dead organic matter (litter, detritus, coarse woody debris), where measurable and persistent.

If models, allometric equations or growth functions are used, they shall be published and peer-reviewed, comply with IPCC Tier 2 or 3 methodological criteria, demonstrate applicability to the ecosystem and specific conditions of the CCMP area, and be fully documented in the PDD, ensuring their traceability for verification purposes.

Where removal factors are derived from national or jurisdictional inventories, they shall be supported by verifiable training protocols and Quality Assurance / Quality Control (QA/QC) systems for collected data. Additionally, confidence intervals associated with sampling errors shall be reported and incorporated into the CCMP uncertainty analysis.

Where post-mitigation land use (e.g., plantation or restoration) results in higher carbon stocks than the prior state (as may occur with conversion to intensive plantations), no additional credits shall be generated; net removals shall be considered equal to zero, in application of the principle of conservativeness.

Finally, all removal factors shall be reassessed and, where applicable, updated at least every five (5) years and at the beginning of a new crediting period, ensuring consistency with the most recent available information and with current Cercarbono guidelines. They shall also be reassessed in the event of any change in project design affecting the variables or assumptions used for their estimation, or requiring revalidation.

6.5 GHG Emission Sources

Potential GHG emission sources included in the baseline scenario of a CCMP arise from deforestation, forest degradation, or non-sustainable management practices. These correspond to the GHG emissions avoided in the project scenario as a result of implementing REDD+ activities.

GHG emission sources identified in the baseline scenario shall be monitored in the project scenario. Their identification derives from the preliminary analysis (**Section 4.1**), the diagnosis of potential agents and drivers of forest loss (**Section 4.1.1**), as well as any other relevant information that allows such sources to be fully and conservatively integrated into the CCMP.

GHG emission sources that may be included or excluded from the project activity are presented in **Table 6**.

Table 6. GHG emission sources that may be included in a CCMP

Source	GHG	Baseline scenario				Project scenario				Explanation
		DEF	DEG	SFM	CSE	DEF	DEG	SFM	CSE	
Biomass removal or burning	CO ₂	Yes	Yes	Yes	No	No	No	No	No	Emissions from this source are conservatively excluded. In deforestation processes (including possible intermediate burning step). In forest degradation
	CH ₄	Optional	No	No	No	No	No	No	No	

Source	GHG	Baseline scenario				Project scenario				Explanation
		DEF	DEG	SFM	CSE	DEF	DEG	SFM	CSE	
	N ₂ O	Op-tional	No	No	No	No	No	No	No	processes, only emissions associated with fragmentation shall be considered. Where such emissions are not relevant or significant, they may be conservatively excluded.
Biomass removal (timber extraction)	CO ₂	No	No	Yes	No	No	No	Yes	No	Emissions from this source.
	CH ₄	No	No	No	No	No	No	No	No	Excluded.
	N ₂ O	No	No	No	No	No	No	No	No	Excluded.
Fertilizer use	CO ₂	No	No	No	No	No	No	No	No	Excluded.
	CH ₄	No	No	No	No	No	No	No	No	Excluded.
	N ₂ O	No	No	No	Op-tional	No	No	No	Op-tional	Emissions from this source are conservatively excluded.
Agricultural or livestock activities	CO ₂	No	No	No	Op-tional	No	No	No	No	Emissions from this source are conservatively excluded.
	CH ₄	No	No	No	Op-tional	No	No	No	No	Excluded.
	N ₂ O	No	No	No	No	No	No	No	No	Excluded.

Emissions from forests remaining forests shall be included, unless their exclusion can be conservatively justified. Such exclusion shall be acceptable where it is demonstrated that average gross annual emissions during the five years preceding the start of the crediting period exceed projected emissions during that period. This analysis shall be updated at the beginning of each new crediting period.

Similarly, emissions from forest degradation may be excluded where:

- They represent less than 10% of deforestation emissions during the historical period; or
- Under activity-level analysis, emissions derived from individual activities (e.g., selective logging or fuelwood collection), estimated using Tier 1 (or higher) methods, represent less than 3% of deforestation emissions, and their cumulative total represents less than 10%.

6.5.1 GHG Emission Factors

All GHG emission factors included by the CCMP in the baseline scenario shall also be considered in the project scenario, ensuring methodological consistency.

Emission factors shall be representative of the eligible strata within the CCMP area and shall demonstrate spatial consistency with the area where activity data are monitored and with the total project area.

Emission factors are primarily associated with forest processes such as deforestation, degradation, burning, and biomass extraction. Other sources, such as emissions derived from fertilizer use (N₂O), shall only be considered where relevant to specific activities (e.g., CSE) and where

materiality criteria are met; they may be conservatively excluded where their contribution is marginal.

Quantification shall therefore focus on carbon pools affected by significant emission sources, understood as those accounting for at least 90% of total carbon content and whose measurement is technically and logistically feasible. For these pools, emission factors shall preferably be estimated through forest inventories, following applicable national methodological guidelines.

Accepted data sources for estimating emission factors include:

- Direct field measurements (permanent plots and forest inventories);
- Peer-reviewed scientific literature;
- Calibrated and validated models for local conditions;
- Official national or subnational data, including national GHG inventories or sectoral emission factors (where available);
- IPCC Tier 1 default factors, exclusively for secondary carbon pools, non-dominant gases, or minor activities (contributing less than 3% of reported emissions), provided their use is duly justified.

Where models or equations are used, they shall be published, peer-reviewed, and demonstrate applicability to the ecosystem and local conditions. They shall comply with IPCC Tier 2 or Tier 3 methodological requirements and be fully documented in the Project Description Document (PDD), ensuring traceability during verification.

Emission factors derived from national or jurisdictional forest inventories shall be supported by verifiable training protocols and Quality Assurance/Quality Control (QA/QC) systems for collected data.

Where secondary data are provisionally used pending primary estimates, information on potentially significant sources shall be organized in descending order according to estimated historical emissions. Sources shall be considered significant where their cumulative sum in said order represents up to 90 percent of total estimated historical emissions from all sources.

Emission factors shall be calculated for carbon pools affected by land-use changes represented in **Table 7**. For these calculations, gross emissions shall be assumed (ignoring *post*-deforestation carbon content), including at minimum aboveground and belowground biomass pools. Exclusion of any pool or source shall be expressly justified in the PDD under the principle of conservatism, using the notations “NA” (Not Applicable) or “NE” (Not Estimated), as appropriate.

Field data collection (sampling) shall enable application of allometric equations to estimate carbon content in pools. Selection of allometric equations shall be duly justified, prioritizing taxonomic and ecological relevance in the following order: species, genus, family, or forest type.

Such equations shall be applied within the validity range defined by their authors, applying methodological corrections as required (e.g., heteroscedasticity adjustments). Individual identification shall preferably be conducted at the species level and supported by herbarium references. Where ecosystem-type equations are used, individual identification shall not be required.

Where complete identification is not available, average values by genus, family, or dominant species within the plot may be used. Where taxonomic criteria cannot be applied, appropriately justified default values may be employed.

Information recorded in field forms constitutes monitoring evidence and shall be available for verification and subsequent use in project calculations.

Table 7. Possible land-use change matrix within the CCMP intervention area

Land use (x ₂) / Land use (x ₁)		Forest land (x ₁)		Agricultural land (x ₁)	Grassland (x ₁)	Settlements (x ₁)	Secondary vegetation (x ₁)	Other Land (x ₁)	Total (ha)
		Stable forest	Non-Stable forest						
Forest land	Stable forest	Forest Degradation	Forest Degradation	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	
	Non-Stable forest	Forest Degradation	Forest Degradation/ Sustainable Forest Management	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	
Agricultural land (x ₂)		Deforestation	Deforestation	-	-	-	-	-	
Grassland (x ₂)		Deforestation	Deforestation	-	-	-	-	-	
Settlements (x ₂)		Deforestation	Deforestation	-	-	-	-	-	
Secondary vegetation (x ₂)		Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	Carbon Stocks Enhancement	
Other Land (x ₂)		Deforestation	Deforestation	-	-	-	-	-	
Total (ha)									

Note: The variable x represents time; x₁ corresponds to the historical period and x₂ to the projection period. Transitions identified as **deforestation** represent conversions of forest land to non-forest land uses that generate GHG emissions associated with the loss of carbon stocks; those corresponding to **forest degradation** refer to areas that remain classified as forest and experience reductions in carbon stocks; those associated with **Sustainable Forest Management** correspond to lands that remain forest and are subject to harvesting activities conducted under an approved management plan; and those related to **Carbon Stocks Enhancement** represent transitions that generate GHG removals through restoration, revegetation, or other activities that increase carbon stocks. **Avoided deforestation** and **avoided forest degradation** are quantified as the difference between the emissions projected under the baseline scenario and the emissions observed or projected under the project scenario. The matrix identifies physical land-use transitions and does not, by itself, represent avoided emissions.

Matrix in **Table 7**, includes potential land-use changes in accordance with IPCC categories. It is common for the CCMP to report changes in forest categories (stable forest and non-stable forest) and non-forest. Both reporting approaches are valid, provided they are technically justified.

6.6 Additional Analytical Factors of the CCMP

In addition to the behavior of economic activities described above and summarized in **Table 7**, the CCMP shall analyze the following factors:

Biophysical Factors

Climate, soils, lithology, topography, relief, hydrology, and vegetation, which exhibit spatial and temporal variability.

Economic and Technological Factors

Consider, for example, commercialization and growth of international timber markets, or economic variables characterized by low domestic costs (land, labor, fuels, among others), increases in product prices, and demand from remote urban and industrial centers.

Productive Factors

Production systems and their influence on deforestation and forest degradation shall be analyzed, whether located within or outside forest areas, and whether legally or illegally established within the project's reference area. Examples include extractive industries, legal timber harvesting, illegal logging, cattle ranching, illicit crops, among others.

For identification of probable Sustainable Forest Management (SFM) segments, natural stands subject to selective harvesting and those expected to be harvested during the projection period shall be identified. Within productive factors related to Sustainable Forest Management, a description of technologies and logistical operations for timber harvesting shall be included.

Demographic Factors

Population composition and distribution, and the context in which the population interacts with other factors, are critical to understanding pressure on land use and land-cover change. Analysis shall also consider migration processes, alongside non-demographic drivers such as government policies, shifts in consumption patterns, and globalization—often facilitated by infrastructure development (e.g., access roads).

Institutional Factors

Government policies play a decisive role in forest cover transformations, either directly or indirectly, interacting with demographic, economic, and biophysical drivers. Access to land, capital, technology, and information is structured—and often constrained—by national-level policies and institutions.

For identification of potential CSE segments, the analysis of agents and drivers shall incorporate available information on restoration-prone areas identified in national plans.

Territorial Analysis

A key product derived from spatial information associated with agents and drivers is an indicative map illustrating how different sources of forest pressure operate. This map shall be clear and illustrative, serving as an input for participatory social cartography processes involving broad stakeholder engagement within the CCMP area. This process shall involve the establishment of working groups to validate whether mapped pressures correspond to on-the-ground realities. This validation step ultimately determines the formal diagnosis of deforestation agents and drivers. It is also recommended to develop timelines incorporating motivations, memories, historical narratives, attitudes, values, perceptions, and personal and collective beliefs that influence decision-making processes.

Based on compiled socioeconomic information, a summary timeline shall be constructed identifying factors that have driven deforestation and forest degradation processes. Correlation analyses of events and trend analyses of these variables shall also be conducted to design more effective CCMP actions.

For example, if analysis of agents and drivers reveals that the primary driver of deforestation is illegal occupation of land for cattle ranching within an Indigenous reserve—and this is corroborated by land-use change data, community testimonies, and secondary information describing historical occupation processes—then, once validated, the CCMP shall develop targeted actions such as those outlined in **Table 8**.

Table 8. Examples of actions to reduce deforestation and forest degradation within an Indigenous reserve through improved local governance

Possible actions to reduce deforestation and forest degradation	
Administrative measures	Formulate and implement the <i>Life Plan</i> (ethno-territorial planning instrument).
	Strengthen governance of the Indigenous community within its territory through financial support to its organizational structures and capacity-building in administrative management for the design and implementation of projects.
Control measures	Implement a local early warning system for deforestation and forest degradation.
	Co-finance an agreement with the environmental authority to strengthen control and enforcement processes within the Indigenous reserve.
	Support the development of command-and-control measures enabling the filing of complaints regarding logging activities without placing the community at risk.
Planning measures	Design and implement a roadmap to access financial mechanisms such as Payments for Environmental Services (PES), particularly for forest cultural ecosystem services.

A tool that may be incorporated to analyze the current and future behavior of deforestation agents and drivers is the development of **forest-loss risk maps**, based on the variables assessed. If this approach is implemented, full traceability of cartographic inputs and data sources shall be maintained. For this purpose, it is recommended to follow the structure presented in **Table 9**.

Table 9. Inventory of cartographic inputs and data sources used

Mapping factor	Source	Variable represented	Analysis of variable	Data evaluation range	Criteria	Algorithm or equation used	Comments
ID	File name	Unit	Description				

Within the framework of this methodology, risk maps are considered complementary tools for the analysis of agents and drivers, and therefore for the design of territorial actions aimed at avoiding deforestation or forest degradation. However, they do not replace projection systems nor the requirement to include activities other than deforestation within the baseline scenario where applicable.

6.7 Long-Term Average GHG Mitigation Potential

The long-term average GHG mitigation potential is defined as the annual mean of net emission reductions and/or net carbon removals achieved by the CCMP, considering all REDD+ activities implemented throughout the entire crediting period. It is expressed in tonnes of CO₂ equivalent per year (tCO₂e/year) and corresponds to the average annual difference between the projected net annual GHG balance in the baseline scenario and the estimated net annual GHG balance in

the project scenario, including all relevant emission sources and sinks, as well as attributable leakage emissions.

This value, multiplied by the number of years of the CCMP duration, establishes the estimated maximum amount of carbon credits that may be issued during the implementation period, in accordance with the principle of conservativeness.

When the CCMP exclusively implements emission reduction activities (DEF, DEG, or SFM), net removal terms may be assumed to be zero, provided that no net carbon stocks increases are attributable to project intervention. In such cases, mitigation potential shall be driven by avoided emissions.

Conversely, when the CCMP exclusively implements carbon removal or sequestration activities (CSE), the emission-related terms in the equations may be set to zero, provided that no carbon loss occurs due to land-use change. In such cases, mitigation potential shall be determined by net removals.

In mixed⁵³ implementations, both avoided emissions and net removals shall be quantified, ensuring methodological consistency, absence of double counting, and clear traceability by REDD+ segment and carbon pool involved.

⁵³ CCMPs that account for results from both net GHG removals and net GHG emission reductions.

The long-term average GHG mitigation potential is calculated as:

$$MP_{GHG} = \frac{1}{T} \sum_{t=1}^T (GHG_{BL,t} - GHG_{P,t})$$

Equation 8

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
MP_{GHG}	Average long-term GHG mitigation potential of the CCMP.	tCO ₂ e / year	X	X	X	X
$GHG_{BL,t}$	Net annual GHG balance of the baseline scenario in year <i>t</i> .	tCO ₂ e	X	X	X	X
$GHG_{P,t}$	Net annual GHG balance of the project scenario in year <i>t</i> , calculated in accordance with the applicable equations.	tCO ₂ e	X	X	X	X
T	Total duration of the CCMP crediting period over which the long-term average is calculated.	Years	NA	NA	NA	NA

The long-term average GHG mitigation potential shall be established in coherence with:

- The selected FREL or FRL applicable to the area of the CCMP.
- The eligibility of strata, carbon pools, and GHG sources included in the CCMP.
- The regulatory, political, and technical framework of the country where the CCMP is implemented, including NDCs, sectoral development plans, and compliance with social and environmental safeguards.

The estimation of long-term mitigation potential shall:

- Be based on historical carbon change rates supported by empirical or scientifically validated data (forest inventories, permanent plots, remote sensing, or other verifiable sources or methods);
- Reflect the dynamics of carbon pools by REDD+ activity and demonstrate coherence in aggregation across segments and compatibility with the applicable FREL/FRL;
- Incorporate, where applicable, both avoided emissions and net removals, consistently informing the variables $GHG_{BL,t}$ and $GHG_{P,t}$;
- Be periodically adjusted (at least every five years) based on updates to the FREL/FRL, new data, or relevant changes in the political or biophysical context;
- Ensure internal consistency with the CCMP scenarios, avoiding overestimations that could compromise environmental integrity and the credibility of mitigation results.

This calculation applies to both individual CCMPs and jurisdictional programs or integrated projects. In CCMPs integrated into jurisdictional (nested) programs, the average GHG potential shall be consistent with the corresponding FREL/FRL and with the rules for allocation of accounting areas and benefits established by the jurisdiction. For individual CCMPs, the delineation of the results-counting area and direct monitoring shall form the basis of the calculation, whereas for jurisdictional programs, annual allocations or agreements established under the approved jurisdictional framework may be considered.

7 Projection System and Period

The projection system defines the methodological framework for estimating projected activity data under the baseline scenario of the CCMP. This system establishes the assumptions, methods, and time horizons used to represent the expected evolution of REDD+ activities in the absence of the CCMP, ensuring consistency with applicable national or jurisdictional FREL/FRLs, as well as with the principles of accuracy, relevance, and conservativeness.

The selection of the projection system shall be based on its capacity to adequately reproduce observed historical behavior, using annual information from the historical period and technically robust and verifiable methods. Linear or non-linear approaches, as well as other methods recognized in the scientific literature, may be used, provided that their application is pertinent to the territorial dynamics of the CCMP and does not lead to overestimations of the baseline scenario.

Where overlap exists with a national or jurisdictional FREL/FRL, the CCMP shall apply the same methodological approach used in that reference framework, including equations, assumptions, and analytical criteria, unless its adaptation at project scale is technically justified. In such cases, the holder shall document the reasons for the adaptation and demonstrate that the adopted approach remains conservative.

The projection system applies exclusively to the baseline scenario and is not used for quantifying the project scenario, which shall be based on observed data during the monitoring period, in accordance with the procedures established in this methodology.

7.1 DEF Segment Specific Analysis

For the avoided deforestation (DEF) segment, an analysis of activity data corresponding to the historical period shall be conducted, specifically within areas classified as stable forest within the CCMP area. This information constitutes the basis for constructing the baseline scenario and projecting expected deforestation in the absence of the project.

The methodology allows the use of different statistical approaches and modeling techniques, provided that their relevance is justified according to local deforestation dynamics and consistency with applicable FREL/FRLs is ensured. Projections may be based on linear or non-linear models that correlate socioeconomic and biophysical variables with deforestation.

Below, the determination annual baseline deforestation flow $A_{def,BL}^*(t)$, is illustrated through two complementary approaches:

- a) **Multivariable logistic model:** this approach projects cumulative deforestation over time using a model that incorporates observed historical dynamics and the main explanatory variables of deforestation, allowing the capture of saturation, acceleration, or deceleration patterns according to territorial reality. From cumulative projections, annual forest losses are derived, forming the dynamic baseline trajectory:

$$A_{def,BL}^{cum}(t) = \frac{A_{def,sus}}{1 + \exp(-(\alpha + \sum_{j=1}^m \beta_j X_j(t)))} \quad \text{Equation 9}$$

Variable	Description	Units
$A_{def,BL}^{cum}$	Cumulative deforested area in the baseline scenario up to year t .	ha
$A_{def,sus}$	Total forest area susceptible to deforestation (maximum system capacity). Corresponds to the upper limit of cumulative deforestation potentially occurring within the CCMP.	ha
α	Intercept of the logistic model, capturing the initial level of the deforestation process.	Dimensionless
β_j	Coefficient associated with explanatory variable X_j ; represents the magnitude and direction of the effect of that variable on the probability or intensity of deforestation.	$1/X_j$
$X_j(t)$	Explanatory variable j in year t (e.g., demographic pressure, distance to roads, accessibility, slope, agricultural suitability, proximity to population centers, among others).	According to the specific variable
m	Total number of explanatory variables included in the model.	Dimensionless

Where $A_{def,BL}^{cum}(t)$ represents the cumulative deforestation up to year t . The annual flow derived from the model is obtained as:

$$A_{def,BL}(t) = A_{def,BL}^{cum}(t) - A_{def,BL}^{cum}(t - 1)$$

Equation 10

Variable	Description	Units
$A_{def,BL}(t)$	Deforested area in year t under the baseline scenario, derived from the dynamic model. It represents the annual deforestation flow prior to application of the conservative rule.	ha
$A_{def,BL}^{cum}(t)$	Cumulative deforested area in the baseline scenario up to year t , estimated using the logistic model.	ha
$A_{def,BL}^{cum}(t - 1)$	Cumulative deforested area in the baseline scenario up to year $t - 1$.	ha

b) **Fixed annual deforestation rate (Puyravaud, 2003):** in parallel, a fixed annual deforestation rate is independently calculated from the net change in forest cover observed during the historical period. This value constitutes a simple, transparent, and conservative reference that allows dynamic projections to be compared and validated.

$$FDR = \frac{1}{(x_2 - x_1)} \times Ln \left(\frac{A_1}{A_2} \right) \cdot 100$$

Equation 11

Variable	Description	Units
FDR	Fixed annual deforestation rate for the historical period, calculated from the net change in forest area between two reference years (Puyravaud, 2003) and applied as an annual fraction to the forest area susceptible to deforestation.	% /year
x_2	Indicator of the Final year of the historical analysis period.	Dimensionless
x_1	Indicator of the initial year of the historical analysis period.	Dimensionless
A_1	Forest area in year x_1 (beginning of the historical period).	ha
A_2	Forest area in year x_2 (end of the historical period).	ha

From this rate, the projected annual deforestation is estimated as:

$$A_{defBL_t}^{(k)} = \frac{FDR}{100} \times A_{t-1} \quad \text{Equation 12}$$

Variable	Description	Units
$A_{defBL_t}^{(k)}$	Deforested area in year t of the baseline scenario for segment DEF, estimated using the fixed rate method.	ha
FDR	Fixed annual deforestation rate, calculated based on historical period.	%/year
A_{t-1}	Forest area susceptible to deforestation at the beginning of year t (Remanent after cumulative deforestation up to previous year)	ha

The annual deforestation flow used for quantifying the DEF segment under the baseline scenario shall be conservatively defined as the minimum between: the annual flow derived from the dynamic model (difference in cumulative deforestation) and the annual flow estimated using the fixed-rate method:

$$A_{def,BL}^*(t) = \min \{A_{def,BL}(t), A_{defBL_t}^{(k)}\}$$

Equation 13

Variable	Description	Units
$A_{def,BL}^*(t)$	Adjusted deforested area in year t under the baseline scenario, after applying the conservative rule (minimum value between the dynamic model and the fixed-rate method).	ha
$A_{def,BL}(t)$	Deforested area in year t under the baseline scenario, estimated using the dynamic model (derived from the cumulative function).	ha
$A_{defBL_t}^{(k)}$	Deforested area in year t under the baseline scenario, estimated using the fixed annual deforestation rate method (FDR applied to the area susceptible to deforestation at the beginning of the year).	ha

Note: The use of the minimum operator represents the conservative rule applied in the model. Where the adjusted value $A_{def,BL}^*(t)$ is limited by the fixed deforestation rate method, the area susceptible to deforestation in subsequent years shall be recalculated on an iterative basis

The obtained value constitutes the annual baseline deforestation flow that shall be used for quantifying the DEF segment.

The use of the fixed-rate method shall be justified based on the stability of historically observed rates. The multivariable logistic model allows cumulative deforestation to be projected by incorporating explanatory variables; from it, annual deforestation is obtained as a derived flow. The contrast between both approaches, through the selection of the minimum value, ensures that the baseline scenario remains conservative, consistent, and compatible with the applicable FREL/FRLs.

Additionally, *machine learning* or *deep learning* models may be used to estimate annual deforestation, provided that their use is technically feasible, properly documented, and demonstrated to be consistent with applicable national or jurisdictional frameworks.

7.2 DEG segment Specific Analysis

In the avoided forest degradation (DEG) segment, the projection system represents the expected recurrence, extent, and intensity of forest degradation processes that would affect carbon stocks in the absence of the CCMP, without constituting a land-use change.

Forest degradation shall be operationally defined in accordance with the framework adopted by the CCMP and shall be consistent with the definition used in the applicable national or jurisdictional FREL/FRL. In general terms, the projection may consider, among others, processes such as partial forest cover loss, unplanned selective logging, recurrent fires, or other anthropogenic disturbances that do not imply conversion to non-forest.

The projection of the DEG segment shall be based on verifiable historical information, with annual resolution or the minimum acceptable resolution under the selected reference framework. The historical period used may differ from that applied to the DEF segment, provided its relevance is justified and internal consistency of the baseline scenario is ensured.

The historical data used for projection may be a product of remote sensing, secondary records, or other technically reliable sources, and shall adhere to a fixed and consistent definition of forest degradation throughout the analysis period.

The result of this analysis is the estimation of projected activity data for the DEG segment (e.g., area affected by degradation per stratum and year), which constitutes the input for quantifying baseline emissions for the DEG segment, developed in **Section 8.3.2**.

7.3 Specific Analysis of SFM and CSE Segments

For the sustainable forest management (SFM) segment, the projection system describes the continuation scenario of conventional or non-optimized forest harvesting practices that would have been implemented in the absence of the CCMP. This scenario represents the expected trajectory of timber harvesting activities, including historical extraction levels, residue generation, and collateral impacts on the forest, without incorporating improvements associated with sustainable forest management practices.

The projection of the SFM segment shall be based on verifiable historical information on forest harvesting activities, which may be expressed in terms of managed areas, volumes of extracted timber, or other relevant indicators, provided internal consistency of the baseline scenario and coherence with applicable FREL/FRLs are ensured, where applicable.

In the carbon stocks enhancement (CSE) segment, the projection system represents the natural evolution of carbon stocks in areas classified as non-stable forest or non-forest, in the absence of planned interventions aimed at increasing carbon stocks. This evolution may reflect processes of natural regeneration, stagnation, or marginal changes in carbon pools, according to the historically observed biophysical and land-use conditions.

The projection of the CSE segment shall be based on historical information and conservative assumptions that allow representation of the counterfactual trajectory of carbon stocks in the absence of the CCMP, without anticipating or incorporating the effects of restoration, revegetation, or other actions implemented under the project scenario.

The result of this analysis is the definition of projected activity data corresponding to the SFM and CSE segments, which constitute the input for quantifying the baseline scenario developed in **Sections 8.3.3** and **8.3.4**, respectively.

8 Baseline scenario

The baseline scenario establishes the counterfactual framework against which the impacts of the CCMP are assessed and shall realistically reflect the evolution of the territory in the absence of intervention. In this regard, the baseline scenario shall:

- Be consistent with the selected national or jurisdictional FREL/FRL.
- Comply with the established principles.
- Reflect the real dynamics of agents and drivers of deforestation and degradation within the reference area, avoiding overestimations.
- Integrate socioeconomic, biophysical, regulatory, and territorial governance factors.

The total GHG emissions and removals of the baseline scenario correspond to the sum of annual projected emissions and removals for the reference period, comprehensively considering all REDD+ activities included in the CCMP.

The baseline shall be assessed by the holder of the CCMP every five (5) years to verify the validity of its assumptions and its consistency with the applicable FREL/FRL. If substantive changes are identified in the reference framework or in the conditions underpinning it (including modifications in the FREL/FRL, in the dynamics of agents and drivers, or in the regulatory or territorial context), the holder shall update it and submit the adjusted CCMP documents for validation.

8.1 Identification and selection of the baseline scenario

The CCMP shall consider the most plausible baseline scenario, taking into account the results generated in the additionality analysis and the historical and current land-use dynamics in the intervention area.

Under this methodology, the baseline scenario consists of estimating the amount of carbon in carbon pools (**Section 6.4**) and emissions from sources (**Section 6.5**) that would occur within the boundaries of the CCMP in the absence of its activities. In this regard, Cercarbono has developed the ***Guidelines for the Use of Models in Baseline Carbon Quantification in the Land-Use Sector***, in order to ensure environmental integrity, credibility of generated carbon credits, and contribute to the additionality of program or project activities.

The calculation of GHG emissions in the baseline scenario results from changes in GHG emission sources and carbon stocks in selected pools as a function of changes in the behavior of agents and drivers of deforestation. The following steps shall be followed:

- a) Establish the historical period (**Section 6.1**) during which activity data and GHG emission factors (**Section 6.5.1**) or GHG removal factors (**Section 6.4.1**) are measured for calculation.
- b) Design and implement sampling to assess the representativeness of GHG emission and removal factors.
- c) Project deforestation trends and, where degradation data are available, forest degradation trends (**Sections 7.1** and **7.2**).

The baseline shall be reviewed at a minimum, every five (5) years or as required by applicable official regulations/procedures (FREL/FRL), avoiding changes that create inconsistencies with already verified periods. Revalidation shall include, at a minimum:

- Updating agents/drivers and relevant spatial variables,
- Adjustment of the land-use/cover change component,
- Review of the carbon component /factor, as applicable,
- Temporal consistency and comparability with verified history.

8.2 Quantification of the baseline scenario

This section establishes the general framework for quantifying the baseline scenario applicable to all REDD+ segments included in the CCMP (DEF – DEG – SFM - CSE). **Subsections 8.3.1 to 8.3.4** develop its specific application by segment.

Quantification of the baseline scenario constitutes the mandatory technical reference for *ex ante* estimation of mitigation results (**Section 10**) and for *ex post* quantification of net GHG emission reductions and removals during monitoring (**Section 17**), ensuring methodological consistency between design, projection, and verification of CCMP results.

In segments oriented toward emission reductions (DEF, DEG, and SFM), the baseline represents expected gross emissions from deforestation, forest degradation, or conventional management. In the segment oriented toward removals (CSE), the baseline represents the initial state or trajectory of carbon stocks in the absence of intervention, against which net removals attributable to the project are quantified. In all cases, the baseline shall be constructed under a conservative approach consistent with applicable FREL/FRLs.

Quantification of the baseline scenario comprises, as applicable, estimation of emissions from significant GHG sources and carbon stocks in relevant pools, based on eligible strata (stable forest, non-stable forest, and non-forest) and REDD+ segments included in the CCMP. Carbon stocks shall be estimated independently for each applicable stratum and segment to establish reference values for deriving emission factors and quantifying counterfactual emissions. In DEF, DEG, and SFM segments, such stocks are considered static and used as parameters for estimating emissions associated with deforestation, degradation, or harvesting events, whereas in the CSE segment they may be modeled dynamically, reflecting the natural accumulation trajectory in the absence of the CCMP. Only sources and pools whose contribution is material to the CCMP GHG balance shall be included; exclusion of any potentially relevant element shall be explicitly justified in the PDD under the principle of conservatism, demonstrating that its contribution is marginal and that its omission does not lead to overestimation of mitigation results.

Data, factors, and parameters used for baseline quantification shall be obtained, in priority order, from applicable national or subnational inventories, official information linked to the selected FREL/FRL, and, in their absence, from the applicable IPCC GPG and Guidelines. Where adequate information does not exist, the CCMP may establish parameters through field inventories, remote sensing, or properly calibrated and validated predictive models, in accordance with the **Guidelines for the Use of Models in Baseline Carbon Quantification in the Land-Use Sector** and the principles of reliability, consistency, and conservatism established in this methodology.

In all cases, selected values shall be technically representative of the biophysical conditions of the CCMP area, minimize uncertainty, and avoid any overestimation of GHG reductions or removals. The baseline shall not assume additional carbon accumulation, except where technical evidence demonstrates ongoing natural recovery or degradation processes that must be represented to accurately reflect the actual territory dynamics.

CO₂ emissions and removals in the baseline scenario may be estimated using the stock-change approach (ΔC) or flow-based approaches, depending on the nature of the REDD+ segment and carbon pool considered. In DEF, DEG, and SFM segments, stock changes represent the counterfactual realization of carbon losses associated with conversion, degradation, or biomass extraction in the absence of the CCMP and constitute the basis for estimating baseline CO₂ emissions. In the CSE segment, stock changes reflect the counterfactual trajectory of carbon accumulation or maintenance under natural conditions and are used to estimate baseline net removals. Under no circumstances shall stock-change and flow approaches be combined for the same stratum and carbon pool, in order to avoid double counting and ensure consistency, transparency, and traceability of GHG accounting.

All GHG emissions and removals estimated for the baseline scenario under this Section are defined under a conservative approach and are subject to the adjustments established in **Section 14**.

8.2.1 Baseline scenario emissions estimation

All relevant emission sources in accordance with **Section 6.5** shall be considered within the specific considerations of each segment (REDD+ activity). They are calculated as:

$$E_{BL,t} = \sum_{s=1}^{N_s} \sum_{k=1}^{N_k} E_{BL,s,k,t}$$

Equation 14

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$E_{BL,t}$	Total GHG emissions from sources in the baseline scenario in year t , aggregated across all REDD+ segments of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e	X	X	X	X
$E_{BL,s,k,t}$	Total GHG emissions from sources in the baseline scenario for segment s (DEF -DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest) during year t .	tCO ₂ e	X	X	X	X
N_s	Total number of REDD+ segments included in the CCMP.	Dimensionless	NA	NA	NA	NA
N_k	Total number of eligible strata considered in the CCMP.	Dimensionless	NA	NA	NA	NA

For each segment s , emissions $E_{BL,s,k,t}$ shall include all relevant sources associated with the activity and the corresponding coverage stratum, such as:

- Emissions from biomass burning;
- Non-CO₂ emissions (CH₄, N₂O) associated with degradation, fires, management, or drainage;
- Emissions derived from soil disturbances when material;
- Other sources identified in **Section 6.5** and consistent with the applicable FREL/FRL.

Emissions of each gas g shall be converted to CO₂ equivalent using the applicable global warming potentials (GWP):

$$E_{BL,s,k,t} = \sum_g E_{BL,s,k,t,g} \cdot GWP_g$$

Equation 15

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$E_{BL,s,k,t}$	Total GHG emissions from sources in the baseline scenario for segment s (DEF -DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest) in year t .	tCO ₂ e	X	X	X	X
$E_{BL,s,k,t,g}$	Emissions of greenhouse gas g from sources in the baseline scenario for segment s , stratum k , in year t , prior to conversion to CO ₂ equivalent	t gas	X	X	X	X
GWP_g	Global Warming Potential (GWP) of gas g (GHG considered), according to the latest applicable IPCC guidance.	Dimensionless	NA	NA	NA	NA

8.2.1.1 Emissions from biomass removal or burning

This section applies to areas that remain as stable forest (under DEF or DEG activities) or as non-stable forest (SFM or CSE) in the baseline and project scenarios. Therefore, it is essential to identify the main sources of GHG emissions and understand the nature of biomass removal processes, whether through burning, extraction, degradation, or non-combustive removal, in order to classify them as anthropogenic in origin. The calculation of such emissions shall be based on the fraction of carbon contained in the available biomass, considered as fuel mass in the case of burning events, or as removed material susceptible to oxidation or decomposition, in accordance with the factors and assumptions established in the applicable IPCC Guidelines.

To perform a coherent and consistent estimation, the following shall be undertaken:

- Determine the affected area, differentiating between burned, deforested, degraded, or biomass extraction areas.
- Estimate the mass of available biomass in the affected areas, including, as appropriate, above-ground biomass, belowground biomass, litter, and dead wood.
- Apply representative combustion factors for the fraction of biomass effectively burned, when emissions originate from burning events.

- Apply conservative oxidation or decomposition factors for biomass removed through extraction or non-combustive degradation.
- Select the corresponding GHG emission factors (CO₂), according to the type of process (combustion, progressive oxidation, or decomposition).

8.2.1.2 Emissions from fertilizer use

This section applies to areas that remain as non-stable forest or non-forest (under the CSE activity) in the baseline and project scenarios. These areas may be included in the accounting when material and for the purpose of demonstrating changes in their use relative to the project scenario. To ensure a coherent and consistent estimation, the following shall be available:

- Data on products used in the corresponding activities (e.g., fertilizers, pesticides, amendments, or other relevant inputs).
- Data on quantities applied in the areas under analysis, with proper traceability and verifiable records.
- Selection of appropriate GHG emission factors, in accordance with IPCC Guidelines and applicable national or international guidance, ensuring representativeness and relevance to the local context.

Where direct measurements or specific factors are not available, the provisions established in **AR-Tool 16–Annex 16** shall be applied, which provides guidance for the selection and application of default emission factors.

8.2.1.3 Emissions derived from agricultural or livestock activities

This section applies to areas that remain as non-stable forest or non-forest (under the CSE activity) in the baseline scenario. These areas may be included in the accounting only when material, for the purpose of demonstrating changes in land use and associated emissions compared to the project scenario.

Emissions derived from agricultural or livestock activities shall be accounted for exclusively in the baseline scenario, as such activities are expected to be eliminated or replaced by CCMP actions in the project scenario.

To ensure coherent and verifiable estimation, the following shall be undertaken:

- Identify and characterize agricultural or livestock activities carried out in the area prior to the start of the CCMP, considering the preliminary analysis (**Section 4.1**) (e.g., crops and grazing).
- Obtain data on products and practices employed, excluding fertilizer use.
- Quantify materials or products consumed, ensuring traceability through verifiable records.
- Select appropriate GHG emission factors, following IPCC Guidelines (2006; 2019 Refinement) or available national factors, prioritizing those specific to the country, jurisdiction, or ecosystem.

When prior agricultural or livestock activities are eliminated and not displaced, no additional emissions attributable to the project scenario are generated.

Where there is a risk of displacement of agricultural or livestock activities, this shall be addressed exclusively under the leakage section (**Section 9.3**), applying **AR-Tool 15** or other relevant and context-appropriate methodological guidance, in order to ensure consistency and avoid double counting.

In the absence of primary data, internationally recognized default values may be used, provided their application is duly justified under the principles of conservatism, consistency, and transparency.

8.2.2 Estimation of carbon stocks

The change in carbon stocks in the baseline scenario in year t is calculated as the sum of the results obtained in the different REDD+ segments included in the CCMP:

$$Rcp_{BL,t} = \sum_{s=1}^{N_s} \sum_{k=1}^{N_k} Rcp_{BL,s,k,t} \cdot A_{s,k}$$

Equation 16

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$Rcp_{BL,t}$	Total annual change in carbon stocks under the baseline scenario in year t .	tCO ₂ e	X	X	X	X
$Rcp_{BL,s,k,t}$	Annual change per unit area in carbon stocks under the baseline scenario for segment s (DEF - DEG - SFM - CSE), in stratum k (stable forest, non-stable forest and non-forest) in year t .	t CO ₂ e / ha	X	X	X	X
$A_{s,k}$	Total area of segment s within stratum k .	ha	X	X	X	X
N_s	Total number of REDD+ segments included in the CCMP (Climate Change Mitigation Programme or Project).	Dimensionless	NA	NA	NA	NA
N_k	Total number of eligible strata considered in the CCMP.	Dimensionless	NA	NA	NA	NA

Nota 1: The spatial boundary of the CCMP (Climate Change Mitigation Programme or Project) and the associated eligible stratification are defined based on the initial land-cover classification and remain fixed throughout the entire crediting period. Consequently, the total area of each segment s within stratum k ($A_{s,k}$) represents the constant spatial universe of quantification of the CCMP and is applied identically in both the baseline scenario and the project scenario.

Differences between the two scenarios are reflected exclusively in the activity data, rates, flows, and changes in carbon stocks estimated for each year t , without implying any modification to the spatial boundaries, stratification, or eligible area of the CCMP. This approach ensures spatial consistency, prevents double counting, and guarantees a like-for-like comparability between scenarios.

A carbon pool shall only be included if its contribution is material and can be measured with acceptable uncertainty; otherwise, its exclusion shall be conservatively documented in the PDD.

For a segment s in stratum k in year t , the change in carbon stocks per unit area shall be calculated as:

$$Rcp_{BL,s,k,t} = \frac{1}{A_{s,k}} \left[\sum_{f=1}^{N_{cp,s,k}} (\Delta CA_{tree,BL,f,s,k,t} + \Delta CB_{tree,BL,f,s,k,t} + \Delta CA_{shrub,BL,f,s,k,t} + \Delta CB_{shrub,BL,f,s,k,t} + \Delta CDW_{BL,f,s,k,t} + \Delta CL_{BL,f,s,k,t} + \Delta CSoc_{BL,f,s,k,t}) \right] \cdot \frac{44}{12}$$

Equation 17

Variable	Description	Units	CCMP activities*			
			DEF	DEG	SFM	CSE
$Rcp_{BL,s,k,t}$	Change per unit area in carbon stocks under the baseline scenario for segment s (DEF - DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest), in year t .	tCO _{2e} / ha	X	X	X	X
$A_{s,k}$	Total area of segment s within stratum k .	ha	X	X	X	X
$N_{cp,s,k}$	Number of segment components f of segment s within stratum k .	NA	NA	NA	NA	NA
$\Delta CA_{tree,BL,f,s,k,t}$	Annual change in carbon in aboveground tree biomass (trees) under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CB_{tree,BL,f,s,k,t}$	Annual change in carbon in belowground tree biomass (tree roots) under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CA_{shrub,BL,f,s,k,t}$	Annual change in carbon in aboveground shrub/non-tree woody vegetation biomass under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CB_{shrub,BL,f,s,k,t}$	Annual change in carbon in belowground shrub/non-tree woody vegetation biomass under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CDW_{BL,f,s,k,t}$	Annual change in carbon in dead wood/woody necromass under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CL_{BL,f,s,k,t}$	Annual change in carbon in litter under the baseline scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X

Variable	Description	Units	CCMP activities*			
			DEF	DEG	SFM	CSE
$\Delta CSoc_{BL,f,s,k,t}$	Annual change in carbon in soil organic carbon (SOC) under the baseline scenario (when included in accordance with materiality/feasibility criteria) for segment component <i>f</i> within segment <i>s</i> and stratum <i>k</i> , in year <i>t</i> .	tC	X	X	X	X
$\frac{44}{12}$	Molecular weight ratio of carbon (C) to carbon dioxide (CO ₂).	NA	NA	NA	NA	NA

The terms ΔC represent the annual changes in carbon (tC/year) in each carbon pool for segment component *f* of segment *s* within stratum *k* during year *t*. Under the baseline scenario, these changes correspond to the counterfactual evolution of carbon stocks in the absence of the CCMP (Climate Change Mitigation Programme or Project). The factor 44/12 converts tonnes of carbon (tC) to tonnes of CO₂ (tCO₂).

Carbon stocks by stratum (such as aboveground tree biomass, belowground biomass, dead wood and detritus, litter, and soil organic carbon), expressed as densities per unit area (tC/ha or tCO₂e/ha), constitute the reference parameters from which annual carbon stocks changes (ΔC , in tC/year) are derived and used in the general stock-change equation.

Based on these unit stocks, and depending on the REDD+ activity type and the modeled process (immediate release, gradual release, or accumulation), annual carbon changes (ΔC) shall be estimated as total quantities associated with each segment, stratum, and component, expressed in tC, which are subsequently normalized by area and converted to CO₂e in accordance with the corresponding equations.

These stocks, expressed in tCO₂e/ha, are considered static reference values per stratum during the projection period of the baseline scenario. In the DEF and DEG segments, variations in carbon stocks are captured through activity data and applicable factors, without updating unit stocks, unless robust technical evidence—consistent with jurisdictional guidelines and this methodology—justifies their revision.

In the SFM and CSE segments, the quantification of emissions or removals may involve dynamic stocks or annual carbon flows, in accordance with the specific rules and equations defined for each segment.

This methodological structure ensures consistency with the selected FREL/FRL, enables the integration of multiple REDD+ activities within a single CCMP, and guarantees spatial and accounting traceability by segment, coherently feeding the variables $GHG_{BL,t}$ and $GHG_{P,t}$ used in the calculation of the long-term average GHG mitigation potential.

8.2.3 Baseline adjusted to a “below business as usual” value

The adjustment to a value below the business-as-usual (BAU) scenario is applied to removals or emissions, as applicable, of the baseline scenario as part of the conservative definition of that scenario, in accordance with **Section 14**, and does not in itself constitute an emission reduction.

Accordingly, the CCMP shall adjust the GHG flows of the baseline scenario, including both emissions and removals, through an upward adjustment (baseline scenario removals) or a downward adjustment (baseline scenario emissions) of 10% or the quantified relative uncertainty level

expressed as a percentage—whichever is greater—relative to their magnitude, in coherence with Cercarbono’s guidelines.

The baseline scenario values thus adjusted are subsequently used in **Section 10** to determine the net reductions and removals attributable to the CCMP, through the comparison between the baseline and project scenarios.

8.3 Activity data of the baseline scenario

The activity data of the baseline scenario correspond to the projected values in accordance with the projection system defined in **Section 7** and constitute the main input for the quantification of GHG emissions and removals of the baseline scenario.

The selection of activities and procedures used for calculating activity data shall be conservative and consistent, realistically reflecting the dynamics of agents and causes of change in the CCMP area, and maintaining coherence with the applicable national or jurisdictional FREL/FRL, where relevant.

Quantification shall be carried out separately by REDD+ segment, eligible stratum, and year of the projection period, in accordance with the provisions established in the following subsections.

8.3.1 Specific considerations for the DEF segment

The activity data of the DEF segment correspond to the projected deforestation areas on surfaces classified as stable forest. Such data reflect the forest loss that would have occurred in the absence of the CCMP and are expressed in units of area per year, in accordance with the projection system defined in **Section 7**.

These data constitute the input for the quantification of emissions associated with the DEF segment of the baseline scenario, as developed in **Section 8.3.1.1**.

8.3.1.1 Sequence and calculations for the DEF Segment

Within the framework defined in **Section 8.2**, the deforestation segment corresponds to $s = DEF$. The strata of the baseline scenario for this segment are indexed as $k \in K_{DEF}$, and represent stable forest areas susceptible to deforestation within the eligible boundaries of the CCMP.

The deforestation emissions estimated in this section constitute the terms $CO2EBLdef_{k,t} \equiv E_{BL,s,k,t}$, which directly feed (where applicable) **Equation 15** of the baseline scenario.

In the avoided deforestation (DEF) segment, the quantification of the baseline scenario is based on the following methodological assumptions:

- When deforestation in the CCMP is defined as gross and with immediate emissions, it is assumed that the total carbon contained in the aboveground biomass carbon pools is emitted in the same year in which the deforestation event occurs.
- Belowground biomass is assumed to decay linearly over a period of twenty (20) years from the deforestation event; consequently, the annual emission factor corresponds to 5% of the total belowground biomass of the affected stratum, accounted for annually starting in the year following the event.

- When the soil organic carbon (SOC) pool is included, its carbon content is assumed to be released gradually and uniformly over a twenty (20) years oxidation period (recommended value) of after deforestation; therefore, each annual estimate incorporates the corresponding emission fraction.
- The emission factors defined for the DEF segment are consistently applicable to both the baseline scenario and the project scenario.
- In areas that remain classified as stable forest, it is assumed that carbon stocks in the selected pools remain constant; consequently, stratum-specific values remain static throughout the duration of the CCMP.

The quantification of the baseline scenario for the DEF segment is based on:

- The analysis of agents and causes of deforestation;
- The spatial delineation of stable forest areas susceptible to deforestation;
- The temporal projection of deforestation in the absence of the project; and
- The estimation of carbon stocks and emission factors by stratum.

For the DEF segment in the baseline scenario, the following are defined:

- TS_{def} : total number of eligible strata associated with the DEF segment.
- $A_{def,k}$: total area of the DEF segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to the baseline and project scenarios (ha).
- $A_{BL,def,k,t}$: deforested area within stratum k associated with the DEF segment during year t in the absence of the project (ha).

Note: When the projection is expressed as rates (ha/year or %/year), these shall be defined with a specific symbol (such as, for example, r) and used to derive the annual affected area $A_{BL,s,k,t}$ (ha), avoiding the use of the same variable to simultaneously represent both a rate and an area.

Carbon stocks by stratum

For each stratum k of the DEF segment, the following carbon stocks per unit area are determined:

- Aboveground tree biomass: $A_{tree,def,k}$
- Belowground biomass: $B_{tree,def,k}$
- Dead wood and detritus: $DW_{def,k}$ (where applicable)
- Soil organic carbon: $SOC_{def,k}$ (where applicable)

Emission factors for deforestation

For each stratum k , the following are calculated:

$$EF_{def,k} = A_{tree,BL,def,k} + DW_{BL,def,k}$$

Equation 18

Variable	Description	Units
$EF_{def,k}$	Deforestation emission factor for stratum k (stable forest), associated with the rapid release of carbon (aboveground tree biomass + dead wood).	tCO ₂ e/ha
$A_{tree,BL,def,k}$	Carbon stocks in aboveground tree biomass of stratum k (stable forest) under the baseline scenario.	tCO ₂ e/ha
$DW_{BL,def,k}$	Carbon stocks in dead wood/woody necromass of stratum k under the baseline scenario (when applicable).	tCO ₂ e/ha

$$BBEF_{def,k,t} = \frac{B_{tree,BL,def,k}}{20}, t \leq 20$$

Equation 19

Variable	Description	Units
$BBEF_{def,k,t}$	Annual deforestation emission factor for stratum k (stable forest), associated with the gradual release of carbon from belowground biomass during the first 20 years following deforestation.	tCO ₂ e/ha
$B_{tree,BL,def,k}$	Carbon stocks in belowground tree biomass of stratum k under the baseline scenario.	tCO ₂ e/ha
t	Year indicator within the projection period (or year counted since deforestation, according to the convention defined in the PDD – Project Description Document).	Dimensionless
20	Time horizon (total years) over which belowground biomass emissions are distributed following deforestation.	Dimensionless

$$SOCEF_{def,k,t} = \frac{SOC_{def,BL,k}}{20}, t \leq 20$$

Equation 20

Variable	Description	Units
$SOCEF_{def,k,t}$	Annual deforestation emission factor for stratum k (stable forest), associated with the gradual release of carbon from soil organic carbon (SOC) during the first 20 years following deforestation (when applicable).	tCO ₂ e/ha
$SOC_{def,BL,k}$	Carbon stocks (expressed as CO ₂ e) in soil organic carbon (SOC) of stratum k under the baseline scenario (when included).	tCO ₂ e/ha
t	Year indicator within the projection period (or year counted since deforestation, according to the convention defined in the PDD – Project Description Document).	Dimensionless
20	Time horizon (total years) over which SOC emissions are distributed following conversion.	Dimensionless

These factors represent the specific way in which, for the DEF segment, the changes in carbon stocks defined in **Section 8.2** materialize.

Annual emissions from deforestation

The annual emissions from deforestation projected for each stratum k and year t in the baseline scenario are calculated as:

$$CO2EBLdef_{k,t} = A_{BL,def,k,t} \cdot (EF_{def,k} + BBEF_{def,k,t} + SOCEF_{def,k,t})$$

Equation 21

Variable	Description	Units
$CO2EBLdef_{k,t}$	Emissions from deforestation under the baseline scenario for stratum k (stable forest susceptible to deforestation) in year t . This term is equivalent to $E_{BL,deg,k,t} = E_{BL,s,k,t}$, with $s = DEF$, as integrated in Equation 15.	tCO ₂ e
$A_{BL,def,k,t}$	Deforested area under the baseline scenario for stratum k in year t , projected based on the analysis of agents and drivers of deforestation.	ha
$EF_{def,k}$	Emission factor for the deforestation event in year t (immediate release of aboveground tree biomass and dead wood).	tCO ₂ e/ha
$BBEF_{def,k,t}$	Annual emission factor for the gradual release of carbon from below-ground biomass in stratum k , distributed over a 20-year time horizon ($BBEF_{def,k,t} = Bb_{def,k}/20$ for $t \leq 20$).	tCO ₂ e/ha
$SOCEF_{def,k,t}$	Annual emission factor for the gradual release of soil organic carbon (SOC) in stratum k , distributed over a 20-year time horizon ($SOCEF_{def,k,t} = Soc_{def,k}/20$ for $t \leq 20$).	tCO ₂ e/ha

For $t > 20$, the terms $BBEF_{def,k,t}$ y $SOCEF_{def,k,t}$ should be set to 0, unless a different horizon is technically justified in accordance with the IPCC Guidelines and this methodology.

Cumulative emissions of the DEF segment – Baseline scenario

The total cumulative emissions of the baseline scenario for the DEF segment are obtained as:

$$CO2EBLdef = \sum_{t=1}^T \sum_{k=1}^{TS_{def}} CO2EBLdef_{k,t}$$

Equation 22

Variable	Description	Units
$CO2EBLdef$	Total cumulative emissions under the baseline scenario for the DEF (Avoided Deforestation) segment over the projection period of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e
$CO2EBLdef_{k,t}$	Emissions from deforestation under the baseline scenario for stratum k (stable forest susceptible to deforestation) in year t . This term is equivalent to $E_{BL,s,k,t}$ with $S = DEF$, as expressed in Equation 15.	tCO ₂ e
T	Total duration of the CCMP (number of years in the projection period).	Dimensionless
TS_{def}	Total number of strata in the baseline scenario for the DEF segment.	Dimensionless

8.3.2 Specific considerations for the DEG segment

The activity data for the DEG segment represent the projected extent and intensity of forest degradation in areas that remain classified as forest, without a land-use change being configured. These data are expressed according to the metric adopted in the applicable national or jurisdictional FREL/FRL, and are defined by stratum and year of the projection period.

These data constitute the input for the quantification of emissions associated with the DEG segment in the baseline scenario, developed in the following subsection.

8.3.2.1 Sequence and calculations for the DEG Segment

Within the framework defined in **Section 8.2**, the forest degradation segment corresponds to $s=DEG$. The strata of the baseline scenario for this segment are indexed as $k \in K_{DEG}$ and represent stable forest areas susceptible to forest degradation within the eligible boundaries of the CCMP.

The forest degradation emissions estimated in this section constitute the terms: $E_{BL,deg,k,t} \equiv E_{BL,s,k,t}$ which directly feed (where applicable) **Equation 15** of the baseline scenario.

Forest degradation implies partial and progressive losses of biomass and carbon, without a complete conversion of land use, unlike deforestation. Consequently, the quantification of the DEG segment is based on the following methodological assumptions:

- Belowground biomass is assumed to degrade linearly over a period of twenty (20) years from the degradation event; consequently, the annual emission factor corresponds to five percent (5%) of the total belowground biomass of the affected stratum, accounted for annually starting in the year following the event.
- The inclusion of the soil organic carbon (SOC) pool is optional. However, if this pool is included in the DEG segment, it shall be incorporated consistently in the DEG segment. If included, an equivalent gradual oxidation pattern shall be assumed, distributing emissions in equal proportions over a twenty (20) years oxidation period (recommended value) after the degradation event.
- Emission factors for the DEG segment shall be specific to forest degradation. Conservatively, they may be homologous to those of stable forest; however, the direct application of factors from the DEF segment shall require an explicit technical justification, considering that both segments respond to different biophysical dynamics.
- Although each REDD+ segment is designed under the assumption of spatial and accounting independence, if deforestation occurs within areas initially assigned to the DEG segment, those areas shall be excluded from this segment and reclassified under the DEF segment, ensuring spatial, temporal, and accounting consistency.

The quantification of the baseline scenario for the DEG segment is based on:

- The identification and characterization of relevant degradation processes in the CCMP area (such as recurrent fires, unplanned selective extraction, opening of trails, grazing within the forest, among others);
- The spatial delineation of stable forest areas exposed to such processes;
- The temporal projection of forest degradation in the absence of the project; and
- The estimation of carbon stocks and process-specific emission factors by stratum and by type of degrading process.

For the DEG segment in the baseline scenario, the following are defined:

- TS_{deg} : total number of eligible strata associated with the DEG segment.
- $A_{deg,k}$: total area of the DEG segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to the baseline and project scenarios (ha).
- $A_{BL,deg,k,t}$: degraded area within stratum k associated with the DEG segment in year t in the absence of the project (ha).

Note: When the projection is expressed as rates (ha/year or %/year), these shall be defined with a specific symbol (such as, for example, r) and used to derive the annual affected area $A_{BL,s,k,t}$ (ha), avoiding the use of the same variable to simultaneously represent both a rate and an area.

Carbon stocks by stratum

In coherence with the principle of consistency and as established in **Section 6**, it is assumed that areas remaining as stable forest keep their carbon stocks per pool constant. Consequently, for each stratum k the stocks per unit area are defined as:

- Aboveground tree biomass: $A_{tree,deg,k}$
- Belowground biomass: $B_{tree,deg,k}$
- Dead wood and detritus: $Dw_{deg,k}$ (where applicable)
- Soil organic carbon: $Soc_{deg,k}$ (where applicable)

Emission factors for forest degradation

For each stratum k , the following are calculated:

$$EF_{deg,k} = \sum_{p \in P_k} (\Delta C_{dp,k})$$

Equation 23

Variable	Description	Units
$EF_{deg,k}$	Composite emission factor for forest degradation in stratum k under the baseline scenario, integrated from the relevant degradation processes identified for that stratum and from the included carbon pools (aboveground and belowground biomass and, when applicable in accordance with materiality and feasibility criteria, dead wood, litter and/or SOC).	tCO ₂ e/ha
$\Delta C_{dp,k}$	Average carbon loss per unit area associated with degradation process dp (e.g., fire, unplanned selective logging, opening of skid trails, in-forest grazing, other) in stratum k , consistent with the selected carbon pools and with official factors/methodologies when available.	tCO ₂ e/ha

When a degradation process involves gradual carbon releases in certain pools (such as below-ground biomass or SOC), such releases may be distributed over time horizons consistent with the IPCC Guidelines and with this methodology, maintaining consistency in the composite emission factor.

Annual emissions from forest degradation

Emissions from degradation for each stratum k and year t in the baseline scenario are calculated as:

$$CO2EBLdeg_{k,t} = A_{BL,deg,k,t} \cdot EF_{deg,k,t}$$

Equation 24

Variable	Description	Units
$CO2EBLdeg_{k,t}$	Emissions from forest degradation under the baseline scenario for stratum k (stable forest susceptible to degradation) in year t . This represents the gross emissions that would have occurred in the absence of the CCMP (Climate Change Mitigation Programme or Project). This term is equivalent to $E_{BL,s,k,t}$ with $S = DEG$, as expressed in Equation 15 .	tCO ₂ e
$A_{BL,deg,k,t}$	Degraded area under the baseline scenario for stratum k in year t , projected based on the historical analysis of agents and drivers.	ha
$EF_{deg,k,t}$	Degradation emission factor applicable to stratum k in year t , which may integrate one or more degrading processes and their respective intensities/frequencies.	tCO ₂ e/ha

Where $EF_{deg,k,t}$ represents the emission factor applicable to stratum k in year t , which may integrate one or multiple degradation processes as appropriate.

This term represents the gross emissions from degradation that would have occurred in the absence of the CCMP and constitutes the counterfactual reference against which the performance of the project scenario is evaluated.

Cumulative emissions of the DEG segment – Baseline scenario

The total cumulative emissions of the baseline scenario for the DEG segment are obtained as:

$$CO2EBLdeg = \sum_{t=1}^T \sum_{k=1}^{TS_{deg}} CO2EBLdeg_{k,t}$$

Equation 25

Variable	Description	Units
$CO2EBLdeg$	Total cumulative emissions under the baseline scenario for the DEG (Avoided Forest Degradation) segment over the projection period of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e

Variable	Description	Units
$CO2EBLdeg_{k,t}$	Emissions from forest degradation under the baseline scenario for stratum k (stable forest, non-stable forest and non-forest) in year t . This term is equivalent to $E_{BL,s,k,t}$ with $s = DEG$, as expressed in Equation 15 .	tCO ₂ e
T	Total duration of the CCMP (number of years in the projection period).	Years
TS_{deg}	Total number of strata in the baseline scenario for the DEG segment.	Dimensionless

8.3.3 Specific considerations for the SFM segment

In the baseline scenario, the Sustainable Forest Management (SFM) segment represents the continuation of conventional or non-optimized timber harvesting practices that would have occurred in the absence of the CCMP. These practices generate GHG emissions associated with timber extraction, harvest residues, processing waste, and the progressive release of carbon contained in harvested wood products.

The methodological approach of the SFM segment is not based on net changes in ecosystem carbon pools, but rather on tracking the carbon cycle associated with harvested wood products and collateral harvesting damage.

The emissions estimated in this section constitute the terms $E_{BL,sfm,k,t} \equiv E_{BL,s,k,t}$ which directly feed (where applicable) **Equation 15** of the baseline scenario.

The quantification of the baseline scenario for the SFM segment is based on:

- The delineation of forest areas subject to conventional timber harvesting;
- The projection of timber volumes extracted in the absence of the CCMP;
- The estimation of harvest residues, processing waste, and collateral damage; and
- The modeling of the temporal release of carbon contained in harvested wood products.

Carbon contained in harvested wood products is treated exclusively as part of the emission profile of the SFM segment, through its progressive release over time, and is not credited as a removal in the baseline scenario.

The factors and parameters used shall be developed from local information or acceptable official sources, allowing for traceable monitoring of impacts and waste associated with timber extraction practices in the baseline scenario.

The activity data defined in this section constitute the direct input for the quantification of emissions in the SFM segment, developed in the following section.

8.3.3.1 Sequence and calculations for the SFM Segment

Within the framework defined in **Section 8.2**, the sustainable forest management segment corresponds to $s = SFM$. The strata of the baseline scenario for this segment are indexed as $k \in K_{SFM}$ and represent forest areas subject to conventional timber harvesting within the eligible boundaries of the CCMP.

The emissions associated with SFM estimated in this section constitute the terms: $CO2EBLsfm_{k,t} \equiv E_{BL,s,k,t}$ which directly feed **Equation 15** of the baseline scenario.

For the SFM segment, the following are defined:

- TS_{sfm} : total number of baseline scenario strata associated with SFM.
- $A_{sfm,k}$: total area of the SFM segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to the baseline and project scenarios (ha).
- $A_{BL,sfm,k,t}$: area under conventional timber harvesting in stratum k during year t in the absence of the project (ha), when spatial support for activity data is required.

Note: The primary activity data for the SFM segment is the volume of timber extracted. The use of spatial variables is optional and only required when necessary for traceability or consistency with jurisdictional programs.

Baseline scenario activity data – SFM

For each stratum k and year t , the CCMP shall estimate:

- $WR_{BL,sfm,k,t}$: volume of timber extracted under conventional management (m³/year).
- $WA_{BL,sfm,k,t}$: equivalent volume associated with harvest residues and collateral damage (m³/year);
- $WF_{BL,sfm}$: waste factor from sawing/processing in the baseline scenario;
- Dpm : average total degradation period of harvested wood products in the baseline scenario (years).

The annual emissions of the baseline scenario for the SFM segment shall be obtained as the sum, by stratum and year, of:

- Emissions from harvest residues and collateral damage;
- Emissions from processing waste; and
- Emissions from the progressive release of carbon contained in harvested wood products.

Activity data and annual emissions

Annual emissions from non-sustainable forest management are calculated as:

$$CO2EBLsfm_{k,t} = WA_{BL,sfm,k,t} + CO2ESW_{BL,sfm,k,t} + TEC_{BL,sfm,k,t}$$

Equation 26

$$CO2ESW_{BL,sfm,k,t} = WR_{BL,sfm,k,t} \cdot WF_{BL,sfm} \cdot EF_{wood}$$

Equation 27

$$TEC_{BL,sfm,k,t} = WR_{BL,sfm,k,t} \cdot (1 - WF_{BL,sfm})$$

Equation 28

$$TEC_{BL,sfm,k,t} = \sum_{\tau=\max(1,t-DP_m+1)}^t \left(\frac{TC_{BL,sfm,k,\tau}}{DP_m} \cdot EF_{wood} \right)$$

Equation 29

Variable	Description	Units
$CO2E_{BL,sfm,k,t}$	Total emissions under the baseline scenario associated with conventional timber harvesting in stratum k (stable forest susceptible to degradation) in year t . This term is equivalent to $E_{BL,SFM,k,t} = E_{BL,S,k,t}$ with $S = sfm$, as expressed in Equation 15 .	tCO ₂ e
$WA_{BL,sfm,k,t}$	Emissions associated with harvest residues and collateral damage generated during conventional timber harvesting under the baseline scenario, corresponding to stratum k and year t .	tCO ₂ e
$CO2ESW_{BL,sfm,k,t}$	CO ₂ e emissions associated with sawmill/processing waste from timber extracted under conventional forest management in the baseline scenario, corresponding to stratum k and year t .	tCO ₂ e
$TEC_{BL,sfm,k,t}$	Emissions from the progressive release of carbon contained in harvested wood products generated in stratum k and year t , in accordance with DP_m .	tCO ₂ e
$WR_{BL,sfm,k,t}$	Total volume of timber extracted under conventional management in the baseline scenario for stratum k and year t .	m ³
$WF_{BL,sfm}$	Sawmill/processing waste factor under the baseline scenario (fraction of extracted volume that becomes waste).	Dimensionless
EF_{wood}	Conversion factor from timber volume to carbon dioxide equivalent emissions, integrating wood density, carbon fraction, and the molecular weight ratio 44/12.	tCO ₂ e / m ³
$TC_{BL,sfm,k,t}$	Volume of timber converted into harvested wood products (processed wood) from conventional forest harvesting under the baseline scenario, corresponding to stratum k and year t , after deducting sawmill and/or processing waste.	m ³
DP_m	Average total degradation period of harvested wood products under the baseline scenario.	Dimensionless (years)

The estimated annual volumes (m³) are converted to tCO₂e using EF_{wood} which integrates basic wood density, carbon fraction, and the 44/12 molecular weight ratio), in accordance with this methodology or other acceptable official sources, prior to being integrated into $E_{BL,S,k,t}$.

Cumulative emissions from the SFM segment

Total emissions for the baseline scenario for the DEF segment are obtained as follows:

$$CO2E_{BL,sfm} = \sum_{t=1}^T \sum_{k=1}^{TS_{sfm}} CO2E_{BL,sfm,k,t}$$

Equation 30

Variable	Description	Units
$CO2E_{BLs_{sfm}}$	Total cumulative emissions under the baseline scenario for the SFM (Sustainable Forest Management) segment over the projection period of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e
$CO2E_{BLs_{sfm},k,t}$	Emissions under the baseline scenario associated with conventional timber harvesting in stratum k and year t . This term is equivalent to $E_{BL,s_{sfm},k,t} \circ E_{BL,s,k,t}$ with $s = sfm$, as expressed in Equation 15 .	tCO ₂ e
T	Total duration of the CCMP (number of years in the projection period).	Dimensionless
TS_{sfm}	Total number of strata in the baseline scenario for the SFM segment.	Dimensionless

8.3.4 Specific considerations for the CSE segment

In the Carbon stocks Enhancement (CSE) segment, carbon pools are considered dynamic in the baseline scenario, as they correspond to land covers that have not reached a stable equilibrium (for example, non-stable forest, early secondary vegetation, or non-forest areas with incipient regeneration).

The baseline scenario of the CSE segment represents the counterfactual trajectory of carbon accumulation, maintenance, or loss that would occur in the absence of CCMP implementation, and constitutes the technical reference against which net removals attributable to the project scenario are quantified.

Accordingly, carbon stocks shall be estimated annually during the historical and projection periods of the baseline scenario, using direct field measurements and/or growth models and allometric equations that are properly justified, calibrated, and validated.

In addition to changes in carbon stocks, emission sources applicable to the CSE segment shall be considered in accordance with **Section 6.5** and the relevant subsections of **Section 8.2**, particularly those associated with agricultural or livestock activities and fertilizer use.

The inclusion of the soil organic carbon (SOC) pool is optional in this segment, regardless of its inclusion in other segments. When SOC is not included in the baseline scenario, it shall be conservatively assumed that its stocks remain constant⁵⁴ in the absence of the project. When SOC is included, it shall be modeled dynamically and consistently with the approach adopted for the CSE segment and with the project scenario.

8.3.4.1 Sequence and calculations for the CSE segment

Within the framework defined in **Section 8.2**, the CSE segment corresponds to $s = CSE$. The strata of the baseline scenario are indexed as $k \in K_{CSE}$ and represent areas of non-stable forest or non-forest subject to natural biomass accumulation processes in the absence of the project.

For the CSE segment, the following are defined:

⁵⁴ The recovery of soil organic carbon (SOC) is represented through average annual accumulation rates in the order of 0.5–0.7 tCO₂e·ha⁻¹·year⁻¹, consistent with the ranges reported by the IPCC (2019 Refinement, Vol. 4 – AFOLU) for restoration processes in tropical regions. These values are used here for conservative modeling purposes in the absence of site-specific data.

- TS_{cse} : total number of baseline scenario strata associated with CSE.
- $A_{cse,k}$: total area of the CSE segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to the baseline and project scenarios (ha).
- $A_{P,cse,k,t}$: effective area of the CSE segment in stratum k considered for quantification in year t (ha). In the project scenario, this corresponds to the area effectively intervened; to ensure comparability, the baseline scenario is quantified over the same $A_{P,cse,k,t}$ used in the project scenario for year t .

For each stratum k and year t , the CCMP shall estimate:

- $Ab_{BL,cse,k,t}$: aboveground biomass per unit area in the baseline scenario;
- RSR_k : root-to-shoot ratio of stratum k ;
- $B_{BL,cse,k,t}$: belowground biomass per unit area;
- $DW_{BL,cse,k,t}$: dead wood and litter biomass;
- $SOC_{BL,cse,k,t}$: soil organic carbon per unit area (when included);
- $E_{BL,cse,Fer,k,t}$: emissions associated with fertilizer use (organic and/or synthetic);
- $E_{BL,cse,ActAgr-livestock,cse,k,t}$: emissions associated with agricultural or livestock activities, when present.

Emissions from sources in the CSE segment – Baseline scenario

Baseline scenario emissions for the CSE segment in each stratum and year are estimated as:

$$E_{BL,cse,k,t} = E_{BL,cse,Fer,k,t} + E_{BL,cse,ActAgr-Livestock,k,t}$$

Equation 31

Emissions from fertilizers are calculated as:

$$E_{BL,cse,Fer,k,t} = FNO_{BL,cse,k,t} + FEN_{BL,cse,k,t}$$

Equation 32

Variable	Description	Units
$E_{BL,cse,k,t}$	Total GHG emissions under the baseline scenario for the CSE (Carbon Stocks Enhancement) segment in stratum k in year t , associated with non-CO ₂ and CO ₂ sources other than changes in carbon stocks.	tCO ₂ e
$E_{BL,cse,Fer,k,t}$	GHG emissions under the baseline scenario for the CSE segment in stratum k in year t , associated with the use of fertilizers (organic or synthetic), estimated in accordance with the applicable methodological tools.	tCO ₂ e
$E_{BL,cse,ActAgr-Livestock,k,t}$	GHG emissions under the baseline scenario for the CSE segment in stratum k in year t , associated with agricultural or livestock activities (e.g., soil management, grazing, crop residues), calculated in accordance with the applicable methodological tools.	tCO ₂ e
$FNO_{BL,cse,k,t}$	GHG emissions associated with the use of organic fertilizers under the baseline scenario for the CSE segment in stratum k in year t , estimated in accordance with the applicable methodological tools.	tCO ₂ e
$FEN_{BL,cse,k,t}$	GHG emissions associated with the use of synthetic fertilizers under the baseline scenario for the CSE segment in stratum k in year t , estimated in accordance with the applicable methodological tools.	tCO ₂ e

$E_{BL,cse,ActAgr-Livestock,k,t}$ calculated in accordance with the applicable methodological tools (**AR-Tool 15** and **AR-Tool 16**).

Removals in the CSE segment – Baseline scenario

Removals from carbon stocks enhancement in the baseline scenario are calculated, for each stratum k and year t , as:

$$CO2R_{BL,cse,k,t} = A_{eff,cse,k,t} \cdot (\Delta Ab_{BL,cse,k,t} + \Delta B_{BL,cse,k,t} + \Delta Dw_{BL,cse,k,t})$$

Equation 33

Variable	Description	Units
$CO2R_{BL,cse,k,t}$	Gross CO ₂ removals under the baseline scenario for the CSE (Carbon Stocks Enhancement) segment in stratum k in year t , derived from the natural increase in carbon stocks in biomass.	tCO ₂ e
$A_{eff,cse,k,t}$	Effective area of the CSE segment in stratum k considered for quantification in year t . To ensure comparability, this area corresponds to the same effective area used in the project scenario.	ha
$\Delta Ab_{BL,cse,k,t}$	Increase in dead wood and litter biomass per unit area under the baseline scenario for the CSE segment in stratum k in year t (when applicable).	tCO ₂ e/ha
$\Delta B_{BL,cse,k,t}$	Increase in belowground biomass per unit area under the baseline scenario for the CSE segment in stratum k in year t .	tCO ₂ e/ha
$\Delta Dw_{BL,cse,k,t}$	Increase in dead wood and litter biomass per unit area under the baseline scenario for the CSE segment in stratum k in year t .	tCO ₂ e/ha

Note: The biomass increments reflect the counterfactual trajectory of carbon accumulation in the absence of the CCMP. When SOC is not included in the baseline scenario, it shall be conservatively assumed to remain constant.

Total cumulative removals of the baseline scenario for the CSE segment are obtained as:

$$CO2R_{BLcse} = \sum_{t=1}^T \sum_{k=1}^{TS_{cse}} CO2R_{BL,cse,k,t}$$

Equation 34

Variable	Description	Units
$CO2R_{BLcse}$	CO ₂ removals under the baseline scenario for the CSE segment, aggregated across all strata and years of the CCMP projection period, derived from the natural increase in carbon stocks in biomass.	tCO ₂ e
$CO2R_{BL,cse,k,t}$	CO ₂ removals under the baseline scenario for the CSE segment in stratum k in year t .	tCO ₂ e
T	Total duration of the CCMP (Climate Change Mitigation Programme or Project) projection period.	Dimensionless
TS_{cse}	Total number of strata in the baseline scenario for the CSE segment.	Dimensionless

This formulation makes it possible to represent, in a coherent manner, the natural biomass accumulation trajectory in the absence of the project, distinguishing it from the additional removals attributable to the CSE activities implemented under the CCMP.

9 Project scenario

The project scenario represents the evolution of the territory under effective implementation of the CCMP and constitutes the basis for the ex post quantification of verifiable emission reductions and net removals. The project scenario is defined based on:

- Being consistent with the design, scope, and safeguards of the CCMP, as well as with the selected national or jurisdictional FREL/FRLs, where applicable.
- Complying with the established principles.
- Verifiably reflecting the changes induced by the REDD+ activities of the CCMP on the dynamics of deforestation, degradation, forest management, and/or carbon stocks enhancement.
- Integrating, where applicable, socioeconomic, biophysical, regulatory, and territorial governance factors relevant to the performance of the CCMP.

The total GHG emissions and removals in the project scenario correspond to the sum of the annual emissions and removals observed and quantified during the crediting period, comprehensively considering all REDD+ activities included in the CCMP.

The project scenario shall be continuously assessed through the monitoring system (**Section 17**) and updated at each verification based on documented and measurable evidence. Any substantive change in the CCMP design, eligible boundaries, stratification, or implemented activities shall be addressed in accordance with the Program's change management rules and reflected in the PDD and/or monitoring reports, as applicable.

The project scenario is operationally structured into four elements:

1. Ex ante definition of the expected performance of the CCMP, consistent with the baseline scenario, maintaining the same boundaries, strata, segments, and accounting assumptions, unless expressly justified technically and documented in the PDD.
2. Stable counterfactual reference, adopting the baseline scenario for the same crediting period, without recalculating it at each monitoring event, unless formal update rules apply.
3. Verifiable territorial implementation, through the execution of actions in accordance with the implementation plan, with evidence of their initiation, continuity, and spatial scope.
4. Ex post quantification and traceability, ensuring QA/QC procedures and the traceability of data, cartographic layers, and records.

On this operational basis, **Section 9.1** establishes the general framework for quantifying the project scenario and its specific application by REDD+ segment (**Section 9.2**).

Additionally, the CCMP shall:

- Quantify and deduct leakage attributable to the project in accordance with **Section 9.39.3** and the procedures of jurisdictional programs, where applicable.

- Maintain consistency with the Program’s regulatory and technical guidelines, including, where applicable, the use of approved models for baseline quantification and their consistent application in the project scenario.
- Exclude from direct accounting GHG reductions from non-REDD+ activities implemented within the CCMP (for example, improved cookstoves), except to the extent that they produce quantifiable indirect effects on the activity data of REDD+ segments, without generating double counting.

9.1 Quantification of the project scenario

This section establishes the general framework for quantifying the project scenario applicable to all REDD+ segments included in the CCMP (DEF - DEG - SFM - CSE). **Subsections 9.2.1 to 9.2.4** develop its specific application by segment.

The quantification of the project scenario constitutes the mandatory technical reference for the ex post estimation of emission reductions and net removals during monitoring (**Section 17**), ensuring methodological consistency between the design, implementation, and verification of CCMP results.

In the DEF, DEG, and SFM segments, the project scenario quantifies gross emissions under CCMP implementation, which, when compared with baseline scenario emissions, allow the determination of net emission reductions attributable to the project. In the removals-oriented segment (CSE), the project scenario represents the carbon accumulation trajectory under intervention, against which the net removals attributable to the CCMP are quantified in comparison with the baseline scenario.

The quantification of the project scenario shall include, as applicable, the estimation of emissions from significant GHG sources and changes in carbon stocks in relevant pools, according to eligible strata (stable forest, non-stable forest, and non-forest) and the REDD+ segments included in the CCMP. Only those sources and pools whose contribution is material to the CCMP GHG balance shall be included; the exclusion of any potentially relevant element shall be explicitly justified in the PDD in accordance with the conservativeness principle, demonstrating that its omission does not result in overestimation of mitigation outcomes.

Data, factors, and parameters used for quantifying the project scenario shall be obtained, in order of priority, from applicable national or subnational inventories, official information linked to the selected FREL/FRL and, in their absence, from the IPCC Good Practice Guidelines and current IPCC Guidelines. Where adequate information does not exist, the CCMP may establish parameters through field inventories, remote sensing, or predictive models duly calibrated and validated, in accordance with applicable guidelines and the principles of reliability, consistency, and conservativeness established in this methodology.

In all cases, selected values shall be technically representative of the biophysical conditions of the CCMP implementation area, minimize uncertainty, and avoid any overestimation of emission reductions or GHG removals. The project scenario shall not assume carbon increases not attributable to the CCMP, unless robust and verifiable technical evidence supports such assumption.

CO₂ emissions and removals in the project scenario may be estimated using the stock-change approach (ΔC) or flow-based approaches, depending on the nature of the REDD+ segment and the carbon pool considered. Under no circumstances may stock-change and flow-based approaches be combined for the same stratum and carbon pool, in order to avoid double counting and ensure consistency, transparency, and traceability of GHG accounting.

Quantification of the project scenario shall be performed consistently with the baseline scenario, applying the same spatial boundaries, eligible strata, and definition of REDD+ segments, as well as coherent factors, parameters, and methods, unless expressly justified technically and documented in the PDD. In all cases, the principles of completeness, consistency, accuracy, traceability, and conservativeness shall be strictly applied, minimizing uncertainty and avoiding any over-estimation of emission reductions or GHG removals.

9.1.1 Estimation of emissions in the project scenario

All relevant emission sources in accordance with **Section 6.5** shall be considered within the specific considerations of each segment (REDD+ activity). They are calculated as:

$$E_{P,t} = \sum_{s=1}^{N_s} \sum_{k=1}^{N_k} E_{P,s,k,t} \quad \text{Equation 35}$$

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$E_{P,t}$	Total GHG emissions from sources under the project scenario in year t , aggregated across all REDD+ segments of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e	X	X	X	X
$E_{P,s,k,t}$	Total GHG emissions from sources under the project scenario for segment s (DEF - DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest) during year t .	tCO ₂ e	X	X	X	X
N_s	Total number of REDD+ segments included in the CCMP.	Dimensionless	NA	NA	NA	NA
N_k	Total number of eligible strata considered in the CCMP.	Dimensionless	NA	NA	NA	NA

For each segment s , emissions $E_{P,s,k,t}$ shall include all relevant sources associated with the activity and the corresponding coverage stratum, such as:

- Emissions from biomass burning (see comments in **Section 8.2.1.1**);
- Non-CO₂ emissions (CH₄, N₂O) associated with degradation, fires, management, or drainage;
- Non-CO₂ emissions (CH₄, N₂O) associated with fertilizer use (**Section 8.2.1.2**);
- Emissions derived from disturbances of organic or mineral soils, where material;
- Other sources identified in **Section 6.56.5** and consistent with the applicable FREL/FRL.

Emissions of each gas g shall be converted to CO₂ equivalent using the current IPCC global warming potentials (GWP):

$$E_{P,s,k,t} = \sum_g E_{P,s,k,t,g} \cdot GWP_g$$

Equation 36

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$E_{P,s,k,t}$	Total GHG emissions from sources under the project scenario for segment s (DEF - DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest), in year t .	tCO ₂ e	X	X	X	X
$E_{P,s,k,t,g}$	Emissions of greenhouse gas g from sources in the project scenario for segment s , stratum k , in year t , prior to conversion to CO ₂ equivalent	t gas	X	X	X	X
GWP_g	Global Warming Potential (GWP) of gas g (GHG considered), in accordance with the applicable IPCC guidance.	Dimensionless	NA	NA	NA	NA

9.1.2 Estimation of carbon stocks

The change in carbon stocks in the project scenario in year t shall be calculated as the sum of the results obtained across the different REDD+ segments included in the CCMP:

$$Rcp_{P,t} = \sum_{s=1}^{N_s} \sum_{k=1}^{N_k} Rcp_{P,s,k,t} \cdot A_{s,k}$$

Equation 37

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$Rcp_{P,t}$	Total change in carbon stocks under the project scenario in year t .	tCO ₂ e	X	X	X	X
$Rcp_{P,s,k,t}$	Annual change per unit area in carbon stocks under the project scenario for segment s (DEF - DEG - SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest), in year t .	t CO ₂ e / ha	X	X	X	X
$A_{s,k}$	Total area of segment s within stratum k .	ha	X	X	X	X
N_s	Total number of REDD+ segments included in the CCMP (Climate Change Mitigation Programme or Project).	Dimensionless	NA	NA	NA	NA
N_k	Total number of eligible strata considered in the CCMP.	Dimensionless	NA	NA	NA	NA

A carbon pool shall only be included if its contribution is material and can be measured with acceptable uncertainty; otherwise, its exclusion shall be conservatively documented in the PDD.

For a segment s in stratum k and year t , the change in carbon stocks per unit area in the project scenario shall be calculated as:

$$Rcp_{P,s,k,t} = \frac{1}{A_{s,k}} \left[\sum_{f=1}^{N_{cp,s,k}} (\Delta CA_{tree,P,f,s,k,t} + \Delta CB_{tree,P,f,s,k,t} + \Delta CA_{shrub,P,f,s,k,t} + \Delta CB_{shrub,P,f,s,k,t} + \Delta CDw_{P,f,s,k,t} + \Delta CL_{P,f,s,k,t} + \Delta CSoc_{P,f,s,k,t}) \right] \cdot \frac{44}{12}$$

Equation 38

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$Rcp_{P,s,k,t}$	Annual change per unit area in carbon stocks under the project scenario for segment s (DEF – DEG – SFM - CSE) in stratum k (stable forest, non-stable forest and non-forest), in year t .	tCO ₂ e / ha	X	X	X	X
$A_{s,k}$	Total area of segment s within stratum k .	ha	X	X	X	X
$N_{cp,s,k}$	Number of segment components f of segment s within stratum k .	NA	NA	NA	NA	NA
$\Delta CA_{tree,P,f,s,k,t}$	Annual change in carbon in aboveground tree biomass (trees) under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CB_{tree,P,f,s,k,t}$	Annual change in carbon in belowground tree biomass (tree roots) under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CA_{shrub,P,f,s,k,t}$	Annual change in carbon in aboveground shrub/non-tree woody vegetation biomass under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CB_{shrub,P,f,s,k,t}$	Annual change in carbon in belowground shrub/non-tree woody vegetation biomass under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CDw_{P,f,s,k,t}$	Annual change in carbon in dead wood/woody necromass (according to applicable methodological definitions) under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CL_{P,f,s,k,t}$	Annual change in carbon in litter under the project scenario for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X
$\Delta CSoc_{P,f,s,k,t}$	Annual change in carbon in soil organic carbon (SOC) under the project scenario (when included in accordance with materiality/feasibility criteria) for segment component f within segment s and stratum k , in year t .	tC	X	X	X	X

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$\frac{44}{12}$	Molecular weight ratio of carbon (C) to carbon dioxide (CO ₂).	NA	NA	NA	NA	NA

The terms ΔC represent the annual changes in carbon (tC/year) in each carbon pool for segment component f of segment s within stratum k during year t, and the factor 44/12 converts tonnes of carbon (tC) to tonnes of CO₂ (tCO₂).

9.2 Activity data of the project scenario

The selection of activities and procedures for calculating activity data in the project scenario shall be internally consistent with the baseline scenario (**Section 8**), ensuring “like-for-like” comparability between scenarios, without modifying spatial boundaries, stratification, or the definition of REDD+ segments.

Monitoring of project scenario activity data shall be carried out during the years of the results period, within the CCMP monitoring area and, where applicable, within the leakage area defined pursuant to **Section 9.3**.

For the DEF, DEG (not associated with SFM), and CSE segments, monitoring of activity data shall be conducted on an annual basis, unless a given jurisdictional program or the applicable FREL/FRL defines a different duly justified frequency.

For the SFM segment, monitoring of activity data may be conducted over periods longer than one year, provided it is supported by verifiable records of volumes and traceability (for example, transport permits, sawmill records, forest harvesting inventories) and is consistent with the requirements established in **Section 17.4.3**.

Based on the activity data observed under implementation of the CCMP, the proponent shall document and demonstrate the changes induced by the project’s territorial actions. Such actions shall be supported by verifiable evidence of their start date, location, spatial coverage, responsible parties, implementation mechanisms, and monitoring and control mechanisms.

Note 1. The duration of the CCMP shall be determined by the time interval during which the implemented actions generate verifiable changes in the activity data of the included REDD+ segments.

Note 2. The onset of the verifiable generation of changes in activity data under implementation of the CCMP defines the closure of the historical period and the beginning of the projection period, for both the baseline and project scenarios.

9.2.1 Specific considerations for the DEF segment

Actions to reduce deforestation in the project scenario shall be aligned with the current forest policy defined at the national level and, where applicable, with specific policies, strategies, and plans formally approved and in force at the subnational or jurisdictional level. This alignment shall be explicit, verifiable, and documented in the PDD and in monitoring reports.

Deforestation reduction measures may be synergistic, complementary, or coincident with those implemented to achieve avoided forest degradation, provided that traceability, methodological consistency, and the absence of double counting in the allocation of mitigation results are ensured, both among REDD+ segments and vis-à-vis applicable jurisdictional programs.

Avoided deforestation shall be determined⁵⁵ through comparison between:

1. The projected expected deforestation for the corresponding segment in the baseline scenario for the applicable segment/stratum; and
2. The deforestation effectively observed and quantified under implementation of the CCMP during the results period.

Consistent with the principle of methodological consistency, in areas that remain classified as stable forest under the project scenario, carbon stocks by pool shall be assumed to remain constant. Accordingly, stratum-defined values shall be considered static throughout the duration of the CCMP, unless a mandatory update is required pursuant to official guidelines of the jurisdictional program, the competent authority, or robust technical evidence accepted under this methodology.

9.2.1.1 Sequence and calculations for the DEF segment

Within the framework defined in **Section 9.1**, the deforestation segment in the project scenario is identified as $s = DEF$. The strata of the project scenario for this segment are indexed $k \in K_{DEF}$ and represent stable forest areas within the eligible boundaries of the CCMP where actions aimed at reducing or avoiding deforestation are implemented.

Emissions from deforestation estimated in this section constitute the terms $CO2EP_{def,k,t} \equiv E_{P,s,k,t}$ which are directly integrated into **Equation 36** of the project scenario.

Quantification of the project scenario for the DEF segment is based on:

- The verifiable implementation of actions aimed at reducing deforestation;
- The spatial delimitation of stable forest strata under intervention of the CCMP;
- The annual quantification of residual deforestation observed in the project scenario; and
- The application of the same carbon pools, emission factors, and time horizons defined for the baseline scenario, in compliance with the principle of consistency.

For the DEF segment in the project scenario, the following are defined:

- TS_{DEF} : total number of eligible strata associated with the DEF segment.
- $A_{def,k}$: total area of the DEF segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to both baseline and project scenarios (ha).
- $A_{def,P,k,t}$: area effectively observed as deforested in stratum k during year t under implementation of the CCMP (ha).

Carbon stocks by stratum

Carbon stocks per unit area for each stratum k of DEF in the project scenario are defined analogously to the baseline scenario:

- Aboveground tree biomass: $Ab_{def,k}$

⁵⁵ Applying, where appropriate, the aggregation, allocation, and nesting mechanisms defined by the jurisdictional program.

- Belowground biomass: $Bb_{def,k}$
- Deadwood and litter: $Dw_{def,k}$ (where applicable)
- Soil organic carbon: $Soc_{def,k}$ (where applicable)

These stocks are expressed in tCO₂e/ha and shall be considered static reference parameters per stratum during the accreditation period, unless a mandatory update is required pursuant to official guidelines.

Emission factors for deforestation

In the DEF segment, emissions from deforestation are quantified exclusively in the baseline scenario using the factors defined in Equations 18 to 20.

In the project scenario, as deforestation is avoided within the crediting area of the CCMP, no emissions associated with forest conversion are generated. However, for the DEF segment it is assumed that, in the project scenario, no deforestation occurs within the crediting area of the CCMP; therefore, $E_{P,def,k,t} = 0$, unless there is ex post evidence of residual deforestation.

Annual emissions from deforestation

Annual emissions from deforestation for each stratum g and year t in the project scenario are calculated as:

$$CO2EP_{def,k,t} = A_{P,def,k,t} \cdot (EF_{def,k} + BBEF_{def,k,t} + SOCEF_{def,k,t})$$

Equation 39

Variable	Description	Units
$CO2EP_{def,k,t}$	Emissions from deforestation under the project scenario for stratum k (stable forest susceptible to deforestation) in year t . This term represents the effective deforestation emissions under implementation of the CCMP and is directly comparable with the baseline emissions $E_{BL,def,g,t}$ o $E_{BL,S,g,t}$.	tCO ₂ e
$A_{P,def,k,t}$	Deforested area under the project scenario for stratum k in year t (effective/observed deforestation or estimated under intervention, as applicable ex ante or ex post).	ha
$EF_{def,k}$	“Immediate” emission factor for deforestation in stratum k , associated with the instantaneous release of carbon from aboveground tree biomass and dead wood (when applicable). This factor is defined based on the carbon stocks of the baseline scenario.	tCO ₂ e/ha
$BBEF_{def,k,t}$	Annual emission factor for the gradual release of carbon from belowground biomass in stratum k , distributed over a 20-year horizon as a default value ($BBEF_{def,k,t} = Bb_{def,k}/20$ for $t \leq 20$).	tCO ₂ e/ha
$SOCEF_{def,k,t}$	Annual emission factor for the gradual release of soil organic carbon (SOC) in stratum k , when applicable, distributed over a 20-year horizon ($SOCEF_{def,k,t} = Soc_{def,k}/20$ para $t \leq 20$).	tCO ₂ e/ha

For $t > 20$, the terms $BBEF_{def,g,t}$ y $SOCEF_{def,g,t}$ shall be set to 0, unless a different time horizon is technically justified in accordance with the applicable IPCC Guidelines and this methodology.

Cumulative emissions of the DEF segment

Total cumulative emissions of the project scenario for the DEF segment are obtained as:

$$CO2EP_{def} = \sum_{t=1}^T \sum_{k=1}^{TS_{def}} CO2EP_{def,k,t}$$

Equation 40

Variable	Description	Units
$CO2EP_{def}$	Total cumulative emissions under the project scenario for the DEF (Avoided Deforestation) segment over the projection period of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e
$CO2EP_{def,k,t}$	Annual emissions from deforestation under the project scenario for stratum k (stable forest susceptible to deforestation) in year t . Equivalent to $E_{P,DEF,k,t}$ or $E_{P,S,k,t}$ with $S = DEF$, as expressed in Equation 36.	tCO ₂ e
T	Total duration of the CCMP (number of years in the projection period).	Dimensionless (years)
TS_{def}	Total number of strata in the project scenario for the DEF segment (stable forest susceptible to deforestation).	Dimensionless

For the DEF (Avoided Deforestation) segment, under the project scenario it is assumed that $A_{P,def,k,t} = 0$. Therefore, $CO2E_{P,def,k,t} = 0$ and $CO2E_{P,def} = 0$, unless ex post evidence of residual deforestation within the CCMP area is identified.

9.2.2 Specific considerations for the DEG segment

In the project scenario, avoided degradation is quantified by comparing:

- The projected degradation for the DEG segment in the baseline scenario; and
- The degradation effectively observed and quantified during the results period under implementation of the CCMP.

Observed degradation results from the execution of territorial actions under the CCMP and, where applicable, from its articulation with forest governance policies, instruments, and control strategies implemented at the local, subnational, or national level.

For proper estimation and reporting of results in this segment, the CCMP shall:

1. Use emission factors specific to each relevant degradation process identified within the CCMP area, reflecting differences in intensity, frequency, and extent of degrading activities.
2. Maintain methodological consistency with the applicable jurisdictional program, mandatorily adopting official factors, parameters, and methodologies where available.
3. Recognize synergies between CCMP actions and public policy frameworks, without claiming emission reductions that are not demonstrably attributable to its implementation.

Consistent with the baseline scenario, selected carbon pools shall be assumed to remain constant in areas that remain classified as stable forest. Accordingly, carbon stocks by stratum shall be

considered static throughout the duration of the CCMP, unless robust, verifiable technical evidence consistent with jurisdictional guidelines justifies their update.

9.2.2.1 Sequence and calculations for the DEG segment

Within the framework defined for the project scenario, the avoided forest degradation segment is identified as $s = DEG$. Strata are indexed as $k \in K_{DEG}$ and represent stable forest areas within the eligible boundaries of the CCMP where actions aimed at reducing or avoiding forest degradation processes are implemented.

Emissions from degradation estimated in this section constitute the terms $CO2EPdeg_{k,t} \equiv E_{P,s,k,t}$, which are directly integrated into **Equation 36** of the project scenario.

Quantification of the project scenario for the DEG segment is based on:

- Identification of relevant degradation processes in the CCMP area (such as recurrent fires, unplanned selective logging, trail opening, grazing within forest areas, among others);
- Spatial delimitation of stable forest strata exposed to such processes; Annual quantification of residual degradation observed under implementation of the CCMP; and
- Application of the same carbon pools, emission factors, thresholds, and time horizons defined for the baseline scenario, in compliance with the principle of consistency.

For the DEG segment in the project scenario, the following are defined:

- TS_{deg} : total number of strata associated with the DEG segment.
- $A_{deg,k}$: total area of the DEG segment in stratum k, defined as part of the fixed spatial universe of the CCMP and common to both baseline and project scenarios (ha).
- $A_{P,deg,k,t}$: area effectively affected by degradation in stratum k in year t under implementation of the CCMP (ha).

Carbon stocks by stratum

For each stratum k of the DEG segment, the following carbon stocks per unit area are defined:

- Aboveground tree biomass: $Ab_{deg,k}$
- Belowground biomass: $Bb_{deg,k}$
- Deadwood and litter: $Dw_{deg,k}$ (cuando aplique)
- Soil organic carbon: $SoC_{deg,k}$ (cuando aplique)

These stocks are expressed in tCO₂e/ha and shall be considered static reference parameters throughout the duration of the CCMP, unless a technically justified update is accepted in accordance with this methodology.

Emission factors for forest degradation

Emission factors applicable to the DEG segment in the project scenario shall remain consistent with those defined for the baseline scenario, as they represent carbon losses per unit area associated with forest degradation processes.

For each stratum k , the following is defined:

$$EF_{deg,k} = \sum_{p \in P_k} (\Delta C_{dp,k})$$

Equation 41

Variable	Description	Units
$EF_{deg,k}$	Composite emission factor for forest degradation in stratum k (stable forest susceptible to deforestation), integrated from the relevant degradation processes identified for that stratum.	tCO ₂ e/ha
$\Delta C_{dp,k}$	Average carbon loss per unit area associated with degradation process dp in stratum k , consistent with the selected carbon pools and with official factors/methodologies when available.	tCO ₂ e/ha

When a degradation process involves gradual carbon releases in certain pools (for example, belowground biomass or SOC), such releases may be distributed over time horizons consistent with the IPCC Guidelines and with this methodology, maintaining the consistency of the composite emission factor.

Annual emissions from forest degradation

Annual emissions from degradation for each stratum k and year t in the project scenario shall be calculated as:

$$CO2EPdeg_{k,t} = A_{p,deg,k,t} \cdot EF_{deg,k,t}$$

Equation 42

Variable	Description	Units
$CO2EPdeg_{k,t}$	Emissions from forest degradation under the project scenario for stratum k (stable forest susceptible to deforestation) in year t . This term is directly comparable with the baseline emissions $E_{BL,deg,k,t}$ or $E_{BL,s,k,t}$ and constitutes the basis for estimating avoided degradation emissions attributable to the CCMP.	tCO ₂ e
$A_{p,deg,k,t}$	Area affected by degradation under the project scenario for stratum k in year t (effective/observed degradation during the results period, or estimated ex ante under intervention).	ha
$EF_{deg,k,t}$	Degradation emission factor applicable to stratum k in year t , which may integrate one or more degrading processes and their respective intensities/frequencies.	tCO ₂ e/ha

Cumulative emissions of the DEG segment – Project scenario

Total cumulative emissions of the project scenario for the DEG segment shall be obtained as:

$$CO2EPdeg = \sum_{t=1}^T \sum_{k=1}^{TS_{deg}} CO2EPdeg_{k,t}$$

Equation 43

Variable	Description	Units
<i>CO2EPdeg</i>	Total cumulative emissions under the project scenario for the DEG (Avoided Forest Degradation) segment over the projection/accounting period of the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e
<i>CO2EPdeg_{k,t}</i>	Emissions from forest degradation under the project scenario for stratum <i>k</i> in year <i>t</i> . Equivalent to <i>E_{BL,DEG,kt}</i> .	tCO ₂ e
<i>T</i>	Total duration of the CCMP (number of years in the projection/accounting period).	Dimensionless (years)
<i>TS_{deg}</i>	Total number of strata in the baseline scenario for the DEG segment.	Dimensionless

9.2.3 Specific considerations for the SFM segment

In the project scenario, the Sustainable Forest Management (SFM) segment represents the effective implementation of improved forest harvesting practices compared to the conventional management considered in the baseline scenario, aimed at reducing GHG emissions associated with extraction, processing, and final use of harvested wood products, while maintaining forest cover.

In this segment, the methodological approach is not based on changes in conventional ecosystem carbon pools, but rather on tracking the carbon cycle contained in harvested wood products and in collateral damage associated with their extraction, processing, and final use.

Carbon contained in harvested wood products shall be treated exclusively as part of the emission profile of the SFM segment, through its progressive release over time, and shall not be credited as a removal nor transferred to the CSE segment.

The SFM segment may be incorporated into the CCMP as:

- A complementary measure to reduce deforestation and forest degradation; or
- A REDD+ activity generating mitigation results, provided that:
 - Baseline and project scenarios are established and documented, ensuring lower emissions under improved management;
 - Traceability, methodological consistency, and absence of double counting with other REDD+ segments and with the jurisdictional program, where applicable, are ensured; and
 - Official factors, parameters, and methodologies defined at the jurisdictional level are adopted where available.

For areas under SFM classified as non-stable forest, the CCMP shall develop specific emission factors by type of management and demonstrate the probability of loss in the absence of

management (“No Management”) in order to justify attribution of forest cover maintenance as a result of the CCMP.

Performance of the SFM segment in the project scenario shall be determined by comparing GHG emissions associated with conventional forest management and the emissions observed under effective implementation of sustainable forest management practices, considering both territorial actions and their articulation with local, subnational, and national policy and regulatory frameworks.

Enabling conditions and applicability criteria for the SFM segment

Inclusion of the Sustainable Forest Management (SFM) segment in a CCMP shall be subject to demonstration of minimum technical conditions ensuring monitoring feasibility, traceability of activity data, and consistency of GHG accounting.

The following questions are indicative and guide the feasibility assessment of the SFM segment. Affirmative responses strengthen segment eligibility, while negative responses may require the development of additional enabling conditions by the CCMP:

- Do the forests within the CCMP have productive timber potential?
- Is there reliable and verifiable information on current forest harvesting systems?
- Is traceability, measurement, and monitoring of extraction, transport, and wood processing processes feasible?
- Are formally established forest management instruments in place?
- Are forest management practices implemented within the CCMP area?
- Are there reliable censuses or inventories of harvesting units?
- Is there verifiable information on volumes of timber mobilized?

Where the CCMP includes improvements in wood industrialization or processing, it shall demonstrate that associated mitigation results are not simultaneously claimed under other CCMPs, standards, or certification schemes, in order to avoid double counting.

Treatment of carbon in harvested wood products in the SFM segment

Under this methodology, the Sustainable Forest Management (SFM) segment is conceived as an emission reduction segment, and not as a GHG removal-generating segment.

Accordingly, carbon contained in harvested wood products derived from SFM activities shall be treated exclusively as part of the segment’s emission profile, reflecting its immediate or delayed release over time in accordance with the adopted degradation models and time horizons, and shall not be recognized as an additional GHG removal.

This methodological decision responds to the fact that carbon in harvested wood products:

- Corresponds to temporary and ex situ storage;
- Presents higher levels of uncertainty associated with its duration, final destination, and oxidation rates; and
- Derives from carbon stocks previously removed from the forest ecosystem.

Excluding harvested wood products as an independent source of removals prevents double counting of carbon, maintains conceptual and accounting separation among REDD+ segments of the CCMP, and is consistent with the principles of conservativeness, traceability, and transparency established in this methodology.

Accounting of GHG removals shall be limited exclusively to the Carbon stocks Enhancement (CSE) segment, which addresses *in situ* increases in carbon stocks under CCMP intervention.

9.2.3.1 Sequence and calculations for the SFM segment

Within the framework defined in **Section 9.1**, the Sustainable Forest Management segment corresponds to $s = SFM$. The strata are indexed as $k \in K_{SFM}$ and represent forest areas subject to timber harvesting under improved management schemes, within the eligible boundaries of the CCMP.

Emissions associated with the SFM segment in the project scenario constitute the terms $CO2EP_{sfm,k,t} \equiv E_{P,s,k,t}$, which are directly integrated into **Equation 36** of the project scenario.

Quantification of the project scenario for the SFM segment is based on improved harvesting efficiency, including:

- Reduction of harvest residues and collateral damage;
- Optimization of sawmilling processes and efficient use of raw material; and
- Extension of the effective lifetime of carbon contained in harvested wood products.

The CCMP shall demonstrate that the project scenario results in lower emissions than the baseline scenario in managed areas and that no double counting exists with other CCMPs or certification schemes. Areas under SFM shall not simultaneously account for DEF or DEG reductions over the same spatial extent and period, unless explicit allocation rules exist that prevent double counting.

For the SFM segment in the project scenario, the following are defined:

- TS_{SFM} : total number of eligible strata associated with the SFM segment.
- $A_{sfm,k}$: total area of the SFM segment in stratum k , defined as part of the fixed spatial universe of the CCMP and common to both baseline and project scenarios (ha).
- $A_{P,sfm,k,t}$: area effectively intervened through sustainable forest management in stratum k during year t under the project scenario (ha), when spatial support is required.

Activity data of the project scenario – SFM

For each stratum k and year t , the CCMP shall estimate:

- $WR_{P,sfm,k,t}$: volume of timber extracted under sustainable forest management (m^3 /year);
- $WA_{P,sfm,k,t}$: equivalent volume associated with harvest residues and collateral damage under improved management (m^3 /year);
- $WF_{P,sfm}$: waste factor from sawmilling/processing in the project scenario;

- DP_m : average total degradation period of harvested wood products under improved management (years).

All sustainable forest management actions shall be implemented under the permits and authorizations established by the national and subnational forest harvesting regime, in accordance with land-use planning and prevailing forest policy.

Actions shall promote the permanence of forest cover and efficiency in wood use. In areas classified as non-stable forest under SFM, the CCMP shall:

- Develop specific emission factors by type of management; and
- Demonstrate the probability of loss in the absence of management (“No Management”) in order to justify attribution of forest cover maintenance.

Annual emissions from forest management under the project scenario shall be calculated as:

$$CO2EP_{sfm,k,t} = WA_{P,sfm,k,t} + CO2ESW_{P,sfm,k,t} + TEC_{P,sfm,k,t} \quad \text{Equation 44}$$

$$CO2ESW_{P,sfm,k,t} = WR_{P,sfm,k,t} \cdot WF_{P,sfm} \cdot EF_{wood} \quad \text{Equation 45}$$

$$TC_{P,sfm,k,t} = WR_{P,sfm,k,t} \cdot (1 - WF_{P,sfm}) \quad \text{Equation 46}$$

$$TEC_{P,sfm,k,t} = \sum_{\tau=\max(1,t-DP_m+1)}^t \left(\frac{TC_{P,sfm,k,\tau}}{DP_m} \cdot EF_{wood} \right) \quad \text{Equation 47}$$

Variable	Description	Units
$CO2EP_{sfm,k,t}$	Total emissions under the project scenario associated with timber harvesting under SFM in stratum k and year t . Equivalent to $E_{P,sfm,k,t}$, as expressed in Equation 36 .	tCO ₂ e
$WA_{P,sfm,k,t}$	Emissions associated with harvest residues and collateral damage generated under improved management in stratum k and year t .	tCO ₂ e
$CO2ESW_{P,sfm,k,t}$	CO ₂ e emissions associated with sawmill/processing waste derived from timber extracted in stratum k and year t .	tCO ₂ e
$TEC_{P,sfm,k,t}$	Emissions from the progressive release of carbon contained in harvested wood products generated in stratum k and year t , considering DP_m .	tCO ₂ e
$WR_{P,sfm,k,t}$	Volume of timber extracted (harvested) under sustainable forest management in stratum k and year t .	m ³
$WF_{P,sfm}$	Sawmill/processing waste factor under the project scenario (fraction of extracted volume that becomes waste).	Dimensionless

Variable	Description	Units
EF_{wood}	Conversion factor from timber volume to carbon dioxide equivalent emissions, integrating wood density, carbon fraction, and the molecular weight ratio 44/12.	tCO ₂ e / m ³
$TC_{P,sfm,k,t}$	Volume of timber converted into harvested wood products (processed wood) under the project scenario for stratum k and year t .	m ³
DP_m	Average total degradation period of harvested wood products under the project scenario.	Dimensionless (years)

The estimated annual volumes (m³) are converted to tCO₂e using EF_{wood} (which integrates basic wood density, carbon fraction, and the 44/12 molecular weight ratio), in accordance with this methodology or other acceptable official sources, before being integrated into the corresponding emission term $E_{P,SFM,k,t}$.

Cumulative emissions of the SFM segment – Project scenario

Total emissions of the project scenario for the SFM segment shall be obtained as:

$$CO2EP_{sfm} = \sum_{t=1}^T \sum_{k=1}^{TS_{sfm}} CO2EP_{sf} m_{k,t}$$

Equation 48

Variable	Description	Units
$CO2EP_{sfm}$	Total cumulative emissions under the project scenario for the SFM segment over the projection/accounting period of the CCMP.	tCO ₂ e
$CO2EdP_{sfm,k,t}$	Total emissions associated with SFM under the project scenario for stratum k in year t . Equivalent to $E_{P,SFM,k,t}$.	tCO ₂ e
T	Total duration of the CCMP (number of years in the projection period).	Dimensionless
TS_{sfm}	Total number of strata in the project scenario for the SFM segment.	Dimensionless

9.2.4 Specific considerations for the CSE segment

In the CSE segment, the project scenario represents the biomass and carbon accumulation trajectory induced by the effective implementation of the CCMP in areas classified as non-stable forest or non-forest.

Removals attributable to the CCMP are determined by comparing:

- The carbon accumulation trajectory of the project scenario; and
- The corresponding counterfactual trajectory of the baseline scenario, maintaining strict consistency in spatial boundaries, strata, eligible areas, and methodological assumptions.

In coherence with **Section 8.3.48.3.4**, carbon pools in the CSE segment are considered dynamic in both the baseline and project scenarios. Consequently, carbon stocks shall be estimated annually during CCMP implementation through direct field measurements, remote sensing, and/or

duly validated allometric or growth models, ensuring methodological consistency between both scenarios.

The inclusion of soil organic carbon (SOC) in the project scenario shall follow these methodological rules:

- When SOC is included in the baseline scenario, its dynamics shall be modeled consistently in the project scenario.
- When SOC is not included in the baseline, it shall be assumed constant, and only the change attributable to the project shall be accounted for, under a conservative approach.

Areas eligible for CSE shall correspond to surfaces formally identified as suitable for restoration or assisted natural regeneration in valid national, jurisdictional, or territorial instruments, or to deforested areas within the temporal horizon permitted by the methodology. The CCMP shall document the eligibility, spatial delimitation, and timing of establishment and/or maintenance actions.

9.2.4.1 Sequence and calculations for the CSE segment

Within the framework defined in **Section 9.1**, the Carbon Stocks Enhancement segment (CSE) in the project scenario corresponds to $s = CSE$. The project scenario strata are indexed as $k \in K_{CSE}$ and represent areas of non-stable forest or non-forest in which the CCMP implements actions aimed at inducing, accelerating, or strengthening biomass and carbon accumulation.

Estimates for the CSE segment in the project scenario explicitly distinguish two components:

1. Emissions from associated sources (fertilizers and agricultural or livestock activities, when applicable during establishment and maintenance); and
2. Removals from increases in carbon stocks, derived from induced biomass growth (and, optionally, additional SOC).

The resulting terms are integrated into the general project scenario equation through $E_{P,CSE,k,t}$ and $NR_{P,CSE,k,t}$, ensuring accounting traceability and clear separation between emissions and removals.

For the CSE segment in the project scenario, the following are defined:

- TS_{CSE} : total number of project scenario strata⁵⁶ of the CSE segment.
- $A_{CSE,k}$: total area of stratum k of the CSE segment, defined as part of the fixed spatial universe of the CCMP and common to both baseline and project scenarios (ha).

⁵⁶ In the CSE (Carbon Stocks Enhancement) segment, the stratum index k represents the same spatial unit in both the baseline scenario and the project scenario. Unlike the DEF (Avoided Deforestation) and DEG (Avoided Forest Degradation) segments, in which the project scenario may redefine the spatial universe under intervention, in CSE the eligible areas correspond to surfaces previously classified as non-stable forest or non-forest, whose perimeter remains unchanged between scenarios. Consequently, the change between scenarios in CSE is not spatial in nature, but dynamic: what varies is the temporal trajectory of biomass accumulation (natural growth vs. growth induced by the CCMP).

- $A_{P,cse,k,t}$: effective area of stratum k considered for quantification in year t under the project scenario (ha).

Note: $A_{P,cse,k,t}$ corresponds to the area effectively intervened and verifiable in year t . To ensure comparability, the baseline scenario is quantified over that same effective area per year.

For each stratum k and year t , the CCMP shall estimate:

- $Ab_{P,cse,k,t}$: aboveground biomass per unit area in the project scenario;
- RSR_k : root-to-shoot ratio of stratum k ;
- $B_{P,cse,k,t}$: belowground biomass per unit area, calculated as:
- $DWP_{P,cse,k,t}$: dead wood and litter biomass per unit area, when applicable;
- $SOCP_{P,cse,k,t}$: soil organic carbon per unit area, when included;
- $E_{P,cse,Fer,k,t}$: emissions from fertilizer use (organic and/or synthetic);
- $E_{P,cse,ActAgr-livestock,cse,k,t}$: emissions associated with agricultural or livestock activities, when present.

Emissions from sources in the CSE segment – Project scenario

Project scenario emissions for the CSE segment in each stratum and year are estimated as:

$$E_{P,cse,k,t} = E_{P,cse,Fer,k,t} + E_{P,cse,ActAgr-Livestock,k,t} \quad \text{Equation 49}$$

Emissions from fertilizers are calculated as:

$$E_{P,cse,Fer,k,t} = FNO_{P,cse,k,t} + FEN_{P,cse,k,t} \quad \text{Equation 50}$$

Variable	Description	Units
$E_{P,cse,k,t}$	Total GHG emissions under the project scenario for the CSE (Carbon Stocks Enhancement) segment in stratum k in year t , associated with non-CO ₂ and CO ₂ sources other than changes in carbon stocks. Equivalent to $E_{P,cse,k,t}$.	tCO ₂ e
$E_{P,cse,Fer,k,t}$	GHG emissions under the project scenario for the CSE segment in stratum k in year t , associated with the use of fertilizers (organic and/or synthetic), estimated in accordance with the applicable methodological tools.	tCO ₂ e
$E_{P,cse,ActAgr-Livestock,k,t}$	GHG emissions under the project scenario for the CSE segment in stratum k in year t , associated with agricultural or livestock activities (e.g., soil management, grazing, crop residues), calculated in accordance with the applicable methodological tools.	tCO ₂ e
$FNO_{P,cse,k,t}$	GHG emissions associated with the use of organic fertilizers under the project scenario for the CSE segment in stratum k in year t , estimated in accordance with the applicable methodological tools.	tCO ₂ e
$FEN_{P,cse,k,t}$	GHG emissions associated with the use of synthetic fertilizers under the project scenario for the CSE segment in stratum k in year t , estimated in accordance with the applicable methodological tools.	tCO ₂ e

Terms associated with agricultural or livestock activities are calculated in accordance with the applicable methodological tools (AR-Tool 15 y AR-Tool 16).

Gross removals

Gross removals from increases in carbon stocks in the project scenario are calculated, for each stratum k in year t , as:

$$CO2R_{P,cse,k,t} = A_{eff,cse,k,t} \cdot (\Delta Ab_{P,cse,k,t} + \Delta B_{P,cse,k,t} + \Delta Dw_{P,cse,k,t})$$

Equation 51

Variable	Description	Units
$CO2R_{P,cse,k,t}$	CO ₂ removals under the project scenario for the CSE (Carbon Stocks Enhancement) segment in stratum k in year t , derived from the increase in carbon stocks in biomass attributable to the CCMP (Climate Change Mitigation Programme or Project).	tCO ₂ e
$A_{eff,cse,k,t}$	Effective area of the CSE segment in stratum k considered for quantification in year t , corresponding to the area effectively established or maintained under CSE actions of the CCMP.	ha
$\Delta Ab_{P,cse,k,t}$	Increase in aboveground biomass per unit area under the project scenario for the CSE segment in stratum k in year t .	tCO ₂ e/ha
$\Delta B_{P,cse,k,t}$	Increase in belowground biomass per unit area under the project scenario for the CSE segment in stratum k in year t .	tCO ₂ e/ha
$\Delta Dw_{P,cse,k,t}$	Increase in dead wood and litter biomass per unit area under the project scenario for the CSE segment in stratum k in year t .	tCO ₂ e/ha

Note: If the dead wood (Dw) pool is not included, the term $\Delta Dw_{P,cse,k,t}$ shall be set to 0. If SOC (Soil Organic Carbon) is included as a quantifiable carbon pool of the CSE (Carbon Stocks Enhancement) segment, its treatment shall follow the methodological rules defined to ensure BL–P (baseline–project) consistency and to avoid overestimation.

Net removals – Project scenario

Net removals attributable to the CCMP in the CSE segment, for each stratum and year, are obtained as:

$$NR_{P,CSE,k,t} = CO2R_{P,cse,k,t} - E_{P,cse,k,t}$$

Equation 52

Variable	Description	Units
$NR_{P,CSE,k,t}$	Net CO ₂ removals attributable to the CCMP (Climate Change Mitigation Programme or Project) under the project scenario for the CSE segment in stratum k in year t .	tCO ₂ e
$CO2R_{P,cse,k,t}$	Gross CO ₂ removals under the project scenario for the CSE segment in stratum k in year t , derived from the increase in carbon stocks in biomass (and SOC when applicable).	tCO ₂ e
$E_{P,cse,k,t}$	Total GHG emissions under the project scenario for the CSE segment in stratum k in year t , associated with non-CO ₂ and CO ₂ sources other than changes in carbon stocks (fertilizers and agricultural/livestock activities, when applicable).	tCO ₂ e

Note: when $E_{P,cse,k,t} = 0$ (particularly in the absence of fertilization or agricultural/livestock activities), net removals are equivalent to gross removals.

Cumulative net removals – Project scenario

Cumulative net removals of the project scenario for the CSE segment are obtained as:

$$NR_{P,CSE} = \sum_{t=1}^T \sum_{k=1}^{TS_{CSE}} NR_{P,CSE,k,t} \quad \text{Equation 53}$$

Variable	Description	Units
$NR_{P,CSE}$	Cumulative net CO ₂ removals attributable to the CCMP (Climate Change Mitigation Programme or Project) under the project scenario for the CSE (Carbon Stocks Enhancement) segment over the entire accounting period.	tCO ₂ e
$NR_{P,CSE,k,t}$	Net CO ₂ removals attributable to the CCMP under the project scenario for the CSE segment in stratum k in year t .	tCO ₂ e
T	Total number of years in the CCMP projection/accounting period.	Dimensionless
TS_{CSE}	Total number of strata in the project scenario for the CSE segment.	Dimensionless

Note: The cumulative net removals of the CSE segment under the project scenario are obtained by summing, across all eligible strata k and for all years t of the accounting period, the annual net removals $NR_{P,cse,k,t}$.

9.3 Leakage

Leakage corresponds to incremental GHG emissions occurring outside the CCMP monitoring area as an attributable consequence of its implementation, such as the spatial displacement of agents, activities, or pressures that generate deforestation, forest degradation, or other relevant emission sources.

In accordance with this methodology:

- Leakage shall be assessed and quantified exclusively in the project scenario; and
- Leakage emissions shall be applied as a deduction from the net results of each monitoring period, in accordance with **Section 17**.
- The delineation and analysis of leakage shall not modify the spatial boundaries of the CCMP, the eligible strata, or the accounting universe defined in **Sections 6** and **8**.

The estimation and deduction of leakage shall be carried out in a manner methodologically consistent with:

- The applicable national or jurisdictional FREL/FRL;
- Official guidelines of the corresponding jurisdictional program, in cases of integration or nesting; and
- The definitions of sources, pools, eligible strata, and REDD+ segments established in this methodology.

In particular, activity data, cartographic layers, thresholds, and emission factors used for leakage quantification shall be compatible with the applicable official forest monitoring system.

Physical leakage shall be monitored and deducted at the CCMP level. Economic or market leakage shall be acknowledged but managed at the jurisdictional or national scale and shall not be verifiably quantifiable at the project level.

9.3.1 Identification of leakage risk and spatial delineation

Based on the analysis of agents and drivers (**Section 4.1.1**) and the spatial characterization of relevant processes, the CCMP shall identify and document leakage risk and spatially delineate the relevant areas through the following steps:

a) Leakage Potential Area (LPA)

The CCMP shall delineate a Leakage Potential Area outside the monitoring area, applying technical criteria such as:

- Coincidence of productive activities associated with the identified agents and drivers;
- Ecosystem equivalence with respect to the CCMP area, in accordance with the official classification;
- Territorial proximity and connectivity (including hydrological and accessibility criteria);
- Presence of susceptible land covers (stable forest for DEF/DEG; forests subject to harvesting for SFM, when applicable).

b) Leakage Management Area (LMA)

From the LPA, the CCMP shall define a Leakage Management Area as an operational subset subject to:

- Periodic monitoring in accordance with the verification schedule;
- Estimation of activity data and leakage emissions; and
- Application of leakage deductions in the net accounting of the period.

When technical and verifiable evidence demonstrates that losses detected in the LPA or LMA are not causally related to the implementation of the CCMP, such losses shall not be considered attributable leakage.

The identification of potential leakage areas and the assessment of spatial displacement of deforestation and degradation pressures shall be supported by spatial risk analyses developed in accordance with the *Conceptual Framework on Spatial Risk Analysis of Deforestation and Forest Degradation in REDD+ Activities*, without altering the magnitude of the baseline scenario.

9.3.2 Quantification of leakage by REDD+ segment

Leakage quantification aims to estimate incremental GHG emissions occurring outside the CCMP monitoring area that are causally attributable to its implementation, as a result of the spatial displacement of agents, activities, or pressures previously present within the project area.

Leakage shall be quantified exclusively in the project scenario and applied as a direct deduction from emission reductions or net removals of the corresponding monitoring period, in accordance with **Section 17**.

Segments subject to leakage quantification

Leakage shall be quantified, at a minimum, for the following REDD+ segments when there is material and attributable displacement risk:

- DEF segment: When CCMP actions generate displacement of activities resulting in deforestation outside the monitoring area.
- DEG segment: When degradation reduction measures result in displacement of degrading practices (e.g., unplanned selective logging, recurrent fires, in-forest grazing) to external areas.
- SFM segment: Leakage shall be quantified only when displacement of conventional timber harvesting is material, demonstrable, and methodologically attributable to the CCMP.
- CSE segment: In principle, leakage from CSE associated with displacement of removals shall not be quantified, since this segment does not reduce a pre-existing emitting pressure. However, when CSE activities replace or restrict pre-existing agricultural or livestock uses in eligible areas (such as the “non-forest” stratum), and there is evidence of displacement of such activities to external areas, emissions associated with that displacement shall be quantified as leakage, exclusively using the applicable methodological tools (such as **AR-Tool 15**), avoiding any double counting with DEF or DEG.

9.3.3 Integration of leakage deduction

Leakage emissions attributable to the CCMP shall be deducted from the gross reductions or removals of the period, in accordance with **Section 9.3.2**. The CCMP shall report separately:

- DEF segment leakage;
- DEG segment leakage;
- Other relevant leakage (if applicable); and
- The total amount deducted.

9.3.4 Leakage quantification

Leakage quantification shall be carried out without developing new equations, reusing the methodological structure defined for each segment in **Section 8**. This structure shall be applied in the project scenario by substituting the corresponding activity data with the observed data in the Leakage Management Area (LMA), without modifying boundaries, strata, or emission factors.

For each segment s , stratum k , and year t , the value $E_{Leakages,s,k,t}$ shall be estimated by substituting the activity data of the CCMP area with the observed data in the LMA, while keeping emission factors, pools, and methodological assumptions constant.

Annual leakage emissions shall be aggregated as:

$$E_{Leakages,t} = \sum_{s \in \{DEF, DEG, SFM, CSE\}} \sum_{k=1}^{TS_{Leakages}} E_{Leakages,s,k,t}$$

Equation 54

Variable	Description	Units
$E_{Leakages,t}$	Total leakage emissions attributable to the CCMP (Climate Change Mitigation Programme or Project) in year t , aggregated across segments and strata.	tCO ₂ e
$E_{Leakages,s,k,t}$	Leakage emissions for segment s in stratum k during year t , estimated by reusing the methodological structure of the corresponding segment with activity data observed in the LMA (Leakage Management Area).	tCO ₂ e
$TS_{Leakages}$	Total number of strata considered for leakage quantification (within the LMA), in accordance with the applicable stratification.	Dimensionless

Note: For each segment s , stratum k and year t , the term $E_{Leakages,s,k,t}$ is estimated by reusing the equation structure corresponding to the applicable REDD+ segment (DEF - DEG - SFM - CSE), in accordance with Sections 9.3 and 10, substituting the activity data from the CCMP area with the data observed in the Leakage Management Area (LMA), without modifying emission factors, carbon pools or methodological assumptions.

Cumulative leakages for the period are obtained as:

$$E_{Leakages} = \sum_{t=1}^T E_{Leakages,t} = \sum_{t=1}^T \sum_{s \in S} \sum_{K=1}^{TS_{Leakages}} E_{Leakages,t}$$

Equation 55

Variable	Description	Units
$E_{Leakages}$	Cumulative leakage emissions attributable to the CCMP up to year t (aggregated over time, by segments and strata).	tCO ₂ e
$E_{Leakages,t}$	Leakage emissions attributable to the CCMP in year t , aggregated across segments and strata.	tCO ₂ e
$E_{Leakages,s,k,t}$	Leakage emissions for segment s in stratum k during year t , estimated using the segment-specific structure with activity data observed in the LMA.	tCO ₂ e

In all cases, the CCMP shall explicitly document:

- The spatial traceability of the affected areas;
- The compatibility of data and cartographic layers with the official system;
- The criterion for causal attribution between the CCMP and the observed emissions; and
- The monitoring and verification frequency applied.

9.3.5 Cases with national or jurisdictional accounting

When the applicable national FREL/FRL or jurisdictional program explicitly includes the estimation and deduction of leakage prior to the allocation of mitigation results, the CCMP shall adopt such procedures as the reference framework for the project scenario and demonstrate, through verifiable cartographic and documentary evidence, that:

- Leakage attributable to CCMP activities is covered under the official accounting framework;
- There is no double estimation or double deduction of leakage emissions;
- Compatible methodological protocols, definitions, and parameters are applied; and
- The current version of the applicable FREL/FRL or jurisdictional instrument is clearly referenced.

In such cases, the CCMP shall not conduct additional leakage estimations or deductions, and the corresponding adjustment shall be considered incorporated into the official accounting framework used for the allocation and verification of results in accordance with **Section 19**.

Leakage occurs outside the CCMP monitoring area and manifests within the Leakage Potential Area (LPA), which defines the geographic scope where displacement attributable to project implementation may occur. For operational purposes, leakage quantification and deduction shall be carried out exclusively through monitoring of the Leakage Management Area (LMA), defined as a subset of the LPA subject to systematic monitoring during verification periods.

10 Net GHG mitigation results during the verification period

This section describes the procedures for quantifying net GHG emission reductions and net GHG removals generated by the CCMP during each verification period, in consistency with the baseline (**Section 8**) and project (**Section 9**) scenarios, and taking into account adjustments for a baseline scenario set below Business as Usual (below BAU), leakage, and non-permanence risk as defined in this methodology.

The REDD+ activities included within the scope of the CCMP generate mitigation results through two complementary mechanisms:

Avoided GHG emissions, associated with the reduction of deforestation, forest degradation, and/or the implementation of Sustainable Forest Management (SFM) (segments DEF, DEG, and SFM); and

Net GHG removals, associated with the enhancement of forest carbon stocks as a result of biomass increase activities and other eligible carbon pools (segment CSE).

Both components shall be quantified independently and subsequently integrated to determine the total mitigation attributable to the CCMP, once deductions for leakage and non-permanence risk (buffer) have been applied.

10.1 Net GHG emission reductions during the verification period

Net GHG emission reductions represent the emissions avoided as a direct result of CCMP implementation, in comparison with the baseline scenario adjusted in accordance with **Section 14**. These reductions are estimated for the DEF, DEG, and SFM segments.

Annual avoided emission reductions – DEF and DEG segments:

$$TM_{er,t} = \sum_{s \in \{DEF, DEG\}} \sum_{k \in K_s} (CO2EBL_{s,k,t} - CO2EP_{s,k,t})$$

Equation 56

Variable	Description	Units
$TM_{er,t}$	GHG emission reductions in year t attributable to the DEF (Avoided Deforestation) and DEG (Avoided Forest Degradation) segments.	tCO ₂ e

Variable	Description	Units
K_s	Set of strata of segment s (DEF or DEG), common to both the baseline and project scenarios.	Dimensionless
$CO2EBL_{s,k,t}$	GHG emissions of segment s , in stratum k , during year t under the adjusted baseline scenario (Section 14).	tCO ₂ e
$CO2EP_{s,k,t}$	GHG emissions of segment s , in stratum k , during year t under the adjusted project scenario (Section 14).	tCO ₂ e

In the case of the SFM segment, when emissions are estimated cumulatively for the period, the total reduction is calculated as:

$$TM_{sfm} = CO2EBL_{sfm} - CO2EP_{sfm}$$

Equation 57

Variable	Description	Units
TM_{sfm}	Cumulative net emission reductions from the SFM (Sustainable Forest Management) segment over the verification period, used as the closing and consistency equation for the period.	tCO ₂ e
$CO2EBL_{sfm}$	Total cumulative emissions from the SFM segment under the baseline scenario.	tCO ₂ e
$CO2EP_{sfm}$	Total cumulative emissions from the SFM segment under the project scenario.	tCO ₂ e

Note: The SFM segment is methodologically quantified as a cumulative balance over the verification period, since emissions associated with forest harvesting are estimated based on total extraction volumes and the management practices applicable to the crediting period. However, even when SFM activity data are defined in aggregated form, mitigation results shall be monitored, documented, and reported on an annual basis, in accordance with the requirements of the Cercarbono Certification Programme. In this context, the value TM_{sfm} represents the cumulative net reduction over the verification period and is used as the closing and consistency equation, while annual results constitute the basis for validation, verification, and credit issuance processes.

10.2 Annual and period gross mitigation

The annual gross mitigation of the CCMP is obtained as:

$$MT_t = TM_{er,t} + TM_{cse,t}$$

Equation 58

Variable	Description	Units
MT_t	Gross mitigation of the CCMP (Climate Change Mitigation Programme or Project) in year t , prior to the application of leakage and buffer discounts.	tCO ₂ e
$TM_{er,t}$	Net emission reductions in year t , attributable to the DEF (Avoided Deforestation) and DEG (Avoided Forest Degradation) segments.	tCO ₂ e
$TM_{cse,t}$	Net GHG removals from the CSE (Carbon Stocks Enhancement) segment in year t , calculated as the balance between removals and emissions under the project and baseline scenarios.	tCO ₂ e
t	Time index corresponding to the year within the results or verification period.	Dimensionless

Note: The term MT_t integrates exclusively annual mitigation components. Reductions from the SFM segment, when quantified as a cumulative value over the period, are incorporated subsequently into the total gross mitigation of the period and do not form part of MT_t .

Gross mitigation for the period:

$$MT = \sum_{t=t_1}^{t_n} MT_t + TM_{sfm}$$

Equation 59

Variable	Description	Units
MT	Total gross mitigation of the CCMP (Climate Change Mitigation Programme or Project) during the verification period, prior to the application of leakage and buffer discounts. It integrates annual components (DEF – Avoided Deforestation, DEG – Avoided Forest Degradation, and CSE – Carbon Stocks Enhancement) and the cumulative SFM (Sustainable Forest Management) component.	tCO ₂ e
MT_t	Gross mitigation of the CCMP in year t .	tCO ₂ e
TM_{sfm}	Net emission reductions from the SFM segment, quantified as a cumulative value over the period.	tCO ₂ e

Note: The term TM_{sfm} is incorporated outside the annual summation because the SFM (Sustainable Forest Management) segment is quantified as a cumulative balance over the period, without annual disaggregation.

10.3 Net GHG removals during the verification period (CSE)

Net GHG removals are determined based on the annual balance between removals and emissions estimated under the project and baseline scenarios. This balance considers, for each stratum and year, both increases in carbon stocks and emissions associated with the activities of the segment.

For the removals component, adjusted baseline scenario removals shall be used, in accordance with **Section 14**.

The annual net balance of the CSE segment is calculated as:

$$TM_{cse,t} = \sum_{k \in K_s} (CO2R_{P,cse,k,t} - E_{P,cse,k,t}) - \sum_{k \in K_s} (CO2R_{Bl,cse,k,t}^{adj} - E_{Bl,cse,k,t}^{adj})$$

Equation 60

Variable	Description	Units
$TM_{cse,t}$	Net contribution of the CSE (Carbon Stocks Enhancement) segment in year t , defined as the difference between the project scenario balance (removals minus emissions) and the baseline scenario balance.	tCO ₂ e
K_s	Set of strata of segment s (CSE).	Dimensionless
$CO2R_{P,cse,k,t}$	Removals from the CSE segment under the project scenario, in stratum k , in year t .	tCO ₂ e
$E_{P,cse,k,t}$	Total GHG emissions from CSE sources under the project scenario, in stratum k , in year t .	tCO ₂ e
$CO2R_{Bl,cse,k,t}^{adj}$	Adjusted baseline removals from the CSE segment (see Section 14).	tCO ₂ e
$E_{Bl,cse,k,t}^{adj}$	Adjusted baseline GHG emissions from CSE sources (see Section 14).	tCO ₂ e

Net removals for the verification period

Net removals for the verification period are obtained by aggregating the annual values:

$$TM_{cse} = \sum_{t=t_1}^{t_n} TM_{cse,t}$$

Equation 61

Variable	Description	Units
TM_{cse}	Net GHG removals from the CSE (Carbon Stocks Enhancement) segment, accumulated over the verification period, obtained as the sum of the annual net contributions of the segment.	tCO ₂ e
$TM_{cse,t}$	Net contribution of the CSE segment in year t , calculated as the difference between the project scenario balance (removals minus emissions) and the baseline scenario balance.	tCO ₂ e
t_n	Index of the final year of the verification period.	Dimensionless
t_1	Index of the initial year of the verification period.	Dimensionless
t	Time index corresponding to year t within the verification period.	Dimensionless

10.4 Adjustments for leakage and buffer

Leakage emissions attributable to the CCMP are quantified in accordance with **Section 9.3** and deducted from mitigation results. Leakage for the period is calculated as:

$$E_{\text{Leakages}} = \sum_{t=t_1}^{t_n} E_{\text{Leakages},t}$$

Equation 62

Variable	Description	Units
E_{Leakages}	Total leakage emissions attributable to the CCMP (Climate Change Mitigation Programme or Project), accumulated over the verification period.	tCO ₂ e
$E_{\text{Leakages},t}$	Leakage emissions attributable to the CCMP in year t , estimated in accordance with Section 9.3 .	tCO ₂ e

Note: Leakage is quantified exclusively under the project scenario and aggregated over time to obtain the total discount applicable to the verification period.

In addition, a deduction for non-permanence risk (buffer) is applied in accordance with Cercarbono's applicable tools and current guidelines:

$$\text{Buffer} = Bu \times (MT - E_{\text{Leakages}})$$

Equation 63

Variable	Description	Units
<i>Buffer</i>	Total non-permanence risk discount applicable to the verification period.	tCO ₂ e
<i>Bu</i>	Buffer percentage assigned to the CCMP (Climate Change Mitigation Programme or Project) in accordance with the current Cercarbono tool.	%
<i>MT</i>	Total gross mitigation of the CCMP during the verification period, prior to the application of leakage and buffer discounts.	tCO ₂ e
<i>E_{Leakages}</i>	Total leakage emissions accumulated over the verification period.	tCO ₂ e

Note: The buffer is calculated on the gross mitigation net of leakage, in accordance with Cercarbono guidelines, and is applied as a conservative discount prior to determining credible results.

10.5 Net mitigation results of the CCMP

Net mitigation results attributable to the CCMP during the verification period are calculated as:

$$REDD^{Net} = MT - E_{Leakages} - Buffer$$

Equation 64

Variable	Description	Units
<i>REDD^{Net}</i>	Net GHG mitigation results attributable to the CCMP during the verification period, after applying leakage and buffer discounts.	tCO ₂ e
<i>MT</i>	Total gross mitigation of the CCMP during the verification period.	tCO ₂ e
<i>E_{Leakages}</i>	Total leakage emissions accumulated over the period.	tCO ₂ e
<i>Buffer</i>	Total non-permanence risk discount applied to the period.	tCO ₂ e

This value represents the net climate impact of the CCMP during the verification period and constitutes the basis for the issuance of carbon credits, in accordance with Cercarbono's reporting, monitoring, and verification requirements.

11 Ex ante estimation of total projected GHG emissions, removals, and reductions

While **Section 10** defines the equations and rules for the quantification of results during the verification period, this section describes the *ex ante* estimation of GHG emissions, removals, and net reductions of the CCMP for planning, methodological consistency, and reporting purposes.

The *ex ante* estimation shall be carried out by consistently applying the same methods, activity data, emission factors, carbon pools, and stratification criteria defined for the baseline scenario (**Section 8**) and the project scenario (**Section 9**). This section does not introduce new equations; rather, it synthesizes the projected results in accordance with the accounting structure defined in **Section 10**.

The *ex ante* estimation presented in this section is indicative in nature and does not replace the verified results of the period, which are determined exclusively in accordance with the equations and procedures established in **Section 10**.

11.1 Annual *ex ante* net results

For each year t of the crediting period, the *ex ante* net results of the CCMP are obtained by integrating the following components, calculated in accordance with the methods and equations established in **Section 10**:

- The annual net emission reductions from the Avoided Deforestation (DEF) and Avoided Forest Degradation (DEG) segments;
- The annual net removals from the Carbon Stocks Enhancement (CSE) segment; and
- The annual deduction for leakage attributable to CCMP implementation.

The annual *ex ante* net results represent the projected annual contribution of the CCMP to climate change mitigation, expressed in tCO₂e/year, after deducting the leakage corresponding to each year.

The non-permanence risk deduction (buffer), as well as the adjustment of baseline scenario emissions/removals (below BAU), is not applied uniformly at the annual level, but is evaluated exclusively at the verification period level, in accordance with the guidelines established in **Section 10**.

Likewise, the Sustainable Forest Management (SFM) segment is not explicitly included in the annual results, as its emission reductions are quantified as a cumulative balance over the period and are integrated only into the total gross mitigation of the crediting period.

11.2 Cumulative *ex ante* net results for the period

The cumulative *ex ante* net results of the CCMP over the crediting period are obtained through the temporal aggregation of the annual results and the incorporation of the cumulative contribution of the SFM segment, as well as deductions for leakage and non-permanence risk (buffer).

Consistent with **Section 10**, total gross mitigation for the period is calculated as the sum of the projected annual gross mitigation for the DEF, DEG, and CSE segments, plus the cumulative net emission reductions of the SFM segment. From this result, cumulative leakage emissions for the period are deducted and, subsequently, the buffer percentage defined in accordance with CERCARBONO's current guidelines is applied.

The cumulative *ex ante* net result for the period represents the total projected mitigation outcomes of the CCMP over the crediting period and constitutes the basis for results planning and methodological consistency assessment prior to verification.

11.3 Consistency considerations with FREL/FRL

In cases where the CCMP overlaps with a national or jurisdictional Forest Reference Emission Level (FREL) or Forest Reference Level (FRL) that includes national circumstances or other methodological adjustments, such circumstances shall only be considered in the *ex ante* estimation when:

- The CCMP area explicitly meets the assumptions that justify their application; and

- Their inclusion is methodologically consistent with the applicable national or jurisdictional accounting framework.

The *ex ante* estimation shall maintain full consistency with the applicable FREL/FRL, avoiding double counting and ensuring the comparability of results.

12 Grouped projects

Grouped projects are those that, within a Measurement, Reporting, and Verification (MRV) process, integrate multiple instances—such as participants, landholdings, communities, or operational units—under the registration of a single Climate Change Mitigation Programme or Project (CCMP), with the objective of maximizing mitigation impacts and optimizing the environmental, social, and economic management of results.

Grouping allows the integration of smaller-scale projects or community-based initiatives into a single framework, ensuring methodological consistency, efficiency in the accounting of GHG emission reductions and/or removals, and traceability in credit issuance.

Where the CCMP is implemented in a context in which an officially recognized jurisdictional REDD+ programme exists, the grouping shall demonstrate full coherence and alignment with such framework, particularly with respect to:

- The definition of the baseline and project scenarios;
- The monitoring and treatment of leakage;
- The allocation and registration of results; and
- The mechanisms for reporting, verification, and credit issuance.

12.1 Eligibility requirements of grouped instances

Each instance forming part of a grouped project shall independently comply with the following requirements:

- Comply with applicable national regulatory criteria, the Cercarbono Protocol, and this methodology.
- Demonstrate additionality individually, applying the same criteria established for non-grouped projects.
- Demonstrate the eligibility of its areas, REDD+ segments, and carbon pools in accordance with the specific conditions of this methodology.
- In jurisdictional contexts, demonstrate that additionality and eligibility are determined consistently with the criteria, thresholds, and institutional arrangements of the jurisdictional programme, avoiding double counting or overlapping benefits.

Only instances may be grouped, that additionally:

- Are located within the same reference region of the applicable FREL/FRL (national or subnational);
- Present comparable or equivalent agents and drivers of deforestation and forest degradation to those of the CCMP area;

- Do not include segments excluded by methodological or regulatory criteria;
- Include the same set of carbon pools defined for the grouped CCMP, or demonstrate coherence and traceability in the accounting of those that differ; and
- Initiate their activities after the last registered verification of the CCMP, avoiding temporal overlap of results;

12.2 Documentation requirements in the PDD

The Project Description Document (PDD) shall clearly and distinctly describe, for each grouped instance:

- The identification of the responsible party or parties (natural or legal persons);
- The spatial and temporal extent of the included areas;
- The ownership of the GHG emission reductions and/or removals generated;
- The projected and achieved results, disaggregated by instance, as well as the cumulative total corresponding to the grouped project; and
- In jurisdictional contexts, evidence that the instance is registered, recognized, or aligned with the corresponding jurisdictional programme.

12.3 Monitoring, MRV, and leakage in grouped projects

All monitoring requirements established in this methodology are mandatory for each grouped instance, considering that:

- The monitoring plan shall ensure coherence and internal consistency in sampling design, measurement methods, application of emission factors, and Quality Assurance and Quality Control (QA/QC) procedures.
- Due to potential territorial dispersion, grouped projects may require strengthened MRV capacities, including the use of geospatial monitoring technologies, cross-verification procedures, and internal audits.
- Within jurisdictional programmes, MRV requirements shall be consistent with the jurisdictional monitoring system and national reporting and verification arrangements.

Leakage monitoring shall be conducted at the instance level and subsequently aggregated at the grouped project level. For this purpose:

- Evidence of leakage need not be strictly spatial; operational agreements, zero-deforestation commitments, or other recognized monitoring tools may be used.
- Where leakage is accounted for at the national or jurisdictional level under an official FREL/FRL, the CCMP shall demonstrate methodological coherence, institutional alignment, and the absence of double counting.
- The displacement of agricultural or livestock activities shall be addressed in accordance with the leakage section of this methodology and, where applicable, in line with **AR-Tool 15**.

12.4 Addition and exclusion of instances

The addition of new instances may occur during verification processes, provided that the requirements established for grouped CCMPs in the Cercarbono Protocol and this methodology are met. The inclusion or exclusion of instances shall entail the reassessment of scenarios, in accordance with the relevant section of this methodology.

Where an instance permanently withdraws from the CCMP:

- The PDD shall be updated and submitted for revalidation.
- The withdrawn area shall not be considered in subsequent verifications.
- An amount equivalent to the total credits previously issued associated with that area shall be deducted from the results to be certified in the next verification.
- Withdrawal shall be total; partial area withdrawals shall not be permitted.

13 Risks and non-permanence

This methodology is grounded in the rigorous application of the principles of completeness, accuracy, transparency, consistency, and conservativeness, in order to ensure that the GHG mitigation results of the CCMP are estimated in a robust and verifiable manner.

However, given the biological nature of forest carbon pools, GHG removals may be affected by internal or external events that generate reversal risks, such as natural disasters, land-use changes, infrastructure development, governance failures, or other anthropogenic pressures. For this reason, removals are considered non-permanent, in contrast to emission reductions, which are treated conservatively under the same methodological framework.

Under this methodology, non-permanence risk is managed through the reservation of a percentage of mitigation results proportional to the level of risk identified for each CCMP. This percentage shall be determined by applying the ***Cercarbono Tool to estimate the carbon reserve in climate change mitigation initiatives in the land-use sector***, in accordance with its current rules for calculation, management, and potential release of the reserve.

The CCMP shall identify, justify, and document potential reversal risks, as well as the prevention and management measures implemented to mitigate them, consistent with the safeguard on Reversal Risk Prevention and Management Measures established in the current ***Safeguarding Principles and Procedures of Cercarbono's Certification Programme***. This includes the definition of management plans and the monitoring mechanisms necessary to avoid negative environmental or social impacts.

Any reversal event shall be identified and documented on the ground through verifiable spatial and temporal evidence. Losses associated with a reversal shall be deducted from the removals reported in the corresponding monitoring event and reflected in subsequent verifications, in accordance with Cercarbono procedures.

The non-permanence risk analysis shall be updated at least every five (5) years from the start of the CCMP, in alignment with the reassessment of the baseline and project scenarios.

Additionally, the CCMP may opt for supplementary risk management instruments, such as insurance policies or equivalent guarantee mechanisms, provided that these reasonably cover the risk of reversal and are consistent with Cercarbono guidelines.

In the case of jurisdictional REDD+ programmes, non-permanence risk management shall be consistent with buffer or reserve mechanisms established at the jurisdictional or national level.

Although non-permanence risk is primarily associated with GHG removals from biological carbon pools, the buffer shall be conservatively applied to the total mitigation results of the CCMP, including emission reductions, in order to safeguard the environmental integrity of the programme.

14 Uncertainty

The CCMP shall conduct a systematic uncertainty assessment during the planning and implementation phases, in accordance with **Annexes A.3.5, A.3.6, and A.3.8 of ISO 14064-2:2019** and **ISO/IEC Guide 98-3:2008**, and in coherence with the current regulatory framework of Cercarbono.

The uncertainty assessment shall:

- Identify the main sources of uncertainty associated with activity data, emission factors, models, and measurement methods;
- Quantify and report uncertainty using appropriate statistical methods; and
- Apply measures to reduce uncertainty, prioritizing the use of specific data and factors, appropriate sampling designs, and continuous improvements in measurement and monitoring processes.

The methodology recognizes that, even when applying Good Practice Guidance (GPG) in monitoring and Quality Assurance and Quality Control (QA/QC) procedures, residual uncertainty associated with the data, models, or parameters used may persist. Such uncertainty shall be managed through the application of conservative approaches, implicit adjustments, or safety margins, in accordance with the principles of transparency, consistency, and conservativeness established by this methodology.

Where significant uncertainty persists, the CCMP shall apply a conservative approach, avoiding the overestimation of GHG emission reductions or removals.

14.1 Baseline scenario adjustment

For the establishment of a conservative baseline, understood as a representation below the Business as Usual (BAU) scenario, an adjustment equivalent to ten percent (10%) or to the quantified relative percentage uncertainty—whichever is greater—shall be applied. This adjustment shall take the form of a discount of such magnitude on baseline scenario emissions, or an increase of such magnitude on baseline scenario removals, as applicable, in accordance with Cercarbono guidelines. This adjustment applies exclusively to baseline scenario removals or emissions, as applicable; it is methodological in nature and does not constitute a fixed discount factor.

The adjustments described in this section:

- Apply exclusively to GHG flows in the baseline scenario (emissions and/or removals);
- Are methodological and ex ante in nature, as part of the definition of the counterfactual scenario;
- Do not apply to the project scenario; and
- Do not constitute a fixed discount factor, nor do they replace leakage adjustments or the buffer for non-permanence risk.

The adjusted baseline scenario values shall subsequently be used in **Section 10** to determine the emission reductions and net removals attributable to the CCMP, through comparison between the baseline and project scenarios.

In the case of baseline scenario GHG removals, a conservative adjustment equivalent to ten percent (10%) or to the quantified relative percentage uncertainty—which ever is greater—shall be applied in order to avoid underestimation of baseline removals, thereby ensuring values below the BAU scenario.

$$R_{BL,t}^{adj} = R_{BL,t} \cdot (1 + U_{adj})$$

Equation 65

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$R_{BL,t}^{adj}$	Adjusted baseline GHG removals in year t .	tCO ₂ e	NA	NA	NA	X
$R_{BL,t}$	Baseline GHG removals in year t , prior to adjustment.	tCO ₂ e	NA	NA	NA	X
U_{adj}	Conservative adjustment factor applicable to baseline removals (BL), defined as the greater of 10% and U_{tot} ⁵⁷ , when applicable.	Dimensionless	NA	NA	NA	NA

Similarly, in the case of baseline scenario GHG emissions, a conservative adjustment equivalent to ten percent (10%) or to the quantified relative percentage uncertainty—which ever is greater—shall be applied, aimed at avoiding overestimation of baseline emissions and ensuring values below the BAU scenario.

$$E_{BL,t}^{adj} = E_{BL,t} \cdot (1 - U_{adj})$$

Equation 66

Variable	Description	Units	CCMP activities			
			DEF	DEG	SFM	CSE
$E_{BL,t}^{adj}$	Adjusted baseline GHG emissions in year t .	tCO ₂ e	X	X	X	NA
$E_{BL,t}$	Adjusted baseline GHG emissions in year t .	tCO ₂ e	X	X	X	NA
U_{adj}	Conservative adjustment factor applicable to baseline emissions (BL), defined as the greater of 10% and U_{tot} , when applicable.	Dimensionless	NA	NA	NA	NA

⁵⁷ Quantified percentage uncertainty for BL removals (according to uncertainty assessment).

15 Contributions to the United Nations Sustainable Development Goals

Within the framework of the Cercarbono programme, CCMPs shall report their contributions to the Sustainable Development Goals (SDGs) using the *Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals*.

16 Safeguards

Activities implemented under a REDD+ CCMP, whether at the level of an individual project or a jurisdictional programme, shall not result in net harm to the social, environmental, economic, or legal conditions of surrounding areas and communities.

Accordingly, proponents shall demonstrate, through verifiable evidence, that implementation of the CCMP:

- Respects territorial, cultural, and participatory rights of social groups (including local communities, Indigenous peoples, Afro-descendant communities, and peasant communities, among others);
- Avoids negative impacts on biodiversity, water resources, soils, and strategic ecosystems;
- Contributes to strengthening local and regional governance, in coherence with national and subnational regulatory frameworks; and
- Aligns with territorial planning processes and the country's international commitments on climate change, safeguards, and human rights.

In all cases, the CCMP shall support and demonstrate compliance with the provisions established in the document *Safeguarding Principles and Procedures of Cercarbono's Certification Programme*, ensuring traceability between project actions, potential impacts, and the mitigation and management measures adopted.

Where the CCMP is developed under or integrated into a jurisdictional framework, it shall additionally:

- Adopt the safeguards reporting and monitoring mechanisms defined at the national or subnational level, avoiding duplication of requirements and ensuring coherence with Cercarbono procedures;
- Ensure that mitigation results are integrated consistently and harmoniously with jurisdictional Safeguards Information Systems (SIS); and
- Adjust participation, consultation, and Free, Prior and Informed Consent (FPIC) procedures according to the scale of implementation, national regulatory frameworks, and Cercarbono safeguards guidelines, ensuring inclusion and respect for collective and individual rights and benefit-sharing arrangements.

The identification, implementation, and verification of social and environmental safeguards shall be managed in accordance with Cercarbono requirements and with the applicable national or jurisdictional legal and institutional frameworks, without prejudice to their observance during CCMP implementation.

17 Monitoring Procedure

The CCMP shall be monitored throughout its entire implementation period, both within the project area and within the areas defined for the identification and monitoring of leakage. Monitoring constitutes the basis for the quantification of results and the issuance of verified carbon credits.

All information and data associated with the CCMP shall be traceable, transparent, and verifiable, in accordance with the Cercarbono Protocol and the principles of environmental integrity.

Monitoring and quantification of CCMP results shall be conducted in accordance with the reporting periods defined by Cercarbono in its regulatory framework. In all cases, reported information shall consistently reflect the changes that occurred during the monitoring period considered.

For each verification event, the CCMP holder shall prepare a Monitoring Report in accordance with the monitoring plan established in the PDD (Project Description Document). In the years between verifications, monitoring may rely on direct measurements and/or conservative projections supported by recent data and robust statistical models, where applicable, without compromising conservativeness or verifiability.

Where risk maps are used as an input for monitoring the spatial dynamics of land-use pressure, they shall maintain methodological coherence with the document ***Conceptual Framework on Spatial Risk Analysis of Deforestation and Forest Degradation in REDD+ Activities*** within the Cercarbono regulatory framework.

The Monitoring Report shall include, at a minimum:

- A description of implemented activities and monitoring methods applied, including a “planned vs. implemented” comparison;
- Evidence supporting calculations of activity data, land-use/land-cover changes, changes in carbon stocks (where applicable), emissions, and leakage, with explicit treatment of uncertainty and conservative assumptions;
- A summary of large datasets, indicating how access to complete datasets is ensured (digital files, repositories, annexes);
- A record and description of adverse events (e.g., fires, natural disturbances, loss of cover, tenure conflicts, among others) and corrective actions;
- Evidence of reversal risk assessment and management and of buffer application in accordance with current guidelines; and
- Documentation of the assessment and management of environmental and social impacts, consistent with the safeguards set out in the PDD and by Cercarbono.

The following elements shall be subject to monitoring:

17.1 Description of the Monitoring Plan

The CCMP holder shall establish and maintain a monitoring and Quality Assurance and Quality Control (QA/QC) plan defining procedures to measure, record, collect, analyze, safeguard, and

report all data relevant to GHG emissions and removals, using conservative and duly justified values.

The plan shall ensure that quantified results are real, attributable, consistent, and verifiable throughout the entire life of the project:

- Purpose of monitoring;
- Variables/parameters to be monitored (activity data, relevant reservoirs/sources, leakage, and events);
- Types of data, units, and storage structure;
- Data sources (field, remote sensing, laboratory, official sources, literature, third parties);
- Monitoring methodologies (measurement/estimation/modelling; uncertainty treatment; conservative criteria);
- Monitoring frequency (according to segment dynamics and methodological requirements);
- Roles and responsibilities (data capture, review, approval, custody, change control);
- Internal QA/QC controls (cross-checks, consistency checks, internal audits, corrective actions); and
- Information management system (location, backups, version control, traceability, format transfer).

17.2 Monitoring of Boundaries and Eligibility

The CCMP shall periodically verify that activities are implemented strictly within the boundaries validated in the PDD and in accordance with the approved cartography (and, where applicable, within areas formally incorporated into grouped projects).

This monitoring includes:

- Remote sensing and GIS (Geographic Information System) tools (satellite imagery, drones where applicable) and georeferenced field verification;
- Confirmation of tenure, use rights, or formal agreements ensuring continuity of control/management; and
- Annual review of cartographic consistency (polygons, attributes, metadata), in accordance with Cercarbono's cartographic guidance.

17.3 Monitoring of Emissions, Removals, or Disturbances

Monitoring shall systematically capture:

- Land-use/land-cover changes within the CCMP and, where relevant, transitions between strata;
- Changes in carbon stocks in selected reservoirs (mandatory where CSE applies), using representative sampling designs and/or calibrated remote sensing tools;
- Emissions associated with significant events (e.g., fires) and other relevant sources considered under the methodology, recorded per event or at least annually according to their variability; and
- Registration and cartographic/temporal evidence of any event affecting carbon stocks and its treatment in project accounting in accordance with the applicable methodological sections.

17.4 Monitoring of Implementation by Segment

Activities implemented in each CCMP segment shall be consistent with the provisions established in the PDD, area management plans, and methodological assumptions of the baseline and project scenarios.

Monitoring by segment shall follow these general rules:

- For the DEF (Avoided Deforestation), DEG (Avoided Forest Degradation), and CSE (Carbon Stocks Enhancement) segments: monitoring of activity data and relevant variables shall be conducted annually, using methods consistent with those employed for quantification of results.
- For the SFM (Sustainable Forest Management) segment: monitoring frequency may be adjusted to the forest harvesting cycle and availability of records, provided full traceability between extraction, processing, and destination of timber products is ensured.
- Where emission/removal factors originate from the official FREL/FRL (Forest Reference Emission Level/Forest Reference Level), they shall be used mandatorily. In the event of updates to the FREL/FRL, the CCMP shall apply the new values in subsequent verifications, in coherence with official guidelines.
- Where verifiable evidence demonstrates that no significant changes have occurred in the emission or removal factors applicable to monitored categories, it shall not be necessary to repeat inventories, maintaining methodological consistency between the baseline and project scenarios.

17.4.1 Specific Considerations for Monitoring the DEF Segment

Monitoring of Avoided Deforestation (DEF) shall be based on systematic and annual detection of land-use and land-cover changes, using remote sensing and GIS tools consistent with those used to construct the baseline scenario and, where applicable, with national or jurisdictional National Forest Monitoring Systems (NFMS).

Deforested areas detected within the reporting period shall be quantified and accounted for in accordance with methodological rules, ensuring spatial and temporal coherence, cartographic traceability, and absence of double counting with other segments or jurisdictional programmes.

17.4.2 Specific Considerations for Monitoring the DEG Segment

Monitoring of Avoided Forest Degradation (DEG), as a REDD+ activity, is less standardized than Avoided Deforestation or Carbon Stocks Enhancement and therefore requires strengthened verification and explicit justification of applied assumptions. Procedures for measuring activity data and emission factors shall be supported by recognized scientific methodologies and validated technical literature.

Monitoring of emission reductions from avoided forest degradation shall ensure the absence of double counting with emission reductions from deforestation. Accordingly, areas under avoided forest degradation shall not be simultaneously included in the accounting of the DEF segment.

If deforestation is detected in areas originally included in the DEG segment, such areas shall be permanently reclassified into the DEF segment, applying corresponding adjustments in emission and carbon stocks accounting.

17.4.3 Specific Considerations for Monitoring the SFM Segment

Monitoring of Sustainable Forest Management (SFM), as a REDD+ activity, is less standardized than Avoided Deforestation or Carbon Stocks Enhancement and therefore requires a detailed verification process and explicit justification of applied assumptions. Measurement procedures for activities and emission factors shall be based on recognized scientific methodologies and validated technical literature.

Given that this segment relies on traceability of harvested, processed, and commercialized timber products, monitoring shall ensure coherence between harvesting records, processing records, and final destination. If deforestation is detected in areas under SFM, such areas shall be permanently reclassified into the DEF segment, applying corresponding adjustments in carbon stocks and emission accounting.

17.4.4 Specific Considerations for Monitoring the CSE Segment

Monitoring of Carbon Stocks Enhancement (CSE) shall focus on periodic measurement of net changes in carbon stocks of selected reservoirs, through forest inventories, permanent or temporary plots, and/or remote sensing tools calibrated with field data.

Monitoring frequency and design shall be consistent with the growth dynamics of the implemented system, applying conservative assumptions and avoiding overestimation of removals, in consistency with the baseline scenario and with FREL/FRL guidelines where applicable.

17.5 Leakage Monitoring

The CCMP shall monitor the Leakage Potential Area (LPA) and the Leakage Management Area (LMA) using methods consistent with those applied to monitoring the project area, ensuring comparability.

Monitoring shall document:

- Spatial delineation and any justified updates (without modifying CCMP boundaries);
- Evidence of displacement of activities or pressures (where applicable); and
- Quantification/attribution results in accordance with the leakage section and applicable official guidelines.

In scenarios with jurisdictional or national accounting that already includes leakage, the CCMP shall demonstrate alignment and absence of double counting, and shall follow the reporting mechanisms defined by the relevant programme.

In the case of CCMPs not fully overlapping with a FREL/FRL (Forest Reference Emission Level / Forest Reference Level), increases in deforestation observed in the Leakage Management Area following implementation of control actions shall be deducted from the project's accounting up to the limit established in the risk reserve.

For CCMPs partially or fully overlapping with a jurisdictional FREL/FRL, no direct adjustments shall be applied to project-level accounting; however, the proponent shall document and coordinate leakage mitigation actions in a manner harmonized with the guidelines and reporting mechanisms of the jurisdictional programme.

Leakage monitoring results shall be reported in accordance with formats and guidelines established by Cercarbono, ensuring consistency between ex ante and ex post assessments. The validation and verification body shall assess the sufficiency of the evidence presented to determine the attributable link between observed processes and project activities.

17.6 Roles, Controls, and Data Management

The CCMP shall define MRV (Measurement, Reporting, and Verification System) team roles, change control procedures, approval workflows, and maintain logs of:

- Calibration and maintenance of equipment (where applicable);
- Field measurements;
- Remote sensing processing; and
- Incidents/adverse events and corrective actions.

QA/QC measures shall be implemented to detect inconsistencies, data gaps, or errors; any interruption shall be treated conservatively and duly documented.

17.7 Ex Post Results and Accounting Consistency

Data obtained through the monitoring activities described in this section constitute the inputs for ex post quantification of net GHG emission reductions and net GHG removals achieved by the CCMP.

Determination of ex post mitigation results, as well as their aggregation at the annual and verification-period levels, shall be conducted exclusively in accordance with the equations, definitions, and rules established in **Section 10** (Net Mitigation Results) of this methodology.

Ex post values shall be reported in the Monitoring Report using formats and tables defined by Cercarbono, ensuring consistency with ex ante results and full traceability between activity data, emission/removal factors, and mitigation outcomes.

17.8 Monitoring Data and Parameters

Data and parameters used for monitoring, quantification, and reporting of GHG emissions, reductions, and removals under the REDD+ CCMP shall enable verifiable methodological reconstruction of achieved results, in coherence with the baseline and project scenarios defined in this methodology.

For the definition, collection, and use of monitoring data and parameters under the REDD+ CCMP, the following shall be considered:

- Consistency with the FREL/FRL: All activity data, parameters, and factors used shall be consistent with the applicable national or jurisdictional FREL/FRL, in order to avoid double counting and ensure coherence with official climate accounting.
- Verifiable methodological reconstruction: Calculations of GHG emissions, reductions, and removals shall derive from consistent application of methods defined for the baseline and project scenarios under this methodology, so that they may be reproduced and verified by an independent third party.

- Field inventories: Forest field inventories constitute the primary source for estimating biomass, dead wood, litter, and soil organic carbon. These may be complemented by allometric equations, expansion factors, or validated models in accordance with the methodology.
- Spatial data: Geographic Information Systems (GIS) and remote sensing constitute the primary source for estimating areas and land-cover changes, and shall be supported by direct or indirect field validation, in accordance with established accuracy levels.
- Sustainable Forest Management (SFM): For the SFM segment, full and verifiable traceability shall be ensured between extraction records, industrial processing, and final destination of timber products.
- Leakage: In the case of leakage, monitoring data shall be articulated with jurisdictional or national monitoring, control, and Safeguards Information Systems (SIS), ensuring spatial and temporal coherence.
- Transparency and documentation: All information used for monitoring and quantification of results shall be fully, clearly, and traceably documented to enable reconstruction of CCMP results during validation and verification processes, in compliance with the principle of transparency.

Table 10. Variables to monitor

Variable		Units	Main and complementary data source
Spatial variables			
$A_{def,p,k,t}$	Effectively deforested area in year t in stratum k under the project scenario (DEF – Avoided Deforestation segment).	ha	Primary: multitemporal remote sensing (Landsat, Sentinel, Planet, SAR) and GIS-based land cover change analysis. Complementary: national/jurisdictional institutional datasets and field validation.
$A_{p,deg,k,t}$	Effectively degraded area in year t in stratum k under the project scenario (DEG – Avoided Forest Degradation segment).	ha	Primary: remote sensing (spectral indices, degradation analysis). Complementary: rapid field inventories and national/jurisdictional institutional datasets.
$A_{p,cse,k,t}$	Effectively restored area in year t in stratum k under the project scenario (CSE – Carbon Stocks Enhancement segment).	ha	Primary: remote sensing and GIS. Complementary: field validation (GPS, implementation records) and national/jurisdictional SIS (Safeguards Information System).
$A_{p,sfm,k,t}$	Area under Sustainable Forest Management (SFM) in year t in stratum k under the project scenario.	ha	Primary: administrative records and authorized forest management plans, integrated with GIS. Complementary: field validation and data from forest authorities.
Biophysical variables ⁵⁸			
$Ab_{p,cse,k,t}$	Aboveground biomass in stratum k of the CSE segment at monitoring time t .	tCO ₂ e	Primary: field forest inventories, permanent/temporary plots, and allometric equations.

⁵⁸ When applicable, they are monitored in Tx and Tx-1 to estimate net changes in carbon stocks, in accordance with Section 10.

Variable		Units	Main and complementary data source
			Complementary: national/IPCC literature and remote sensing (NDVI, LiDAR, SAR) calibrated with field data.
$B_{P,cse,k,t}$	Belowground biomass in stratum k of the CSE segment at monitoring time t .	tCO ₂ e	Primary: root-to-shoot ratios applied to field data. Complementary: IPCC databases or validated local studies.
$DW_{P,cse,k,t}$	Carbon in dead wood and litter in stratum k of the CSE segment at monitoring time t .	tCO ₂ e	Primary: field forest inventories. Complementary: IPCC default values or peer-reviewed scientific literature.
$Soc_{P,cse,k,t}$	Additional soil organic carbon (SOC) in stratum k of the CSE segment at monitoring time t .	tCO ₂ e	Primary: soil sampling and analysis in accredited laboratories. Complementary: AR-Tool 16 and national/regional literature.
Emission, removal and mitigation variables			
$CO2EP_{s,k,t}$	GHG emissions of segment s (DEF – Avoided Deforestation / DEG – Avoided Forest Degradation), in stratum k , during year t under the project scenario.	tCO ₂ e	Primary: accounting calculations based on monitored areas and emission factors consistent with the applicable FREL/FRL (Forest Reference Emission Level/Forest Reference Level). Complementary: ex ante reports and official reference datasets.
$CO2EP_{sfm}$	Total cumulative emissions from the SFM (Sustainable Forest Management) segment under the project scenario.	tCO ₂ e	Primary: forest harvesting records, industrial processing data, and SFM (Sustainable Forest Management) carbon balance accounting. Complementary: IPCC coefficients or sectoral studies.
$E_{P,cse,k,t}$	Total GHG emissions from CSE (Carbon Stocks Enhancement) sources under the project scenario, in stratum k , in year t .	tCO ₂ e	Primary: records of restoration activities and input use. Complementary: IPCC emission factors and technical literature.
$E_{Leakages}$	Leakage emissions in year t within the Leakage Potential Area (LPA).	tCO ₂ e	Primary: remote sensing and GIS analysis in adjacent areas. Complementary: field validation and national/subnational SIS (Safeguards Information System).
$TM_{er,t}$	Net mitigation (emission reductions) from the DEF and/or DEG segment in year t .	tCO ₂ e	Primary: accounting calculations based on monitored areas and emission factors consistent with the applicable FREL/FRL. Complementary: ex ante reports and official reference datasets.
TM_{sfm}	Net mitigation from the SFM segment in year t .	tCO ₂ e	Primary: forest inventories and GIS of restored areas. Complementary: growth models and national/IPCC literature.
$TM_{cse,t}$	Net GHG removals from the CSE segment in year t .	tCO ₂ e	Primary: forest harvesting records, emission factors, and carbon balance calculations. Complementary: IPCC databases and sectoral studies.
Sustainable Forest Management (SFM)–specific variables			
$WR_{P,sfm,k,t}$	Volume of timber extracted (harvested) under	tCO ₂ e	Primary: authorized forest harvesting records (transport permits, waybills, logging books), pre- and

	Variable	Units	Main and complementary data source
	Sustainable Forest Management in stratum k in year t .		post-harvest inventories, and approved forest management plans. Complementary: field verification (stump counts, skid trails, log landings), traceability audits, and data from the forest authority.
	$TC_{P,sfm,k,t}$	tCO ₂ e	Primary: industrial processing records (sawmilling), product inventories, and in-plant mass balance (input–output) data. Complementary: validated conversion coefficients (recovery rates), sectoral statistics, and IPCC parameters when applicable.
	$SW_{P,sfm,k,t}$	tCO ₂ e	Primary: forest industry records (recovery rates, waste coefficients) and mass balance (input–output) data. Complementary: local efficiency studies and IPCC/sectoral parameters when robust primary data are not available.
	$WA_{P,sfm,k,t}$	tCO ₂ e	Primary: post-harvest field inventories (impact plots/transects), including measurements of damage and residues. Complementary: default factors (IPCC/studies), technical operation reports, and independent validation.
	$WF_{P,sfm}$	Dimensionless	Primary: direct forest industry data (actual recovery rates by species/diameter/batch). Complementary: sectoral averages and IPCC/local studies; the use of default values shall be justified.
	DP_m	Dimensionless	Primary: sectoral data and literature on the service life of harvested wood products (by product type). Complementary: IPCC default values for HWP (Harvested Wood Products) or other technical references accepted by the methodology.

17.9 Monitoring of Contributions to the Sustainable Development Goals

Monitoring of contributions to the United Nations Sustainable Development Goals (SDGs) shall be conducted in accordance with the *Cercarbono's Guidelines to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals*.

17.10 Safeguards Monitoring

Safeguards monitoring shall be conducted in accordance with the requirements established in the PDD and the *Safeguarding Principles and Procedures of Cercarbono Certification Programme*, including verifiable evidence of impact management and participation mechanisms.

18 Stakeholder Consultation

Stakeholder consultation under this methodology shall be conducted in accordance with the guidelines described in the section **Public Consultations for CCMPs** of the **Cercarbono Protocol** and applicable reference documents.

All records and results of the public consultation process shall be uploaded to the EcoRegistry platform, where they shall be duly stored.

Additionally, the provisions established on this matter in the current **Safeguarding Principles and Procedures of Cercarbono's Certification Programme** shall be taken into account.

19 Effective Participation

The CCMP shall identify local or ethnic communities present in the project area or that may be directly affected by CCMP implementation and shall guarantee their full and effective participation in accordance with applicable legal mandates consistent with rights established under the national regulatory framework of the country where the CCMP is implemented.

The CCMP shall comply with the provisions on effective participation established in the current **Safeguarding Principles and Procedures of Cercarbono's Certification Programme**.

20 Information Management

The CCMP holder shall establish, implement, and maintain information management and quality assurance procedures, consistent with the principles and requirements of this methodology, for the collection, administration, control, and safeguarding of data, databases, and all other information used in the construction of the baseline and project scenarios, as well as in monitoring and results quantification activities.

Such procedures shall include, at a minimum, mechanisms for the assessment, management, and, to the extent possible, reduction of uncertainties associated with the quantification of GHG emissions, reductions, and removals. For this purpose, the CCMP holder shall identify, document, and appropriately address any errors, inconsistencies, or omissions detected, retaining documentary evidence supporting the corrections made.

The CCMP holder shall apply internal oversight criteria and procedures, including systematic reviews and, where appropriate, internal audits of the CCMP, in order to ensure the accuracy, consistency, and traceability of information used for the quantification of results, in accordance with the approved monitoring plan.

Where measurement and monitoring equipment is used, the CCMP holder shall ensure that such equipment is properly calibrated or verified and maintained in accordance with technical specifications and required frequency, retaining corresponding records.

Furthermore, the CCMP holder shall ensure that all personnel involved in data collection, handling of measurement instruments, and information processing possess the necessary skills, competencies, and knowledge to perform their functions. Where necessary, training and capacity-building activities shall be implemented and duly documented.

All data, records, and documents related to monitoring, quantification, and follow-up of the CCMP shall be systematically recorded, organized, and retained, ensuring their availability, integrity, and accessibility for validation, verification, and audit processes as applicable.

20.1 Document Control

The CCMP shall establish and maintain a document control system supporting all legal and administrative documentation, as well as all measurement and data collection processes, calculations, and quantification of GHG emissions and removals.

20.2 Cartographic Quality Management

For the presentation of cartographic information, in order to ensure traceability of eligible areas comprising the geographical boundaries of the CCMP, information for each management unit (year of establishment, species, area in hectares, planting density, owner) may be incorporated into a Geographic Information System (GIS), in accordance with **the *Guidelines for Mapping Presentation and Analysis***.

21 CCMP Documentation

All documentation and records generated shall be retained to demonstrate that CCMP activities have been implemented as designed. Any deviation in implementation from the original design shall be technically justified and demonstrated to comply with the guidelines, conditions, and procedures of this methodology.

The CCMP holder shall maintain documentation demonstrating conformity of the GHG project with the requirements of this document. Such documentation shall be consistent with the validation and verification needs of the Cercarbono programme.

22 Transition Regime for the Use of Other Methodologies

For CCMPs registered with Cercarbono, adoption of this methodology shall apply to CCMPs that are in Stages 1 and 2 (formulation and public comments), or to those that, upon revalidation, opt to update the version of the methodology initially selected.

23 CCMP Validation and Verification

Requirements for validation and verification processes, in addition to the technical guidelines established in this methodology, are set out in the current version of the ***Cercarbono Protocol*** and in the ***Procedures*** document or any other applicable documents issued to support such processes.

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25 Document history

Version	Date	Comments or changes
1.0	17.06.2020	Initial version of the document for public consultation from 17.06.2020 to 15.07.2020.
1.1	09.09.2020	Final version with integrated comments from the public consultation and additional missing elements.
1.2	02.07.2022	Version adapted to international applicability and context.
1.2.1	30.09.2022	Principles presented in Section 3 sorted alphabetically.
1.3	19.10.2022	Version with wording change in Section 7.4.1.
1.3.1	24.01.2023	CCMP duration was adjusted to equal to or greater than 30 years to align with <i>Cercarbono's Protocol</i> .
2.0	31.08.2023	Updated version, with extensive revision to contents, submitted for independent, third-party assessment.
2.1	12.04.2024	Updated version with comments from the third-party assessment, released for public consultation from 12.04.2024 to 31.05.2024.
3.0	25.08.2025	Integration of comments from the third-party assessment. Modalities of CCMP implementation are established in line with what is set forth by the REDD+ mechanism of the UNFCCC. The designation changes from Methodology M/UT-REDD+ for the implementation of REDD+ projects consistent with national reference levels to: Methodology M/UT-REDD+ integral consistent with the international agreements established by the UNFCCC. Methodology released again for public consultation from 25.08.2025 to 25.09.2025.
3.1	08.03.2026	Final version after public consultation and final review by an independent third party.