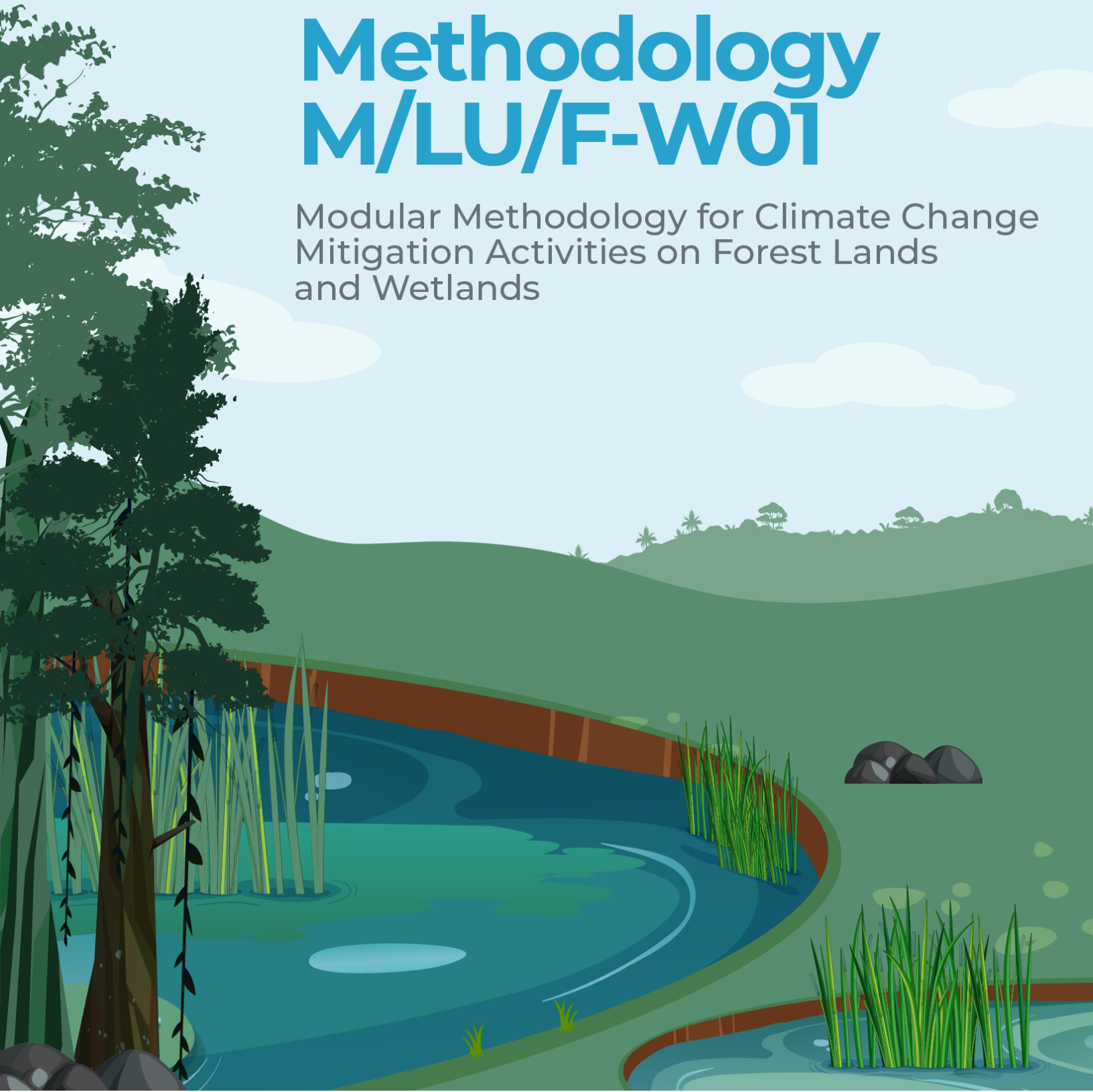
CERCARBONO
Certified Carbon Standard

Methodology M/LU/F-W01

Modular Methodology for Climate Change Mitigation Activities on Forest Lands and Wetlands



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Version 1.1

Content

Index of tables

Index of figures

Abbreviations and acronyms

CCMP	Climate Change Mitigation Programme or Project
CSE	Carbon Stocks Enhancement
FAO	Food and Agriculture Organization of the United Nations
F-CW-cse	Forest carbon stock enhancement from coastal mangrove restoration
F-CW-cse-rew	Forest carbon stock enhancement from restoration of rewetted coastal mangroves
F-CW-def	Reduced GHG emissions from coastal mangrove deforestation
F-CW-deg	Reducing GHG emissions from coastal mangrove degradation
F-CW-sfm	Sustainable forest management of coastal mangroves
F-IW-Min-cse	Forest carbon stocks enhancement of inland wetlands on mineral soils
F-IW-Min-def	Reduced GHG emissions from deforestation of inland wetlands on mineral soils
F-IW-Min-deg	Reduced GHG emissions from forest degradation of inland wetlands on mineral soils
F-IW-Min-sfm	Sustainable forest management of inland wetlands on mineral soils
F-NW-cse	Forest carbon stocks enhancement of non-wetland forest areas
F-NW-def	Reducing GHG emissions from deforestation of non-wetland forest areas
F-NW-deg	Reduced GHG emissions from forest degradation of non-wetland areas
F-NW-sfm	Sustainable forest management of non-wetland areas
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
GHG	Greenhouse Gases
GPG	Good Practice Guidance
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
MRV	Measurement/Monitoring, Reporting, and Verification System
NDC	Nationally Determined Contributions
NF-KW-wt	GHG emission reductions in constructed wetlands for wastewater treatment
NF-CW-luc	GHG emission reductions from avoided land use/land cover change in marine wetlands (seagrass)
NF-CW-mar	GHG emission reductions in non-forest coastal marsh wetlands
NF-IW-Min-luc	GHG emission reductions from land use change in non-forest inland wetlands on mineral soils
NF-IW-Org-dra	GHG emission reductions from land use change and drainage of non-forest inland wetlands on organic soils
NF-W-Org-rew	GHG emission reductions and GHG removals from rewetting of non-forest organic soils
PDD	Project Description Document

REDD+	Reduction of Emissions from Deforestation and Forest Degradation and other actions in this sector
SDGs	Sustainable Development Goals
SFM	Sustainable Forest Management
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation and Verification Body

Terms and definitions

The following are the terms relevant to this methodology. For their definition, please refer to the ***Terms and Definitions of the Voluntary Certification Programme of Cercarbono***, available at www.cercarbono.com, section: Documentation.

- above ground biomass
- accreditation period
- activity data
- additionality
- agricultural activity
- avoidance of greenhouse gas emissions
- baseline scenario
- below ground biomass
- biomass
- bush
- carbon buffer
- carbon credit
- carbon dioxide equivalent
- carbon pool
- carbon stock
- Carboncer
- CCMP area
- CCMP developer
- CCMP duration
- CCMP holder
- CCMP start date
- certification
- climate change mitigation
- climate change mitigation programme
- climate change mitigation project
- dead wood
- deforestation
- direct emission
- eligibility
- emission factor
- ex-ante evaluation
- ex-post evaluation
- forest
- forest activity
- forest degradation
- Forest Reference Emissions Level
- forest plantation
- forest suitability area
- governance
- greenhouse gas
- greenhouse gas emissions
- greenhouse gas emissions source
- greenhouse gas removal
- grouped project
- historical reference period
- holdership
- indirect emission
- instance
- inventory
- land cover
- land use
- leakage
- leakage management area
- litter
- mangrove
- methodological reconstruction
- methodology
- monitoring
- national circumstances
- natural forest regeneration
- non-forest
- non-permanence
- overlap
- plot (measurement)
- potential leakage area
- potentially significant emission
- principle
- Project Description Document
- project scenario
- projection period
- REDD+ activity
- Reduction of Emissions from Deforestation and Forest Degradation and other actions in this sector (REDD+)
- reduction of greenhouse gas emissions
- reference area

- removal factor
- restoration
- reversal
- segment
- silvopastoral system
- soil organic carbon
- stratum
- sustainable development
- sustainable forest management
- timber product
- traditional knowledge
- tree
- uncertainty
- validation
- Validation and Verification Body
- verification
- verifier
- voluntary carbon market
- wetland

The following rules are set out below for the proper interpretation and adoption of some verbs or concepts used throughout this methodology and in the respective methodological modules:

- Must (Shall) is a mandatory requirement.
- Explain/justify (Shall explain/justify) is to state how/why the procedures or activities have been established or selected or implemented.
- May is an optional compliance requirement.
- Official refers to processes generated by federal or state institutions.
- Recommendation is a guideline to perform an optional action.
- Representative and its derivatives are a purely statistical interpretation.
- Significant refers to categories grouping 95 % or more of the total of the measurable variable.

Summary

Forests and wetlands are considered the most effective carbon sinks on the planet. However, this function can and is being altered mainly by human intervention, turning them into sources of Greenhouse Gases (GHG).

Different efforts are being made worldwide to stop the deforestation or degradation of their areas. In that sense, this methodology comprises a novel approach to the development of coordinated activities that integrate GHG removal and GHG emission reduction activities for climate change mitigation in two land uses: forests and wetlands, under the compliance of a series of principles that should be considered in this type of initiatives.

This methodology highlights the design and implementation of Climate Change Mitigation Programme or Project (CCMP) that include REDD+ activities (in forest and wetland areas) and non-REDD+ (activities in wetland areas). This includes a module approach in which areas are categorised as forest (non-wetland and wetland) and these in turn are segmented by the REDD+ activities to be considered in them. Non-REDD+ activities can only be implemented in non-forest wetlands. Wetlands were categorised as coastal and inland (non-forest and forest) to allow for proper management and distinction of the dynamics taking place in them. Therefore, the development of modules in which each module considers a segment allows specific differentiation and disaggregation of calculation methods for a more integrated management of forest and wetland areas.

The methodology also presents the most important elements that holders and developers must cover in the formulation and development of these initiatives, such as the requirements for inclusion and effective participation, the criteria for additionality and eligibility as well as the bases that support the delimitation of the CCMP, the identification and selection of baseline and project scenarios (including emission sources and carbon pools), the monitoring and quantification of results, uncertainty, risks and non-permanence. Complementarily, it presents some elements that strengthen the development of these initiatives, such as the contribution to the Sustainable Development Goals, compliance with safeguards and information management. Most of these elements and criteria are detailed in each of the modules.

1 Introduction

Forests cover more than 30 % of the world's land area. They are not evenly distributed, with 45 % of them located in the tropics, followed by the boreal, temperate, and subtropical zones (FAO and UNEP, 2020). They are home to most of the planet's terrestrial biodiversity and their management generates multiple benefits including their contribution to economic growth, poverty reduction, and increased local governance.

Beyond this importance, forests can also contribute to climate change mitigation, to the extent that Greenhouse Gas (GHG) emissions due to possible deforestation or forest degradation are reduced or GHGs are removed through their conservation, sustainable management, and the enhancement of their carbon stocks enhancement. These activities are part of the REDD+ strategy (Reducing GHG emissions from deforestation, forest degradation, and other forest activities).

REDD+ is one of the strategies to combat climate change, where community-, business- and civil society-driven projects can and should play an important role in leveraging their site-specific mitigation finance, while supporting and aligning with established country efforts to halt deforestation.

For project-level contributions under REDD+ to be real and effective, they need to be rigorously and transparently quantified and verified, and properly aligned with proposed country-level strategies.

The Cancun Agreements, reached by the United Nations Framework Convention on Climate Change (UNFCCC)[1], defined the following REDD+ activities: a) reducing GHG emissions from deforestation, b) reducing GHG emissions from forest degradation, c) conservation of forest carbon stocks, d) sustainable management of forests and e) enhancement of forest carbon buffers, which contribute to reducing GHG emissions and removing GHGs from the atmosphere.

Wetlands occur naturally on all continents, in different sizes, types, and locations, in fresh, brackish, or salt water, dominated by low vegetation to shrub and tree vegetation, and contribute to various environmental services.

Recognition of the magnitude of the benefits they bring, and the cost of their loss is a fairly recent development, which is why wetlands must be part of climate solutions. Adequate water supply is essential, and wetlands are of paramount importance for water security. Undisturbed peatlands and coastal blue carbon ecosystems (saltwater marshes, mangroves, seagrass meadows, among others) are powerful carbon sinks, but can become important sources of GHG emissions if degraded. Wetland-related measures should increasingly feature in Nationally Determined Contributions (NDCs), as well as in national adaptation and disaster risk reduction plans. In this regard, the Convention on Wetlands has defined

[1] https://unfccc.int/sites/default/files/resource/docs/2010/cop16/eng/07a01.pdf.

strategic plans with four strategic objectives to address the drivers of wetland loss and degradation and to enhance the conservation and wise use of wetlands.

Although some NDCs refer to wetlands, very few include specific actions or targets. The emerging post-2020 global biodiversity framework gives hope for a confluence of actions on sustainable development, biodiversity, and climate change.

Landscapes are often non-homogeneous, forests and wetlands do not occur in complete isolation, but overlap (as in the case of mangroves and flood forests) and interweave with each other and with other land covers and land uses. These landscapes are inhabited by communities that control and make use of these interwoven landscapes, without necessarily being confined to one land cover. It is therefore necessary to have comprehensive climate change mitigation methodologies that allow for coordinated activities in the different forest and wetland ecosystems in which the communities live.

This methodology allows the scope of REDD+ activities to be broadened by designing projects that include specific approaches and calculation methods for wetlands on forest (where REDD+ activities are implemented) and non-forest land, so that landscapes are managed in a more holistic manner.

In this context and to make it easier for communities, companies, and individuals to contribute to GHG removals and GHG emission reductions through REDD+ and wetland restoration actions, Cercarbono has developed this methodology considering the following characteristics:

- The official Measurement/Monitoring, Reporting and Verification (MRV) systems in each country, which increasingly require consistency between project level and reporting to the UNFCCC.
- It draws on academic and regulatory sources (State and voluntary), expert knowledge, academic literature, UNFCCC decisions, IPCC guidelines for national greenhouse gas inventories, recommendations, methods of voluntary certification programmes, and methods supporting country agreements and country-level rules. By refining these references, this methodology proposes the combination of three elements from public, private, and international institutions: (i) the family of ISO 14064 Standards, (ii) the technical references in the regulated and voluntary standards, and (iii) the regulatory framework of the country where the project is developed, responding to the accounting criteria formulated in the existing MRV systems, always guaranteeing environmental integrity and additionality, and promoting direct benefits to the implementers of mitigation in the territory.
- It follows UNFCCC REDD+ guidelines and includes mechanisms for managing risks due to leakage and non-permanence. It also includes mechanisms for managing uncertainty in the quantification of baseline and project scenarios and mitigation outcomes.
- It accommodates the wetland categories established by the IPCC (2014), the activities and considerations for the calculation of GHG emissions and removals, aligned with

REDD+ actions, allowing adequate reporting of results for compliance with the NDCs in each land use category.

- It is verifiable according to ISO 14064-2:2019 and articulated with the Cercarbono's Protocol for Voluntary Carbon Certification. This methodology details technical requirements for the determination of the baseline scenario, project scenario, quantification, reporting, and monitoring of GHG removals and GHG emission reductions from REDD+ projects.

2 Principles

The principles set out the basis for the justifications and explanations required in this document and the CCMP should refer to the relevant principles and how they have been applied according to the Cercarbono's Protocol and ISO 14064-2:2019 guidelines. The principles listed here aim for a fair representation and credible accounting of carbon credits achieved by CCMPs focused on GHG removals or GHG emission reductions in REDD+ activities (in forest[2] and wetland[3] areas) and non-REDD+ activities implemented in non-forest wetlands.

Accuracy

Measurements made in the CCMPs agree with or reasonably close to the actual values.

Coherence

The results of GHG emission inventories in both the baseline and project scenarios should be comparable over time. Any changes in data, scope, calculation methods, or other factors that are relevant to the time series need to be clearly documented.

The calculations performed by the CCMP must be reproducible and technically validated, so that they can generate consistently well-supported results.

Comparability

The results obtained by the CCMP activity should be comparable against the use of methodologies, guidelines, protocols, etc., so that the estimation and calculation of GHG emissions and removals, and the GHG emission reductions achieved by the CCMP can be independently assessed and comparable.

Completeness

All significant GHG emission sources generated by the CCMP must be included, as appropriate to the type of programme or project. Sources that together do not exceed 5 % of the total emissions generated by the CCMP over its performance accounting period are considered non-significant. All relevant information to support decision-making and the results expected or achieved by the CCMP, as well as the procedures to reach these results, must also be included.

Conservatism

Conservative assumptions, methodologies, values, and procedures should be used to ensure that CCMP GHG emissions are not underestimated and CCMP GHG removals and GHG emission reductions are not overestimated.

[2] Often referred to in the methodology as "non-wetland" areas.
[3] This methodology includes coastal and inland wetlands.

The data, assumptions, and procedures used for the calculations of GHG emissions and removals and GHG emission reductions must be technically correct, consistent, and reproducible. On the feasibility of using two values of the same parameter at the same scale, the more conservative one should be used.

Consistency

The assumptions, values, and procedures used by the CCMP for the calculation of GHG emissions and removals and GHG emission reductions must be technically correct, consistent, comparable, and reproducible.

For the activities considered in this methodology, consistency is reported and verified at two levels: internal and exogenous. Internal consistency corresponds to Principle 4.4 of ISO 14064-2:2019, where it requires that the information presented in the monitoring is measured with the same methods and that monitoring of the years considered in the historical period and in the projection period, in the appropriate segments, is encouraged. If for some reason a year cannot be monitored, it is recommended to follow the splicing methods in Volume 1, Chapter 5.3 of the IPCC GBP (2006):

Overlapping: when there is information from another reference measurement that has a homologous (dynamic) behaviour to the missing information in a given period, data from another method can be used to estimate the missing data, considering the comparison in the periods where information from the two methods is available.

Subrogation: when some variable with information available for the period without information has a significant correlation and allows estimating the missing data.

Interpolation or extrapolation: when a trend is assumed in the missing period and its value is estimated according to the available data of the same variable.

Similarly, internal consistency is applicable to the extent that the following requirements are met:

- The total CCMP area must be the same in all years of the historical period.
- If for some reason the CCMP area changes in the implementation, a recalculation must be performed for the whole data series and the CCMP information must be updated.
- The sum of all land use categories (forest/non-forest areas) in the project must equal the total area, in the whole historical period and in the period where results are estimated.
- There must be a mass balance between GHG emission sources and carbon pools and reported emissions in all years of the historical and projection period.
- The methods implemented for the estimation of an emission factor and activity data correspond to the methods for the other years of the historical and projection period.

Exogenous consistency corresponds to the comparability of different measurement levels (International - National - Local) of factors, assumptions, and methods.

In cases of overlaps between a FREL/FRL submitted to the UNFCCC and a CCMP, the baseline scenario should make a methodological reconstruction of the project area (according to the principles of this methodology), based on the methods proposed in the FREL/FRL, but representative for the project area.

The overlap between a CCMP and a national or sub-national FREL/FRL for payments for results shall be identified by following the steps below:

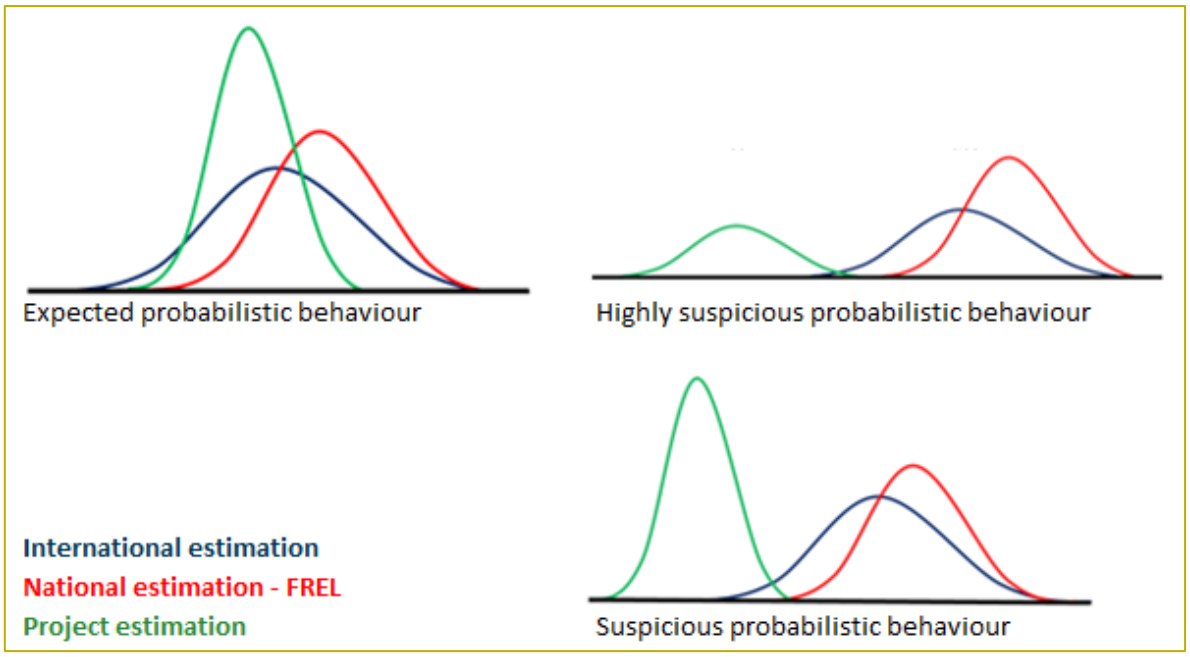
- Consulting the Cercarbono information and registry system (website and EcoRegistry platform).
- Consulting national GHG Emission Reduction registries (where applicable) or existing repositories of REDD+ focused projects.
- Consulting the repository of information on FRELs/FRLs submitted to the UNFCCC or results-based payment programmes of the Forest Carbon Partnership Facility, *Biocarbon Fund*, REDD *Early Movers* Programme, *Green Climate Fund* and the climate action reporting pages of the German, Norwegian and UK governments.

For the case of overlap between two REDD+ projects, the second project to be formulated will be infeasible if the first project is registered in a national registry (if available) under implementation or is registered and verified in the Cercarbono or another project registry.

In any scenario, and especially in cases of overlap between a CCMP and a sub-national or national FREL/FRL, there should be an analysis of the consistency between biomass expansion factors, wood densities, and any other parameters available at different monitoring scales that have been included in the baseline scenario calculation equations and corresponding results.

Consistency can be assessed by explaining compliance with the criteria included in ***Figure 1***, where the probability distribution at different scales (green, blue, and red lines) tends to be more accurate (distributions closer to the mean) at the local level and the local scale means are in the range of national (FREL/FRL) or international scale default values (such as those quoted in the GPG).

Figure 1. Statistical comparison of theoretical curves of probability values of factors available at different measurement levels.



Note: The X-axes identify the different values of the mean at different scales of monitoring, and the Y-axes the probability of occurrence of this value.

Not all data for the reconstruction of probability curves at various scales are always available, so in practice it is compared that the local measurement is within the range of the mean of the national estimate (plus or minus the margin of error). The sources for comparing the national data are in respective priority: the FRELs/FRLs, those in the National GHG Inventory (if available) and internationally the most up-to-date IPCC GPG.

If a local parameter has a mean outside the values of a national or international benchmark (plus or minus the standard error), the use of the national or international factor can be chosen, supported by a justification.

If a parameter is not reported on the national or international scale (IPCC GPG) or does not present its margin of error, it is not subject to consistency assessment.

If a local datum is consistent with an official national datum (FREL/FRL) and not with the corresponding international datum, consistency with the national datum takes precedence.

Comprehensiveness

All relevant information should be included to support decision-making, minimising uncertainty, increasing confidence in the data and the results expected or achieved by the CCMP, as well as the procedures to reach those results, to generate comprehensive, accurate, consistent, comparable, comprehensiveness and reproducible accounting, and reporting of GHG emissions and removals and the GHG emission reductions considered.

Evidence

The evidence used by the CCMP must be sufficient and appropriate to ensure that rational, reliable, and reproducible methods are used to ensure that GHG removals and GHG emission reductions are genuine and correctly calculated.

Integrity

All GHG emission sources and carbon pools should be included along with quantification of their GHG emissions and removals in the baseline scenario, as well as GHG emissions and removals and GHG emission reductions generated in the project scenario, using data and parameters from recognised sources, as well as technically supported modelling.

No double counting

A tonne of carbon dioxide equivalent (tCO_2e) resulting from GHG removals or GHG emission reductions generated by the CCMP may not:

- Be counted more than once to demonstrate compliance with the same GHG mitigation target.
- Be counted to demonstrate compliance with more than one GHG mitigation target.
- Used more than once to obtain remuneration, benefits, or incentives.
- Be verified, certified, or accredited through the implementation of more than one GHG mitigation initiative.

Complementary elements to this principle are provided in the ***Procedures of Cercarbono's Certification Programme*** document, available at www.cercarbono.com, section: Documentation.

No net harm

The programme or project activities contemplated by the CCMP must not generate a net damage on the surrounding areas or communities on social, environmental, or legal aspects, due to the benefits achieved around the mitigation of climate change.

Preciseness

The variability or dispersion (standard deviation) of the information obtained in the measurement of GHG emissions and removals and GHG emission reductions of the CCMP should be reduced by minimising the standard deviation between the data.

Reliability

Data and parameters from recognised sources, as well as technically substantiated models that support the GHG removals and GHG emission reductions calculated, accounted for, or monitored by the CCMP, should be included.

The results must be representative of the local reality of the CCMP, which is why it is preferred that the data supporting them be obtained from statistically representative and

straightforward sampling; however, due to the nature of some information, secondary inputs may be used. In this sense, ***Table 1*** sets out the information needed for the calculations of a baseline scenario and a project scenario, in each case specifying the source of information (locally generated or default) and indicating those that can be estimated and compared at international, national, and local scales.

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

Parameter	Local scale		National or international scale	
	Information or process from representative forest inventories*.	Information from a remote sensing process for the project area.	Information or process estimable with default values.	Default remote sensing information in the project area.
Diameters, heights, and densities of trees per area.				
Biomass emission factors by forest type.	X		X	
Emission factors other than biomass.	X		X	
Taxonomic variables of species present: scientific names of families, genera, and species.	X			
Wood densities.	X		X	
Biomass expansion factors.	X		X	
Allometric equations.	X		X	
Area of ordination figures.				X
Topographic variables: slopes.		X		X
Predial variables.		X		X
Estimation of activity data: deforestation or forest degradation rates.		X		X
Thematic validation of activity data in the project area.		X		

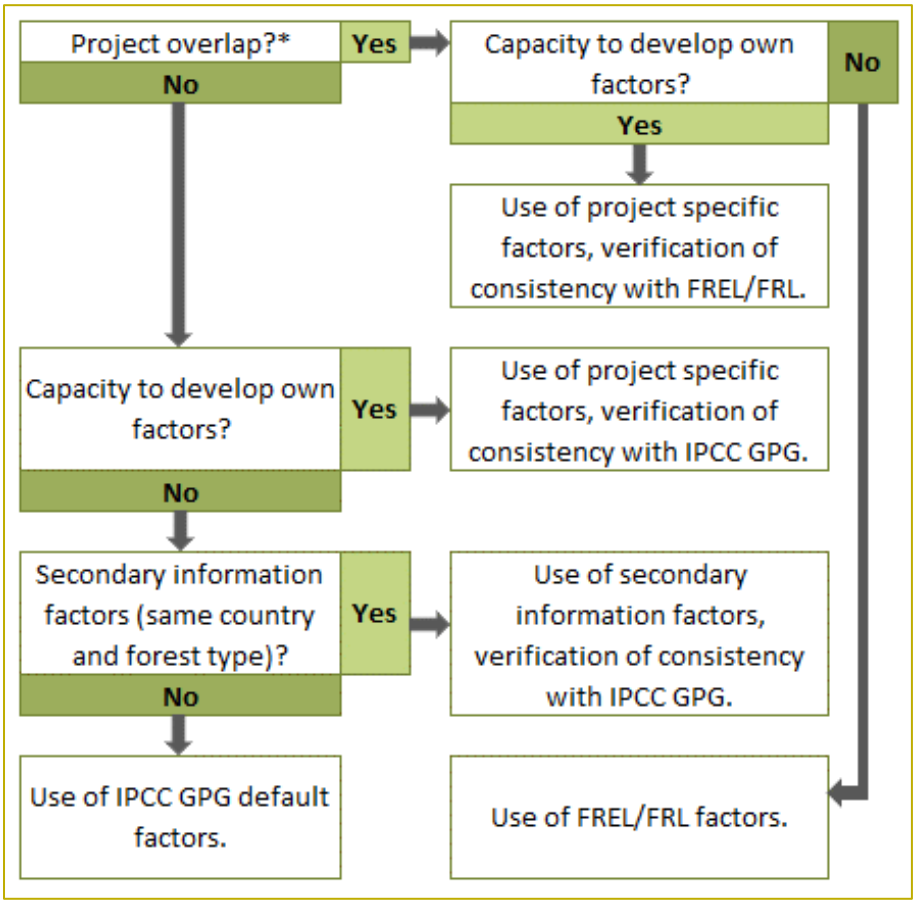
*There are remote sensing techniques that generate dasometric information (e.g., Lidar technology). In this case, it is equivalent to inventories.

Note: Highlighted in bold are those that are subject to selection according to the selection process presented in ***Figure 2*** below.

Once a local value has been estimated for a given variable (with the possibility of measurement at more general scales, examples in ***Table 1***), the principles of consistency and

conservatism are applied, leading in practice to outliers from local measurements being replaced or restricted by the default value ranges.

Figure 2. Flowchart on the process of choosing available factors at different monitoring scales exemplified in ***Table 1***.



* In relation to those types of activities considered in the FREL of the host country.

Data and parameters from the most current version of the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance (GPG) or previous versions can be included as comparable data if their use is technically justified. Academic articles published in indexed journals or approved theses from accredited programmes are also valid.

Transparency

Genuine, clear, honest, justified, justified, appropriate, understandable, truthful, timely, transparent, robust, sufficient, and auditable information related to the procedures, assumptions, processes, and intrinsic limitations of the CCMP must be used so that the reliability and credibility of its GHG removal and GHG emission reduction results can be ensured.

The data, assumptions and methods used for the construction of the baseline scenario and the corresponding monitoring results must be permanently and publicly available so that any calculations contained in the CCMP Project Description Document (PDD) can be

reconstructed. The availability of this information is fundamental for assessing the other principles mentioned above. Therefore, the information is expected to include as a minimum:

- Definitions used in the quantification of activity data, emission factors, projection methods and procedures, and uncertainty calculation.
- Methodologies and procedures used for area estimation, area changes, emission factors, projections, and uncertainty calculation.
- Data used for area estimation, area changes, emission factors, projections, and uncertainty calculation.

Any other information required in the reconstruction of the data.

3 Purpose and scope of the methodology

This methodology is specific and applicable to the Cercarbono certification programme. It sets out principles, requirements, and provides project-level guidance for GHG removal or GHG emission reductions in the forest and wetland land use categories.

Considerations for forest land (non-wetland):

- On all forest land, REDD+ activities shall be considered for the quantification, monitoring, and reporting of activities intended to result in GHG emission reductions or enhancements of GHG[4] removals.
- Each REDD+ activity on forest land shall have a specific methodological module detailing its scope, the type of mitigation action it generates, and including recommendations for the identification and selection of the baseline scenario, and relevant GHG emission sources and carbon pools, as well as for quantification and monitoring.

Considerations for wetlands:

- REDD+ activities are considered on wetland lands (coastal and inland) whose areas reach the definition of forest adopted by the country where the CCMP is developed, for the quantification, monitoring, and reporting of activities aimed at producing GHG emission reductions or enhancements of GHG removals.
- In areas that do not and will not reach the definition of forest on wetland land, other mitigation actions shall be carried out for quantification, monitoring, and reporting of activities aimed at producing GHG removals or GHG emission reductions.
- According to the type of wetland (coastal or inland, forest and non-forest) methodological modules are considered, which will include recommendations for the design of CCMPs targeting wetland lands for the identification and selection of the baseline scenario and relevant GHG emission sources and carbon pools, as well as for quantification and monitoring.

This methodology is characterised by the following elements:

- It sets out the steps for the construction of the baseline scenario in a CCMP, consistent with the FRELs or FRLs[5] reviewed by the expert group to the UNFCCC as per decisions of the Conference of the Parties (COP): 4/CP.15, 1/CP.16, 2-12/CP.17, 29/CP.18, 9/CP.19, 13/CP.19, and the 13-Annex/CP.19 for selected REDD+ activities.

[4] This methodology indicates the possibility of a concept like "nesting" through the tools of methodological reconstruction, area exclusion, socio-enforcer, and the requirement for consistency. Furthermore, it operationalises the concept of consistency and recommends steps for methodological reconstruction, in line with the established MRV system standards available in different countries. The term "nesting" is not used because it is a term coined by other standards, with specific rules in them.

[5] The type of approach a country chooses on the construction of FRELs and FRLs will depend on the analysis of the drivers of deforestation and forest degradation, as well as their national circumstances and respective capacities.

- It is intended for use by CCMPs that want the accounting of their REDD+ activities considered to be consistent with the FRELs/FRLs submitted to the UNFCCC.

This methodology can be applied by any natural or legal, public, or private person seeking to establish a CCMP for GHG emission reductions and GHG removals through REDD+ activities (reducing deforestation, reducing forest degradation, enhancing carbon stocks, and sustainable forest management in forested wetlands and in forests on non-wetland land) and through prevention of land cover or land use conversion and non-forest wetland restoration activities, in order to qualify for performance payments or similar offsets as well as to contribute to international mitigation in the framework of voluntary projects.

In relation to REDD+ activities, this methodology is applicable for CCMPs located in countries that have submitted sub-national [6] or national FRELs or FRLs to the UNFCCC [7], which should be consistent with the GHG emissions and removals or conservation of forest carbon buffers presented in each country's GHG inventories, as well as the pools, GHG emission sources, and REDD+ activities considered in the FRLs/NRFs, and in the measures and actions that each country has proposed in its NDCs.

GHG emission reduction or GHG removal results from REDD+ activities that a CCMP considers should be consistent with the national scale and may contribute to their accounting (in NDC reporting of the country's mitigation results) to climate change mitigation. GHG emission reduction or GHG removal outcomes from additional REDD+ activities (as well as pools and sources of GHG emissions not included in the FRELs/FRLs), even if not accounted for at that scale, may be mitigation outcomes in the scope of this methodology.

The CCMP shall perform an annual disaggregation of the mitigation results derived by each activity (REDD+ or different) and shall specify which ones may or may not be part of the national accounting. This disaggregation shall be supported in the certification report, registered in the registry platform, and considered by Cercarbono for the determination and monitoring of the final use of credits.

This methodology is applicable when the REDD+ activities of a CCMP are or are not in an overlapping situation with an FREL/FRL. In the overlap scenario it allows for consistent monitoring between the CCMP baseline scenario, the project scenario, and the FREL/FRL.

This methodology is consistent with ISO 14064-2:2019, the UN-REDD Programme (2015) and is articulated with the Cercarbono's Protocol.

[6] As an interim measure but are expected to transition over time to national FRELs/FRLs.
[7] The UNFCCC requested countries to develop the following four elements for undertaking REDD+ activities in a way that fits into 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 or FRL (4/CP.15 1/CP.16 12/CP.17 13/CP.19).

REDD+ activities covered by this methodology are:

- **Reduced GHG emissions due to deforestation:** corresponds to the avoidance of GHG emissions that would have been caused by deforestation and is given as a result of the summation of the differences in gross annual emissions from deforestation during the result period with respect to the baseline scenario. This reduction can occur in forested wetlands (coastal or inland) and in forests on non-wetland land.
- **Reduction of GHG emissions due to forest degradation due to fragmentation:** corresponds to the avoidance of GHG emissions that would have been caused by forest degradation, and results from the summation of the differences in gross annual emissions due to forest degradation during the result period compared to the baseline scenario. This reduction can occur in forested wetlands (coastal or inland) and in forests on non-wetland land.
- **Forest Carbon Stocks Enhancement (CSE):** corresponds to the implementation of restoration processes in non-forest (but forested) areas, and results from the increase of carbon content in the buffers during the results period. Forest carbon stocks enhancement can occur in forested wetlands (coastal or inland) and in forests on non-wetland land.
- **Sustainable Forest Management (SFM):** included in the processes of reducing forest degradation, it corresponds to the implementation of activities to manage the extraction of timber products in forest areas. It results from the maintenance of carbon content in the pools during the results period with respect to the baseline scenario by optimising the processes of harvesting, extraction, transport, and transformation of timber products. Sustainable forest management can occur in forested wetlands (coastal or inland) and in forests on non-wetland land.

Accordingly, CCMPs may be formulated considering the choice of activities to be monitored in the CCMP, as shown in the table below:

Table 2. REDD+[8] activities eligible for inclusion by the CCMP developer.

REDD+ Activity	Included	Explanation
Deforestation	Optional	Deforestation shall be estimated in the projection period in the following cases: 1) In the absence of project activities (baseline scenario), based on the historical trend projection calculated over the historical period. 2) In the presence of project activities (project scenario) compared to projections.

[8] This methodology covers four of the REDD+ activity types, in line with the international context, but in order with the national FRL, and creates a segment accounting system (detailed below), which prevents accounting overlaps between different REDD+ activities. In that sense, it ensures national consistency and integrates the other internationally supported REDD+ actions.

REDD+ Activity	Included	Explanation
Forest degradation (Fragmentation, fuel-wood extraction, fuel-wood, and charcoal production, grazing or establishment of agricultural activities)**.**	Optional	Its selection will depend on how significant the decrease in carbon content in an area of forest that is maintained as forest and the technical or managerial capacity of the project to address it. If included, forest degradation shall be estimated over the projection period in the following cases: 1) In the absence of project activities (baseline scenario), based on the projection of the historical trend calculated over the historical period or based on the carbon emission per cubic metre of wood removed. 2) In the presence of project activities (project scenario), compared to projections or based on carbon emission per cubic metre of wood removed. **Note:** Areas estimated to undergo forest degradation should not overlap with areas estimated to be deforested, nor areas estimated to undergo increases in carbon content.
Forest Carbon Stocks Enhancement (CSE)	Optional	It must be ensured that it is implemented in areas of stable non-forest (during the historical period) and in an area suitable for forest use. Its choice will depend on the operational, technical, and administrative capacity of the project to address it. Carbon buffer increases shall be estimated for the results period.
Sustainable Forest Management (SFM) (Addresses the extraction of timber products, their wastes, and associated impacts).	Optional	This activity takes place in a forest area that is maintained as such during the historical period of the project and that shows a decrease in its carbon content. Its choice will depend on the technical or administrative capacity of the project to address it.
Conservation of forest carbon stocks	No	This REDD+ activity is not covered.

Non-REDD+ activities covered by this methodology are:

- **GHG emission reductions in non-forest coastal marsh wetlands**: corresponds to the avoidance of GHG emissions that would have been caused by extraction activities for the construction of facilities or mineral (salt) or animal (aquaculture) production, resulting from the summation of the differences in gross annual GHG emissions from such extraction during the result period with respect to the baseline scenario.
- **GHG emission reductions due to avoidance of land cover/use change of non-forest coastal wetlands (seagrass)**: corresponds to the avoidance of GHG emissions that would have been caused by the removal of wetlands due to biomass removal, construction (ports, harbours, docks), filling or dredging for land elevation. It results from the summation of the differences in gross annual GHG emissions from such removal, extraction or filling during the result period compared to the baseline scenario.
- **GHG emission reductions in constructed wetlands for wastewater treatment:** corresponds to the avoidance of GHG emissions that would have been caused by the construction and operation of constructed wetlands for wastewater treatment, including semi-natural treatment wetlands. It results from the summation of the differences in gross

annual GHG emissions from such construction during the result period compared to the baseline scenario. This reduction occurs in coastal and inland wetlands.

- **GHG emission reduction due to avoidance of land use change/cover of non-forest inland wetlands on organic soils**: corresponds to the avoidance of GHG emissions that would have been caused by draining organic soils. It results from the summation of the differences in gross annual GHG emissions due to the change in wetland land cover during the result period compared to the baseline scenario. This reduction occurs in non-forest inland wetlands.
- **GHG emission reductions due to avoidance of change of use/cover of non-forest inland wetlands on mineral soils**: corresponds to the avoidance of GHG emissions that would have been caused by biomass loss on mineral soils. It results from the summation of the differences in gross annual GHG emissions due to the change in wetland land cover during the re-scaling period compared to the baseline scenario. This reduction occurs in non-forest inland wetlands.
- **GHG emission reductions and GHG removals from organic soil rewetting**: corresponds to GHG emissions and removals from rewetting, restoration, and rehabilitation (including the re-establishment of a vegetation cover on a drained site without rewetting), without meeting the host country's definition of forests.

Table 3. Non-REDD+ activities eligible for inclusion by CCMP developer.

Activity	Inclusion	GEI	Explanation
GHG emission reductions in non-forest coastal marshy non-forest wetlands	Optional	CO_2	Emissions generated by extraction due to construction of facilities or mineral or animal productions.
			Emissions generated by soil drainage. Emissions generated by rewetting of wetland marsh.
		CH_4	Emissions generated by change to natural vegetation following modifications to restore hydrology.
		N_2O	Emissions from implementation of aquaculture.
GHG emission reductions from avoided land cover/use change of non-forest coastal wetlands (seagrass meadows)	Optional	CO_2	Emissions generated by biomass removal or extraction due to construction of facilities or mineral or animal productions.
		CH_4	No such gas is generated from changes in land cover associated with wetland.
		N_2O	Emissions generated by aquaculture implementation.
GHG emission reductions from constructed wetlands for wastewater treatment	Optional	CO_2	Emissions not included as this gas in wastewater is considered biogenic.
		CH_4	Emissions generated by wastewater treatment through methanogenesis processes.
		N_2O	Direct emissions generated by wastewater treatment through nitrification and denitrification processes.
GHG emission reductions from avoidance of land use change/cover of non-forest inland wetlands on organic soils	Optional	CO_2	Emissions associated with the release of dissolved organic carbon from organic soils. General emissions from peat fires.
		CH_4	Emissions generated by soil drainage. General emissions from peat fires.
		N_2O	This type of gas is not generated by changes in land cover associated with wetland.
	Optional	CO_2	Emissions associated with biomass loss.

Activity	Inclusion	GEI	Explanation
GHG emission reductions from avoidance of land use change/ land cover of non-forest inland wetlands on mineral soils		CH_4	No such gas is generated from changes in land cover associated with the wetland.
		N_2O	No such gas is generated from changes in land cover associated with the wetland.
GHG emission reductions from rewetting of organic soils	Optional	CO_2	Emissions generated exclusively in the soil organic carbon pool and from non-tree vegetation.
		CH_4	Emissions from oxidation and combustion of soil organic matter.
		N_2O	Emissions generated in nitrification processes. As the water table rises, these emissions will decrease. Emissions of nitrous oxides from rewetted soils are assumed to be negligible.

4 Modular structure

This methodology for REDD+ activities (both in forested upland areas and in forested wetlands) and for non-REDD+ activities in non-forest wetlands has a modular structure, where **each module is considered as a segment and addresses a specific climate change mitigation activity**, either GHG emission reductions or GHG removals.

4.1 Preliminary analysis of potential activities

The preliminary CCMP analysis aims to provide a framework to initiate analyses of activity data and the agents and causes of forest decline and land cover/land use change and degradation of non-forest wetlands for the identification of potential activities. For this analysis the initiative holder should:

- Establish a dialogue with the actors involved in the processes of deforestation and forest degradation, with the actors that can slow down the processes of forest decline or with potential restorers.
- Identify, based on secondary information and dialogue, CCMP areas and segments with potential for reducing GHG emissions from deforestation or forest degradation.
- Identify, based on secondary information and dialogue, non-forest areas with potential for carbon stocks enhancement. The analysis of carbon enhancements in pools is not included in the baseline scenario.
- Collect available secondary information on socio-economic variables, and on historical processes of deforestation, and forest degradation.
- Based on the above, assess the feasibility of changing deforestation or forest degradation trends through the implementation of a CCMP. This feasibility is determined if support and commitment for action is obtained from local governance structures and if likely sources of resources are identified, including revenues that can be generated from the sale of carbon credits.
- Determine the governance arrangements and modes of access to land tenure rights in the CCMP area, establishing a proposal for governance interaction with the CCMP.
- Estimate an approximate output volume and compare the expected revenues with the possible costs of the CCMP, and thus determine its financial viability.

The results of the preliminary analysis should be the selection of REDD+ activities to be included in the CCMP and a proposed delimitation of their areas (reference, leakage potential, action implementation, and project area).

The CCMP shall develop a PDD divided into two or more sections: a general section, defining the general aspects of the CCMP that are considered in this document, not specific to the activities/segments included, and one or more sections, depending on the modules to be implemented. Each activity must be designed and implemented as a separate segment and developed using the corresponding module.

The modules that make up the methodology cover forested areas and wetland areas (coastal and inland).

The modules identify and define each of the climate change mitigation activities that can be developed with this methodology, as presented in ***Annex 1***.

A CCMP may include one or more of these modules, while complying with the applicability conditions of each module. Therefore, the general aspects covering the whole CCMP shall be defined as set out in this methodology (complying with the other regulatory aspects of the Cercarbono carbon certification programme), using the PDD template corresponding to this methodology, while the baseline and project scenarios, mitigation potential calculations, and project implementation results shall be done separately, using the corresponding modules and presenting the consolidated results of the whole CCMP in the PDD template.

5 Inclusion and effective participation requirements

The inclusion of areas for the implementation of the CCMP requires compliance with the following elements:

The CCMP must demonstrate the express authorisation of the holder, possessor, or administrator, individually or collectively, of the property(ies), or boundary(ies) where the programme, or project is intended to be implemented.

In the case of privately owned land, express proof must be provided by the owner, possessor, or holder of the land(s) authorising the CCMP to be carried out. The delimitation of the area of possession corresponds to a declaration of ownership or administration.

The structure of the agreements or contracts to ensure administrative capacity must consider the safeguards set out in ***Section 11***.

The CCMP must comply with the current environmental legislation of the country where the CCMP is implemented.

The holder of the initiative must demonstrate compatibility of the actions developed in the framework of the CCMP with the nationally determined land use categories, for which it has two options:

- Request the certificate of compatibility of use from the public body or authority in charge of the area in which the CCMP is implemented, which must issue an administrative act indicating whether the initiative to be carried out is in accordance with land use planning, according to the land use or territorial planning instrument. If the initiative is to be carried out in areas of special ecological protection, a permit, or authorisation, as appropriate, must also be obtained from the administrative environmental authority with jurisdiction in the area of intervention, which will verify the harmony of the CCMP with the management instrument and the zoning established therein.
- Carry out a comparative cross-check of the land use guidelines resulting from the land use or territorial planning, the programmes that have been formulated and the project activities. This comparison must be descriptive and show the geographical compatibility of the activities. For each CCMP action (each segment) it must be reported in which land-use planning or management figures it is developed and describe how it adds to the official institutional efforts.

In addition to the above, the initiative holder must specify all existing local, regional, and national laws, statutes, and regulatory frameworks that are applicable to management or planning in the CCMP reference area. These include identifying, implementing, and periodically assessing compliance with environmental legal requirements.

GHG removals or GHG emission reductions achieved by the CCMP shall be registered in the national emission reduction registry of the country where the CCMP is developed, if any.

Eligible mitigation results have a validity established in accordance with the regulations and with the date of the execution of the verification process as established in the Cercarbono's Protocol.

The CCMP must identify the local or ethnic communities present in the reference area and ensure their full and effective participation in accordance with the legal mandates on these procedures in line with the rights of ethnic minorities.

The CCMP must have an effective participation protocol that includes:

- A map of actors, an institutional map of the other governance structures or institutions, and leaders associated with decision-making in the territory, associated with CCMP activities.
- Decisions reached by consensus with local governance structures.
- Traceability of consensus processes.
- Handling of petitions, complaints, claims, and requests, and their traceability.
- A schedule of CCMP decision-making meetings.
- A protocol for conflict management.
- A document of agreement, signed by the representative parties of the local communities for the development of the CCMP. In this case, community representativeness is given, at a minimum, through explicit agreement with local governance structures and represented in their designated leader(s).

6 Additionality

Additionality in the framework of this methodology follows the criteria set out in the ***Cercarbono's Tool to Demonstrate Additionality of Climate Change Mitigation Initiatives***, available at www.cercarbono.com, section: Documentation.

7 Elements considered in the methodological modules

The following elements must be addressed in the methodological modules, according to the segments-activities included in the CCMP. In some sub-sections, instructions for general application or specific considerations for certain modules are also given.

7.1 Eligibility

The requirements and procedures for defining the eligibility of areas in which mitigation activities are to be implemented are defined in the methodological modules.

7.2 Delimitation of the CCMP

The delimitation of the CCMP includes the definition of the activities to be implemented and therefore the spatial delimitation of the set of segments considered, as well as the definition of the time limits.

7.2.1 Definition of activities to be implemented and corresponding segments

The CCMP must define from the beginning, as a whole and explicitly, the activities and therefore the segments that will be implemented, considering that it is not possible to add or exclude segments once the CCMP has been registered, although the area of any of them may increase in future verifications in the case of grouped CCMPs.

7.2.2 Time limits

The CCMP must define the time limits of the activities to be implemented, according to the agents and causes that generate GHG emissions and the scopes of the activities proposed to control these agents and causes and to increase GHG removals, as appropriate. Consider the relevant provisions of the ***Cercarbono's Protocol for Voluntary Carbon Certification*** and the ***Procedures of Cercarbono's Certification Programme*** document in the versions in force at the time of CCMP registration and specific provisions (memoranda, statements) clarifying or modifying them.

The time limits of the CCMP must be explicitly defined in the PDD. GHG emission reduction credits can only be obtained during the period determined within these limits. They must be defined in terms of the **CCMP start date** (day.month.year), **duration or lifespan**[9] (in years), and **accreditation period** (in years) and may not be modified after validation. They shall be the same for all segments and for the baseline and project scenarios and for the reassessment of these scenarios if such reassessment is necessary.

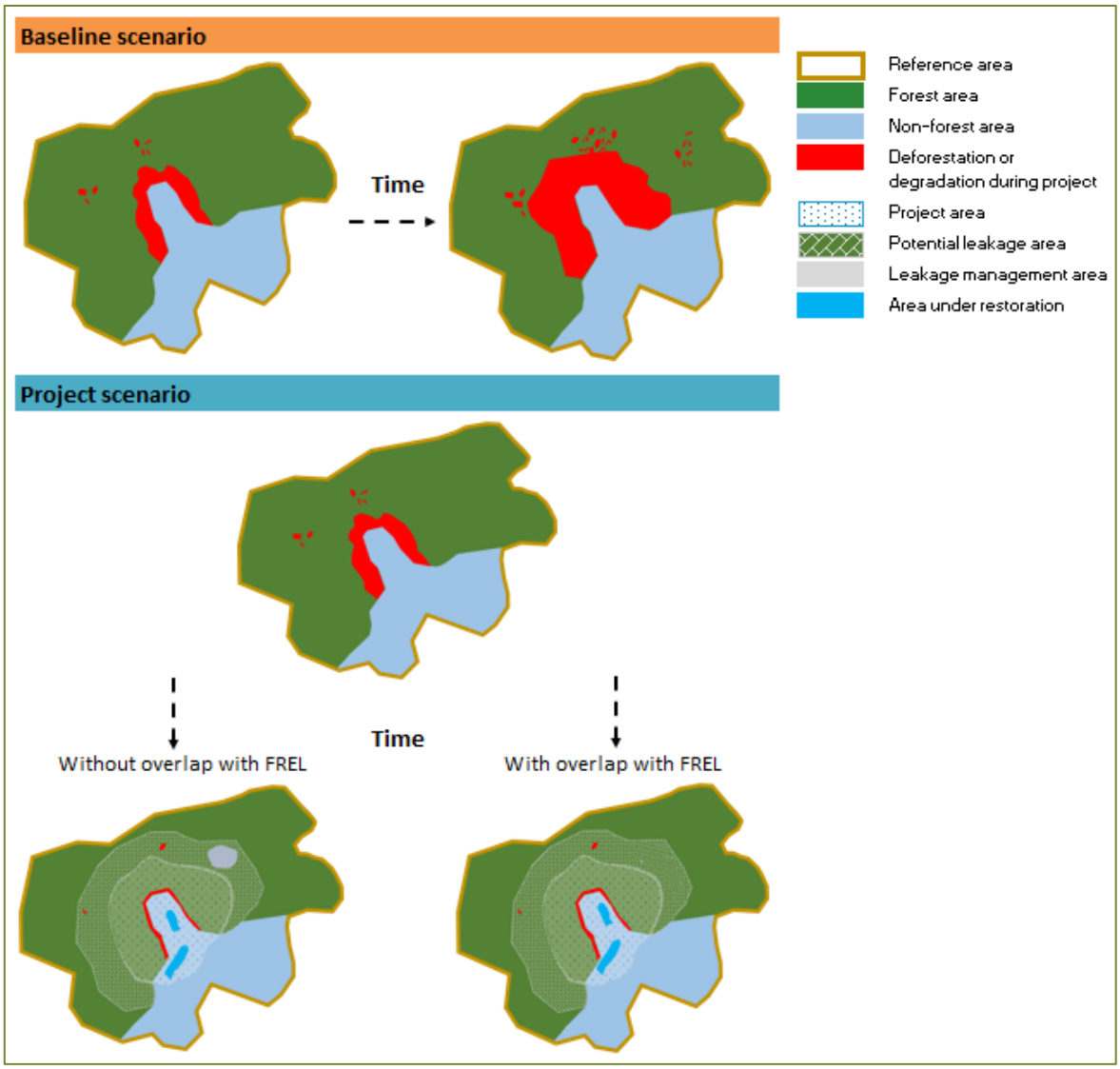
[9] The accreditation period must include at least one shift or growing cycle but may include more than one such cycle.

7.2.3 Spatial limits

The CCMP must identify and delimit its areas, segments, and strata. The areas are classified into: the reference area, the potential leakage area, the activity implementation areas, and the project area, which are described below and exemplified in ***Figure 3***.

- **Reference area**: this is the geographical region where the analysis of agents and drivers of deforestation and forest degradation is carried out; it is the broadest region of the CCMP, delimited from the preliminary analysis and includes the other areas. The reference area must be defined in a geographic information system. It must include forest areas and may or may not include non-forest areas. The reference area is not subject to monitoring but must be reassessed in case of a reassessment of the baseline scenario. Its delimitation is based on the identification of micro-watersheds overlapping or adjacent to the CCMP area and is done for the **set of segments considered in the CCMP**.
- **Potential leakage area**: because of the analysis of agents and drivers of deforestation, forest degradation, land cover/land use change, and degradation of non-forest wetlands (as appropriate to the modules considered in the CCMP), the potential distribution of actors associated with these deterioration factors is defined, based on which a potential leakage area and a leakage management area are determined. The potential leakage area must be covered by forest at the beginning of the CCMP or at least by the same cover categories considered in the segments and in the same proportion of these, must be within the reference area and must not overlap anywhere with the project area, for the identification of leakage emissions, and their respective discounting. This area is subject to activity data monitoring. Meanwhile, the leakage management area must be within the reference area, surrounding the project area, where leakage control activities are established.
- **Project action implementation area**: in the segments related to forest or ecosystem degradation or destruction by regional or reference area dynamics (segments F-NW-def, F-NW-deg, F-CW-def, F-CW-deg, F-IW-Min-def, F-IW-Min-deg, F-IW-Org-dra, NF-CW-mar, and NF-IW-Min-luc, see ***Annex 1*** for description), an area where sustainable production systems, payments for environmental services, or the strengthening of local governance are used to reduce or control these destructive processes. When it is within the project area, it must be delimited and differentiated from the segments considered in the CCMP.
- **Project area**: is the area in which the estimation of GHG removals or GHG emission reductions that would have occurred both in the absence of the project (baseline scenario) and those that will occur due to the implementation of the project (project scenario) is carried out. The selected pools, GHG emission factors, and activity data should be defined for each segment considered and should be representative of their respective areas, considering the possible strata to be defined in each of the modules for both the baseline and project scenarios.

Figure 3. Spatial delimitation of the CCMP.



The function of the potential leakage area of the overlapping scenario changes, to denote the need for articulation of these measures with those provided for in the FREL/FRL.

The CCMP area is the sum of the spatial limits of the segments in the methodological modules considered. The spatial limits of each segment must be explicitly defined for each of the activities considered in a shapefile, with at least one attribute to differentiate the different segments, which shall be named with the acronyms presented in ***Annex 1***. *Geodatabases* are not accepted. Other formats than shp (kml, kmz, etc.) can be used only if the CCMP includes a single segment.

7.3 Analysis of drivers and causes of carbon stock depletion

The analysis of the agents and causes of carbon stock depletion in the project area should be performed at the segment level. However, if the CCMP includes other related segments (segments F-NW-def, F-CW-def, F-CW-deg, F-IW-Min-def, F-IW-Min-deg, and NF-CW-mar, see ***Annex 1*** for identification and description), the analysis of agents and causes can be performed together for all these segments.

7.4 Identification and calculation of baseline and project scenarios

The identification and calculation of the baseline and project scenarios is done for each segment in the corresponding methodological modules. The CCMP baseline and project scenarios correspond to the sum of the segments considered in each of these scenarios.

7.5 Estimation of net GHG emission reductions or net GHG removals

The estimation of GHG emission reductions or net GHG removals (as appropriate to the activity) must be done separately for each segment considered in the CCMP, according to the instructions of each methodological module, as shown in ***Table 4***.

Table 4. Detailed presentation of the annual climate change mitigation of each segment of GHG emission reductions (top) and GHG removals (bottom).

Segment:																	
Year	**Baseline scenario ($t\text{-}CO_2e$)**						**Monitoring period results ($t\text{-}CO_2e$)**						**Leakage ($t\text{-}CO_2e$)**	**Total gross reductions ($t\text{-}CO_2e$)**	**Buffer ($t\text{-}CO_2e$)**		**Net reductions ($t\text{-}CO_2e$)**
	Carbon stocks				Emissions		Carbon stocks				Emissions						
	Above ground biomass	Below ground biomass	Dead wood and litter	Soil organic carbon	N_2O	CH_4	Above ground biomass	Below ground biomass	Dead wood and litter	Soil organic carbon	N_2O	CH_4			Individual	Pooled	
Total																	

Segment:																	
Year	**Baseline scenario ($t\text{-}CO_2e$)**						**Monitoring period results ($t\text{-}CO_2e$)**						**Leakage ($t\text{-}CO_2e$)**	**Total gross removals ($t\text{-}CO_2e$)**	**Buffer ($t\text{-}CO_2e$)**		**Net removals ($t\text{-}CO_2e$)**
	Carbon stocks				Emissions		Carbon stocks				Emissions						
	Above ground biomass	Below ground biomass	Dead wood and litter	Soil organic carbon	N_2O	CH_4	Above ground biomass	Below ground biomass	Dead wood and litter	Soil organic carbon	N_2O	CH_4			Individual	Pooled	
Total																	

Once such estimates have been made for the segments, consolidated annual climate change mitigation should be presented for all considered REDD+ segments as well as for non-REDD+ segments, according to ecosystem type and mitigation type, as presented in ***Table 5***, and finally a consolidated annual mitigation for the entire CCMP.

Table 5. Components of mitigation consolidation reached.

Consolidation	**Corresponding segments***
Total annual GHG emission reductions from all REDD+ activities considered (in forest, wetland, or non-wetland).	F-NW-def, F-NW-deg, F-NW-sfm, F-CW-def, F-CW-deg, F-CW-sfm, F-IW-Min-def, F-IW-Min-deg, F-IW-Min-sfm, F-IW-Org-dra.

Consolidation	Corresponding segments*
Total annual GHG removals from all REDD+ activities considered (in carbon stocks enhancement and restoration segments, in wetlands or non-wetland areas).	F-NW-cse, F-CW-cse, F-CW-cse-rew, F-IW-Min-cse.
Total annual GHG emission reductions from all non-REDD+ activities considered (in non-forest wetlands).	NF-CW-mar, NF-CW-luc, NF-KW-wt, NF-IW-Org-dra, NF-IW-Min-luc.
Grand total of all activities considered in the CCMP.	Sum of mitigation of all segments considered in the CCMP.

* Include those implemented in the CCMP.

8 Monitoring and quantification of results

The CCMP must be monitored during its implementation, both in terms of area and external leakage, as a basis for the quantification of the results and credits obtained in each verification.

The associated GHG removals and emissions must be monitored continuously throughout the implementation period. Details on monitoring (periodicity, elements to be monitored, specific considerations, calculations, and variables to be monitored) are presented in each of the methodological modules.

8.1 Description of the monitoring plan

The CCMP proponent must establish and maintain a monitoring and quality management plan that includes procedures for measuring or otherwise obtaining, recording, collecting, and analysing relevant data and information to quantify, and report on GHG emissions and removals relevant to the CCMP and the baseline scenario. The monitoring plan should include the following aspects, as applicable:

- Purpose of monitoring.
- List of parameters to be measured and monitored.
- Types of data and information to be stated, including units of measurement.
- Source of data.
- Monitoring methodologies, including estimation, modelling, measurement, calculation approaches, and uncertainty.
- Monitoring frequency, considering the needs of the CCMP holder.
- Monitoring roles and responsibilities, including procedures for self-monitoring, approving, and documenting changes to recorded data.
- Controls including an internal check of data, in terms of input, transformation, and output elements, and procedures for corrective actions.
- GHG information management systems, including the location and retention of stored data, and data management including a procedure for transferring data between different forms of systems or documentation.

[Taken from the ISO 14064-2:2019 guidelines]

The elements to be monitored are outlined below:

8.2 Implementation of the CCMP

The CCMP activities implemented within the project area must be consistent with the CCMP area management plans and the PDD. The CCMP must include, in the monitoring report, a summary of the activities carried out in the segments considered during each verification period and their effectiveness in terms of climate change mitigation, in the context of the activities proposed in the PDD, comparing what was planned with what was implemented. The methodological modules may include specific instructions for monitoring this implementation according to the activities included in these modules.

8.3 Monitoring of limits

As part of the monitoring, it is necessary to periodically verify that the CCMP has been established in the areas that were initially validated or, in the case of grouped projects, added in subsequent instances during validations. Monitoring of the limits includes checking that the different areas remain under the control of the participants and that no areas have been transferred from one segment to any other segment of the CCMP.

8.4 Monitoring of emissions

The monitoring of GHG emissions is detailed in the methodological modules associated with this methodology. A separate report must be made for each of the modules considered in the CCMP. If the CCMP includes more than one module, a consolidated report must also be included with the contributions of all CCMP modules.

8.5 Monitoring of leakage

The potential leakage area is an area covered by forest at the beginning of the CCMP, where the same agents and causes that generate emissions from REDD+ activities in the project area may operate, while the leakage management area is a precise limit where leakage action has been identified and must be controlled. Evidence for identifying leakage includes:

- Deforestation processes outside the avoided deforestation segment.
- Forest degradation processes outside the avoided forest degradation segment.
- Processes of land cover/land use change and degradation of non-forest wetlands.
- Displacement of livestock or land grabbing activities.
- Displacement of other productive activities associated with deforestation or forest degradation.

This area is monitored for activity data to be determined using the same methods applied to monitor deforestation activity data in the segment.

In the operation of the project and as a product of the monitoring and management of the information, a process of constant control of leakage must be established, which includes:

- A geographical delimitation of the areas where the control is carried out.
- Changes in carbon buffers and GHG emissions associated with leakage prevention activities.
- The decrease in carbon stocks and the increase in GHG emissions due to leakage displacement activity.

Based on the above elements, it is necessary to calculate the total estimated actual leakage associated with the CCMP, in aggregate for all segments considered.

In the case of CCMPs that do not fully overlap with a FREL, increases in deforestation in the leakage management area following a control process will be deducted from the project accounting at the next verification. In the case of overlap with a FREL, no discounts are made in the accounting, but leakage reduction actions are formulated from within the project.

The result of the ex-post estimates of carbon stock changes should be reported using the same table formats used in the ex-ante assessment of the baseline carbon stock changes in the potential leakage area.

The verifying VVB shall determine whether the documentation provided by the CCMP proponent represents sufficient evidence to consider that the detected deforestation is not attributable to the project activity and is therefore not leakage.

In the case of CCMPs that do not undergo area expansions during their lifespan, leakage monitoring must be carried out during the first three years of implementation. In the case of expansions or changes of areas of implementation, monitoring shall be carried out during the first three years of implementation and during the year and the following two years in which such expansions or changes of areas occur. In the case of area reductions, no monitoring is required.

The total leakage emissions from the activities of all implemented segments during reporting period x is calculated as the sum of the annual leakage emissions resulting from all implemented segments in the CCMP:

$$EfP_X = \sum_{t=1}^{Tx} EFP_t \qquad \text{(Eq. 1)}$$

Variable	Nombre	Unidad
EfP_x	CCMP GHG emissions from leakage during reporting period x.	tCO_2
EFP_t	GHG emissions from leakage due to CCMP activities in all segments in year t of the reporting period.	tCO_2

8.6 Monitoring of carbon stocks

The monitoring of carbon stocks is detailed in the methodological modules associated with this methodology and shall be reported both separately for each of the modules considered in the CCMP and in a final consolidated report including inputs from all modules included in the CCMP.

8.7 Gross GHG emission reductions and gross GHG removals *ex-post*

Net anthropogenic GHG emission reductions and net GHG removals from the CCMP estimated *ex-post* are to be reported by consolidating the results from the segments considered in the CCMP as follows:

- A table with the annual mitigation reached in each segment considered in the CCMP calculated in each methodological module.
- A table consolidating separately all annual net GHG emission reductions and all annual net GHG removals (two tables in total).
- A table of the gross annual mitigation (before discounting leakage and the carbon buffer) of all segments considered in the CCMP.

- A table of the net annual mitigation (after discounting the carbon buffer) of all segments considered in the CCMP.
- A consolidated total gross mitigation total for the reporting period.
- A consolidated total net mitigation total for the reporting period.

Gross mitigation reached in all segments during the reporting period x is calculated as:

$$GMP_x = \sum_{s=1}^{NS} SM_{x,s} \quad \text{(Eq. 2)}$$

The carbon buffer for reporting period x is calculated as:

$$BfP_x = PBf * (GMP_x - EfP_x) \quad \text{(Eq. 3)}$$

The quantification of the net mitigation reached by the CCMP during the reporting period x minus the buffer is calculated as:

$$MNP_x = GMP_x - EfP_x - BfP_x \quad \text{(Eq. 4)}$$

Variable	Nombre	Unidad
GMP_x	Gross mitigation reached in the CCMP during the reporting period Tx.	tCO_2
NS	Total number of segments considered in the CCMP.	
$SM_{x,s}$	Mitigation reached in segment s during reporting period x (calculated in each methodological module considered in the CCMP).	tCO_2
BfP_x	CCMP carbon buffer of reporting period x.	tCO_2
PBf	Percentage carbon buffer (defined in ***Cercarbono's Tool to Estimate Carbon Buffer in Initiatives to Mitigate Climate Change in the Land Use Sector***).	
EfP_x	CCMP GHG emissions from leakage during reporting period x.	tCO_2
MNP_x	Net mitigation reached by the CCMP during the reporting period x.	tCO_2

8.8 Monitoring of contributions to Sustainable Development Goals

The monitoring of contributions to the UN Sustainable Development Goals is done according to the ***Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals***, which is available at www.cercarbono.com, section: Documentation.

9 Uncertainty, risks, and non-permanence

The CCMP must include the quantification of the aggregate uncertainty of the mitigation results, i.e., the product of the uncertainties in each of its components: activity data, emission factors, projection method, and all subsequent factors of these calculations, as well as a risk analysis under a justified method that includes the probabilistic measurement of adverse events to the CCMP, which would affect its potential results.

It is recommended to include at least the following sources of uncertainty:

- Implementation uncertainty is the consequence of variability resulting from a management policy. Sources of uncertainty include not only statistical error in detecting population status, and environmental trends, or errors in population analysis, but also erroneous decisions and an inefficient management framework.
- Uncertainty due to measurement errors and bias: error in observed quantities such as catch or dasometric parameters.
- Uncertainty in the calculation process: probability of making errors in typing, arithmetic, or interpretation of results.
- Model uncertainty: misspecification of the structure or interpretation of models.
- Estimation uncertainty: the uncertainty that can result from anyone, or a combination, of the uncertainties described above and is the inaccuracy and imprecision in the annual volume of CCMP results.

This methodology aims to provide precise and accurate CCMP results in every component of the quantification, because of the comprehensiveness of the implementation of the principles of the certification programme.

However, by the very nature of GHG removals, However, by the very nature of GHG removals, these are non-permanent, as they come from life and death cycles, subject to complex environmental and social dynamics, which can be affected by internal and external events (such as disasters, land cover or land use changes, infrastructure developments).

In this methodology, non-permanence is controlled by buffering a percentage of the credits earned by CCMPs, in proportion to their identified risks. This percentage is calculated using ***Cercarbono's Tool to Estimate Carbon Buffer in Initiatives to Mitigate Climate Change in the Land Use Sector***. The rules for its calculation and subsequent return are detailed in the tool's Guidelines, both available at www.cercarbono.com, section: Documentation.

10 Contributions to the United Nations Sustainable Development Goals

Under the Cercarbono programme, CCMPs are required to report contributions to the SDGs using the ***Cercarbono's Tool to Report Contributions from Climate Change Mitigation Initiatives to the Sustainable Development Goals***, which is available at www.cercarbono.com, section: Documentation. The review of the application of this tool shall be part of the verification process. The **SDG Tool rubric** must be duly signed by the VVB in charge of the verification.

11 Safeguards

Safeguards must be addressed when at least one of the CCMP segments is implemented in community areas.

It is recommended that the definitions and monitoring systems for safeguards considered in the CCMP follow the guidelines that each country includes in its reports, in accordance with UNFCCC decision 12/CP19, as shown in ***Annex 2***. In addition, the CCMP should be implemented following the participation protocol set out in ***Section 5***.

The implementation of activities and the distribution of benefits must be transparent, known to the communities and local governance structures in the CCMP area. Most project benefits and monetised funding (+50 %) from the gross (undiscounted) sale of carbon credits should reach communities through sustainable productive enterprises, payments for environmental services, or actions to strengthen local forest governance.

In the case of contracts between technical intermediaries and communities, it is recommended that these do not exceed ten years, which can be renewed according to the will of the communities.

In a complementary manner, the CCMP must comply with the following:

- It must be based on transparency of information between technical partners and communities, where the costs of implementing mitigation actions in the territory, of the procedures for generating CCMP documents, of validation, verification, and sale of certified carbon units and other transactional costs must be openly known. Information shall be made transparent through the effective participation process.
- Agreements and contracts to demonstrate the CCMP holder's administrative capacity over its monitoring area should not include changes in ownership, possession, or occupation by communities, nor should they establish concession processes between communities and technical partners.
- It must have a strategy for empowering local communities to manage the CCMP.
- CCMP actions should be complementary to national forest objectives. The project shall cite which of the national and public policy goals it contributes to through the implementation of its activities.
- CCMP activities shall be governed within the framework of national laws, human rights standards, and international agreements ratified by the country.
- It must identify and report on measures to prevent corruption processes, in accordance with national laws and international agreements ratified by the country.
- It should ensure and report on measures to avoid infringing land tenure and land use rights. The CCMP should be based on the documented will of communities and landowners.
- It should report on measures for the maintenance and promotion of the knowledge, practices, and skills of ethnic communities.

- It must avoid the conversion of any wild ecosystem for the purposes of implementing any CCMP activity. It must also avoid the detriment of alpha, beta, and gamma biodiversity indicators in the project area.
- It must avoid the use of invasive species or species with invasive potential in the implementation of its activities.

12 Grouped CCMP

Grouped CCMPs are those explicitly designed as such, which have a pre-defined binding factor, allowing the addition of new participants or operational units (instances) that are not known at the time of their design or at the beginning of their implementation.

This addition of instances (new areas or participants in any of the segments) can be done in the verifications, including the same pools considered in the segments in which they are included, demonstrating compliance with the eligibility requirements and with the requirements foreseen for this type of CCMP considered in the Cercarbono's Protocol. The addition or subtraction of areas from a CCMP can be done during verifications and requires the reassessment of scenarios, as explained in the following sections.

In this type of CCMP, the project area is the sum of all the areas of the instances included.

In the case of possible instances implementing REDD+ activities, these can only be aggregated if:

- These are in the same FREL reference region or if they are adjacent to the project area in case these are in different FREL sub-national reference regions.
- The agents and drivers of deforestation (and, if applicable, degradation) are the same as those of the project area defined prior to the inclusion of the instance.
- Their areas include previously defined segments.
- The start of activities of the new instances is after the last verification of the CCMP.

The monitoring system may differ between the segments under consideration but should be internally consistent between all instances of the same segment.

Leakage monitoring in a grouped project should be done in each segment and instance but does not necessarily have to be spatially explicit. For example, it can be replaced by agreements at the farm level, which make explicit the non-implementation of actions that lead to GHG emission increases outside each instance. The use of instance-level monitoring technologies, such as drones, is also feasible.

The monitoring of activity data that can be tracked at each instance should be appropriate to the minimum mapping units of the activity under consideration. In this sense, it is necessary to define the minimum monitoring area, considering the definition of forest established by the host country, as some countries do not accept units smaller than 1.0 ha.

12.1 Reassessment of grouped CCMP scenarios

If the implementation of the CCMP results in a different baseline scenario (e.g. if instances are added or participants are removed), or in a different net GHG emission reduction, or net GHG removal than presented in the initial project scenario (e.g. due to inclusion or exclusion of new areas, correction of areas, growth rates, deforestation, or degradation rates, or different implementation years than planned, among others), correction of areas, growth rates, deforestation or degradation rates, or different implementation years than planned,

among others), it shall be necessary to recalculate the total long-term mitigation potential, based on which the carbon buffers used to compensate for the risks and non-permanence of the mitigation reached are calculated.

If for a given verification new instances are added to some of the segments, it is necessary to estimate the net GHG removals that occur in the baseline and project scenarios during their lifespan and the reassessment of these scenarios **in each segment to which new instances are added**, as described in the methodological modules associated with this methodology. It is also necessary to update the CCMP total mitigation calculations, as set out in ***Section 7.5***.

12.2 Reassessment of risks, uncertainty, and non-permanence of grouped CCMPs

If new instances are added to the CCMP, a new risk, uncertainty, and non-permanence assessment is required, following the procedure described in ***Section 9***.

12.3 Exclusion of areas from grouped CCMPs

If during a reporting period a participant withdraws from the CCMP, an update to the PDD must be made, explaining that the calculation of previously issued credits for the area belonging to the withdrawing project owner must be re-validated. Such area cannot be considered in the calculations for the next verification and an amount equal to the corresponding credits that were previously issued is deducted from the total mitigation to be reported at the next verification.

The retirement of areas from an owner or CCMP participant must be total, no partial area retirements are allowed. To formalise the retirement, the CCMP must update the PDD, explicitly stating the areas and participants being retired and indicating how many credits have been issued in previous verifications. An amount equal to these credits must be subtracted from the credits to be certified at the next verification.

12.4 Updating spatial limits of grouped CCMPs

If the spatial limits of the segments included in the CCMP change during the implementation of the CCMP, either by inclusion of new instances or by withdrawal of participants, the spatial limits of each modified segment and of the total CCMP will need to be updated, as indicated in the methodological modules. The total area of each segment should be the same for the baseline and project scenarios.

13 Information management

The CCMP shall establish and implement quality management procedures, in accordance with the principles of this methodology, for receiving, managing, and controlling data, databases, and information, including the assessment of uncertainty.

The CCMP shall, to the extent possible, reduce uncertainties related to the quantification of GHG removal and GHG emission reductions by identifying and addressing any errors or omissions detected.

The CCMP shall apply monitoring criteria and procedures, in which consistent reviews or audits are carried out to ensure the accuracy of the quantification of GHG removal and GHG emission reductions according to the monitoring plan.

Where measuring and monitoring equipment is used, the CCMP shall ensure that the monitoring and measuring equipment is used and maintained as appropriate.

All data and information related to CCMP monitoring should be recorded and documented.

[Taken from ISO 14064-2:2019 guidelines]

Note: The CCMP proponent may apply the principles of ISO 9001:2008 and ISO 14033:2019 for data quality management.

13.1 Documentary check

The CCMP shall establish and maintain a documentary check system to support all its legal and administrative documentation, as well as all measurement and data collection processes, calculations, and quantification of GHG emissions and removals.

13.2 Mapping quality management

For the presentation of mapping information in order to ensure traceability in the eligible areas that integrate the geographical limits of the CCMP, the information of each management unit (year of establishment, species, area in hectares, planting density, owner) can be included in a geographic information system where the structure presented in ***Table 6*** is considered as a minimum.

Table 6. CCMP mapping information.

Owner	Real estate registration number or equivalent	Segment	Area (ha)	Date of inclusion

13.3 Storage of the information

Geodatabases (GDB) or files in *shapefile* format can be used for storage, where at least the availability of the primary information used and its processing to arrive at the result is guaranteed. However, in the registration platform of the programme (EcoRegistry), spatial information can only be stored in shape, kml or kmz format.

There must be consistency in the coordinate system (same datum and origin) used within the GIS.

13.4 Topology

Compliance with topological rules must be ensured in relation to:

- Minimum area included and allowed within the CCMP.
- Overlaps of polygons that generate duplicity in the areas.
- Gaps in the *shapefile*, generated when editing polygons.
- Displacement of polygons.

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15 Document history

Version	Date	Comments or changes
1.0	03.11.2022	Initial version of the document is open for public consultation from 03.11.2022 to 02.12.2022.
1.1	23.02.2023	Final version with integrated comments from the public consultation.

Annexes

Annex 1. Modules that comprise the methodology

Code	Category	Segment - activity	Status	Marine	Coastal		Inland		REDD+
					F*	N-F**	F*	N-F**	
F-NW-def	Non-wetland forest	Reducing GHG emissions from deforestation of non-wetland forest areas.	Available	No	NA	NA	NA	NA	Yes
F-NW-deg		Reduced GHG emissions from forest degradation of non-wetland areas.	Scheduled	No	NA	NA	NA	NA	Yes
F-NW-cse		Forest carbon stocks enhancement of non-wetland forest areas.	Scheduled	No	NA	NA	NA	NA	Yes
F-NW-sfm		Sustainable forest management of non-wetland areas.	Scheduled	No	NA	NA	NA	NA	Yes
F-CW-def	Coastal wetland forest	Reduced GHG emissions from mangrove deforestation.	Scheduled	No	Yes	No	NA	NA	Yes
F-CW-deg		Reducing GHG emissions from mangrove degradation.	Scheduled	No	Yes	No	NA	NA	Yes
F-CW-cse		Forest carbon stock enhancement from mangrove restoration.	Scheduled	No	Yes	No	NA	NA	Yes
F-CW-sfm		Sustainable forest management of mangroves.	Scheduled	No	Yes	No	NA	NA	Yes
F-CW-rew		Forest carbon stock enhancement from restoration of rewetted mangroves.	Scheduled	No	No	Yes	No	NA	Yes
F-IW-Min-def	Inland wetland forest	Reduced GHG emissions from deforestation of inland wetlands on mineral soils.	Scheduled	No	No	No	Yes	No	Yes
F-IW-Min-deg		Reduced GHG emissions from forest degradation of inland wetlands on mineral soils.	Scheduled	No	No	No	Yes	No	Yes
F-IW-Min-cse		Forest carbon stocks enhancement of inland wetlands on mineral soils.	Scheduled	No	No	No	Yes	No	Yes
F-IW-Min-sfm		Sustainable forest management of inland wetlands on mineral soils.	Scheduled	No	No	No	Yes	No	Yes
F-IW-Org-dra		Reducing GHG emissions from deforestation and drainage of inland wetlands on organic soils.	Available	No	No	No	Yes	No	Yes
NF-CW-mar	Non-forest wetland	GHG emission reductions in non-forest coastal marsh wetlands.	Scheduled	No	No	Yes	No	No	No
NF-CW-luc		GHG emission reductions from avoided land use/land cover change in marine wetlands (seagrass).	Scheduled	Yes	No	No	No	No	No
NF-KW-wt		GHG emission reductions in constructed wetlands for wastewater treatment.	Scheduled	No	No	Yes	No	Yes	No
NF-IW-Org-dra		GHG emission reductions from land use change and drainage of non-forest inland wetlands on organic soils.	Available	No	No	No	No	Yes	No

Code	Category	Segment - activity	Status	Marine	Coastal		Inland		REDD+
					F*	N-F**	F*	N-F**	
NF-IW-Min-luc		GHG emission reductions from land use change in non-forest inland wetlands on mineral soils.	Scheduled	No	No	No	No	Yes	No
NF-W-Org-rew		GHG emission reductions and GHG removals from rewetting of non-forest organic soils.	Scheduled	No	No	Yes	No	Yes	No

*Forest.
**Non-forest.

Annex 2. Safeguards

The safeguards compliance detailed by the CCMPs must be integrated in the PDD and in the monitoring report prior to each verification event, and once the National Safeguards System (NSS) is operational in each country, such compliance shall be reported to this system. The following is a description of each safeguard established by the UNFCCC under decision 1/COP.16 and its exemplified correspondence in the national context to achieve compliance at the project level:

Cancun Safeguard	Elements to consider at project level	Safeguard compliance
A. In line with national forest programmes and international agreements.	Description of CCMP contributions to mitigation and, if applicable, adaptation processes. Description of how the CCMP contributes to international agreements signed by the country. Where applicable, report compliance with objectives established in agreements (e.g., the Paris Agreement, both in its mitigation objective and its proposed actions for adaptation); conventions (such as the Convention on Wetlands, the Convention to Combat Desertification and the Convention on Trade in Endangered Species of Wild Fauna and Flora); conventions (such as the Climate Change, Diversity, and International Timber Conventions) or forums (such as the United Nations Forum on Forests). In line with: • ILO Convention 169. • International Tropical Timber Agreement. • Amazon Cooperation Treaty. • Warsaw Framework.	The CCMP holder shall describe each mitigation or adaptation action and the legal and national instruments with which it is aligned. The verifier shall confirm compliance or report inconsistencies, or findings identified.
B. Transparency and effectiveness of forest governance structures.	Compliance with available local and national laws and decrees, where applicable: • International Covenant on Economic, Social and Cultural Rights. • Declaration on the Rights of Indigenous Peoples. • Joint Declaration on the Right to Freedom of Peaceful Assembly and Democratic Governance. • Indigenous and Tribal Peoples Convention. • International Covenant on Civil and Political Rights of the United Nations (UN).	The CCMP holder must report on all mechanisms used for the dissemination of full project information and this must be searchable and available on the EcoRegistry platform and on the NSS when available. The CCMP holder must report evidence of the socialisation of the project with communities (peasant, indigenous, and other) or stakeholders, defining roles and responsibilities that each one will have. In addition, it must demonstrate the effective participation of these communities in any type of event developed.

Cancun Safeguard	Elements to consider at project level	Safeguard compliance
		The CCMP holder must present the existing forest governance structure in the project area and its respective supports (empowerment strategy, land tenure documents, among others), publicly available.
		The CCMP holder must submit any evidence supporting the strengthening of technical, legal, and governance capacities enabled by the project.
C. Respect for the traditional knowledge and rights of communities.	Compliance with conventions, laws, and decrees, where applicable: • ILO Convention 169. • UN Declaration on IPs. • Inter-American Convention on Human Rights. • Andean Decision 391 of 1996. • UNESCO Convention: Convention on the Protection and Promotion of the Diversity of Cultural Expressions of October 2005.	The CCMP holder must submit the consent document, if applicable, signed by the representative of the group or community affected by the project.
		The CCMP holder must present and list the traditional knowledge that is respected and promoted by the CCMP holder, based on the national legislations that integrate and support it.
		The CCMP holder must report the project budget showing benefit sharing from the gross sales of certified carbon units and a specific allocation for communities of more than 50 %. This budget shall be public and especially accessible to the communities involved in the project.
		The CCMP holder must identify and enforce its rights over the territory in which the initiative takes place.
D. Full and effective participation.	Compliance with conventions, laws, and decrees, where applicable: • American Convention on Human Rights (Pact of San José). • Declaration on Principle 10 of 2012. • ILO Convention 169, prior consultation. • Joint Declaration on the Right to Freedom of Peaceful Assembly and Democratic Governance. • Public Hearings.	The CCMP holder shall report on participation processes and shall ensure that they are updated and reported in a publicly available online repository of information, in accordance with ***Section 5***.
E. Conservation and benefits.	National forest conservation or restoration plans where available, in line with the provisions of: • Convention on Biological Diversity. • Ramsar Convention.	The CCMP holder must report a description of the positive and negative impacts and measures to mitigate negative impacts for each of the project actions. In addition, it must include reporting on contributions to the SDGs as set out in the Cercarbono's Protocol.

Cancun Safeguard	Elements to consider at project level	Safeguard compliance
F. Preventing risks of reversion.	Compliance with land-use or spatial planning where available.	The CCMP holder shall report on each REDD+ action under which land use or land-use planning it is carried out, in accordance with the provisions of ***Section 5***.
G. Avoid displacement of emissions.	Identification and control of leakage in the areas, normally included in the methodologies.	The CCMP holder shall report the leakage analysis resulting from the implementation of the project in accordance with ***Section 8.5***.

Annex 3. Summary of REDD+ actions to be carried out with communities, in alliances with State institutions or private actors

Category / Likely action from a REDD+ project	Sector					
	A	B	C	D	E	F
1. Environmental land-use planning.						
Support for the formulation and implementation of ethnic-territorial planning instruments in community territories and peasant groups.	X	X				
Support for the establishment of environmental determinants for territorial and sectoral planning that considers forest conservation.		X				
Identification of zones of high ecosystemic importance, including special management areas to exclude them from mining, infrastructure, agriculture, or other impacting activities. Determination of blasting or use regulations.	X	X		X		
Support the development of command-and-control measures that support environmental land-use planning, as well as community monitoring.	X					
productive entrepreneurship in accordance with the zoning and management of forest buffers (if available in the country).		X				
Strengthening the governance of indigenous and Afro-descendant peoples in their territories, through the design of programmes to support the formulation of instruments for the environmental management of their territories, within the framework of the system of traditional indigenous knowledge and life plans.		X				
Differential and specific programmes for the conservation of ecosystems designed and being implemented in indigenous, Afro-descendant or peasant territories, considering ancestral, traditional systems of territorial planning and use.		X				
Zoning of productive areas.	X					
Territorial planning.	X	X		X	X	X
Support to land tenure decision-making processes (formalisation, rural cadastre).	X					
Support to the formulation and implementation of Forest Management (if available in the country). Development of sustainable forest management units.		X				
Diagnosis of susceptible areas prioritised in Sustainable Forest Management processes (if available in the country).		X				
2. Strengthening the capacities of communities in forest conservation management.						
Development of measures for the protection of rights over collective and peasant territories. Community forestry, among others.		X				
Promotion and strengthening of the capacities of community organisations owning and possessing forests.		X				
Formal training programmes for local communities in the sustainable management of natural resources.		X				
Support for the protection of communities' traditional knowledge associated with the sustainable use and management of forests.		X				
Strengthening the institutional capacity of forest-dependent communities and ethnic groups so that they can participate effectively in discussions on climate change, forest management and REDD+.		X				
Establishment of working groups for interest groups, to ensure a differential approach and cultural diversity (Afro-descendant, indigenous, peasant and with a gender approach) to support the consolidation of REDD+ actions in the territory.		X				
Definition of investment prioritisation criteria applicable to indigenous, Afro-descendant or peasant territories with the participation of the different groups.		X				
Technical assistance for implementation - Strengthening of tree-based production systems.	X	X				
Dissemination and training on actions for forest conservation.		X				

Category / Likely action from a REDD+ project	Sector					
	A	B	C	D	E	F
Support for the participatory construction of Forest Development Plans.	X	X				
Strengthening the capacities of local organisations to carry out binding agreements to reduce deforestation in their territories and to implement measures.		X				
Formulation of internal regulations for forest use and management based on traditional knowledge.		X				
Application of forest management plans to guarantee the sustainable use of forest resources.		X				
Implementation of wood energy plantations to replace the use of natural firewood and to produce charcoal for sale.	X	X			X	
Implementation of forest fire prevention or control actions.		X				
Implementation of a local early warning system for deforestation and forest degradation.		X				
Analysis of the indirect and direct drivers of deforestation and forest degradation in the country, including logging, mining, agriculture, and infrastructure, with the participation of the local population and with an educational component on forest conservation.	X	X		X		X
Support for control actions against illegal logging.		X				
Development of forest inventories, with the participation of the local population and with an educational component on forest conservation.		X				
Implementation of actions to produce legal timber.		X				
Tree-based production systems - Forest plantations (including wood energy and protective plantations).	X	X				
Limitation of the growth of the agricultural frontier in forest areas.	X	X				
Species enrichment processes with the participation of the local population and with an educational component on forest conservation.		X				
Use of alternative energy - efficient cookers.		X			X	
Implementation of live fences for firewood (wood energy).	X	X				
Increasing the value of the forest - non-timber products (including beekeeping).		X				
Commercial plantations of native species.	X					
Implementation of biological corridors.		X				
3. Strengthening forest governance.						
Strengthening the management capacity of civil society for forest conservation.	X	X	X	X	X	X
Design and presentation of initiatives on sustainable forest management, with the participation of the local population and with an educational component on forest conservation.	X	X				
Promotion of the application of legislation for the conservation of natural forests.		X				
Promotion of responsible and sustainable consumption of forest resources.		X				
Design and implement a roadmap for accessing financial mechanisms such as payment for environmental services.		X				
Implementation of strategies in the fight against forest fires.		X				
Implementation of incentives for the conservation of natural forests.		X				
Establishment of possible synergies between projects and the prevention and substitution of illicit crops.		X				
Development of strategies that encourage the sustainable use of natural resources such as: environmental certifications or green seals, fair trade programmes, strengthening of value chains, among others.	X	X	X			

Category / Likely action from a REDD+ project	Sector					
	A	B	C	D	E	F
Access to economic and financial instruments to promote forest conservation, provide incentives for the legal and sustainable use of forest products and improve forest governance.		X				
Establishment of 'zero net deforestation' agreements at the local level for the development of sustainable production chains.	X	X	X	X		
4. Promotion of sustainable practices in the development of sectoral activities (agriculture, livestock, mining, infrastructure, oil, and tourism).						
Reduction or elimination of incentives for extensive agricultural production, based on cross-sectoral negotiations.	X					
Adoption of best practices to limit the direct and indirect impacts of mining activities.		X		X		
Generation of timber products with higher added value and that make more efficient use of resources.		X				
Promotion of energy production technologies and best practices that reduce impacts on forests and their resources.		X		X		
Promotion of eco-efficient technologies that are applied to the design and construction of housing with forest resources of legal origin.		X			X	
Development of sustainable tourism programmes.		X	X			X
Establishment of public-private coalitions with companies committed to ambitious zero deforestation policies, focused on the design and implementation of sustainable agricultural production, improving the use of already deforested land, and avoiding new forest conversion for agricultural purposes.	X	X				
Establishment of a package of actions to reverse the expansion of pastureland, including tools to monitor their effective implementation.	X					
Tree-based production systems - Agroforestry systems.	X					
Tree-based production systems - Silvopastoral systems.	X					
Tree-based production systems - Livestock conversion in areas of soil conflict.	X					
Tree-based production systems - Climate-smart agriculture.	X	X				
Tree-based production systems - Family gardens.	X	X				
Good livestock practices - Forage gardens.	X					
Support for the marketing of forest products under sustainable forest management - Production chains.	X		X			
Early implementation of land use options that reduce deforestation in the territories of influence of producer organisations.	X	X				
Deforestation-free production chains - Establishment of multi-stakeholder platforms and definition of sectoral strategies for the cocoa, rubber, coffee, and dual-purpose livestock chains (among others), with a focus on sustainability.	X	X	X			
Sustainable alliances - Adaptation of procedures and instruments to support productive alliances for zero deforestation systems.	X	X	X			
5. Promoting management in protected areas and their buffer zones.						
Proposal of sustainable production alternatives for the population living in buffer zones and adjacent to national protected areas.	X	X				
Promote management in areas surrounding and adjacent to protected areas to develop their buffer function.		X				
Support the declaration of additional protected areas for *in situ* preservation.		X				

Economic sectors covered:

A. Agriculture and Rural Development.

B. Environment and Sustainable Development.

C. Trade, Industry and Tourism.
D. Mines and Energy.
E. Housing, City and Territory.
F. Transport.

Annex 4. Sources of supplementary information

Element	Section	Data source	Unit	Application	Availability*
Segmentation of areas					
	5.2.2 5.3 6.1	Probable identification because of the analysis of agents and causes.	ha	In baseline scenario. In project scenario.	REDD+ methodology.
Stratification of forest segments					
	5.2.1 5.2.2 5.4 6.2.1	Procedures for coverage change detection or digital pre-processing of satellite images.	ha	In baseline scenario. In project scenario. In monitoring.	REDD+ methodology.
		Table 4.1: IPCC, 2006. Page 4.55.	ha		IPCC_Table 4.1.
Stratification of non-forest segments					
	5.2.1 5.2.2 5.4 6.2.2	Procedures for coverage change detection or digital pre-processing of satellite images.	ha	In baseline scenario. In project scenario. In monitoring.	REDD+ methodology.
Above-ground biomass pool					
In forests.		Table 4.7: IPCC, 2006. Pages 4.62 - 4.63.	t-d.m./ha	In baseline scenario. In project scenario. In monitoring.	IPCC_Table 4.7.
Net growth in natural forests.		Table 4.9: IPCC, 2006. Pages 4.66 - 4.67.	t-d.m./ha/year		IPCC_Table 4.9.
Carbon fraction of above-ground forest biomass.	6.2 6.2.1 6.2.2	Table 4.3: IPCC, 2006. Chapter 4. Page 4.57.	t-C/d.m.		IPCC_Table 4.3.
Biomass conversion and expansion factors.	6.9.1 6.9.2 6.9.3	Table 4.5: IPCC, 2006. Pages 4.59 - 4.61.	m^3		IPCC_Table 4.5.
Basic wood density (D) of tropical trees.	7.3 7.5 7.8	Table 4.13: IPCC, 2006. Pages 4.73 - 4.79.	g/cm^3 o t/m^3		IPCC_Table 4.13.
Allometric equations according to forest type.	7.9.1 7.9.2 13.6	Database On Greenhouse Gas Emission Factors (IPCC-EFDB). User Guide for Local Application.	t-C/ha		
In crops.		Table 4.4: IPCC, 2006. Page 4.48.	t-d.m./ha		IPCC_Table 4.4, Vol 4, Ch 4.
Below-ground biomass pool					
Belowground Biomass to Aboveground Biomass Ratio.	6.2 6.2.1 6.2.2 7.3	Table 4.4: IPCC, 2006. Chapter 4. Pages 4.58.	t-d.m. below-ground biomass /t-d.m. above-ground biomass	In baseline scenario. In project scenario. In monitoring.	IPCC_Table 4.4.
Belowground biomass/aboveground biomass ratio in natural regeneration.	7.5 7.8 7.9.1 7.9.2 13.6	Table 3.A.1.8: IPCC, 2003. Chapter 3. Page 3.168.			IPCC_Table 3.A.1.8.
Dead wood and litter pool					
Carbon stocks in litter and dead wood.	6.2 8.3	Table 2.2: IPCC, 2006. Page 2.31.	t-C/ha	In baseline scenario. In project scenario. In monitoring.	IPCC_Table 2.2.
Soil Organic Carbon Pool (SOC)					

Element	Section	Data source	Unit	Application	Availability*
Default values in mineral soils.	6.2 6.2.1 6.2.2 6.4.3 7.3 7.3.1 7.3.2 7.3.3 7.8.1 7.9.1 7.9.2	Table 2.3: IPCC, 2006. Page 2.36.	t-C/ha (between 0-30 cm depth)	In baseline scenario. In project scenario. In monitoring.	IPCC_Table 2.3.
Estimation on mineral, organic and stony soils.		FAO, 2017. Pages 39 - 41.	t-C/ha		FAO_Table 3.
Carbon loss from mineral soil management.		Table 5.6.: IPCC, 2006. Page 5.22.	t-C/ha/year		IPCC_Table 5.6.
Emission sources and potential leakage					
Areas affected by disturbance of natural forest and forest plantations; areas of crops affected by disturbance; areas of grassland affected by disturbance.					
	6.3, 7.4, 7.4.1, 13.4	Table 5.7: IPCC, 2006.	ha	In baseline scenario. In monitoring.	IPCC_Table 5.7.
Fuel consumption values (dead organic matter plus live biomass) (Ton d.m.-1) caused by fires of different vegetation types.					
	6.3, 7.4, 7.4.1, 13.4	Table 2.4: IPCC, 2006. Pages 2.51 - 2.52.	t-d.m./ha	In baseline scenario. In monitoring.	IPCC_Table 2.4.
Emission factors (g kg-1 of d.m. burned) for different types of burning.					
	6.3, 7.4, 7.4.1, 13.4	Table 2.5: IPCC, 2006. Page 2.53.	g /kg d.m. burned	In baseline scenario. In monitoring.	IPCC_Table 2.5.
Combustion factors (proportion of pre-fire combustible biomass) for fires in different vegetation types.					
	6.3, 7.4, 7.4.1, 13.4	Table 2.6: IPCC, 2006. Page 2.54.		In baseline scenario. In monitoring.	IPCC_Table 2.6.
Cattle population by group: high production cows, low production cows, beef cows, bulls for breeding purposes, pre-weaned calves, replacement heifers, fattening cattle.					
	6.3, 7.4, 7.4.1, 13.4	Tables 10.A.1-10A.9: IPCC, 2006.	Various	In baseline scenario. In monitoring.	IPCC_ Tables 10.A.1-10A.9.
Carbon loss and annual accumulation rate of permanent crops in different climates.					
	6.3, 7.4, 7.4.1, 13.4	Table 5.1: IPCC, 2006. Vol. 4. Chapter. 5. Page 5.7.	t-C/ha/year	In baseline scenario. In monitoring.	IPCC_Table 5.1.
CH_4 emission factor for enteric fermentation of cattle.					
	6.3, 7.4, 7.4.1, 13.4	Table 10.10: IPCC, 2006. Page 10.30.	kg-CH_4/head/year	In project scenario. In monitoring.	IPCC_Table 10.10.
CH_4 emission factor for fermentation of other livestock.					
	6.3, 7.4, 7.4.1, 13.4	Table 10.14 a 10.16: IPCC, 2006. Vol. 4. Cap. 10. Pages 10.38 - 10.41.	kg-CH_4/head/year	In project scenario. In monitoring.	IPCC_Table 10.14 to 10.16.
Emission factor for direct N_2O emissions from managed soils.					
	6.3, 7.4, 7.4.1, 13.4	Table 11.1: IPCC, 2006. Page 11.12.	kg-N_2O/N-ha/year	In project scenario. In monitoring.	IPCC_Table 11.1.

*The tables listed in the **Availability** column will be provided to CCMP developers upon request.