

FCPF Jurisdictional REDD+ Standard

PART A: Environmental and Social Integrity Requirements

ABOUT THE FCPF JURISDICTIONAL REDD+ STANDARD

The Forest Carbon Partnership Facility (FCPF) was launched in 2007 to assist developing countries in their efforts on reducing emissions from deforestation and/or forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks (“REDD+”) by building their capacity and developing a methodological and policy framework that provides incentives for the implementation of REDD+ programs.

The FCPF Jurisdictional REDD+ Standard (“FCPF Standard”) consists of the approaches developed by the Carbon Fund of the Forest Carbon Partnership Facility. The FCPF Standard provides a credible and transparent framework for estimating emission reductions and removals from REDD+ activities at the jurisdictional scale and to register, verify, and issue ERs. The FCPF Standard consists of the following 3 documents:

- Part A: Environmental and Social Integrity Requirements (this document)
- Part B: Process Requirements
- Part C: Validation and Verification Requirements

This version is an annotated document. Annotations are included in text boxes like this to allow for a better understanding of the changes made compared to existing CF documents like the Methodological Framework. Annotations will be removed in other versions

To further clarify the changes compared to the Methodological Framework, all the original text from the MF is in blue (including ~~strikeout~~ for text that was removed). Text in track changes represent changes made to the earlier version of the document that was shared on November 17, 2023 and reflect responses to the comments raised on that version

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1 LEVEL OF AMBITION

1.1 Scale and ambition

A.1. The Accounting Area matches a government-designated area that is of significant scale ~~.The Accounting Area is of significant scale~~ and aligns with one or more jurisdictions; or a national-government-designated area (e.g., ecoregion) or areas.

A.2. The proposed jurisdictional REDD+ program ('ER Program') is ambitious, demonstrating the potential of the full implementation of the variety of interventions of the national REDD+ strategy, ~~and is implemented at a jurisdictional scale or programmatic scale.~~

A 2.1: The ER Program Measures aim to address a significant portion of forest-related emissions and removals.

A 2.2: The ER Program is ambitious, uses new or enhanced ER Program Measures to reduce emissions or enhance removals, is undertaken at ~~a jurisdictional~~ the scale of the Accounting Area and/or takes a programmatic approach (i.e., involves multiple land areas, landowners or managers within ~~one or several jurisdictions~~ the Accounting Area), and reflects a variety of interventions from the national REDD+ strategy¹ in a coordinated manner.

¹ A national strategy or action plan is one of the elements to be developed by developing countries implementing REDD+ activities according to paragraph 71 of decision 1/CP.16. A link to the national strategy or action plan should also be provided in the Lima REDD+ Information Hub.

2 CARBON ACCOUNTING

2.1 Scope and methods

A.3. The ER Program can choose which sources and sinks associated with any of the REDD+ Activities will be accounted for, measured, and reported, and included in the ER Program Reference Level. At a minimum, ER Programs must account for emissions from deforestation. Emissions from forest degradation also shall be accounted for where such emissions are significant.

A 3.1: The ER Program identifies which anthropogenic sources and sinks associated with any of the REDD+ Activities will be accounted for in the ER Program.

A 3.2: The ER Program accounts for emissions from deforestation.

A 3.3: Emissions from forest degradation are accounted for where such emissions are more than 10% of total forest-related emissions in the Accounting Area, during the Reference Period and during the Crediting Period. These emissions are estimated using the best available data (including proxy activities or data²).

A.4. The ER Program shall account for, measure, and report, and include in the ER Program Reference Level, significant Carbon Pools and greenhouse gases, except where their exclusion would underestimate total emission reductions.

A 4.1: The ER Program accounts for all Carbon Pools and greenhouse gases that are significant within the Accounting Area, both for Reference Level setting and Measurement, Monitoring and reporting (MMR).

A 4.2: Carbon Pools and greenhouse gases may be excluded if:

- i. Emissions associated with excluded Carbon Pools and greenhouse gases are collectively estimated to amount to less than 10% of total forest-related emissions in the Accounting Area during the Reference Period; or
- ii. The ER Program can demonstrate that excluding such Carbon Pools and greenhouse gases would underestimate total emission reductions.

A.5 below has been moved to this section. In the Methodological Framework it is part of the section on Reference Levels (criterion 12)

² Proxy activities or data refers to data that is used to replace or provide an approximation of parameters identified in the IPCC guidelines as part of a carbon stock change or gain-loss method. Examples could include survey data, outputs derived from landscape ecology models (for example estimating degradation based on distance from a road or river), and partial statistical data on timber harvesting and regrowth (for example where data on legal timber harvesting is used as a proxy to estimate illegal harvesting)

A.5. The forest definition used for the ER Program follows available guidance from [the Warsaw Framework for REDD+UNFCCC decision 12/CP.17](#).

A 5.1: The definition of forest used ~~in the construction of the Reference Level~~ is specified. If there is a difference between the definition of forest used in the national greenhouse gas inventory or in reporting to other international organizations (including an Forest Reference Emission Level or Forest Reference Level to the UNFCCC) and the definition used in the construction of the Reference Level and Measurement, Monitoring and reporting (MMR) then the ER Program explains how and why the forest definition used in the Reference Level was chosen.³

A.6. The ER Program uses the most recent Intergovernmental Panel on Climate Change (IPCC) guidance and guidelines, as adopted or encouraged by the Conference of the Parties as a basis for estimating forest-related greenhouse gas emissions by sources and removals by sinks⁴.

A 6.1: The ER Program identifies the IPCC methods and other guidance⁵ used to estimate emissions and removals for Reference Level setting and Measurement, Monitoring and reporting (MMR).

A.7. Key data and methods that are sufficiently detailed to enable the reconstruction of the Reference Level, and the reported emissions and removals (e.g., data, methods and assumptions), are documented and made publicly available online. In cases where the country's or ER Program Entity's policies exempt sources of information from being publicly disclosed or shared, the information shall be made available to the third-party Validation and Verification Body (VVB) and a rationale is provided for not making these data publicly available. In these cases, reasonable efforts shall be made to make summary data publicly available to enable reconstruction.

A 7.1: The following methodological steps are made publicly available:

- Forest definition;
- Definition of [land use/land cover classes and](#) classes of forests, (e.g., degraded forest; natural forest; plantation), if applicable;
- Choice of activity data, and pre-processing and processing methods;
- Choice of emission factors and description of their development;
- Estimation of emissions and removals, including accounting approach;
- Disaggregation of emissions by sources and removal by sinks;
- Estimation of accuracy, precision, and/or confidence level, as applicable;
- Discussion of key uncertainties;
- Rationale for adjusting emissions, if applicable;

³ [Annex to decision 12/CP.17UNFCCC SBSTA 12/CP.17AnnexPara.4](#)

⁴ e.g., UNFCCC 4/CP.15

⁵ Guidance may include the guidance notes issued under this FCPF Standard or widely accepted guidance materials such as the GFOI's Methods and Guidance Documentation (MGD).

- Methods and assumptions associated with adjusting emissions, if applicable.

A 7.2: For the following spatial information, maps and/or synthesized data are displayed publicly, and reasonable efforts are made to explain how these were derived from the underlying spatial and other data, and to make key data sets or analyses publicly available:

- Accounting Area
- Activity data (e.g., forest-cover change or transitions between forest categories)
- Emission factors
- Average annual emissions over the Reference Period
- Adjusted emissions
- Any spatial data used to adjust emissions, if applicable.

2.2 Crediting Period, Reporting Period and Reference Level renewal

The criteria below introduce requirements on a crediting period that can be renewed since this was not included in the Methodological Framework. It also introduces requirements for updating of the Reference Level, something that was not part of the FCPF Methodological Framework

A.8. ER Programs shall have a Crediting Period of twenty years. The Crediting Period can be renewed once for another twenty years (for a total period of 40 years).

A 8.1: The start date of the first Crediting Period may begin at a date that is not earlier than [2016] and meets all of the following conditions:

- i. It is not earlier than the date the first ER Program Measure(s) are implemented.
- ii. It is not earlier than the date the Readiness Package (R-package) was endorsed by the FCPF Readiness Fund. For countries that not participated in the FCPF Readiness Fund, this shall be no earlier than when the country had all of the elements referred to in decision 1/CP.16, paragraph 71, in place and this information was available on the Lima REDD+ Information Hub.
- iii. It does not fall within the Reference period.
- iv. It is demonstrated that the ER Program since the start date complies with requirements since the start date on safeguards (section 3), carbon accounting (section 2) and double-counting (section 5) as specified in this document .

A 8.2: If applicable, Aa subsequent Crediting Period shall start on the date following the end date of the previous Crediting Period.

A.9. A Reference Level shall be defined in accordance with the requirements defined in section 2.3 below. A Reference Level shall be valid for a period between four and six years and will therefore be updated on a regular basis during the Crediting Period

A 9.1: ER Programs shall select at the beginning of each Crediting Period at which interval the Reference Level will be updated and this choice will apply for the remainder of the Crediting Period.

A 9.2: The validity of the last Reference Level within the Crediting Period will end with the end of the Crediting Period and if the Crediting Period is renewed, a new Reference Level will need to be defined.

A 9.3: The updated Reference Levels shall be submitted as an annex to the first Monitoring Report following the update.

A.10 below incorporates the FCPF CF guideline on the application of the Methodological Framework Number 3 (On the definition of reporting periods of Emission Reduction Programs)

A.10. A Crediting Period consists of multiple Reporting Periods. The length of a Reporting Period shall be minimum one year and maximum five years. The end date of the last Reporting Period in a Crediting Period shall be the end date of the Crediting Period itself.

A 10.1: ER programs are encouraged to align their Reporting Periods under the FCPF Standard to other international reporting commitments (such as the BUR/BTR under the Paris Agreement)

A 10.2: ER Program are encouraged to propose Crediting Periods, Reporting Periods and periods for the validity of the Reference Levels that are aligned to calendar years (January to December) and that are multiple of one year. In the case an ER Program is not able to align these periods to calendar years, the ER Program shall provide technical reasons to justify this, e.g. availability of earth observation data due to cloud cover, alignment with technical specifications of the National Forest Monitoring System, etc.

A 10.3: In the case an ER Program proposes a Reporting Period which is not multiple of one year, the ER Program will estimate GHG emissions and removals using a Monitoring Period that fully includes the Reporting Period and that is multiple of one year. In that case the ERs will be estimated for the Monitoring Period and ERs attributed to the Reporting period will be allocated pro-rata to the number of months of the Reporting Period.

A.11. ER Programs are encouraged to synchronize the updates of the Reference Level with the Reporting Periods.

A 11.1: If an ER Program has a Reporting Period where different Reference Levels apply, the ER Program shall clearly indicate which Reference Level applies to which part of the Reporting Period, taking into consideration A.10.2 and A.10.3 above. Following A.9.3 above, the updated Reference Level used for part of the Reporting Period will be an Annex to the Monitoring Report covering this Reporting Period.

2.3 Reference Levels

A.12. The development of a Reference Level is informed by the ~~development of a~~ Forest Reference Emission Level or Forest Reference Level ~~for submitted to the UNFCCC for~~ technical assessment.

A 12.1: The Reference Level is expressed in tonnes of carbon dioxide equivalent per year and represents the total emissions and removals from the REDD+ activities, Carbon Pools and GHG gases included in accordance with A.3 and A.4.

A 12.2: The ER Program explains how the development of the Reference Level can inform or is informed by the ~~development of a~~ national Forest Reference Emission Level or Forest Reference Level, and explains the relationship between the Reference Level and ~~any intended submission of a~~ Forest Reference Emission Level(s) or Forest Reference Level(s) submitted to the UNFCCC.

A 12.3: The ER Program explains what steps are intended in order for the Reference Level to achieve consistency with the country's existing or emerging greenhouse gas inventory.

A.13. The Reference Level does not exceed the average annual historical emissions over a Reference Period. The length of the Reference Period is ten years

A 13.1: ~~The end-date for the Reference Period for the first Reference Level is in the year before the start of the first Crediting Period. the most recent date prior to two years before the TAP starts the independent assessment of the draft ER Program Document and for which forest cover data is available to enable IPCC Approach 3. An alternative end date could be allowed only with convincing justification, e.g., to maintain consistency of dates with a Forest Reference Emission Level or Forest Reference Level, other relevant REDD+ programs, national communications, national ER program or climate change strategy. The start date for the Reference Period is about 10 years before the end date. An alternative start date could be allowed only with convincing justification as in Indicator 11.1, and is not more than 15 years before the end date.~~

A 13.2: For all subsequent updated Reference Levels, the end-date for the Reference Period is updated following the validity of the Reference Level as selected under A.9 (for example if under A.9 an ER Program chooses to update the Reference Level every five years, then the end-date of the Reference Period used for the updated Reference Level shall be five years after the end-date of the previous Reference Period).

A.14 below incorporates the FCPF CF guideline on the application of the Methodological Framework Number 1 (On the use of interpolation of data in relation to the Reference Period of an ER program)

A.14. In the event that necessary activity data and emission factors are not available for the end-date and start-date of the Reference Period, ER Programs may estimate activity data or emission factors by interpolation of estimates made before and/or after the required start and end-date of the Reference Period, assuming a linear progression of forest gain or loss.

A 14.1: If interpolation is used the following requirements shall be met:

- i. The effect of such an interpolation on the Reference Level shall be clearly documented;
- ii. It shall be also justified, using secondary data, that the interpolation period does not include any unusual and significant forest loss in terms of forest area or forest carbon emissions and therefore that such interpolation does not lead to an increase in the uncertainty of activity data or emission factors;
- iii. It shall be demonstrated that methods to estimate emissions outside the Reference Period are consistent with the methods used to estimate emissions within the Reference Period.

A.15. For any ER Program, the Reference Level may be adjusted downward. If the available data from the National Forest Monitoring System used in the construction of the Reference Level shows a clear downward trend, this shall be taken into account in the construction of the Reference Level.

A.16. For a limited set of ER Programs, the Reference Level may be adjusted upward by a limited amount above average annual historical emissions.

A 16.1: The Reference Level may be adjusted upward above average annual historical emissions if the ER Program can demonstrate that the following eligibility requirements are met:

- i. Long-term historical annual deforestation has been ~~{minimal}~~ [$<0.22\%$ on average during the Reference Period] across the entirety of the country, and the country has ~~{high forest cover}~~ [$>50\%$ national forest cover⁶ at the beginning of the period over which the Reference Level is valid (as selected under A.9).]
- ii. National circumstances have changed such that rates of deforestation and forest degradation during the historical Reference Period likely underestimate future rates of deforestation and forest degradation during the period over which the Reference Level is valid (as selected under A.9) ~~the Crediting Period~~.

A 16.2: For countries meeting the eligibility requirements in A 16.1, a Reference Level could be adjusted above the average historical emission rate over the Reference Period. Such an adjustment is credibly justified on the basis of expected emissions that would result from documented changes in ER Program circumstances, evident before the end-date of the Reference Period, but the effects of which were not fully reflected in the average annual historical emissions during the Reference Period. Proposed adjustments may be rejected for reasons including, but not limited to:

⁶ These threshold values are taken from annex 2 of the Krutu of Paramaribo Joint Declaration on HFLD Climate Finance Mobilization

- i. The basis for adjustments is not documented⁷; or
- ii. Adjustments are not quantifiable.

A 16.3: An adjustment of the Reference Level above the average annual historical emissions during the Reference Period may not exceed 0.1%/year of Carbon Stocks.

A.17. An updated Reference Level shall not be higher than the previous one. If an updated Reference Level is higher (i.e., represents higher net emissions than the previous Reference Level), the values of the previous one shall be used. An updated Reference Level shall only be higher than the previous one where it can be demonstrated that this is due to the inclusion of new activities, pools or gases.

2.4 Measurement, Monitoring and Reporting

A.18. Robust Forest Monitoring Systems provide data and information that are transparent, consistent over time, and are suitable for measuring, reporting and verifying emissions by sources and removals by sinks for the proposed Accounting Area.

A 18.1: The ER Program monitors the emissions by sources and removals by sinks included in the ER Program's scope for the proposed Accounting Area, using the same methods or demonstrably equivalent methods⁸ to those used to set the Reference Level.

A 18.2: Activity data for deforestation ~~are determined periodically, at least twice during the Crediting Period, and allow for ERs to be estimated from the Crediting Period Start Date. Deforestation is determined~~ based on IPCC Approach 3 (spatially explicit land use conversion data)⁹. Other sinks and sources such as those associated with degradation may be determined using indirect, non-spatially explicit, methods if no spatially explicit methods are available.

A 18.3: Emission factors or the methods to determine them are the same for Reference Level setting and for Monitoring, or are demonstrably equivalent. IPCC Tier 2¹⁰ or higher methods are used to establish emission factors, and the uncertainty for each emission factor is documented. IPCC Tier 1 methods¹¹ may be considered in exceptional cases where no national or regional data are available and the factors are used to estimate

⁷ Meaning that there is no documentation or the existing documentation insufficiently shows that the expected emissions were evident before the end-date of the Reference Period, but that the effect of these emissions was not fully reflected in the average annual historical emissions

⁸ Equivalent methods means that the methods used for the Reference Level and MMR allow for a comparison between the emissions and removals under the Reference Level and during MMR and that changes observed between the Reference Level and MRR do not result from a change in methods used

⁹ Approach 3 is characterized by spatially explicit observations of land-use categories and land-use conversions, often tracking patterns at specific point locations and/or using gridded map products, such as derived from remote sensing imagery. The data may be obtained by various sampling, wall-to-wall mapping techniques, or combination of the two methods.

¹⁰ Tier 2 methods apply emission factors and activity data which are defined by the host country for the most important land uses or activities and are more appropriate for the climatic regions and land use systems in that country. Higher resolution activity data are typically used in Tier 2 to correspond with country-defined coefficients for specific regions and specialised land-use categories.

¹¹ Tier 1 refers to the use of the basic method and the default emission factors provided in the IPCC Guidelines (Workbook and Reference Manual). Tier 1 methodologies usually use activity data that are spatially coarse, such as national or global deforestation rates, agricultural production statistics, and global land cover maps.

emissions or removals from sources and sinks that are small (less than 5% of emissions or removals).

A.19. ER Programs apply technical specifications of the National Forest Monitoring System where possible.

A 19.1: ER Programs Entities articulate how the Forest Monitoring System fits into the existing or emerging National Forest Monitoring System, and provides a rationale for alternative technical design where applicable.

A.20. Community participation in Monitoring and reporting is encouraged and used where appropriate.

A 20.1: The ER Program demonstrates that it has explored opportunities for community participation in Monitoring and reporting, e.g., of ER Program Measures, activity data, emission factors, safeguards and Non-Carbon Benefits, and encourages such community participation where appropriate.

2.5 Uncertainties

This section incorporates parts of criteria 7-9 of the Methodological Framework and the FCPF CF guideline on the application of the Methodological Framework Number 4 (On Uncertainty Analysis of Emission Reductions)

A.21. Sources of uncertainty are systematically identified and assessed ~~in Reference Level setting and Measurement, Monitoring and reporting.~~

A 21.1: All assumptions and sources of uncertainty associated with Activity Data, Emission Factors and calculation methods that contribute to uncertainty of the estimates of emissions and removals are identified. For this, the ER Program shall identify and discuss in qualitative terms the main source(s) of uncertainty, systematic or random, and shall conclude whether the contribution of each individual source to total uncertainty of Emission Reductions is high¹² or low¹³.

A 21.2: Annex 1 provides a list of the main source(s) of uncertainty that, at minimum, shall be evaluated qualitatively by the ER Program, together with an indication on whether their contribution to overall uncertainty is typically high or low and whether

¹² It is important to note that the contribution of source(s) of error to total uncertainty relates to ERs, not GHG emissions, so the implications of different parameters may vary as certain parameters may be fully correlated between the Reference Level and the monitoring having little impact on Uncertainty of ERs For instance, usually Emission Factors are the same for RL setting and GHG monitoring, Emission Reductions can be expressed as the difference in the activity data in the Reference Period and the Monitoring Period multiplied by the Emission Factor (i.e. $\propto (AD_{RL} - AD_{Monitoring})$).

¹³ See Chapter 5 GFOI (Integration of remote-sensing and ground-based observations for estimation of emissions and removals of greenhouse gases in forests) for further guidance.

they are systematic or random in nature.¹⁴ If a ER Program decides to deviate from the indication, this shall be duly justified

A.22. The ER Program, to the extent feasible, follows a process of managing and reducing uncertainty of activity data and emission factors used in Reference Level setting and Measurement, Monitoring and reporting.

A 22.1: The ER Program shall discuss the measures that have been implemented to manage and reduce the sources of uncertainty. Source(s) of uncertainty with a high contribution to the overall uncertainty shall always be managed and reduced by the ER Program.

- i. Systematic errors are minimized through the implementation of a consistent and comprehensive set of standard operating procedures, including a set of quality assessment and quality control processes that work within the local circumstances of the ER Program.
- ii. Random errors and other uncertainties are minimized to the extent practical based on the assessment of their relative contribution to the overall uncertainty of the emissions and removals.

A 22.2: If errors cannot be reduced further, the conservativeness principle shall apply. For instance, a systematic error that causes an underestimation of the Emission Factor will always lead to an underestimation of Emission Reductions. ER Programs may use conservative approaches in order to address systematic errors that are not practical to be further minimized.

The final objective of the Uncertainty Analysis is to provide an estimate of uncertainty of Emission Reductions. In the FCPF Methodological Framework this wasn't immediately clear and the uncertainty of the ERs was mentioned in indicator 9.2. A.23 below has been separated to make this more prominent

A.23. The Uncertainty Analysis shall provide an estimate of uncertainty of Emission Reductions in the form of the relative half-width confidence interval¹⁵ at the 90% confidence level.

A 23.1: ER Programs shall apply Monte Carlo methods (IPCC Approach 2¹⁶) for quantifying the Uncertainty of the Emission Reductions. All the source(s) of uncertainty identified through requirement A.21 shall be propagated.

¹⁴ It is assumed that the ER Program has applied sampling approach to derive activity data and emission factors. It is important that the "meta-uncertainty" is also considered, this is that we are also uncertain about our uncertainty, and that we can reduce both (that is, estimate can become more certain, as can our estimate of its uncertainty). Meta-uncertainty should not be assumed to be zero and it should be discussed what are the underlying uncertainties.

¹⁵ Also known as the relative margin of error.

¹⁶ 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Volume 1, Chapter 3, Section 3.2).

A 23.2: The Monte Carlo method shall be capable of handling correlation between input variables either through variance-covariance matrices (if these exists) or by ensuring that parameters used in both setting the Reference Level and during Monitoring are only propagated once (i.e. same carbon fraction does not appear as a parameter under the reference level and the monitored estimates).

A 23.3: ER Programs shall report transparently the parameters that are subject to the Monte Carlo simulation, the type of Probability Distribution Function (PDF) including its parameters and the source of assumptions made. When the parameter is based on sample data, Bootstrap methods may be applied in substitution of the PDF definition.

A 23.4: Any PDF used shall be well justified and shall adhere to the guidance provided in Section 3.2.2.4 of Chapter 3, Volume 1 of the 2006 IPCC Guidelines (and its 2019 refinement). The use of expert elicitation in the definition of the PDF shall follow the provisions of Section 3.2.1.3 and 3.2.2.3 of Volume 1, Chapter 3 of the 2006 IPCC GL. Experts involved in expert elicitation shall be scientists, researchers or technicians who have relevant experience in the applicable ecosystems and domain within the REDD Country. The ER Program shall provide in the ER-Monitoring Report relevant information on the expert judgement as described in Page 3.41 Volume 1, Chapter 3 of the 2006 IPCC GL.

A 23.5: Uncertainty of Emissions Reductions associated with deforestation, forest degradation and enhancements are reported separately if measured through separate (i.e., non-integrated) approaches and when degradation is estimated using proxy data.

A 23.6: ER Programs that use proxies¹⁷ to estimate GHG emissions from forest degradation shall report the uncertainty of ERs separately for forest degradation and for the aggregate of the other activities. Results of the simulation shall be reported transparently in the applicable table of the ER-Monitoring Report.

A.24. ER Programs Entities shall carry out a sensitivity analysis to identify the relative contribution¹⁸ of each parameter to the overall uncertainty of Emission Reductions.

A 24.1: Sensitivity analysis is conducted by switching off each source of uncertainty at a time and assessing the impact to overall uncertainty of Emission Reductions.

A 24.2: Where individual source(s) of uncertainty are found to contribute significantly to a high overall uncertainty of the ER, ER Programs Entities should consider reducing the uncertainty by improving methods, collecting additional or new data, etc. in the next monitoring event.

A 24.3: ER Program Entities shall maintain a reproduceable record of the sensitivity analysis so that it provides enough information for improvements in future monitoring events.

¹⁷ Defined as “An indirect quantitative measure that approximates or represents activities in the ISFL ER Program Area in the absence of direct activity data that is consistent with IPCC guidelines”. Under the FCPF this refers to methods that use logging volumes for estimation GHG emissions.

¹⁸ Relative contributions refer only to uncertainty estimates rather than contributions of systematic errors

2.6 Accounting for Displacement (Leakage)

A.25. The ER Program is designed and implemented to prevent and minimize potential Displacement.

A 25.1: Deforestation and degradation drivers that may be impacted by the proposed ER Program Measures are identified (including those that could potentially cause ~~Displacement~~ through ~~mMarket Effects~~¹⁹), and their associated risk for Displacement is assessed, as well as possible risk mitigation strategies. This assessment categorizes Displacement risks as high, medium or low.

A 25.2: The ER Program has in place an effective strategy to mitigate and/or minimize, to the extent possible, potential Displacement, prioritizing key sources of Displacement risk. This strategy should be detailed as part of the Emission Reduction Program Document (ERPD), identifying and describing the specific measures planned to address each potential leakage risk and explaining how each one of them is expected to prevent leakage. The strategy should be updated at minimum as needed when the Reference Level is updated, and any changes shall be described in the corresponding Monitoring Reports.

A 25.3: By the time of verification, the ER Program has implemented its strategy to mitigate and/or minimize potential Displacement.

~~ER Programs are also invited to report on changes in major drivers in the ER Accounting Area, any Displacement risks associated with those drivers, and any lessons from the ER Programs' efforts to mitigate potential Displacement~~

2.7 Accounting for Reversals (Non-permanence)

This section has been changed. It now incorporates (parts of) the updated FCPF Buffer Guidelines. In addition, the requirements that were related to what would happen at the end of the Carbon Fund have been deleted or replaced. In addition, in the Buffer Guidelines of the FCPF Carbon Fund, half of the Default Risk percentage of 10%) shall be deposited as Buffer ERs into the Pooled Reversal Buffer account while the remainder of the Actual Reversal Risk Set-Aside Percentage shall be deposited as Buffer ERs into the Reversal Buffer account of the specific ER Program. Following the revised Buffer guidelines, all the Buffer ERs would be pooled to strengthen the use of the buffer. Therefore, the references to the pooled buffer have been removed.

A.26. The ER Program is designed and implemented to prevent and minimize the risk of Reversals and address the long-term sustainability of ERs.

A 26.1: The ER Program Entity has undertaken an assessment of the anthropogenic and natural risk of Reversals that might affect ERs generated during the Crediting Period. ~~and has assessed, as feasible, the potential risk of Reversals after the end of the Crediting Period.~~

¹⁹ See glossary

A 26.2: The ER Program Entity demonstrates how effective ER Program design and implementation will mitigate significant risks of Reversals identified in the assessment to the extent possible, and will address the sustainability of ERs, both during the Crediting Period, and beyond the Crediting Period.

A.27. The ER Program accounts for Reversals from ERs generated during the Crediting Period.

A 27.1: A certain quantity of ERs out of the Total ERs shall be allocated as Buffer ERs to the pooled Reversal Buffer to help manage the Reversal Risk.

A 27.2: This quantity is calculated following each Reporting Period as a percentage of the Total ERs for that Reporting Period minus the quantity of ERs allocated to the Uncertainty Buffer for that Reporting Period.

A 27.3: The percentage of ERs to be set aside in the pooled Reversal Buffer shall be determined in accordance with the Reversal Risk assessment tool in table 1 below.

A 27.4: The Reversal Risk assessment tool in table 1 shall be used to determine the Reversal Risk Set-Aside Percentages for each of the Risk Factors listed in the first column of the table. The full Reversal Risk Set-Aside Percentage for the whole ER Program is calculated as the sum of the Reversal Risk Set-Aside Percentages for each of the Risk Factors.

A 27.5: The Risk Indicators in the second column of table 1 below are provided to assess the Reversal Risk for each of the Risk Factors following the guidelines provided in Annex 2.

A 27.6: The Reversal Risk is assessed for each Risk Factor (A-D) separately as high, medium or low.

A 27.7: Based on the default Reversal Risk Set-Aside Percentage (table 1, column 3) and depending on the classification of the Reversal Risk for each Risk Factor (A-D) and the corresponding incremental discount (table 1, column 4), the resulting Reversal Risk Set-Aside Percentage shall be determined.

A 27.8: The quantity of ERs out of the Total ERs represented by the actual Reversal Risk Set-Aside Percentage, as determined in accordance with Table 1, shall be deposited as Buffer ERs into the Pooled Reversal Buffer account.

Table 1. Determination of Reversal Risk Set-Aside Percentage

Risk Factors	Examples of Risk Indicators	Default Reversal Risk Set-Aside Percentage	Discount (increment)	Resulting Reversal Risk Set-Aside Percentage
Default risk	<ul style="list-style-type: none"> Not applicable, fixed minimum amount 	10%	Not applicable	10%

A. Lack of broad and sustained stakeholder support	<ul style="list-style-type: none"> Are stakeholders aware of, and/or have positive experience with FGRM, benefit sharing plans etc. or similar instruments in other contexts? Have occurrences of conflicts over land and resources been addressed? 	10%	Reversal Risk is considered high: 0% discount; OR	10%
			Reversal Risk is considered medium: 5% discount; OR	5%
			Reversal Risk is considered low: 10% discount	0%
B. Lack of institutional capacities and/or ineffective vertical/cross sectoral coordination	<ul style="list-style-type: none"> Is there a track record of key institutions in implementing programs and policies? Is there experience of cross-sectoral cooperation? Is there experience of collaboration between different levels of government? 	10%	Reversal Risk is considered high: 0% discount; OR	10%
			Reversal Risk is considered medium: 5% discount; OR	5%
			Reversal Risk is considered low: 10% discount	0%
C. Lack of long term effectiveness in addressing underlying drivers	<ul style="list-style-type: none"> Is there experience in decoupling deforestation and degradation from economic activities? Is relevant legal and regulatory environment conducive to REDD+ objectives? 	5%	Reversal Risk is considered high: 0% discount; OR	5%
			Reversal Risk is considered medium: 2% discount; OR	3%
			Reversal Risk is considered low: 5% discount	0%
D. Exposure and vulnerability to natural disturbances	<ul style="list-style-type: none"> Is the Accounting Area vulnerable to fire, storms, droughts, etc? 	510%	Reversal Risk is considered high: 0% discount; OR	510%

	<ul style="list-style-type: none"> Are there capacities and experiences in effectively preventing natural disturbances or mitigating² their impacts? 	Reversal Risk is considered medium: 2% discount; OR	<u>83%</u>
		Reversal Risk is considered low: 5% discount	<u>50%</u>
Actual Reversal Risk Set-Aside Percentage: 10+(Result A+ Result B+ Result C+ Result D) = 10 to <u>450%</u>			

A.28. If a Reversal occurs, then Buffer ERs shall be cancelled from the pooled Reversal Buffer to compensate for the Reversal. [Where the reversal exceeds the amount of cumulative buffer ERs that the ER Program has contributed to the Pooled Reversal Buffer, ERs from the ER Program’s Uncertainty Buffer shall be cancelled to compensate for the remaining reversal. If the amount of ERs in the Uncertainty Buffer does not suffice to fully address the reversal, then Pooled Reversal Buffer ERs should be cancelled until the reversal is fully compensated.](#)

A 28.1: The quantity of Buffer ERs ~~cancel~~cancelled from the Pooled Reversal Buffer account [\(and the Uncertainty Buffer, if needed\)](#) shall be equal to the difference between the cumulative ERs up to the year before the Reversal took place and the cumulative ERs in the year of the Reversal, noting that this quantity should be limited to the sum of transferrable ERs²⁰ generated in previous Reporting Periods plus the cumulative contributions to the Pooled Reversal Buffer and the Uncertainty Buffer by the ER Program up to the moment of the Reversal. Therefore, the quantity of Buffer ERs affected by the Reversal shall be calculated as follows:

$$R_c = T_{t-1} - T_t \text{ and } R_c \leq C + B + U + RP^{21}$$

Where:

- R_c = Quantity of Buffer ERs canceled from the Reversal Buffer account
- T_{t-1} = Cumulative quantity of Total ERs estimated for prior Reporting Periods (as an aggregate of ERs accumulated since the Crediting Period Start Date)
- T_t = Cumulative quantity of Total ERs estimated including the current Reporting Period (as an aggregate of ERs accumulated since the Crediting Period Start Date)
- C = Cumulative quantity of transferable ERs estimated including the current Reporting Period (as an aggregate of transferable ERs accumulated since the Crediting Period Start Date)

²⁰ Transferrable ERs are equal to Total ERs minus the set aside Buffer ERs (including uncertainty and reversal buffer ERs).

²¹ R_c cannot be higher than the sum of cumulative transferable ERs and cumulative buffer contributions (to both the Pooled Reversal Buffer and the Uncertainty Buffer) [and the Pooled Reversal Buffer replenishments](#), up to T_t because the potential for reversals is limited to the amount of cumulative verified ERs produced up to that period. Where the difference between T_{t-1} and T_t exceeds that level, excess emissions should be considered as non-performance instead of as reversals. The rationale for this is that only the verified ERs (i.e., those transferable and the ones deposited/[replenished](#) in the buffers) are susceptible of being reversed, and therefore the “reversal liability” of the ER Program in case of a reversal should be limited to the volume of ERs it has generated up to the moment the reversal event took place.

- B = Cumulative ER Program's Pooled Reversal Buffer contributions estimated including the current Reporting Period (as an aggregate of Pooled Reversal Buffer ERs accumulated since the Crediting Period Start Date)
- U = Cumulative ER Program's Uncertainty Buffer contributions estimated including the current Reporting Period (as an aggregate of Uncertainty Buffer ERs accumulated since the Crediting Period Start Date)
- RP = Cumulative ER Program's Pooled Reversal Buffer replenishments estimated including the current Reporting Period (as an aggregate of Reversal Buffer ERs replenished since the Crediting Period Start Date)

A 28.2: Buffer ERs shall be ~~cancelled~~cancelled by removing them from the Reversal Buffer, and permanently retiring their associated serial numbers.

A.29. ERs from the Pooled Reversal Buffer cancelled as a consequence of a Reversal need to be replenished by the ER Program before the end of its Crediting Period. In order to do so, all the ERs subsequently generated by the ER Program shall be transferred to the Pooled Reversal Buffer until at least 50% of the Program's deficit (including, if applicable, any subsequent Reversals) has been covered. After this level has been reached, the ER Program may transfer up to 30% of the ERs generated, while the remaining amount shall be used to cover the rest of the Program's debt with the Pooled Reversal Buffer until it is fully replenished. If the Reversal takes place within the last ~~two~~ five -years of the Crediting Period, or if it represents more than half of the cumulative Pooled Reversal Risk Buffer contribution by the ER Program, the ER Program shall not be able to transfer any ERs generated subsequently until it has fully replenished the amount of cancelled Pooled Reversal Buffer ERs resulting from such (and any subsequent) Reversal. It must be noted that ERs generated subsequently to a reversal that are used to replenish the Pooled Reversal Buffer shall not be subject to the contribution to the Uncertainty Buffer set out in Ssection A402.8 below.

A.30. Reversal Risk assessments in subsequent Reporting Periods may, in accordance with Table 1 above, determine a reduced risk exposure than was determined after the previous Reporting Period (e.g., from high to medium risk or from medium to low risk). Such reduced risk exposure shall reduce the required actual set-aside percentage for Reversal Risks and allow for a release of a corresponding amount of Buffer ERs from the pooled Reversal Buffer.

A.31. If the Reversal Risk Set-Aside Percentages are increased, the amount of ERs in the pooled Reversal Buffer shall be determined in accordance with A.27.

A.32. If the required amount of Buffer ERs set aside in the pooled Reversal Buffer for the current Reporting Period was reduced below the required amount of Buffer ERs set aside in prior Reporting Periods, then Buffer ERs shall be released from the pooled

Reversal Buffer in an amount equal to the difference of such required amounts of Buffer ERs. Buffer ERs shall only be released if the ER Program has completely replenished any Pooled Reversal Buffer deficits in accordance with A.29. The quantity of Buffer ERs to be released from the pooled Reversal Buffer shall be determined using the following formula:

$$Q_r = (R_{t-1} - R_t) \times N_{t-1}$$

Where:

- Q_r = The quantity of Buffer ERs to be released from the pooled Reversal Buffer account
- R_{t-1} = The actual set-aside percentage for the pooled Reversal Buffer applied to all Reporting Periods prior to the current Reporting Period ²²
- R_t = The actual set-aside percentage for the pooled Reversal Buffer applicable to the current Reporting Period
- N_{t-1} = The cumulative total of Transferrable ERs for all Reporting Periods prior to the current Reporting Period

If Q_r is greater than the number of Buffer ERs that the ER Program contributed to the Reversal Buffer, then the quantity of Buffer ERs remaining in the Reversal Buffer may be released.

A.33. The required set aside for the current Reporting Period is calculated following the requirements in this section. The respective quantity of Buffer ERs is transferred to the pooled Reversal Buffer after the quantity of Buffer ERs to be released were transferred out of the pooled Reversal Buffer.

A.34. ~~The Buffer Manager shall, prior to the end of the last Crediting Period, cancel a portion of the Buffer ERs remaining in the Pooled Reversal Buffer account shall be cancelled in the ER Transaction Registry. This portion shall be {equivalent to the ER Program's proportional share of any amount of Buffer ERs in the Pooled Reversal Buffer remaining at the end of the ER Program's last Crediting Period, but not exceeding the ER Program's original contribution}.~~

A.35. Buffer ERs shall be canceled by removing them from the Pooled Reversal Buffer account and permanently retiring their associated serial numbers.

2.8 Accounting for Uncertainty

In the FCPF Methodological Framework, the uncertainty set aside was integrated in criterion 22. Here a new subsection is created that extracts the calculation from Criterion 22 and combines it with relevant sections of the FCPF Buffer Guidelines.

²² Because the set-aside percentage is updated and retroactively applied each Reporting Period, the same percentage shall apply to all prior Reporting Periods.

A.34.A.36. Uncertainty of Emission Reductions associated with deforestation, forest degradation and enhancements are reported separately if measured through separate (i.e., non-integrated) approaches and when degradation is estimated using proxy data. If non-integrated approaches are used, separate quantities shall be determined for the portion of Total ERs that resulted from avoided deforestation, avoided forest degradation and enhancements, respectively.

A.35.A.37. The quantity of Total ERs associated with reduced emissions from deforestation and with enhancements shall be multiplied by the appropriate “conservativeness factor” for the aggregate uncertainty of the estimate for Total ERs, as presented in the following Table 2. If an integrated approach is used to measure deforestation, forest degradation and/or enhancements together, the conservativeness factor is applied to the Total ERs only if spatially-explicit activity data (IPCC Approach 3) and high-quality emission factors (IPCC Tier 2) were used in their calculation. Otherwise, as a default, requirement A.38 applies.

Table 2. Quantification Uncertainty Conservativeness Factors

Aggregate Uncertainty of Total ERs	Conservativeness Factor
≤ 15%	0%
> 15% and ≤ 30%	4%
> 30% and ≤ 60%	8%
> 60% and ≤ 100%	12%
> 100%	15%

A.36.A.38. If forest degradation is measured through a separate approach using proxy-based approaches, a general conservativeness factor of 15% is applied to the Total ERs associated with forest degradation.

A.37.A.39. The portion of Total ERs allocated as Buffer ERs to the Uncertainty Buffer shall be equal to the sum of the two amounts calculated from A.37 and A.38.

A.38.A.40. An ER Program may improve its MRV system, including data sampling or measurement techniques, such that the Uncertainty of Total ERs is reduced and the ER Program qualifies for a lower conservativeness factor, as indicated in Table 22 (above).

A.39.A.41. Also, improved data sampling or measurement techniques shall be used to update estimates for prior Reporting Periods. If such updates result in a lower estimate of Total ERs for prior Reporting Periods, A.42 applies. If such updates result in a higher estimate of Total ERs for prior Reporting Periods, A.43 applies.

A.40.A.42. If updates result in a lower estimate of Total ERs for prior Reporting Periods, ERs need to be cancelled from the Uncertainty Buffer. Then:

- a) The quantity of Uncertainty Buffer ERs to be canceled shall be calculated using the following formula:

$$Q_c = G_{t-1} - G_{t-1 \text{ updated}}$$

Where:

- Q_c = The quantity of Uncertainty Buffer ERs to be canceled
- G_{t-1} = The original estimate of Total ERs for the prior Reporting Periods as estimated in the respective monitoring report(s)
- $G_{t-1 \text{ updated}}$ = The updated estimate of Total ERs for the prior Reporting Periods, based on the improved measurements

Updated estimates shall only affect Buffer ERs already deposited in the Uncertainty Buffer in prior Reporting Periods. Therefore, if Q_c is greater than the remaining Buffer ERs in the Uncertainty Buffer from prior Reporting Periods, then the Buffer Manager shall only cancel all Buffer ERs in the Uncertainty Buffer from prior Reporting Periods and permanently retire their associated serial numbers.

- b) If the updated estimates for prior Reporting Periods show the same or a higher uncertainty, no further action is required. If the updated estimates for prior Reporting Periods can be produced such that the Uncertainty of Total ERs is reduced and a lower conservativeness factor applies as indicated in [Table 2-Table 22](#), Buffer ERs can potentially be released. The potential quantity of Uncertainty Buffer ERs to be released is calculated as follows:

$$Q_R = D_{t-1} - Q_c - (G_{t-1 \text{ updated}} * CF_t)$$

Where:

- Q_R = The quantity of Uncertainty Buffer ERs to be released
- D_{t-1} = The remaining Buffer ERs in the Uncertainty Buffer from prior Reporting Periods
- Q_c = The quantity of Uncertainty Buffer ERs to be canceled
- $G_{t-1 \text{ updated}}$ = The updated cumulative estimate of Total ERs for the prior Reporting Periods, based on the improved measurements
- CF_t = The revised conservativeness factor, after improvements in measurements and respective reduction in uncertainty

If Q_R is positive then the Buffer Manager may release ERs from the Uncertainty Buffer equivalent to Q_R . If Q_R is negative then no Uncertainty Buffer ERs can be released for prior Reporting Periods.

A.41-A.43. If updates result in an equal or higher estimate of Total ERs for prior Reporting Periods, then:

- a) The requirements in this section shall be followed to determine a new quantity of Total ERs for the prior Reporting Periods, as well as revised quantities for allocations to the Uncertainty Buffer and the Reversal Buffer (following the requirements in section 2.7).
- b) If the revised quantity of required allocations to the Uncertainty Buffer for the prior Reporting Periods is greater than the original allocation, then additional ERs shall be allocated to the Uncertainty Buffer to make up the difference.
- c) If the revised quantity of required allocations to the Uncertainty Buffer for the prior Reporting Periods is less than the original allocation, then the Buffer Manager may release ERs from the Uncertainty Buffer. The quantity to be released shall be equal to the difference between the original and revised allocation requirements.
- d) Additional allocations of ERs to the Reversal Buffer shall be made as necessary, following Section 2.7.

A.42-A.44. In addition to determining the quantity of ERs to allocate to the Uncertainty Buffer for each Reporting Period, ER Programs shall calculate the uncertainty of the total Emission Reductions achieved cumulatively at the end of the validity period of the Reference Level as defined in accordance with A.9. This reported cumulative uncertainty shall be used to recalculate the quantity of ERs to allocate to the Uncertainty Buffer.

A 42.1:A 44.1: If such a recalculation finds that the quantity of ERs to allocate to the Uncertainty Buffer based on the validity period of the Reference Level is lower than the cumulative quantity of ERs already allocated to the Uncertainty Buffer during all the Reporting Periods that cover this validity period, then the Buffer Manager shall release ERs equal to the difference between the two from the Uncertainty Buffer. This amount shall be multiplied by the Actual Reversal Risk Set-Aside Percentage, as determined in accordance with Table 2 above, and the resulting number of ERs shall be deposited as Buffer ERs into the Pooled Reversal Buffer account. The remaining shall be transferred to the ER Program's account. Uncertainty Buffer ERs shall only be released if the ER Program has completely replenished any Pooled Reversal Buffer deficits in accordance with A.29.

A 42.2:A 44.2: If such a recalculation finds that the quantity of ERs to allocate to the Uncertainty Buffer based on the ~~validity~~ validity period of the Reference Level is higher than the cumulative quantity of ERs already allocated to the Uncertainty Buffer during all the Reporting Periods that cover this validity period, then additional ERs shall be allocated to the Uncertainty Buffer to make up the difference.

A 42.3:A 44.3: In accordance with A.11, ER Programs are encouraged to synchronize the updates of the Reference Level with the Reporting Periods. If this is not the case, the calculation of the uncertainty of the cumulatively total Emission Reductions achieved shall occur based using the cumulative total Emission Reductions over all the Reporting Periods that together include the validity period of the Reference Level.

A.43-A.45. At the end of the Crediting Period, or if the Crediting Period is renewed at the end of the renewed Crediting Period, all ERs remaining in the Uncertainty Buffer will be cancelled.

2.9 Calculation of ERs

~~A.44-A.46.~~ To prevent double-counting, ERs generated under the ER Program shall not be counted or compensated for more than once. Any reported and verified ERs generated under the ER Program and sold and/or transferred under an ERPA shall not only be sold, offered or otherwise used or reported once. a second time by the ER Program Entity. Any reported and verified ERs generated under the ER Program that have been sold and/or transferred, offered or otherwise used or reported once by the ER Program Entity shall not be sold and transferred to the Carbon Fund

~~A.45-A.47.~~ Net ERs are calculated by the following steps:

- i. Subtract the reported and verified emissions and removals from the Reference Level
- ii. Subtract any ERs for which the ability to transfer Title to ERs is unclear or contested (A.58) or which have been sold, offered or otherwise used under another GHG program.
- iii. Set aside in a buffer reserve a number of ERs to reflect the level of uncertainty associated with the estimation of ERs generated during the Crediting Period as calculated in section 2.8
- iv. Set aside a number of ERs ~~in the ER Program CF Buffer~~ to address Reversals as calculated in section 2.7.

3 SAFEGUARDS

~~A.46.A.48.~~ The ER Program meets the World Bank social and environmental safeguards standards and promotes and supports the safeguards included in UNFCCC Warsaw Framework for guidance related to REDD+.

~~A 46.1:A 48.1:~~ The ER Program demonstrates through its design and implementation how it meets relevant World Bank social and environmental safeguards standards, and promotes and supports the safeguards included in UNFCCC Warsaw Framework for guidance related to REDD+, by paying particular attention to Decision 1/CP.16 and its Appendix I as adopted by the UNFCCC.

~~A 46.2:A 48.2:~~ Safeguards Plans address social and environmental issues and include related risk mitigation measures identified during the national REDD+ readiness process, e.g., in the SESA process and the ESMF, that are relevant for the specific ER Program context (e.g., land tenure issues), taking into account relevant existing institutional and regulatory frameworks. The Safeguards Plans are prepared concurrently with the ER Program Document, and are publicly disclosed in a manner and language appropriate for the affected stakeholders.

~~A.47.A.49.~~ Information is provided on how the ER Program meets the World Bank social and environmental safeguards standards and addresses and respects the safeguards included in UNFCCC Warsaw Framework for guidance related to REDD+, during ER Program implementation.

~~A 47.1:A 49.1:~~ Appropriate monitoring arrangements for safeguards referred to in A.46 are included in the Safeguards Plans.

~~A 47.2:A 49.2:~~ During ER Program implementation, information on the implementation of Safeguards Plans is included in an annex to each ER monitoring report and interim progress report. This information is publicly disclosed, and the ER Program is encouraged to make this information available to relevant stakeholders. This information is also made available as an input to the national systems for providing information on how safeguards are addressed and respected (SIS)²³ required by the UNFCCC Warsaw Framework for guidance related to REDD+, as appropriate.

~~A.48.A.50.~~ An appropriate Feedback and Grievance Redress Mechanism (FGRM) developed during the Readiness phase or otherwise exist(s), building on existing institutions, regulatory frameworks, mechanisms and capacity.

~~A 48.1:A 50.1:~~ An assessment of existing FGRM, including any applicable customary FGRMs, is conducted and is made public. The FGRM applicable to the ER Program demonstrates the following:

²³ The abbreviation "SIS" is used to describe a national system for providing information on how the Cancun safeguards are addressed and respected, as contained in UNFCCC Decision 12/CP.17 Warsaw Framework for REDD+.

- i. Legitimacy, accessibility, predictability, fairness, rights compatibility, transparency, and capability to address a range of grievances, including those related to benefit-sharing arrangements for the ER Program;
- ii. Access to adequate expertise and resources for the operation of the FGRM.

~~A 48.2:~~ **A 50.2:** The description of FGRM procedures, included in the Benefit-Sharing Plan and/or relevant Safeguards Plans, specifies the process to be followed to receive, screen, address, monitor, and report feedback on, grievances or concerns submitted by affected stakeholders. As relevant, the Benefit-Sharing Plan and/or relevant Safeguards Plans and/or ER Program Document describe the relationship among FGRM(s) at the local, ER Program, and national levels.

~~A 48.3:~~ **A 50.3:** If found necessary in the assessment mentioned in A.50.1, a plan is developed to improve the FGRM.

4 SUSTAINABLE PROGRAM DESIGN AND IMPLEMENTATION

4.1 Drivers and Land and Resource Tenure Assessments

~~A.49.A.51.~~ The ER Program describes how the ER Program addresses key drivers of deforestation and degradation.

~~A.49.1:A 51.1:~~ The ER Program identifies the key drivers of deforestation and degradation, and potentially opportunities for forest enhancement.

~~A.49.2:A 51.2:~~ The ER Program identifies currently planned ER Program Measures and how they address the key drivers identified, and the entities that would undertake them.

Criterion 28 of the FCPF Methodological Framework was building on the land tenure assessment done as part of the FCPF Readiness work. Since the FCPF Standard might be applied by countries that were not part of the FCPF, the language in A.52 below has been broadened

~~A.50.A.52.~~ The ER Program has undertaken and made publicly available an assessment of the land and resource tenure regimes present in the Accounting Area.

~~A.50.1:A 52.1:~~ The ER Program reviews ~~the assessment of land and resource tenure regimes carried out during the readiness phase at the national level (i.e., SESA) earlier assessments of land and resource tenure regimes already carried out and, if necessary,~~ supplements this assessment by undertaking an additional assessment of any issues related to land and resource tenure regimes in the Accounting Area that are critical to the successful implementation of the ER Program, including:

- i. The range of land and resource tenure rights (including legal and customary rights of use, access, management, ownership, exclusion, etc.) and categories of rights- holders present in the Accounting Area (including Indigenous Peoples and other relevant communities);
- ii. The legal status of such rights, and any significant ambiguities or gaps in the applicable legal framework, including as pertains to the rights under customary law;
- iii. Areas within the Accounting Area that are subject to significant conflicts or disputes related to contested or competing claims or rights, and if critical to the successful implementation of the ER Program, how such conflicts or disputes have been or are proposed to be addressed; and
- iv. Any potential impacts of the ER Program on existing land and resource tenure in the Accounting Area.

The ER Program demonstrates that the additional assessment has been conducted in a consultative, transparent and participatory manner, reflecting inputs from relevant stakeholders.

~~A-50.2:~~**A 52.2:** The ER Program explains how the relevant issues identified in the above assessment have been or will be taken into consideration in the design and implementation of the ER Program, and in the relevant Safeguards Plan(s). If the ER Program involves activities that are contingent on establishing legally recognized rights to lands and territories that Indigenous Peoples have traditionally owned or customarily used or occupied, the relevant Safeguards Plan sets forth an action plan for the legal recognition of such ownership, occupation, or usage. Beyond what is required for the successful implementation of the ER Program, the ER Program is encouraged to show how it can contribute to progress towards clarifying land and resource tenure in the Accounting Area, where relevant.

~~A-50.3:~~**A 52.3:** The ER Program provides a description of the implications of the land and resource regime assessment for the ER Program's ability to transfer Title to ERs.

4.2 Benefit Sharing

Criterion 30 of the FCPF Methodological Framework tied the timing of the final BSP to the Carbon Fund ERPA. This has been changed to have it available at validation

~~A-51-A.53.~~ **A 53.** The ER Program provides a description of the benefit-sharing arrangements for the ER Program in the form of a Benefit Sharing Plan ~~to the extent known at the time.~~ The Benefit Sharing Plan will elaborate on the ~~benefit-sharing~~ arrangements for sharing the carbon benefits, both Monetary and Non-Monetary, building on the description in the ER Program Document, and taking into account the importance of managing expectations among potential Beneficiaries²⁴.

~~A-51.1:~~**A 53.1:** The Benefit-Sharing Plan is made publicly available prior to ERPA signature validation ~~at least as an advanced draft~~, and is disclosed in a form, manner and language understandable to the affected stakeholders for the ER Program. The Benefit-Sharing Plan contains the following information:

- i. The categories of potential Beneficiaries, describing their eligibility to receive potential Monetary and Non-Monetary Benefits under the ER Program and the types and scale of such potential Monetary and Non-Monetary Benefits that may be received. Such Monetary and Non-Monetary Benefits should be culturally appropriate, ~~and~~ gender and inter-generationally inclusive and consider the role of Indigenous Peoples and local communities. The identification of such potential Beneficiaries takes into account emission reduction strategies to effectively address drivers of net emissions, anticipated implementers and geographical distribution of those strategies, land and resource tenure rights (including legal and customary rights of use, access, management, ownership, etc. identified in the assessments carried out under A.52), and Title to ERs, among other considerations.

²⁴ ER Programs should refer to the [FCPF Guidance Note on Benefit Sharing for Emission Reductions Programs Under the Forest Carbon Partnership Facility and BioCarbon Fund Initiative for Sustainable Forest Landscapes](#) keeping in mind the differences between the SCALE Partnership and those funds

- ii. Criteria, processes, and timelines for the distribution of Monetary and Non-Monetary Benefits.
- iii. Monitoring provisions for the implementation of the Benefit-Sharing Plan, including, as appropriate, an opportunity for participation in the monitoring and/or validation process by the Beneficiaries themselves.

~~A.52.A.54.~~ The benefit-sharing arrangements are designed in a consultative, transparent, and participatory manner appropriate to the country context.²⁵ This process is informed by and builds upon the national readiness process, including the SESA, and taking into account existing benefit-sharing arrangements, where appropriate.

~~A.52.1:A 54.1:~~ The Benefit-Sharing Plan is prepared as part of the consultative, transparent and participatory process for the ER Program, and reflects inputs by relevant stakeholders, including broad community support by affected Indigenous Peoples and local communities (LCs). The Benefit-Sharing Plan is designed to facilitate the delivery and sharing of Monetary and Non-Monetary Benefits that promote the successful implementation and scaling up of the ER Program implementation measures. The Benefit-Sharing Plan is disclosed in a form, manner and language understandable to the affected stakeholders of the ER Program.

~~A.53.A.55.~~ The implementation of the Benefit-Sharing Plan is transparent.

~~A.53.1:A 55.1:~~ Information on the implementation of the Benefit-Sharing Plan is annexed to each ER Program monitoring report and is made publicly available.

~~A.54.A.56.~~ The benefit-sharing arrangement for the ER Program reflects the legal context.

~~A.54.1:A 56.1:~~ The design and implementation of the Benefit-Sharing Plan comply with relevant applicable laws, including national laws and any legally binding national obligations under relevant international laws.

4.3 Non-Carbon Benefits

~~A.55.A.57.~~ Non-Carbon Benefits are integral to the ER Program.²⁶

~~A.55.1:A 57.1:~~ The ER Program outlines potential Non-Carbon Benefits, identifies priority Non-Carbon Benefits, and describes how the ER Program will generate and/or enhance such priority Non-Carbon Benefits. Such priority Non-Carbon Benefits should be culturally appropriate, and gender and inter-generationally inclusive, as relevant.

²⁵ ER Programs should refer to section 3.2 of the [FCPF Guidance Note on Benefit Sharing Sharing for Emission Reductions Programs Under the Forest Carbon Partnership Facility and BioCarbon Fund Initiative for Sustainable Forest Landscapes](#)

²⁶ ER Programs should also consider UNFCCC Decision 18/CP.21 which reaffirms the importance of incentivizing non-carbon benefits for the long-term sustainability of REDD+

~~A.55.2:~~**A 57.2:** Stakeholder engagement processes carried out for the ER Program design and for the readiness phase inform the identification of such priority Non-Carbon Benefits.

~~A.56.A.58.~~ The ER Program indicates how information on the generation and/or enhancement of priority Non-Carbon Benefits will be provided during ER Program implementation, as feasible.

~~A.56.1:~~**A 58.1:** The ER Program proposes an approach utilizing methods available at the time to collect and provide information on priority Non-Carbon Benefits²⁷, including, e.g., possibly using proxy indicators. If relevant, this approach also may use information drawn from or contributed as an input to the SIS.

~~A.56.2:~~**A 58.2:** Information on generation and/or enhancement of priority Non-Carbon Benefits will be provided in a separate annex to each ER Program monitoring report, and will be made publicly available.

²⁷ Community participation in these methods is referred to in requirement A.20.

5 ER PROGRAM TRANSACTIONS

5.1 Transfer of Title to ERs

This section has been generalized compared to section 6.1 of the FCPF Methodological Framework to remove references to the signing of the ERPA with the Carbon Fund

~~A.57.A.59.~~ The ER Program demonstrates ~~its its authority to enter into an ERPA and its~~ ability to transfer Title to ERs.

~~The ER Program Entity demonstrates its authority to enter into an ERPA prior to the start of ERPA negotiations, either through:~~

~~i. Reference to an existing legal and regulatory framework stipulating such authority; and/or~~

~~ii. In the form of a letter from the relevant overarching governmental authority (e.g., the presidency, chancellery, etc.) or from the relevant governmental body authorized to confirm such authority.~~

~~A.57.1:A 59.1:~~ The ER Program demonstrates its ability to transfer Title to ERs, while respecting the land and resource tenure rights of the potential rights-holders, including Indigenous Peoples (i.e., those holding legal and customary rights, as identified by the assessment conducted under requirement A.52), in the Accounting Area. The ability to transfer Title to ERs may be demonstrated through various means, including:

- i. Reference to existing legal and regulatory frameworks,
- ii. Sub-arrangements with potential land and resource tenure rights-holders (including those holding legal and customary rights, as identified by the assessments conducted under requirement A.52), and
- iii. Benefit-sharing arrangements under the Benefit-Sharing Plan.

~~A.57.2:A 59.2:~~ The ER Program demonstrates its ability to transfer Title to ERs prior to ~~ERPA signature validation, or at the latest, at the time of transfer of ERs~~ the first verification. If this ability to transfer Title to ERs is still unclear or contested at the time of ~~transfer of ERs~~ verification, an amount of ERs proportional to the Accounting Area where title is unclear or contested shall not be sold or transferred until title is clarified or resolved.

5.2 Data Management and ER Transaction Registries

This section has been simplified compared to section 6.2 of the FCPF Methodological Framework to allow wider use of the Standard

~~A.58.A.60.~~ A.60. Based on national needs and circumstances, the ER Program works with the host country to select an appropriate arrangement to avoid having multiple claims to an ER Title, and to ensure that any ERs from REDD+ activities under the ER Program are not generated more than once.

~~A.58.1:A.60.1:~~ A.60.1: Based on national needs and circumstances, the ER Program is registered in a REDD+ Program and Projects Data Management System that contains the key attributes of the ER Program, including:

- i. The entity that has Title to ERs produced;
- ii. Geographical boundaries of the ER Program;
- iii. Scope of REDD+ activities and Carbon Pools; and
- iv. The Reference Level used (updated accordingly).

~~A.59.A.61.~~ A.61. The information contained in the REDD+ Program and Projects Data Management System is available to the public via the internet in the national official language of the host country (other means may be considered as required).

~~A.60.A.62.~~ A.62. Administrative procedures are defined for the operations of the REDD+ Program and Projects Data Management System and an audit of the operations is carried out by an independent third party at least once every Crediting Period.

~~A.61.A.63.~~ A.63. An ER transaction registry is in place to ensure that any ERs from REDD+ activities under the ER Program are not generated more than once; and that any ERs from REDD+ activities under the ER Program sold and transferred are not used again by any entity for sale, public relations, compliance or any other purpose.

ANNEX 1– SOURCES OF UNCERTAINTY TO BE CONSIDERED

Cells with H/L are used to indicate where the ER Program is required to assess the contribution to overall uncertainty of that particular component. Cells with YES/NO indicate that it is the ER Program’s choice in how they deal with the particular component. The cells labelled without a choice (e.g. H, Yes, No) are prescribed

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
Activity Data						
<i>Measurement</i>	☑	☑	<p>This source of uncertainty is applicable to cases where activity data is based on sampling. This is linked to the visual interpretation of operators and/or field positioning and it may be the origin of both systematic and random errors. Usually this source of error is high as evidenced by recent studies. Quantification methods for this source of error are in a research phase and have not been applied in operational contexts. Therefore, countries shall address this through robust QA/QC procedures that address both systematic and random error. Robust QA/QC procedures include:</p> <ul style="list-style-type: none"> • Written Standard Operating Procedures including detailed labelling protocols; 	<i>H (bias/random)</i>	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			<ul style="list-style-type: none"> • Use of adequate²⁸ source of imagery and multiple imagery sources for labelling. • Training procedures for interpreters, to ensure the correct implementation of SOPs; • Re-interpretation of a number of sample units to ensure that SOPs are implemented correctly and identify areas for improvement. 			
<i>Representativeness</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest or the time of interest (e.g. not all elements of the population or region of interest are included in the sampling frame; . deforestation is not measured for the period of interest), the estimate given by the sample will not be representative and this can be a cause of bias. Biases must be avoided <u>as far as practical</u> and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes.</p>	<i>H/L (bias)</i>	<i>YES</i>	<i>NO</i>

²⁸ Adequate means at least 30 meters of spatial resolution and enough coverage to enable the assessment of the whole monitoring period.

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			This source of uncertainty might be High or Low depending on the circumstances and REDD Countries may assess the magnitude.			
<i>Sampling</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Sampling uncertainty is the statistical variance of the estimate of area for the applicable forest transitions that are reported by the ER Program. This source of error is random, but the selection of the estimator might be a source of error. ER Programs shall use reference data and unbiased estimators for estimating activity data and its uncertainty, as recommended by the GFOI MGD.</p> <p>See FAQ on area estimation and section 5.1.5 of the MGD(GFOI 2016), Good practices for estimating area and assessing accuracy of land change by Olofsson et al. (2014), for more information on how estimates can be produced using unbiased estimators of activity data.</p> <p>Selection of a proper estimator would also be a source of uncertainty which would be addressed via QA/QC procedures.</p>	<i>H (random / bias)</i>	YES	YES
<i>Extrapolation</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This source of uncertainty is relevant when a stratified estimation (i.e. forest cover change map as stratification and sample) is applied. This source of uncertainty is related to the extrapolation of an estimate of the	<i>H/L (bias)</i>	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			<p>population to subpopulations which may lead to bias. In some cases ER Programs have estimated a variable of interest at the level of the Accounting Area, such as deforestation in hectares, and then they have inferred the variable of interest per forest type using a map, e.g. deforestation is 1000 ha according to the sample, the maps indicates that 30% of deforestation is in forest type A and 70% in forest type B, so it is inferred that 300 ha of deforestation in forest type A and 700 ha in forest type B based on the map areas. This source of error may be a source of bias which is difficult to quantify. 2006 IPCC guidelines, state that “...where biases cannot be prevented, it is good practice to identify and correct them when developing a mean estimate...”. ER Programs should avoid using these methods and if they are not able to avoid them, they should justify if this will lead to an overestimation of Emission Reductions and apply any corrective measures. These errors may be avoided with QA/QC procedures.</p> <p>This source of uncertainty might be High or Low depending on the circumstances and REDD Countries may assess the magnitude.</p>			
Approach 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This source of uncertainty exists when there is no tracking of lands or IPCC Approach 3. This occurs in cases	H/L (bias)	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			when, for instance, an ER Program conducts two independent surveys to estimate activity data in period 1 and period 2 (e.g. dividing the reference period in two subperiods) without conducting tracking of lands. In this example, there is a risk that transitions are counted twice. For instance, if a unit of land transits from forest to non-forest, and then back to forest and then non-forest, there is a risk that deforestation is “double counted” if there is not a system to ensure tracking of lands. Solutions in this case are to avoid independent surveys (through permanent sample units) or to define transition rules and ensure that interpreters look at the past history of the sample unit to ensure that the transitions rules are respected. This is mitigated through the introduction of strong QA/QC measures.			
Emission factor						
For a detailed description and discussion of these errors, see e.g. Temesgen et al. 2015 , Chave et al. 2004 , Chave et al. 2005 , Molto et al. (2012) , Hunter et al. (2013) , Chave et al. 2014 , Picard et al. 2015 , Picard et al. 2016 , Kearsly et al. 2017 , Weiskittel et al., 2015 .						
<i>DBH measurement</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Measurement of DBH, height, and plot delineation are subject to errors. Errors may be caused by multiple factors such as poor training, poor measurement protocols, etc. While measurement errors are significant at the tree level, they usually average out at plot level	<i>H (bias) & L (random)</i>	YES	NO
<i>H measurement</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<i>H (bias) & L (random)</i>	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
<i>Plot delineation</i>	☑	☑	and inventory level (Chave et al. 2004). Picard et al. (2015) also found the measurement error to be small when compared to the other errors. The FMT conducted an assessment of the contribution of this source of error (c.f. Annex) and found that this source of error should be negligible for Emission Reduction estimation, provided minimal QA/QC procedures are in place. The contribution of this source of error to random error is low, yet QA/QC procedures should be in place to avoid systematic errors.	<i>H (bias) & L (random)</i>	YES	NO
<i>Wood density estimation</i>	☑	☑	This source of error pertains the selection of wood density. Many allometric equations rely on wood specific gravity - WSG (also referred to as basic wood density) as one of the independent variables. WSG is usually not measured, which is acceptable, but sourced from scientific publications and databases such as http://www.globalometree.org (registration required), the Global Wood Density Database (Chave et al. 2009, Zanne et al. 2009) or the 2006 IPCC guidelines. The random error from the use of WSG is low, but the lack of QA/QC procedures can lead to high systematic errors, this includes having strong protocols to identify the tree	<i>H (bias) & L (random)</i>	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			species and decision trees to attribute WSGs to each tree.			
<i>Biomass allometric model</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Allometric models/equations include several sources of uncertainty:</p> <ul style="list-style-type: none"> • Choice of the allometric equation • Uncertainty attached to estimated model coefficients and the residuals of the model <p>According to Picard et al. (2015) and Chave et al. (2014) the main source of uncertainty is the selection of the allometric equation. The lack of validation of the allometric equation should be considered as a source of bias, discussed, and addressed as far as practical by the REDD Country. QA/QC procedures shall be in place to ensure that the best allometric model is used and that any identified bias have been addressed. If bias is identified and this could lead to an overestimation of Emission Reductions, this could be addressed by making the allometric model more conservative through the application of correction factors.</p> <p>In terms of uncertainty attached to the model coefficients, according to Chave et al. (2014), the prediction uncertainty of their pantropical allometric</p>	<i>H (bias) & H/L (random)</i>	YES	YES/NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			<p>equations at plot level ranges from 10-15% for plots of 0.25 ha and 5-10% for plots of 1 ha, and this could result in 5.31% for estimates of aboveground biomass stocks. In terms of uncertainty of Emission Reductions it is expected that the contribution of this source of error is low due to interactions with other sources (c.f. Annex). However, REDD Countries shall discuss the source of random error and demonstrate that its contribution to overall uncertainty is low. If the contribution of this source to the uncertainty of total biomass (not Emission Reductions) is lower than the contribution of sampling error, this source of error may be neglected. If it cannot be neglected, it shall be propagated. If Countries are not able to propagate this source of error through MC simulation (i.e. no covariance matrix available, lack of capacity) they may increase the sampling uncertainty of AGB or/and BGB by 10% at 90% confidence level using the quadrature approach²⁹ and the combined error shall be propagated in the MC simulation.</p>			
<i>Sampling</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This is applicable for cases when the carbon densities of forest used to derive emission factors are based on a terrestrial inventory based on a probabilistic design.	<i>H (random / bias)</i>	YES	YES

²⁹ For instance, if the sampling uncertainty is 10% and the allometric model uncertainty is 10%, the resulting uncertainty is $\sqrt{10\%^2+10\%^2} = 14\%$

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			<p>Sampling uncertainty is the statistical variance of the estimate of aboveground biomass, dead wood or litter. This source of uncertainty is random.</p> <p>Selection of a proper would also be a source of uncertainty which is systematic and would be addressed via QA/QC procedures.</p>			
<i>Other parameters (e.g. Carbon Fraction, root-to-shoot ratios)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Some other parameters are used to estimate emission factors, such as emission factors, aboveground biomass in non-forest land and root-to-shoot ratios. These are usually not measured but sourced from scientific publications, databases or the 2006 IPCC Guidelines. This can lead to both random and systematic errors. The random error of each individual parameter might be low but the aggregated effect might be high. Moreover, the lack of QA/QC procedures for the selection of the values may lead to high systematic errors.</p>	<i>H (bias / random)</i>	YES	YES
<i>Representativeness</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>This source of uncertainty is related to the representativeness of the estimate which is related to the sampling design. If the sample is not representative for the area of interest (i.e. each element in area of interest has a known inclusion probability >0 and some random process is used to select elements), the estimate given by the sample will not be representative</p>	<i>H/L (bias)</i>	YES	NO

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			and can cause bias. Biases must be avoided <u>as far as practical</u> and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes.			
Integration						
<i>Model</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>The combination of AD & EF does not necessarily need to result in additional uncertainty. Usually, sources of both random and systematic error are the calculations themselves (e.g. mistakes made in spreadsheets) and the process of data preparation (e.g. pre-processing, data cleansing, data transfer, etc). All models are simplification of reality, and this simplification could be a source of bias to emission reductions.</p> <p>All these sources are addressed with adequate QA/QC processes.</p>	<i>H/L (bias)</i>	<i>YES</i>	<i>NO</i>
<i>Integration</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This source of uncertainty is related to the lack of comparability between the transition classes of the Activity Data and those of the Emission Factors. Activity Data is usually estimated through remote-sensing observations, whereas Emission Factors for a specific forest type could be based on ground-based	<i>H/L (bias)</i>	<i>YES</i>	<i>NO</i>

Sources of uncertainty	Systematic	Random	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High / Low)	Addressed through QA/QC?	Residual uncertainty estimated?
			observations of the forest type. These may not be comparable, and it may represent a source of bias.			

ANNEX 2– REQUIREMENTS ON THE APPLICATION OF THE REVERSAL RISK ASSESSMENT TOOL AND THE VALIDATION AND VERIFICATION OF ITS OUTCOMES

Following section 2.7, the Reversal Risk assessment tool shall be used to determine the Reversal Risk Set-Aside percentages for each of the Risk Factors listed in the first column of Table 1. The Risk Indicators in the second column of this table are provided to assess the Reversal Risk for each Risk Factor. The Reversal Risk is assessed for each Risk Factor separately as high, medium or low.

In order to facilitate the determination of the Reversal Risk level, the requirements provided below shall be followed when assessing the Risk Indicators found in Table 1. REDD Countries may deviate from the below guidelines (e.g., providing additional risk indicators), but in such a case, the REDD Country shall provide clear, complete and adequate justification of the reason for deviation, and the VVB shall assess these choices and apply the validation-verification principles described in the Validation and Verification Guidelines.

Evidence shall be provided to support the selection of a Reversal Risk level for each Risk Indicator as follows:

Risk factor A. Lack of broad and sustained stakeholder support

- **Risk Indicator: *Are relevant stakeholders aware of, and/or provided feedback to and have positive experience with Emission Reduction Programs, FGRM, benefit sharing arrangements and/ or similar instruments in other contexts?***

This risk indicator shall be analyzed through three separate sub-indicators:

- a) ER Program consultations' procedures, processes, and outcomes
- b) Performance of the Benefit Sharing Plan; and
- c) Performance of the FGRM.

The overall risk level for this indicator shall be based on the risk level of the highest scoring sub-indicator (i.e., the one representing the highest risk).

a) ER Program consultations' procedures, processes and outcomes

In the case of the first sub-indicator, when assessing stakeholder awareness of, and experiences with, the ER Program and its related instruments (e.g., the FGRM and the BSP), the evaluation shall be made based on the procedures for engagement when they are planned, implemented and reported on, and the quality of public consultations. It is assumed that conducting broad and inclusive consultations following an agreed and disclosed stakeholders' engagement and/ or consultations plan would ensure the effective and meaningful participation of all key stakeholders and likely facilitate the acceptance of such instruments (and of the ER Program itself, thus contributing to its continuity and the permanence of its ERs and removals).

The evaluation of this sub-indicator shall consider three attributes:

1. Evidence of designing, planning and disclosure of clear and participatory procedures for consultations with stakeholders affected (or to be affected) by the ER Program, including information on the number of people to be engaged in consultations disaggregated by the type of stakeholders (e.g., government officials, civil society representatives, minority community representatives such as Indigenous Peoples, ethnic minorities, migrant

- communities, etc., as well as those stakeholders that can be key for triggering reversals) and gender, depending on the local context;
2. Evidence that the clear and participatory procedures and plans for consultations and reporting on them have been followed, and on how the feedback obtained is reflected in the ER program.
 3. The availability of information to carry out the assessment.

The assessment shall be carried out using ex-ante (pre-ER Program implementation) and ex-post (after the ER Program start) information. Where the assessment is carried out before the ER Program start, the information required to perform it should be drawn from the SESA (or similar social and environmental assessments), ERPD (e.g., the draft BSP and other documents), ESMF and other equivalent safeguards' management frameworks, stakeholders' engagements and other plans. Ex-post, this information shall be obtained from the ER monitoring reports (Annex 1, 2). All relevant documents shall be identified and included in the assessment. These can be WB aide memoires, Implementation Support Reports (ISRs), Third Party Monitoring and FGRM reports, and other stakeholders' engagement and safeguard-related reports. Ex-post assessments shall only be applied after the third year of implementation of the ER Program (i.e., once data for at least two years is available).

The risk score shall be determined as the combined risk of the three attributes mentioned above, as follows:

1. The existence of clear and participatory procedures for consultations with key stakeholders affected (or to be affected) by the ER program with considerations of the proportional engagement by type shall be rated as entailing a low risk if these plans and procedures are participatory, proportionally inclusive (proportionality is defined according to the purposes of the consultations, but with community representatives generally making not less than 60%, civil society representatives not less than 10%, and women not less than 35% of all consulted stakeholders) and publicly disclosed; medium risk where the procedures are clear and participatory but do not engage all key types of stakeholders proportionally; and high risk if the procedures are not clear, not proportionally participatory, and not disclosed.
2. Implemented proportionally participatory consultations with key stakeholders affected (or to be affected) by the ER Program should be rated as entailing a low risk if there is a disclosed reporting on the consultations that were conducted as planned or broader, with feedback captured in the report and reflected in the program; medium risk if reporting on the consultations conducted as planned, and feedback captured in the report and reflected in the program but not disclosed; and a high risk if there is not disclosed reporting on the consultations or consultations did not follow the disclosed plan.
3. Regarding the third attribute, related to the availability of information, whenever there is not sufficient information on the engagement of all key stakeholders (by type and gender) in the preparation and implementation of the ER Program to carry out the above assessments, the risk score of this aspect shall be considered high. Where enough information is available, the risk is low.

The highest risk level of the three attributes evaluated above represents the combined risk level of this sub-indicator.

b) Performance of the Benefit Sharing arrangements

The engagement and support of stakeholders in the preparation and implementation of the BSP established for the ER Program or similar programs is an important predictor of communities buy-in and the long-term sustainability of the ER measures and results. Before the start of the ER Program, the assessment of this indicator shall rely on the analysis of benefit sharing mechanisms proposed, feedback from stakeholders, and how it was reflected in the final benefit

sharing plan. If there are other similar programs already implemented in the ER accounting area, the assessment shall incorporate their information. Once the ER Program has been operating for at least 2 years, the assessment shall be based on the performance of the program's BSP.

The assessment shall be carried out using various sources:

- Ex-ante assessment: The level of awareness, engagement and support may be assessed based on records on, e.g., the feedback from the stakeholders and how they were considered in the BSP process of the associated program, the resources available for such program and the actual demand from stakeholders. If the demand (the number of requests to participate in the program) is higher than the resources available to support activities, it shall be deemed that such program enjoys high acceptance among stakeholders. Likewise, to ascertain if a program has been effective in disbursing resources (i.e., if the associated benefit sharing mechanism has worked well), records on the expected and actual dates of disbursements shall be used. Late disbursements shall be considered as indicators that the program's effectiveness distributing resources is low, and thus, that the risk of stakeholder withdrawal may be high. Actual disbursements below the budgeted ones would indicate that some stakeholders may have abandoned the program, which shall also result in a high risk score.
- Ex-post analysis: Information regarding consultations on BSP, reports on BSP preparation and implementation, on defining beneficiaries and benefits, FGRM and ER Monitoring reports, and other relevant reports prepared by the WB task teams and by the Program Entity, and by third party monitors (if available).

For both the ex-ante and the ex-post analysis, when there is no sufficient information and a well-functioning feedback mechanism to allow for robust assessment, random surveys could be conducted to understand the level of acceptance of such a program and level of engagement.

Risk scores shall be determined as:

- **Low risk:** Benefit sharing mechanisms and other similar instruments have been developed incorporating feedback from stakeholders and used as planned (i.e., by more than 80% of their expected number), AND/OR feedback mechanisms reflect a low level of complaints, i.e., less than 30% of complaints relate to benefit sharing.
- **Medium risk:** Benefit sharing mechanisms and other similar instruments have been used by less than 60% of the expected number of stakeholders participating in the program AND/OR feedback mechanisms reflect a medium level of complaints with up to 60% of complaints relate to benefit sharing.
- **High risk:** Benefit sharing mechanisms and other similar instruments have been used by less than 30% of the expected stakeholders participating in the program AND/OR feedback mechanisms reflect high level of complaints, i.e., up to 80% of complaints or more relate to benefit sharing, OR there is insufficient information to carry out the assessment.

c) Performance of the FGRM

The existence and adequate operation of a Feedback and Grievance Redress Mechanism is critical to gain and sustain stakeholders' support, and thus, for the long-term success of any program. The assessment of this sub-indicator therefore relies on the existence of such a mechanism and its performance, as well on the availability of information needed for the analysis. As with the previous sub-indicator, information to carry out the analysis should be drawn, ex-ante, from the experience with existing FGRM applied in the context of similar programs, and ex-post, from the actual performance of the FGRM used for the ER Program once at least two years of data have been gathered.

Risk scores are as follows:

- **Low risk:** There is a FGRM functioning according to the established plan, procedures, and processes with a disclosed publicly reporting.
 - **Medium risk:** There is a FGRM functioning according to the established plan, procedures, and processes but no publicly disclosed reporting.
 - **High risk:** There is a FGRM functioning but no evidence of its following the established plan, procedures, and processes and no publicly disclosed reporting OR the FGRM is not functioning OR information is lacking to carry out the assessment.
- **Risk Indicator: *Have complaints, claims or occurrences of conflicts over rights and tenure been addressed?***

The effectiveness and fairness in addressing complaints, claims or resolving issues and/or conflicts on land and forest resources related to the ER Program shall be assessed by reviewing documents related to the ER Programs (ERPD, BSP, safeguards instruments) and reports of the feedback mechanisms (FGRM), ER Monitoring Reports, other PE and safeguards reports, surveys, and other sources relevant to local circumstances. Since each of these sources individually usually provides only a marginal view of the situation, every effort should be made to use more than one of them to produce a more comprehensive assessment. As for the previous risk indicator, ex ante (i.e., based on existing data from similar programs carried out in the ER Program jurisdiction) and ex post (i.e., based on the ER Program data) assessments shall be carried out. Likewise, ex post assessments shall only be applied after the third year of implementation of the ER program (i.e., when at least two years of data are available).

For the purposes of this analysis, mechanisms for addressing the complaints, claims or conflict on land and resource related to the ER Program shall be deemed effective and fair if there are clear mechanisms incorporated in the BSP/ER Program documents to address them properly.

Risk scores should be determined as:

- **Low risk:** There are legal instruments, clear arrangements, mechanisms and frameworks to manage complaints, claim or dispute resolution processes or customary and/or community-based mechanisms for conflict resolution in place in that have shown demonstrated effectiveness. Feedback mechanisms reflect high level of complaints, claims, or conflicts addressed (more than 80% of complaints on the land and resource related to the ERP have been addressed and/ or resolved in a timely manner).
- **Medium risk:** There are legal instruments, clear arrangements, mechanisms and frameworks to manage complaints, claim or dispute resolution processes or customary and/or community-based mechanisms for conflict resolution in place have shown limited effectiveness. Feedback mechanisms reflect a good level of complaints, claims or conflicts addressed (more than 60% of complaints, claims or conflicts on land and resource have been addressed and/ or resolved in a timely manner).
- **High risk:** There are no legal instruments, clear arrangements, mechanisms and frameworks to manage complaints, claim or dispute resolution processes or customary and/or community-based mechanisms for conflict resolution in place have shown to be ineffective. Feedback mechanisms reflect a low level of complaints addressed (less than 40% of complaints, claims or conflicts on land and resource have been addressed and/ or resolved in a timely manner).

The final risk score for Risk factor A shall be the lowest score of the two Risk Indicators above.

Risk factor B. Lack of institutional capacities and/or ineffective vertical/cross sectoral coordination

- **Risk Indicator: Is there a track record of key institutions in implementing programs and policies?**

The assessment of the track record of key institutions in implementing programs and policies shall consider as “key” all institutions included in Section 1 of the ERPD. Additionally, institutional arrangements established to implement programs shall be considered.

The overall risk level for this indicator shall be determined considering the average years of experience of the whole group of key institutions in the last 10 years. The assumption for using the average is that, if most key institutions have a long track record implementing programs, they may support and complement a minority of newer institutions with less experience. When estimating the years of experience of each key institution or institutional arrangement, only those policies and programs directly related to the activities proposed in the ER Program and that are ongoing or have recently finished (i.e., were terminated at most 2 years before the risk assessment is carried out) shall be taken into account. Therefore, an explanation shall be provided for each key institution showing the similarities between the ER Program activities and such policies and programs, as well as information on their termination date if they are not ongoing.

Acceptable information to carry out this assessment include national strategies, sectoral plans, programs, budgets and reports (including monitoring reports) where such programs and their implementation arrangements are described and through which their actual implementation can be demonstrated and their results are provided. This information shall be offered for each of the years of claimed institutional experience in the implementation of policies and programs. The lack of sufficient information to demonstrate these claims shall result in a high risk score.

Ex-ante and ex-post assessments are similar, the only difference being that, for the ex-post assessments, the years of experience gained by key institutions as a result of the implementation of the ER Program shall be considered (i.e., the ex-post estimate shall include the years before and after the ER Program implementation).

Risk scores shall be:

- **Low risk:** Together, all the key institutions involved in the implementation of the ER Program average 8 or more years of experience in the 10 years before the date of the reversal risk assessment executing policies and programs directly related to the activities described in the ERPD that are part of the ER Program.
- **Medium risk:** Together, all the key institutions involved in the implementation of the ER Program average 5 or more years of experience 10 years before the date of the reversal risk assessment executing policies and programs directly related to the activities described in the ERPD that are part of the ER Program.
- **High risk:** Together, all the key institutions involved in the implementation of the ER Program average less than 5 years of experience 10 years before the date of the reversal risk assessment executing policies and programs directly related to the activities described in the ERPD that are part of the ER Program OR there is not information enough to support the claims regarding the experience of key institutions.

- **Risk Indicator: Is there experience of cross-sectoral cooperation?**

Cross-sectoral cooperation may be reflected in the design and alignment of policies and programs, the operation of working groups, joint research groups, and the implementation of activities on the ground. Such cooperation may happen at any level (from national to local) and across levels. In all cases, the cross sectoral cooperation actions considered to assess this indicator shall be relevant to the activities and objectives of the ER Program and shall have directly contributed to REDD+-related objectives.

In order to prove the experience in cross-sectoral cooperation, a description of the cooperation activities shall be provided (which shall discuss how they have contributed to achieving REDD+ objectives), together with an explanation of how they are related to the ER Program and evidence that such activities are ongoing or recent (i.e., they were finished at most 2 years before the risk assessment is carried out).

Information to support the assessment may vary widely depending on the type of cooperation activity and may include formal agreements, minutes of meetings, program reports, etc. This information shall cover all the years for which cooperation has taken place that are relevant for this assessment. The lack of sufficient information shall be reflected in a high-risk score.

Ex-ante and ex-post assessments are the same, the only difference being that, for the ex-post assessments, the years of cross-sectoral cooperation experience resulting from the implementation of the ER Program shall be considered.

Risk scores for this indicator shall be defined as follows:

- **Low risk:** Together, all the cross-sectoral cooperation initiatives relevant to, or involved in, the ER Program average 8 or more years of experience in the 10 years before the date of the reversal risk assessment.
 - **Medium risk:** Together, all the cross-sectoral cooperation initiatives relevant to, or involved in, the ER Program average 5 or more years of experience in the 10 years before the date of the reversal risk assessment.
 - **High risk:** Together, all the cross-sectoral cooperation initiatives relevant to, or involved in, the ER Program average less than 5 years of experience in the last 10 years before the date of the reversal risk assessment, OR there is not information enough to support the claims regarding the experience of key institutions.
- **Risk Indicator: Is there experience of collaboration between different levels of government?**
The requirements for cross-sectoral cooperation provided in the paragraph above shall apply mutatis mutandis when assessing the experience of collaboration between different levels of government.

The final risk score for Risk factor B shall be the lowest score of the three Risk Indicators above.

Risk factor C. Lack of long-term effectiveness in addressing underlying drivers

- **Risk Indicator: Is there experience in decoupling deforestation and degradation from economic activities?**
It is considered that an intervention has achieved decoupling deforestation and degradation from economic activities if it has consistently resulted over time in lower levels of deforestation and/or degradation with the same or higher economic outputs, compared to the data before the start of such intervention.
Before ER Program implementation (ex-ante), it shall be shown (for instance, based on expert judgement or a qualitative demonstration using trends) that decoupling has been achieved for at least 5 consecutive years through interventions carried out by the key institutions involved in the ER Program in the last 15 years before the risk assessment, either in the ER Program area or in other areas (see Box 1 for a simplified example). Ex-post, evidence shall be provided that the ER Program activities have led to decoupling after the first two years of the ER Program implementation.
In both the ex-ante and ex-post cases the identification of economic activities leading to deforestation and degradation shall be supported by an analysis of drivers. Moreover, it shall be shown that before the intervention the levels of economic activity and the levels of deforestation or

degradation were in fact associated (i.e., if decoupling happened before the start of the intervention, it shall not be claimed that it was due to its implementation). Information shall be provided showing how the proposed intervention addresses the economic activities leading to deforestation and degradation. Additionally, evidence shall be provided to demonstrate that the reduction in deforestation or degradation caused by the intervention was not in fact due to the displacement of activities to areas not covered by such intervention.

Sources of information for the ex-ante assessment may include deforestation and degradation estimates from national or internationally recognized sources (e.g., GFW), as well as logging statistics (for degradation) and national statistics. Although estimates do not require high accuracy, they shall allow to establish that decoupling has been achieved and an explanation should be provided proving that this conclusion is not due to the use of low-quality data for the assessment. Ex-post, data from the ER Program monitoring reports shall be used. For both ex-ante and ex-post assessments, lack of information to determine if decoupling has been achieved shall lead to a high risk score.

Risk scores shall be defined as:

- **Low risk:** Ex-ante: there is evidence of 3 or more programs, policies or regulations run by key ER Program institutions that have decoupled deforestation and/or degradation from economic outputs for at least 5 consecutive years in the ER Program jurisdiction in the 15 years before the risk assessment. Ex-post: the ER Program has achieved decoupling for at least 4 consecutive years since its start.
- **Medium risk:** Ex-ante: there is evidence of at least 2 programs, policies or regulations run by key ER Program institutions that have decoupled deforestation and/or degradation from economic outputs for at least 5 consecutive years in the ER Program jurisdiction in the 15 years before the risk assessment. Ex-post: the ER Program has achieved decoupling for at least 2 consecutive years since its start.
- **High risk:** Ex-ante: there is no evidence of any programs, policies or regulations run by key ER Program institutions that have decoupled deforestation and/or degradation from economic outputs for at least 5 consecutive years in the ER Program jurisdiction in the 15 years before the risk assessment OR there is no information available to carry out the assessment. Ex-post: the ER Program has achieved decoupling for less than 2 consecutive years since its start OR there is not enough information to carry out the analysis.

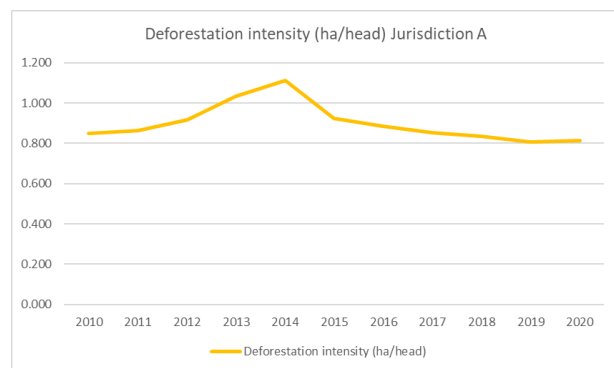
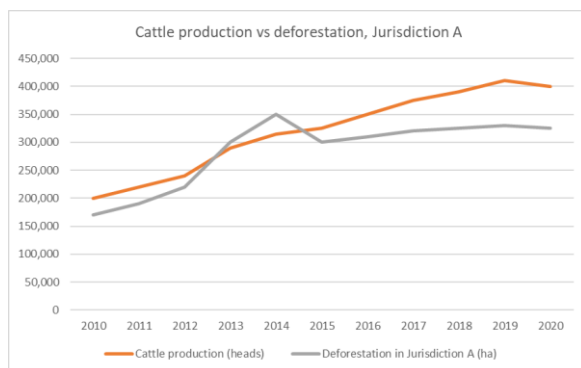
Box 1. Example of ex-ante deforestation decoupling assessment

The main driver of deforestation in Jurisdiction A is extensive cattle ranching, which has traditionally taken place throughout its territory. With the objective of reducing the pressure on forests, the government of the jurisdiction decided to establish a program to provide technical support and monetary incentives for intensifying this practice. Starting in 2015, the program ran for five years, with the following results:

Deforestation intensity of cattle ranching in Jurisdiction A, 2010 – 2020

Year	Cattle production (heads)	Deforestation in Jurisdiction A (ha)	Deforestation intensity (ha/head)
2010	200,000	170,000	0.850

2011	220,000	190,000	0.864
2012	240,000	220,000	0.917
2013	290,000	300,000	1.034
2014	315,000	350,000	1.111
2015	325,000	300,000	0.923
2016	350,000	310,000	0.886
2017	375,000	320,000	0.853
2018	390,000	325,000	0.833
2019	410,000	330,000	0.805
2020	400,000	325,000	0.813



As can be seen in the table and figures above, the deforestation intensity (i.e., the number of hectares deforested per head of cattle raised) decreased since the start of the program, which means that the jurisdiction was able to produce the same economic benefit while reducing deforestation. On average, the deforestation intensity decreased from 0.955 ha/head in the period 2010-2014 to 0.852 ha/head from 2015 to 2020. Moreover, the program was able to lower its deforestation intensity for more than 5 years, so it would qualify as an eligible program while assessing this risk indicator.

- Risk Indicator: Is the relevant legal and regulatory environment conducive to REDD+ objectives?**
 In order to determine if the relevant legal and regulatory environment is conducive to REDD+ objectives, all laws and regulations affecting the forest sector directly or indirectly in the ER Program jurisdiction shall be considered. Ex-ante, the analysis shall identify how the enforced legal framework in place at the time of the ER Program start promotes REDD+ objectives. The assessment shall consider all relevant laws and regulations with the aim of reflecting what their overall impact

on REDD+ objectives is. Consequently, any potential provisions or contradictions between laws and regulations that may represent obstacles to their achievement shall also be considered. Additionally, evidence shall be presented showing that the laws and regulations considered have been, and continue to be, effectively enforced. The level of enforcement shall be assessed considering official data, academic analysis, NGO publications and other relevant sources. The ex-post analysis shall be an update of the ex-ante assessment, i.e., shall reflect the modifications made to the legal and regulatory environment and any variations in its enforcement since the previous risk assessment. Risk scores shall be identified as:

- **Low risk:** The existing legal and regulatory framework undoubtedly promotes REDD+ (i.e., it does not include contradictions or gaps that may difficult the achievement of REDD+ objectives) and is effectively enforced.
- **Medium risk:** The existing legal and regulatory framework partially promotes REDD+ (i.e., there are contradictions or gaps that limit the achievement of REDD+ objectives, but it is mostly oriented towards promoting REDD+) OR the regulatory framework is partly enforced (i.e., enforcement issues have been identified, but they do not seriously undermine the effectiveness of the regulatory framework).
- **High risk:** The existing legal and regulatory framework does not promote REDD+, OR it is generally not enforced, OR the information available does not allow to assess this indicator.

The final risk score for Risk factor C shall be the lowest score of the two Risk Indicators above.

Risk factor D. Exposure and vulnerability to natural disturbances

- **Risk Indicator: Is the Accounting Area vulnerable to fire, storms, droughts, etc.?**

When determining the vulnerability of the Accounting Area to natural disturbances, all the occurrences of all types of disturbances in the last 50 years shall be identified and their impact on forest carbon stocks or forest area estimated. Ideally, forest carbon stocks shall be used to estimate this risk indicator; the reduction of forest areas should only be used where data on forest carbon stocks are not available. Average carbon stock values may be used for these estimates. Risk shall be assessed separately for each relevant type of disturbance, taking into account the average affected carbon stocks and return interval (or frequency) of disturbance events.

Risk scores shall be determined as:

- **Low risk:** Natural disturbances affecting forests in the Accounting Area have occurred every 50 years or more OR have been more frequent but reduced forest carbon stocks or the forest area by 10% or less.
 - **Medium risk:** Natural disturbances reducing forest carbon stocks or the forest area in the Accounting Area by more than 10% and less than 20% have occurred every 1 to less than 50 years.
 - **High risk:** Natural disturbances reducing forest carbon stocks or the forest area in the Accounting Area by 20% or more have occurred every 1 to less than 25 years OR there is not information to carry out the assessment.
- **Risk Indicator: Are there capacities and experiences in effectively preventing natural disturbances or mitigating their impacts?**

The resulting risk scores (low, medium, or high) of the previous Risk Indicator may be lowered by considering the capacities and experiences in effectively preventing natural disturbances or mitigating their impacts for each disturbance type. Risk mitigation activities shall be described, including an explanation of how they reduce the specific natural disturbance risk. Additionally,

information shall be provided showing how the impacts of such disturbances have lowered since the activities were implemented (for instance, information on the average hectares of forest burned per event before the activities started compared against the average hectares burned after their implementation). Information to support the assumption that the mitigation activities will be carried out throughout the crediting period may include government budgets, relevant cooperation agreements with donor countries or international bodies, etc.

Mitigation scores shall be determined as follows:

- **Low risk:** Activities proved to mitigate the identified natural disturbances have been successfully implemented for at least the last 10 years in the ER Program’s jurisdiction, and the ER Program proponent can demonstrate that it has the capacities and funding necessary to continue to fully implement them in the crediting period.
- **Medium risk:** Activities proved to mitigate the identified natural disturbances have been successfully implemented for at least the last 5 years in the ER Program’s jurisdiction, and the ER Program proponent can demonstrate that it has the capacities and funding necessary to continue to fully implement them in the crediting period.
- **High risk:** Activities proved to mitigate the identified natural disturbances have been successfully implemented for less than 5 years, AND/OR the ER Program proponent cannot demonstrate that it has the capacities and funding necessary to continue to fully implement them in the crediting period.

The final natural disturbance risk per type of disturbance shall be determined considering both the initial risk score and the risk mitigation score, according to the following table:

Table A1-1. Deduction of risk mitigation scores

Risk score	Mitigation score	Final score
High	High	Low
	Medium	Medium
	Low	High
Medium	High	Low
	Medium	Low
	Low	Medium
Low	High	Low
	Medium	Low
	Low	Low

The highest final risk score of the assessed disturbance types shall be deemed to represent the natural disturbance risk of the ER program. The assessment process for this risk factor is exemplified in Box 2 below.

Box 2. Example of natural disturbance risk assessment

ER Program A is located in an area where forest fires and pest outbreaks have been persistent in the last five decades. The government of the jurisdiction where the ER Program is located put in place a fire prevention program in 1990 that is still operating in 2023 and that has been associated with a reduction of the average carbon stocks affected by each fire event, based on available historical data (from an average 47.5 MtC per event in 1972-1984 to 35 MtC in 1992-2016, see table below). This program is anticipated to continue during the crediting period, as it is part of a long-term cooperation

agreement with several countries in the region. In contrast, no specific actions have been taken by the government to address pest outbreaks. The analysis of historical information regarding the impacts of these natural disturbances on forest carbon stocks within the Accounting Area are summarized in the tables below:

Fire risk

Year	Type of natural disturbance	Total forest carbon stocks (tC)	Affected carbon stocks (tC)	Affected carbon stocks (%)	Return interval (years)
1972	Fire	350,000,000	48,000,000	14	-
1984	Fire	296,000,000	47,000,000	16	12
1992	Fire	298,000,000	38,000,000	13	8
2016	Fire	260,000,000	32,000,000	12	24
Average				14	15

Pest outbreak risk

Year	Type of natural disturbance	Total forest carbon stocks (tC)	Affected carbon stocks (tC)	Affected carbon stocks (%)	Return interval (years)
1978	Pest	318,000,000	38,000,000	12	-
2009	Pest	257,000,000	40,000,000	16	31
2019	Pest	237,000,000	41,000,000	17	10
Average				15	21

As can be noted, on average, forest fires have impacted 14% of forest carbon stocks per event, and have happened with an average return interval of 15 years. Pest outbreaks have affected 15% of carbon stocks per event and have occurred every 21 years, both being average estimates.

Consequently, both disturbances would qualify as having a “medium” risk score. In the case of forest fires, the score would be downgraded to “low” due to the existence of the fire prevention program, which qualifies as having a “high” risk mitigation score (i.e., it has been running successfully for more than ten years and is assumed to continue during the crediting period). Nevertheless, the overall risk

of the ER Program regarding this risk factor is “medium” due to the reversal risk associated to pest outbreaks.

Document history

Version	Date	Notes