SOCIALCARBON®

Methodology Requirements

V1.2

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About

Developed in 2005 in Tocantins, Brazil the SOCIALCARBON Standard was created by Ecologica Institute, a Civil Society Organisation of Public Interest (OSCIP). The SOCIALCARBON Standard was designed during the implementation of Brazil's first carbon sequestration project in the Bananal Island, with the differential of ensuring community involvement in the initiative. Since 2022, SOCIALCARBON has been managed by the Social Carbon Foundation, a UK Charitable Organisation with the mission to act in mitigating the effects of climate change through scientific research, environmental conservation, and community-based sustainability activities.

Since 2022, the SOCIALCARBON Standard has transitioned from a co-benefits standard to a full standard for nature-based solutions. We believe that climate action and nature-based solutions must include the participation of the local people or they will not be sustainable in the long-term. The transition of the SOCIALCARBON Standard into a full standard for nature-based solutions further supports our mission of scaling local action against biodiversity loss and climate change, but on a global scale. To enable this vision to become a reality, the Social Carbon Foundation develops high quality standards to facilitate market-driven mechanisms that accelerate the development of projects which deliver real results for our communities and the planet.

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1. Introduction

This document provides the requirements for the development of methodologies under the SOCIALCARBON Standard. The purpose of this document is to assist methodology developers and validation/verification bodies in developing and assessing methodologies. Where external documents are referenced, such as the IPCC 2006 Guidelines for National GHG Inventories, and such documents are updated, the most recent version of the document shall be used. This document will be updated from time-to-time and readers shall ensure that they are using the most current version of the document.

2. General Requirements

In order to become an approved methodology under the SOCIALCARBON Standard, methodologies shall demonstrate how they meet the rules and requirements set out below. Methodologies developed by 3rd parties (not the Social Carbon Foundation) shall be assessed per the process set out in the SOCIALCARBON Standard document *Methodology Approval Process*.

2.1 Methodology Development

2.1.1 Methodologies developed by 3rd parties other than the Social Carbon Foundation, hereby referred to as "Methodology Developers" shall comply with the requirements set out in this document and any other applicable requirements set out in the SOCIALCARBON Standard rules, and be approved via the methodology approval process.

2.1.2 New methodologies shall not be developed where an existing methodology could reasonably be revised (i.e., developed as a methodology revision) to meet the objective of the proposed methodology.

2.1.3 Methodology elements shall be guided by the principles set out in the SOCIALCARBON Standard document SOCIALCARBON Standard. They shall clearly state the assumptions, parameters and procedures that have significant uncertainty, and describe how such uncertainty shall be addressed.

2.1.4 Methodologies shall be informed by a comparative assessment of the project and its alternatives in order to identify the baseline scenario. Such an analysis shall include, at a minimum, a comparative assessment of the implementation barriers and net benefits faced by the project and its alternatives.

2.2 Methodology Structure

2.2.1 Methodologies shall use the SOCIALCARBON Methodology Template for the framework document and the relevant SOCIALCARBON Template for the modules and tools. The framework document shall clearly state how the modules and/or tools are to be used within the context of the methodology.

Additionality and Crediting Baseline Approaches

2.2.2 Methodologies shall a project method to determine additionality and/or the crediting baseline, and shall state which type of method is used for each. A project method is a methodological approach that uses a project-specific approach for the determination of additionality and/or crediting baseline.

2.3 Uncertainty

2.3.1 Where applicable, methodology elements shall provide a means to estimate a 90 or 95 percent confidence interval. Where a methodology applies a 90 percent confidence interval and the width of the confidence interval exceeds 20 percent of the estimated value or where a methodology applies a 95 percent confidence interval and the width of the confidence interval exceeds 30 percent of the estimated value, an appropriate confidence deduction shall be applied.

2.3.2 Methods used for estimating uncertainty shall be based on recognized statistical approaches such as those described in the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Confidence deductions shall be applied using conservative factors such as those specified in the

CDM Meth Panel guidance on addressing uncertainty in its Thirty Second Meeting Report, Annex 14.

2.4 Models, Default Factors and Proxies

2.4.1 Where methodologies mandate the use of specific models to simulate processes that generate GHG emissions (i.e., the project proponent is not permitted to use other models), the following applies, given the note below:

1) Models shall be publicly available, though not necessarily free of charge, from a reputable and recognized source (e.g., the model developer's website, IPCC or government agency).
2) Model parameters shall be determined based upon studies by appropriately qualified experts that identify the parameters as important drivers of the model output variable(s).
3) Models shall have been appropriately reviewed and tested (e.g., ground-truthed using empirical data or results compared against results of similar models) by a recognized, competent organization, or an appropriate peer review group.
4) All plausible sources of model uncertainty, such as structural uncertainty or parameter uncertainty, shall be assessed using recognized statistical approaches such as those described in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, Chapter 3.
5) Models shall have comprehensive and appropriate requirements for estimating uncertainty in keeping with IPCC or other appropriate guidance, and the model shall be calibrated by parameters such as geographic location and local climate data.
6) Models shall apply conservative factors to discount for model uncertainty (in accordance with the requirements set out in Section 2.1.3) and shall use conservative assumptions and parameters that are likely to underestimate, rather than overestimate, the GHG emission reductions or removals.

Note – The criteria set out in (2)-(6) above are targeted at more complex models. For simple models, certain of these criteria may not be appropriate, or necessary to the integrity of the methodology. Such criteria may be disregarded, though the onus is upon the methodology developer to demonstrate that they are not appropriate or necessary.

2.4.2 Where methodologies use default factors and standards to ascertain GHG emission data and any supporting data for establishing baseline scenarios and demonstrating additionality, the following applies:

1) Where the methodology uses third party default factors and/or standards, such default factors and standards shall meet with the requirements for data set out in Section 3.4.2
2) Where the methodology itself establishes a default factor, the following applies:
   a) The data used to establish the default factor shall comply with the requirements for data set out in Section 3.4.2.
   b) The methodology shall describe in detail the study or other method used to establish the default factor.
   c) The methodology developer shall identify default factors which may become out of date (i.e., those default factors that do not represent physical constants or otherwise would not be expected to change significantly over time). Such default factors are subject to periodic re-assessment, as set out in the SOCIALCARBON Standard document Methodology Approval Process.

3) Where methodologies allow project proponents to establish a project-specific factor, the methodology shall provide a procedure for establishing such factors.

Note – Methodologies may use deemed savings factors which, as set out in the definition of deemed savings factor, are a specific type of default factor.

2.4.3 Where proxies are used, it shall be demonstrated that they are strongly correlated with the value of interest and that they can serve as an equivalent or better method (e.g., in terms of reliability, consistency or practicality) to determine the value of interest than direct measurement of the value itself.

2.5 AFOLU Methodologies

2.5.1 There are currently three AFOLU project categories under the SOCIALCARBON Standard, as further described in Appendix 1 Eligible AFOLU Project Categories. Proposed AFOLU methodologies shall fall within one or more of these AFOLU project categories.

2.5.2 Where a methodology combines AFOLU project categories, the methodology shall adhere to all sets of requirements pertaining to each and every project category covered, either separating activities, or where activities cannot be separated, taking a conservative approach to each requirement.

2.6 Methodology Revisions

2.6.1 Methodology revisions are appropriate where a project activity is broadly similar to the project activities eligible under an existing methodology and such project activity can be included through reasonable changes to that methodology. Methodology revisions are also appropriate where an existing methodology can be materially improved. Materially improving a methodology involves comparing the existing and proposed methodologies so as to show that the changes will deliver material improvements that will result in greater accuracy of measurement of GHG emissions reductions or removals, improved conservatism and/or reduced transaction costs.

2.6.2 Methodology revisions shall be prepared using the SOCIALCARBON Methodology Template and shall be managed via the methodology approval process. They may be prepared and submitted to the methodology approval process by the developer of the original methodology or any other entity.

2.6.3 The SOCIALCARBON Standard distinguishes between revisions to SOCIALCARBON methodologies and revisions to approved GHG program methodologies. The requirements for the development and assessment of each are set out in the SOCIALCARBON Standard document Methodology Approval Process.

3. Methodology Components

3.1 Definitions

3.1.1 Definitions shall be written in a clear and concise manner.

3.1.2 Defined terms shall be used within the methodology and methodologies shall not define terms that are already included in the SOCIALCARBON Standard Definitions.

3.2 Applicability Conditions

Applicability conditions define the project activities which are eligible to apply a given methodology. These may include conditions such as geographic applicability, technology type, historical land use and any other conditions under which the methodology is or is not applicable.

3.2.1 Methodologies shall use applicability conditions to specify the project activities to which it applies and shall establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied. Any applicability conditions set out in tools or modules used by the methodology shall also apply.

3.3 Project Boundary

The project boundary includes the GHG sources, sinks and reservoirs that are controlled by the project proponent, are related to the project or are affected by project activities. Methodologies shall describe the project boundary and the GHG sources, sinks and reservoirs included in or excluded from the project boundary

3.3.1 Methodologies shall establish criteria and procedures for describing the project boundary and identifying and assessing GHG sources, sinks and reservoirs relevant to the project and baseline scenarios. Justification for GHG sources, sinks and reservoirs included or excluded shall be provided.

3.3.2 In identifying GHG sources, sinks and reservoirs relevant to the project, methodologies shall set out criteria and procedures for identifying and assessing GHG sources, sinks and reservoirs that are controlled by the project proponent, related to the project or affected by the project (i.e., leakage).

3.3.3 In identifying GHG sources, sinks and reservoirs relevant to the baseline scenario, methodologies shall:

1) Set out criteria and procedures used for identifying the GHG sources, sinks and reservoirs relevant for the project.
2) Where necessary, explain and apply additional criteria for identifying relevant baseline GHG sources, sinks and reservoirs.

3) Compare the GHG sources, sinks and reservoirs identified for the project with those identified in the baseline scenario, to ensure equivalency and consistency.

AFOLU Methodologies

The relevant carbon pools for AFOLU project categories are aboveground tree biomass (or aboveground woody biomass, including shrubs, in ARR and ALM projects), aboveground non-tree biomass (aboveground non-woody biomass in ARR and ALM projects), belowground biomass, litter, dead wood, soil (including peat) and wood products. Methodologies shall include the relevant carbon pools set out in Table 1 below.

	Above-ground tree * biomass	Above-ground non-tree * biomass	Below ground biomass	Litter	Dead wood	Soil	Wood Products
ARR	**Y**	**S**	**S**	**S**	**S**	**S**	**O**
ALM	**S**	**N**	**O**	**N**	**N**	**Y**	**O**
WRC	**Y**	**O**	**O**	**N**	**O**	**Y**	**O**

Y	Carbon pool shall be included in the project boundary.
S	Carbon pool shall be included where project activities may significantly reduce the pool, and may be included where baseline activities may significantly reduce the pool, as set out in Sections 3.3.9 to 3.3.12. The methodology shall justify the exclusion or inclusion of the pool in the project boundary.
N	Carbon pool does not have to be included, because it is not subject to significant changes or potential changes are transient in nature. The pool may be included in the project boundary because of positive impacts to reducing or removing emissions. Where the carbon pool is included in the project boundary, methodologies shall establish criteria and procedures to set out when a project proponent may include the pool.
O	Carbon pool is optional and may be excluded from the project boundary. Where the pool is included in the methodology, the methodology shall establish criteria and procedures to set out when a project proponent shall or may include the pool.
*	For ARR and ALM projects, in place of "Aboveground tree" and "Aboveground non-tree", these two carbon pool categories should be read as "Aboveground woody" and "Aboveground non-woody" respectively.

3.3.4 Additional guidance and further requirements with respect to specific carbon pools and GHG sources are set out below in Sections 3.3.9 to 3.3.12.

3.3.5 Specific carbon pools and GHG sources, including carbon pools and GHG sources that cause project and leakage emissions, may be deemed negligible and do not have to be accounted for if together the omitted decrease in carbon stocks (in carbon pools) or increase in GHG emissions (from GHG sources) amounts to less than five percent of the total GHG benefit generated by the project. The methodology shall establish the criteria and procedures by which a pool or GHG source may be determined to be negligible.

For example, peer reviewed literature or the CDM A/R methodological tool for testing significance of GHG emissions in A/R CDM project activities may be used to determine whether decreases in carbon pools and increases in GHG emissions are negligible / de minimis.

Further, the following GHG sources may be deemed negligible and need not be accounted for:

1) ARR: N2O emissions from project activities that apply nitrogen containing soil amendments and N2O emissions caused by microbial decomposition of plant materials that fix nitrogen. ALM projects that apply nitrogen fertilizer and/or manure or plant nitrogen fixing species shall account for N2O emissions.
2) ARR and WRC: GHG emissions from the removal or burning of herbaceous vegetation and collection of non-renewable wood sources for fencing of the project area.
3) ARR and WRC: Fossil fuel combustion from transport and machinery use in project activities. Where machinery use for earth moving activities may be significant in WRC project activities as compared to the baseline, emissions shall be accounted for if above de minimis / negligible, in accordance with this Section 3.3.5. Fossil fuel combustion from transport and machinery use in rewetting of drained peatland and conservation of peatland project activities need not be accounted for.

3.3.6 Specific carbon pools and GHG sources do not have to be accounted for if their exclusion leads to conservative estimates of the total GHG emission reductions or removals generated. The methodology shall establish criteria and procedures by which a project proponent may determine a carbon pool or GHG source to be conservatively excluded. Such conservative exclusion may be determined by using tools from an approved GHG program, such as the CDM A/R methodological tool Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected in CDM A/R project activities, or by using peer-reviewed literature.

3.3.7 Reductions of N2O and/or CH4 emissions are eligible for crediting if in the baseline scenario the project area would have been subject to livestock grazing, rice cultivation, burning and/or nitrogen fertilization.

3.3.8 Reductions of CH4 emissions are eligible for crediting if fire would have been used to clear the land in the baseline scenario.

Afforestation, Reforestation and Revegetation (ARR)

3.3.9 Where a methodology is applicable to projects that may reduce the aboveground non-woody biomass, belowground biomass, litter, dead wood or soil pools above negligible (as set out in Section 3.3.4), the relevant carbon pool shall be included in the project boundary.

Wetlands Restoration and Conservation (WRC)

3.3.10 Methodologies that allow for combined category projects shall apply the relevant WRC requirements for the soil carbon pool and the respective non-WRC AFOLU project category requirements for the other pools, unless the former may be deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6).

3.3.11 Methodologies shall include CH4 emissions in the project boundary (for example, transient peaks of CH4 that may arise after rewetting peatland). The methodology shall establish the criteria and procedures by which the CH4 source may be deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6).

3.3.12 For project activities implemented on coastal wetlands, methodologies shall establish criteria and procedures for establishing the geographic boundary that considers projections of expected relative sea level rise. The procedures shall account for the potential effect of sea level rise on the lateral movement of wetlands during the project crediting period and the potential that the wetlands will migrate beyond the project boundary.

3.4 Baseline Scenario

The baseline scenario represents the activities and GHG emissions that would occur in the absence of the project activity. The baseline scenario must be accurately determined so that an accurate comparison can be made between the GHG emissions that would have occurred under the baseline scenario and the GHG emission reductions and/or removals that were achieved by project activities.

3.4.1 Methodologies shall establish criteria and procedures for identifying alternative baseline scenarios and determining the most plausible scenario, taking into account the following:

1) The identified GHG sources, sinks and reservoirs.
2) Existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to the project.
3) Data availability, reliability and limitations.
4) Other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific and temporal assumptions or projections.

3.4.2 If default factors are utilised the Methodology will use appropriate data sources including economic and engineering analyses and models, peer-reviewed scientific literature, case studies, empirical data, and common practice data. The data and dataset derived from such data sources shall meet the requirements below. The CDM Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines also provides useful related guidance.

1) Data collected directly from primary sources shall comply with relevant and appropriate standards, where available, for data collection and analysis, and be audited at an appropriate frequency by an appropriately qualified, independent organization.
2) Data collected from secondary sources shall be available from a recognized, credible source and must be reviewed for publication by an appropriately qualified, independent organization or appropriate peer review group, or be published by a government agency.
3) Data shall be from a time period that accurately reflects available technologies and/or current practice, and trends, within the sector. Selection of the appropriate temporal range shall be determined based on the guidance provided in the GHG Protocol for Project Accounting, Chapter 7 (WRI-WBCSD).

4) Where sampling is applied in data collection, the requirements set out in Section 2.1.3 shall be adhered to. The methodology developer shall demonstrate that sampling results provide an unbiased and reliable estimate of the true mean value (i.e., the sampling does not systematically underestimate or overestimate the true mean value).
5) Data shall be publicly available or made publicly available. Proprietary data (e.g., data pertaining to individual facilities) may be aggregated, and therefore not made publicly available, where there are demonstrable confidentiality considerations. However, sufficient data shall be publicly available to provide transparency and credibility to the dataset.
6) All data shall be made available, under appropriate confidentiality agreements as necessary, to the Social Carbon Foundation and each of the validation/verification bodies assessing the proposed performance benchmark methodology, to allow them to reproduce the determination of the performance benchmark. Data shall be presented in a manner that enables them to independently assess the presented data.
7) Data shall be appropriate to the methodology's geographic scope and the project activities applicable under it.
8) All reasonable efforts shall be undertaken to collect sufficient data and the use of expert judgment as a substitute for data shall only be permitted where it can be demonstrated that there is a paucity of data. Expert judgment may be applied in interpreting data. Where expert judgment is used, good practice methods for eliciting expert judgment shall be used (e.g., IPCC 2006 Guidelines for National GHG Inventories).
9) Where data must be maintained in a central repository on an on-going basis (e.g., in a database that holds sector data for use by project proponents in establishing specific performance benchmarks for their projects), there shall be clear and robust custody arrangements for the data and defined roles and responsibilities with respect to the central repository.

AFOLU Methodologies

3.4.3 The determination and establishment of a baseline scenario shall follow an internationally accepted GHG inventory protocol, such as the IPCC 2006 Guidelines for National GHG Inventories.

Agricultural Land Management (ALM)

3.4.4 The criteria and procedures for establishing the baseline scenario shall require the project proponent to take into account current and previous management activities. The quantification of the baseline scenario may be determined from measured inventory estimates and/or activity-based estimation methods, such as those found in the IPCC 2006 Guidelines for National GHG Inventories.

Wetland Restoration and Conservation (WRC)

3.4.5 The criteria and procedures for establishing the RWE baseline scenario shall take into account the following:

1) The current and historic hydrological characteristics of the watershed or coastal plain, and the drainage system in which the project occurs.
2) The long-term average climate variables influencing water table depths and the timing and quantity of water flow. The long-term average climate variables shall be determined using data from climate stations that are representative of the project area and shall include at least 20 years of data.
3) Planned water management activities (such as dam construction).

3.4.6 The criteria and procedures for establishing the RWE baseline scenario shall also consider the relevant non-human induced rewetting brought about by any of the following:

1) Collapsing dikes or ditches that would have naturally failed over time without their continued maintenance.
2) Progressive subsidence of deltas or peatlands leading to a rise in relative water table depths, thus reducing CO2 emissions but possibly increasing CH4 emissions in freshwater systems.
3) Non-human induced elevation of non-vegetated wetlands to build vegetated wetlands. Deltaic systems with high sediment load from rivers often do this naturally, and this should be counted as part of the baseline.

3.4.7 The criteria and procedures for establishing the CIW baseline scenario are handled differently for each of the eligible CIW activities, as follows:

1) AUWD: The criteria and procedures for establishing the baseline scenario shall require the project proponent to reference a period of at least 10 years for modelling a spatial

trend in conversion, taking into account the long-term average climate variables, and the observed conversion practices (e.g., drainage including canal width, depth, length and maintenance). The long-term average climate variable shall be determined using data from climate stations that are representative of the project area and shall include at least 20 years of data.

2) APWD: The criteria and procedures for establishing the baseline scenario shall require the project proponent to provide verifiable evidence to demonstrate that, based on government plans (for publicly owned and managed wetland), community plans (for publicly owned and community-managed wetland), concessionary plans (for publicly owned and concession holder managed) or landowner plans (for privately owned wetland), the project area was intended to be drained or otherwise converted. The annual rate and depth of drainage or rate of other conversion shall be based on the common practice in the area—that is, how much wetland is typically drained or converted each year by similar baseline activities.

3.4.8 The criteria and procedures for identifying fire in the baseline scenario shall demonstrate with fire maps and historical databases on fires that the project area is now and in the future would be under risk of anthropogenic fires. The procedure for identifying fire in the baseline scenario shall also consider any relevant current and planned land use conditions that may affect the occurrence of fire in order to establish the most plausible scenario for fire in the baseline.

3.4.9 Many land use activities on wetlands (e.g., aquaculture and agriculture) involve the exposure of wetland soils to aerobic decomposition through piling, dredging (expansion of existing channels) or channelization (cutting through wetland plains).

3.4.10 Where relevant, the criteria and procedures for identifying WRC baseline scenarios shall account for such processes as they expose disturbed carbon stocks to aerobic decomposition thus increasing the rate of organic matter decomposition and GHG emissions that may continue for years from the stockpiles. Methodologies shall include credible methods for quantifying and forecasting GHG emissions from such degradation.

3.4.11 Where relevant, the criteria and procedures for identifying WRC baseline scenarios shall take account of hydrological processes that lead to increased carbon burial and GHG reductions within the project area. Such processes include changes in the landscape form (i.e., construction of levees to constrain flow and flooding patterns or dams to hold water) and changes in land surface (i.e., forest clearing, and ditching or paving leading to intensified runoff).

3.4.12 Where relevant, the criteria and procedures for identifying WRC baseline scenarios shall take account of processes within the project area that reduce sediment supply associated with changes in the landscape (e.g., construction of upstream dams or stabilization of eroding feeder cliffs along the coast). The supply of sediment varies over time and the time-averaged delivery of sediment shall be considered.

3.4.13 Where relevant, methodologies shall establish criteria and procedures for identifying wetland erosion and/or migration resulting from sea level rise in the baseline scenario on the basis of wetland maps, historical trend data, future projection of sea level rise and how changes in management would impact carbon stocks.

3.4.14 Where relevant, the criteria and procedures for establishing the baseline scenario shall require the project proponent to take into account current and historic management activities outside the project area that have significantly impacted or may significantly impact the project area, including the following:

1) Disruption to or improvement of natural sediment delivery, as this will alter the rate and magnitude of coastal wetlands response to sea level rise.
2) Upstream dam construction, as this will alter water and sediment delivery, as well as salinity in coastal lowlands.
3) Construction of infrastructure inland of coastal wetlands, as this will impair wetland capacity to migrate landwards with sea level rise.
4) Construction of coastal infrastructure, as this can impair sediment movement along shorelines causing wetland loss and increasing risk of carbon emissions with sea level rise.

3.4.15 Methodologies that allow for combined category projects shall require the use of the relevant WRC requirements and the respective non-WRC AFOLU project category requirements for the determination and establishment of the baseline scenario.

3.5 Additionality

3.5.1 Methodologies shall establish a procedure for the demonstration and assessment of additionality based upon the requirements set out below. The steps which shall be included in methodologies for each method of demonstrating additionality are set out below.

3.5.2 Methodologies shall use a project method to determine additionality. The high level specifications and procedural steps for each approach are set out in Sections 3.5.3 to 3.5.5 below. New methodologies developed under the SOCIALCARBON Standard shall meet this requirement by doing one of the following:

1) Referencing and requiring the use of an appropriate additionality tool that has been approved under the SOCIALCARBON Standard or an approved GHG program;
2) Developing a full and detailed procedure for demonstrating and assessing additionality directly within the methodology; or
3) Developing a full and detailed procedure for demonstrating and assessing additionality in a separate tool, which shall be approved via the methodology approval process, and referencing and requiring the use of such new tool in the methodology.

Note – Reference in a methodology to the SOCIALCARBON Standard requirements on additionality is insufficient. The SOCIALCARBON Standard requirements are high level requirements and do not represent a full and detailed procedure for the demonstration of additionality. The only exception to this is with respect to regulatory surplus (i.e., methodologies may directly reference the SOCIALCARBON Standard requirements on regulatory surplus and do not need to further develop a procedure for demonstrating and assessing regulatory surplus).

Project Method

3.5.3 Step 1: Regulatory Surplus.
The project activities shall not be directly mandated by any national and local laws, regulations, rules, procedures, other legally binding mandates and, where relevant, international conventions and agreements.

3.5.4 Step 2: Implementation Barriers.

The project shall face one or more distinct barrier(s) compared with barriers faced by alternatives to the project:

1) Investment barrier: Project faces capital or investment return constraints that can be overcome by the additional revenues associated with the sale of GHG credits.
2) Technological barriers: Project faces technology-related barriers to its implementation.
3) Institutional barriers: Project faces financial (other than identified in investment barrier above), organizational, cultural or social barriers that the SCU revenue stream can help overcome.

3.5.5 Step 3: Common Practice. The project shall not be common practice, determined as follows:

1) Project type shall not be common practice in sector/region, compared with projects that have received no carbon finance.
2) Where it is common practice, the project proponent shall identify barriers faced compared with existing projects.
3) Demonstration that the project is not common practice shall be based on guidance provided in The GHG Protocol for Project Accounting, Chapter 7 (WRI-WBCSD).

3.6 Baseline and Project Emissions/Removals

Baseline emissions, and project emissions and/or removals, must be accurately quantified in order to determine net emission reductions and removals achieved by projects. Methodologies shall therefore set out procedures to quantify these emissions and/or removals.

3.6.1 Methodologies shall establish criteria and procedures for quantifying GHG emissions and/or removals, and/or carbon stocks, for all selected GHG sources, sinks and/or reservoirs identified in the project boundary.

AFOLU Methodologies

3.6.2 The IPCC 2006 Guidelines for National GHG Inventories or the IPCC 2003 Good Practice Guidance for Land Use, Land-Use Change and Forestry shall be used as guidance for quantifying increases or decreases in carbon stocks and GHG emissions. The IPCC Guidelines shall also be followed in terms of quality assurance/quality control (QA/QC) and uncertainty analysis.

3.6.3 The IPCC 2006 Guidelines for National GHG Inventories may be referenced to establish procedures for quantifying GHG emissions/removals associated with the following carbon pools including:

1) Litter;
2) Dead wood;
3) Soil (methodologies may follow the IPCC guidelines for the inclusion of soil carbon, including the guidelines that are in sections not related to forest lands); and
4) Belowground biomass (estimated using species-dependent root-to-shoot ratios, the Mokany et al.[1] ratios and equations, or the Cairns equations).

Afforestation, Reforestation and Revegetation (ARR)

3.6.4 Where ARR projects include harvesting, the loss of carbon due to harvesting shall be included in the quantification of project emissions. The maximum number of GHG credits available to projects shall not exceed the long-term average GHG benefit. The GHG benefit of a project is the difference between the project scenario and the baseline scenario of carbon stocks stored in the selected carbon pools and adjusted for any project emissions of N2O, CH4 and fossil-derived CO2, and leakage emissions. The long-term average GHG benefit shall be calculated using the following procedure:

1) Establish the period over which the long-term average GHG benefit shall be calculated, noting the following:
    a) For ARR projects undertaking even-aged management, the time period over which the long-term GHG benefit is calculated shall include at minimum one full harvest/cutting cycle, including the last harvest/cut in the cycle. For example, where a project crediting period is 40 years and has a harvest cycle of 12 years, the long-term average GHG benefit will be determined for a period of 48 years.
    b) For ARR projects under conservation easements with no intention to harvest after the project crediting period the time period over which the long-term average is calculated shall be the length of the project crediting period.

[1] Mokany, K., Raison, R. J., and Prokushkin, A. S. 2006. Critical analysis of root:shoot ratios in terrestrial biomes. Global Change Biology 12: 84-96

2) Determine the expected total GHG benefit of the project for each year of the established time period. For each year, the total GHG benefit is the to-date GHG emission reductions or removals from the project scenario minus baseline scenario.
3) Sum the total GHG benefit of each year over the established time period.
4) Calculate the average GHG benefit of the project over the established time period.
5) Use the following equation to calculate the long-term average GHG benefit:

$$LA = \frac{\sum_{t=0}^{n} PEt - BEt}{n}$$

Where:

LA = The long-term average GHG benefit

PEt = The total to-date GHG emission reductions and removals generated in the project scenario (tCO2e). Project scenario emission reductions and removals shall also consider project emissions of CO2, N2O, CH4 and leakage.

BEt = The total to-date GHG emission reductions and removals projected for the baseline scenario (tCO2e)

t = Year

n = Total number of years in the established time period

6) A project may claim GHG credits during each verification event until the long-term average GHG benefit is reached. Once the total number of GHG credits issued has reached this average, the project can no longer issue further GHG credits. The long-term average GHG benefit shall be calculated at each verification event, meaning the long-term average GHG benefit may change over time based on monitored data.

7) Buffer credits are deduced from the total eligible number of GHG credits that can be issued at each verification. As set out in Section 3.8.4, the number of buffer credits to withhold is based on the change in carbon stocks only (not the net GHG benefit), as such the buffer credits will be based on the long-term average change in carbon stock. Use the following equation to calculate the long-term average change in carbon stock.

$$LC = \frac{\sum_{t=0}^{n} PCt - BCt}{n}$$

Where:

LC = The long-term average change in carbon stock

PEt = The total to-date carbon stock in the project scenario (tCO2e)

BEt = The total to-date carbon stock projected for the baseline scenario (tCO2e)

t = Year

n = Total number of years in the established time period

Wetland Restoration and Conservation (WRC)

3.6.5 The following applies with respect to the criteria and procedures for quantifying GHG emissions/removals in the baseline scenario:

1) For WRC activities on peatland the peat depletion time (PDT) shall be included in the quantification of GHG emissions and removals in the baseline scenario, and for non-peat wetlands, the soil organic carbon depletion time (SDT) shall be included in the quantification of GHG emissions and removals in the baseline scenario, noting the following:
    a) PDT is the time it would have taken for the peat to be completely lost due to oxidation or other losses, or for the peat depth to reach a level where no further oxidation or other losses occur. No GHG emission reductions may be claimed for a given area of peatland for longer than the PDT. The procedure for determining the PDT shall conservatively consider peat depth and oxidation rate within the project boundary and may be estimated based on the relationship between water table depth, subsidence, and peat depth in the project area. The PDT is considered part of the baseline and thus shall be reassessed with the baseline in accordance with the requirements set out in the SOCIALCARBON Standard document SOCIALCARBON Standard.
    b) SDT is the time it would have taken for the soil organic carbon to be lost due to oxidation or to reach a steady stock where no further losses occur. No GHG emissions reductions may be claimed for a given area of wetland for longer than the SDT. The procedure for determining the SDT shall conservatively

consider soil organic carbon content and oxidation rate within the project boundary and may be estimated based on the relationship between water table depth and soil organic carbon content in the project area. Where wetland soils are subject to sedimentation or erosion, the procedure for determining the SDT shall conservatively account for the associated gain or loss of soil organic carbon. This assessment is not mandatory in cases where soil organic carbon content on average may be deemed de minimis as set out in Section 3.3.6.

2) Any applicable and justifiable proxies, as established in scientific literature, for GHG emissions projected throughout the project crediting period shall be estimated.
3) Net baseline GHG emissions during the project crediting period, including emissions associated with the estimated water table depths, salinity or another justifiable proxy for GHG emissions, plus emissions from other activities such as biomass loss or fires, as well as carbon sequestration, where applicable, shall be estimated.

3.6.6 Baseline emissions shall be estimated conservatively and consider that the water table depth in the project area may rise during the project crediting period due to any or all of the causes identified in alternative baseline scenarios as set out in Section 3.4.7.

3.6.7 The procedure for quantifying CO2 emissions for the baseline and project emissions may be estimated through hydrological modelling or the modelling of proxies for GHG emissions in place of direct on-site gas flux measurements. The procedure may include estimation through well documented relationships between CO2 emissions and other variables such as vegetation types, water table depth, salinity or subsidence, or remote sensing techniques that adequately assess and monitor soil moisture. Because of the dominant relationship between water table depth and CO2 emissions, drainage depth can be used as a proxy for CO2 emissions in the absence of emissions data.

3.6.8 Where relevant, the micro-topography of the project area (e.g., the proportion of hummocks and hollows and vegetation patterns in peatlands) shall be considered. Net GHG emissions reductions shall be calculated using the same methods that are used for the baseline estimates, but using monitored data. Where relevant, the fate of transported organic matter as a result of sedimentation, erosion and oxidation shall be assessed conservatively based on peer-reviewed literature and considering the following:

1) It is conservative to not account for the loss of sediment from the project area in the baseline scenario.

2) It is conservative to not account for further sedimentation in the project area in the project scenario. Where soil carbon is included in the project boundary, sedimentation shall be accounted for so that carbon sequestration resulting from the growth of vegetation can be estimated separately from carbon accumulated in sedimentation. In the absence of the project activity, such high carbon silt would be washed out to sea and would not have been oxidized and emitted in the baseline, and in such cases carbon accumulated in sedimentation is not eligible for crediting.

3.6.9 With respect to the soil carbon pool, the maximum quantity of GHG emission reductions that may be claimed by the project shall not exceed the net GHG benefit generated by the project 100 years after its start date. This limit is established because in wetlands remaining partially drained or not fully rewetted, or where drainage continues, the soil carbon will continue to erode and/or oxidize leading to GHG emissions and eventually depletion of the soil carbon. To determine this long-term net GHG benefit, methodologies shall establish criteria and procedures to estimate the remaining soil carbon stock adjusted for any project emissions and leakage emissions in both the baseline and project scenarios for 100 years, taking into account uncertainties in modeling and using verifiable assumptions. Projects unable to establish and demonstrate a significant difference in the net GHG benefit between the baseline and project for at least 100 years are not eligible.

3.6.10 Emissions of CH4 from drained or saline wetlands may be excluded in the baseline scenario where it may be deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6).

3.6.11 As WRC activities are likely to influence CH4 emissions, methodologies shall establish procedures to estimate such emissions, and shall establish the criteria and procedures by which the source may be deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6). Where relevant, the micro-topography of the project area (i.e., the proportion of hummocks and hollows and vegetation patterns) shall be considered.

3.6.12 Methodologies that combine project categories shall use the relevant WRC requirements and the respective AFOLU project category requirements for quantifying GHG emissions/removals, unless the former may be deemed de minimis (as set out in Section 3.3.6) or conservatively excluded (as set out in Section 3.3.6).

3.6.13 RWE projects on peatland that include an activity designed specifically to reduce incidence and severity of fires shall deduct the amount of peat assumed to burn when estimating peat depletion times. Where peat depletion times are estimated based only on oxidation rates due to drainage, the outcome would be a longer period than when first subtracting the amount of peat that is considered to burn in the baseline.

3.6.14 Methodologies for RWE projects on peatland explicitly addressing anthropogenic peatland fires occurring in drained peatlands shall establish procedures for determining or conservatively estimating the baseline emissions from peatland fire occurring in the project area using defensible data (such as fire maps, historical databases on fires, and where appropriate, combined with temperature and precipitation data). Methods for estimating GHG emissions from fire may be based on the IPCC 2006 Guidelines for National GHG Inventories, or other methods based on scientific, peer-reviewed literature.

3.6.15 Where relevant, methodologies shall establish procedures to account for any changes in carbon sequestration or GHG emission reductions resulting from lateral movement of wetlands due to sea level rise, or coastal squeeze associated with any structures that prevent wetland landward migration and cause soil erosion.

Agricultural Land Management (ALM)

3.6.16 Methodologies that target soil carbon stock increases shall quantify, where significant, concomitant increases in N2O, CH4 and fossil-derived CO2. Similarly, methodologies targeting N2O emission reductions shall establish the criteria and procedures by which the changes in soil carbon stocks may be deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6).

3.6.17 Procedures to quantify GHG emissions/removals from cropland and grassland soil management projects may include activity-based model estimates, direct measurement approaches, or a combination of both.

3.6.18 Procedures to measure soil carbon stocks shall be based on established and reliable sampling methods, with sufficient sampling density to determine statistically significant changes at a 95 percent confidence level. Uncertainty related to sampling shall be addressed as set out in Section 2.3, above.

3.6.19 Soil organic carbon stock changes shall be calculated based on equivalent soil mass (ESM) to a minimum depth of 30 cm, utilizing site-specific measurements of soil organic carbon concentrations. Bulk density measurements are not required to determine SOC stock changes on an ESM basis. Procedures to calculate SOC stock changes on an ESM basis should be based on the references Ellert & Bettany[2] (1995), von Haden, Yang & DeLucia[3] (2020) and Wendt & Hauser (2013)[4].

3.6.20 Procedures to quantify N2O and CH4 emissions factors shall be based on scientifically defensible measurements of sufficient frequency and duration to determine emissions for a full annual cycle. Minimum baseline estimates for N2O and CH4 emissions shall be based on documented management records averaged over the five-year period prior to the project start date. Documented management records may include fertilizer purchase records, manure production estimates and/or livestock data. For new management entities or where such records are unavailable, minimum baseline estimates may be based on a conservative estimate of common practice in the region.

3.7 Leakage

Leakage is the net change of anthropogenic GHG emissions that occurs outside the project boundary and is attributable to project activities. Methodologies shall establish procedures to

[2] Ellert, B.H. and Bettany, J.R. (1995) 'Calculation of organic matter and nutrients stored in soils under contrasting management regimes', Canadian Journal of Soil Science, 75(4), pp. 529–538. doi:10.4141/cjss95-075

[3] von Haden, A.C., Yang, W.H. and DeLucia, E.H. (2020) 'Soils' dirty little secret: Depth-based comparisons can be inadequate for quantifying changes in soil organic carbon and other mineral soil properties', Global Change Biology, 26(7), pp. 3759 – 3770. doi:10.1111/gcb.15124

[4] Wendt, J.W. and Hauser, S. (2013) 'An equivalent soil mass procedure for monitoring soil organic carbon in multiple soil layers', European Journal of Soil Science, 64(1), pp. 58–65. doi:10.1111/ejss.12002.

quantify leakage, where the potential for leakage is identified, as projects may otherwise overestimate their net emission reductions and/or removals.

3.7.1 The methodology shall establish criteria and procedures for quantifying leakage.

AFOLU Methodologies

3.7.2 The methodology shall establish procedures to quantify all significant sources of leakage. Leakage is defined as any increase in GHG emissions that occurs outside the project boundary (but within the same country), and is measurable and attributable to the project activities. All leakage shall be accounted for, in accordance with this Section 3.7.

The three types of leakage are:

1) Market leakage occurs when projects significantly reduce the production of a commodity causing a change in the supply and market demand equilibrium that results in a shift of production elsewhere to make up for the lost supply.
2) Activity-shifting leakage occurs when the actual agent of deforestation and/or forest or wetland degradation moves to an area outside of the project boundary and continues its deforestation or degradation activities elsewhere.
3) Ecological leakage occurs in WRC projects where a project activity causes changes in GHG emissions or fluxes of GHG emissions from ecosystems that are hydrologically connected to the project area.

3.7.3 Leakage that is determined, in accordance with Section 3.3.5, to be below insignificant does not need to be included in the GHG emissions accounting. The significance of leakage may also be determined using the CDM A/R methodological tool for testing significance of GHG Emissions in A/R CDM Project Activities.

3.7.4 GHG emissions from leakage may be determined either directly from monitoring, or indirectly when leakage is difficult to monitor directly but where scientific knowledge provides credible estimates of likely impacts. The GHG credit calculation table provided below in Section 3.8 includes an example of indirect leakage accounting.

3.7.5 The methodology shall require projects to account for market leakage where the production of a commodity (e.g., timber, aquacultural products or agricultural products) is significantly affected by the project. The significance of timber production is determined as set out in Section 3.3.6 above.

3.7.6 Leakage occurring outside the host country (international leakage) does not need to be quantified.

3.7.7 Where leakage mitigation measures include tree planting, aquacultural intensification, agricultural intensification, fertilization, fodder production, other measures to enhance cropland and/or grazing land areas, leakage management zones or a combination of these, then any significant increase in GHG emissions associated with these activities shall be accounted for, unless deemed insignificant (as set out in Section 3.3.5) or can be conservatively excluded (as set out in Section 3.3.6).

3.7.8 Methodologies shall not allow for projects to account for positive leakage (i.e., where GHG emissions decrease or removals increase outside the project area due to project activities).

Afforestation/Reforestation/Revegetation (ARR)

3.7.9 Activity-shifting leakage in ARR projects can result from, inter alia, the shifting of grazing animals, shifting of households or communities, shifting of aquacultural or agricultural activities or shifting of fuelwood collection (from non-tree sources). Leakage emissions may also result from transportation and machinery use. The requirements for assessing and managing leakage in ARR projects are similar to those for CDM afforestation/reforestation project activities, and methodologies may require or allow projects to apply CDM tools for estimating leakage, such as the Tool for calculation of GHG emissions due to leakage from increased use of non-renewable woody biomass attributable to an A/R CDM project activity.

3.7.10 Where deforestation increases outside the project area due to leakage from project activities, methodologies shall set out criteria and procedures for projects to assess and quantify the effects of this deforestation on all carbon pools, unless determined to be de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6).

Wetland Restoration and Conservation (WRC)

3.7.11 RWE projects involving rewetting of forested wetlands are likely to reduce the productivity of the forest or make harvesting more difficult, which could lead to fewer forest products and thus result in leakage (i.e., GHG emissions from logging and drainage elsewhere). Where the project results in activity shifting of forest products, accounting for both activity-shifting and/or market leakage shall be followed. Where the project results in the shifting of drainage activities or other activities that would lower the water table, the expected GHG emissions from a lower water table shall also be accounted for. RWE projects on peatland shall assume that the PDT of leakage activities occurs over the length of the project crediting period if the PDT is longer than the project crediting period.

3.7.12 Rewetting in the project area may lead to higher water table depths in some areas beyond the project boundary, and consequently leading to lower water table depths in downstream areas further beyond the project boundary (e.g., in the case of project activities that reverse subsidence), or cause transportation of organic matter to areas beyond the project boundary. In such cases, the project proponent shall be required to demonstrate that such changes in water table depths or export caused by the project do not lead to increases in GHG emissions outside the project area, or the affected areas shall be identified and the resulting leakage shall be quantified and accounted for.

Agricultural Land Management (ALM)

3.7.13 ALM projects setting aside land for conservation shall quantify activity-shifting leakage emissions associated with the displacement of pre-project activities, unless deemed de minimis (as set out in Section 3.3.5) or conservatively excluded (as set out in Section 3.3.6). Guidance on accounting for leakage associated with shifting of pre-project activities due to land conversions from agriculture to grassland is functionally similar to conversion of land to forest vegetation under ARR (see Section 3.3.5 and 3.3.6).

3.7.14 Market leakage in ALM projects involving cropland or grassland management activities is likely to be negligible because the land in the project scenario remains maintained for commodity production, and therefore does not need to be included in the GHG emissions accounting, unless determined to be above de minimis in accordance with Section 3.3.6.

3.7.15 Where livestock are displaced to outside the project area, methodologies shall set out criteria and procedures for projects to quantify such activity-shifting leakage to capture potential reductions in carbon stocks and potential increases in livestock-derived CH4 and N2O emissions from outside the project area.

3.8 Quantification of GHG Emission Reductions and Removals

Net GHG emission reductions and removals achieved by projects are the basis for the volume of SCUs that can be issued. Methodologies shall establish criteria and procedures for quantifying net GHG emission reductions and removals.

3.8.1 Methodologies shall establish criteria and procedures for quantifying GHG emissions and/or removals, and/or carbon stocks, for the selected GHG sources, sinks and/or reservoirs, separately for the project (including leakage) and baseline scenarios.

3.8.2 Methodologies shall establish criteria and procedures for quantifying net GHG emission reductions and removals generated by the project, which shall be quantified as the difference between the GHG emissions and/or removals, and/or as the difference between carbon stocks, from GHG sources, sinks and reservoirs relevant for the project and those relevant for the baseline scenario. The GHG emissions and/or removals in the project scenario shall be adjusted for emissions resulting from project activities and leakage. Where appropriate, net GHG emission reductions and removals, and net change in carbon stocks, shall be quantified separately for the project and the baseline scenarios for each relevant GHG and its corresponding GHG sources, sinks and/or reservoirs.

AFOLU Methodologies

3.8.3 AFOLU methodologies shall establish procedures for quantifying the net change in carbon stocks, so that the number of buffer credits and market leakage emissions may be quantified for the project.

3.8.4 AFOLU methodologies shall include procedures to determine the number of GHG credits issued to projects, which is determined by subtracting out the buffer credits from the net GHG emission reductions or removals (including leakage) associated with the project. The buffer credits are calculated by multiplying the non-permanence risk rating (as determined by the AFOLU Non-Permanence Risk Tool) times the change in carbon stocks only. The full rules and procedures with respect to assignment of buffer credits are set out in the SOCIALCARBON Standard document Registration and Issuance Process.

Table 2: Example GHG credit calculation

Project Compared to Baseline	tCO2e	Note
Change in Carbon Stocks	1000	Reversal risk
Change in non-stock related GHG emissions (e.g., from decrease in machinery use)	50	No reversal risk
Total change in GHG emissions for project vs baseline	1050	= 1000 + 50
Leakage		
Change in carbon stocks outside the project area (in this example we use the figure 25%)	-250	= 1000 x 0.25 (considered permanent)
Change in GHG Emissions	-60	No reversal risk
Total Leakage	-310	= -250 - 60
Total GHG Credits Generated		
GHG emission reductions and removals generated (net GHG benefit)	740	= 1050 - 310
Buffer credits (determined as a percentage of net change carbon stocks, in this example we assume a non-permanence risk of 15%)	150	= 1000 x 0.15
GHG credits issued (SCUs)	590	= 740 - 150

3.9 Monitoring

Methodologies shall describe the data and parameters available at validation (i.e., those that are fixed for the duration of the project crediting period) and data and parameters monitored (i.e., those that must be monitored during the project crediting period for each verification). Additionally, methodologies shall describe the criteria and procedures for obtaining, recording, compiling and analysing monitored data and parameters.

3.9.1 The methodology shall describe the data and parameters to be reported, including sources of data and units of measurement.

3.9.2 When highly uncertain data and information are relied upon, conservative values shall be selected that ensure that the quantification does not lead to an overestimation of net GHG emission reductions or removals.

3.9.3 Metric tonnes shall be used as the unit of measure and the quantity of each type of GHG shall be converted to tonnes of CO2e consistent with the requirements set out in the SOCIALCARBON Standard document SOCIALCARBON Standard.

3.9.4 The methodology shall establish criteria and procedures for monitoring, which shall cover the following:

1) Purpose of monitoring.
2) Monitoring procedures, including estimation, modelling, measurement or calculation approaches.
3) Procedures for managing data quality.
4) Monitoring frequency and measurement procedures.

AFOLU Methodologies

3.9.5 Where measurement plots or data from research plots are used to calibrate belowground biomass, soil carbon and dead wood decay models (as described above in Section 3.6.4), sound and reliable methods for monitoring changes in carbon stocks, including representative location of samplings sites and sufficient frequency and duration of sampling shall be applied. In addition, plots used to calibrate soil carbon models shall be measured considering appropriate sampling depths, bulk density and the estimated impact of any significant erosion (or plots with significant erosion shall be avoided). Data used to calibrate belowground biomass and dead wood models shall consider an estimation of oven-dry wood density and the state of decomposition.

Appendix 1: Eligible AFOLU project categories

Afforestation, Reforestation and Revegetation (ARR)

A1.1 Eligible ARR activities are those that increase carbon sequestration and/or reduce GHG emissions by establishing, increasing or restoring vegetative cover (forest or non-forest) through the planting, sowing or human-assisted natural regeneration of woody vegetation. Eligible ARR projects may include timber harvesting in their management plan. The project area shall not be cleared of native ecosystems within the 20-year period prior to the project start date, as set out in the SOCIALCARBON Standard document SOCIALCARBON Standard.

Wetlands Restoration and Conservation (WRC)

A1.2 Eligible WRC activities are those that increase net GHG removals by restoring wetland ecosystems or that reduce GHG emissions by rewetting or avoiding the degradation of wetlands. The project area shall meet an internationally accepted definition of wetland, such as from the IPCC, Ramsar Convention on Wetlands, those established by law or national policy, or those with broad agreement in the peer-reviewed scientific literature for specific countries or types of wetlands. Common wetland types include peatland, salt marsh, tidal freshwater marsh, mangroves, wet floodplain forests, prairie potholes and seagrass meadows. WRC activities may be combined with other AFOLU project categories, as further explained in Section A1.1.

A1.3 Avoiding the degradation or conversion of a wetland can reduce GHG emissions by preventing the release of carbon stored in wetland soils and vegetation. Many wetlands rely on a natural supply of sediments to support soil formation. Sediment supply may be interrupted by a physical alteration to the landscape, such as a river diversion, canal construction or isolation of wetlands behind man-made structures (e.g., road or rail embankments, levees or dams).

A1.4 Restoring wetland ecosystems reduces and/or removes GHG emissions by creating the necessary physical, biological or chemical conditions that enhance carbon sequestration. Activities that affect the hydrology of the project area are only eligible where changes in hydrology result in the accumulation or maintenance of soil carbon stock.

A1.5 A peatland is an area with a layer of naturally accumulated organic material (peat) at the surface (excluding the plant layer). Peat originates due to water saturation, and peat soils are either saturated with water for long periods or have been artificially drained. Common peatland types include peat swamp forest, mire, bog, fen, moor, muskeg and pocosin. Rewetting of drained peatland and the conservation of undrained or partially drained peatland are subcategories of restoring wetland ecosystems and conservation of intact wetlands, respectively. These activities reduce GHG emissions by rewetting or avoiding the drainage of peatland.

A1.6 Activities that generate net reductions of GHG emissions from wetlands are eligible as WRC projects or combined category projects. Activities that actively lower the water table depth in wetlands are not eligible. Eligible WRC activities include:

1) **Restoring Wetland Ecosystems (RWE):** This category includes activities that reduce GHG emissions or increase carbon sequestration in a degraded wetland through restoration activities. Such activities include enhancing, creating and/or managing hydrological conditions, sediment supply, salinity characteristics, water quality and/or native plant communities. For the purpose of these requirements, restoration activities are those that result in the reestablishment of ecological processes, functions, and biotic and/or abiotic linkages that lead to persistent, resilient systems integrated within the landscape, noting the following:

a) Restoration or management of water table depth (e.g., the rewetting of peatlands, the reintroduction of river flows to floodplains, or the reintroduction of tidal flows to coastal wetlands) implies long-term and measurable changes in water table depth that sequester carbon and/or reduce emissions. Methodologies shall establish the appropriate change in water table depth (such as raising, lowering or restoring hydrological function) that is expected for eligible project activities, considering the following baseline scenario conditions:

i) Drained wetlands have a water table depth that is lower than the natural average annual water table depth due to accelerated water loss or decreased water supply resulting from human activities and/or construction, either on- and/or off-site. Baseline activities include purposeful draining through pumping, ditching, stream channelization, levee construction, and purposeful decreases in water supply through dams and water diversions.

Activities shall raise the average annual water table depth in a drained wetland by partially or entirely reversing the existing drained state. Rewetting does not require the restoration of the average annual water table depth to the level of the soil or peat surface. However, RWE projects shall raise the water table depth close to the surface in order to be eligible to generate GHG credits. A clear relationship between GHG emissions and water table depth in wetlands, including peatlands11 has been established in scientific literature with most changes in emissions occurring with water table depths close to the surface. This relationship is most dramatic on highly-organic soils (e.g., peatland). On such sites, activities that establish a higher water table depth compared to the baseline scenario can be eligible where they measurably decrease the rate of soil subsidence due to oxidation to decrease or cease within the project crediting period, and where the permanence requirements set out in Section 3.6.15 can be satisfied.

ii) Impounded wetlands have a water table that has been artificially raised, intentionally or unintentionally, as a result of impaired natural drainage behind a constructed feature and can result in CH_4 emissions. Examples of impounded wetlands include flooded areas behind artificial barriers to natural drainage (such as road or rail embankments or levees), flooded areas for the purpose of subsidence reversal, man-made reservoirs and fish and shrimp ponds.

Activities that restore hydrological function to an impounded wetland or lower the water table depth shall restore hydrological flow, considering the dynamics of the system and the hydrological connectivity necessary to maintain carbon stock and GHG fluxes.

iii) Open water is an area continuously flooded or subject to natural periods of flooding, without in-situ vegetation contributing to soil carbon accumulation. Wetlands convert to open water in response to impaired sediment supply, sea level rise and/or impaired water quality. Activities that restore hydrological function to an open water wetland shall restore the hydrological flow, considering the dynamics of the system and the hydrological connectivity necessary to maintain carbon stock and GHG fluxes.

b) RWE projects may generate GHG credits from the reduction of GHG emissions associated with avoiding peat fires on drained or partially drained peatlands. Fire-related activities on peatlands that exclude rewetting as part of the project are not eligible, because fire reduction activities on drained peatland are unlikely to be effective over the long term without rewetting.

2) **Conservation of Intact Wetlands (CIW):** This category includes activities that reduce GHG emissions by avoiding degradation and/or the conversion of wetlands that are intact or partially altered while still maintaining their natural functions, including hydrological conditions, sediment supply, salinity characteristics, water quality and/or native plant communities.

A1.7 Activities that generate net GHG emission reductions by combining other AFOLU project activities with wetlands restoration or conservation activities are eligible as WRC combined projects. RWE may be implemented without further conversion of land use or it may be combined with ARR activities, referred to as ARR+RWE.

Agricultural Land Management (ALM)

A1.8 Eligible ALM activities are those that reduce net GHG emissions on croplands and grasslands by increasing carbon stocks in soils and woody biomass and/or decreasing CO_2, N_2O and/or CH_4 emissions from soils. The project area shall not be cleared of native ecosystems within the 10-year period prior to the project start date. Eligible ALM activities include:

1) **Improved Cropland Management (ICM):** This category includes practices that demonstrably reduce net GHG emissions of cropland systems by increasing soil carbon stocks, reducing soil N2O emissions, and/or reducing CH4 emissions, noting the following:
   a) Soil carbon stocks can be increased by practices that increase residue inputs to soils and/or reduce soil carbon mineralization rates. Such practices include, but are not limited to, the adoption of no-till, elimination of bare fallows, use of cover crops, creation of field buffers (e.g., windbreaks or riparian buffers), use of improved vegetated fallows, conversion from annual to perennial crops and introduction of agroforestry practices on cropland. Where perennial woody species are introduced as part of cropland management (e.g., field buffers and agroforestry), carbon sequestration in perennial woody biomass may be included as part of the ALM project.
   b) Soil N2O emissions can be reduced by improving nitrogen fertilizer management practices to reduce the amount of nitrogen added as fertilizer or manure to targeted crops. Examples of practices that improve efficiency while reducing total nitrogen additions include improved application timing (e.g., split application), improved formulations (e.g., slow release fertilizers or nitrification inhibitors) and improved placement of nitrogen.
   c) Soil CH4 emissions can be reduced through practices such as improved water management in flooded croplands (in particular flooded rice cultivation), through improved management of crop residues and organic amendments and through the use of rice cultivars with lower potential for CH4 production and transport.

2) **Improved Grassland Management (IGM):** This category includes practices that demonstrably reduce net GHG emissions of grassland ecosystems by increasing soil carbon stocks, reducing N2O emissions and/or reducing CH4 emissions, noting the following:
   a) Soil carbon stocks can be increased by practices that increase belowground inputs or decrease the rate of decomposition. Such practices include increasing forage productivity (e.g., through improved fertility and water management), introducing species with deeper roots and/or more root growth and reducing degradation from overgrazing.

b) Soil N2O emissions can be reduced by improving nitrogen fertilizer management practices on grasslands as set out in Section A1.2(1)(b), above.
c) N2O and CH4 emissions associated with burning can be reduced by reducing the frequency and/or intensity of fire.
d) N2O and CH4 emissions associated with grazing animals can be reduced through practices such as improving livestock genetics, improving the feed quality (e.g., by introducing new forage species or by feed supplementation) and/or by reducing stocking rates.

3) **Cropland and Grassland Land-use Conversions (CGLC):** This category includes practices that convert cropland to grassland or grassland to cropland and reduce net GHG emissions by increasing carbon stocks, reducing N2O emissions, and/or reducing CH4 emissions, noting the following:
   a) The conversion of cropland to perennial grasses can increase soil carbon by increasing belowground carbon inputs and eliminating and/or reducing soil disturbance. Decreases in nitrogen fertilizer and manure applications resulting from a conversion to grassland may also reduce N2O emissions.
   b) Conversion of drained, farmed organic or wetland soils to perennial non-woody vegetation, where there is substantial reduction or elimination of drainage, is an eligible practice but shall follow both the WRC and ALM requirements.
   c) Grassland conversions to cropland production (e.g., introducing orchard crops or agroforestry practices on degraded pastures) may increase soil and biomass carbon stocks. Only conversions where the crop in the project activity does not qualify as forest are included under ALM. Land conversions of cropland or grassland to forest vegetation are considered ARR activities. Projects that convert grasslands shall demonstrate that they do not have a negative impact on local ecosystems as set out in the SOCIALCARBON Standard v6.0 document.

Appendix 2: document history

Version	Date	Comment
V1.0	03 Jan 2022	Initial version released under SOCIALCARBON Version 6.0.
V1.1	28 April 2022	Inclusion of Agricultural Land Management as an eligible project type under the SOCIALCARBON Standard.
V1.2	03 July 2023	• Update of regulatory surplus definition to align with Article 6.2 • Formatting updates • Removal of reference to REDD+ (SOCIALCARBON does not currently support REDD+ activities, thus this content was removed to avoid confusion)