CARBON MARKET WATCH

Overview of the Carbon Removals and Carbon Farming Certification process

In December 2024, the EU launched its certification framework for permanent carbon removals, carbon farming and carbon storage in products, commonly known as the Carbon Removals and Carbon Farming (CRCF) certification Framework.

As its name suggests, the CRCF aims to certify a variety of practices or processes, namely: permanent carbon removals, carbon farming, and carbon storage in products. Each practice involves specific activities for which tailored methodologies are currently being developed. The methodologies will be published as Delegated Acts, taking on the force of law. Note that the Regulation only offers guidance on the basic rules for developing the methodologies (Articles 4 till 8) and the elements they should contain (Annex I).

Overall, the activities involve:

1. **Permanent removals:** direct air capture and storage (DACCS), biomass with carbon capture and storage (BioCCS) and biochar. Biochar is currently classified as a permanent removal activity - yet uncertainty persists on its storage length. Therefore, a key aspect of the methodology is determining how much of a given biochar batch will be stored for at least several centuries.
2. **Carbon farming emissions reductions**, namely via peatland restoration through rewetting and, in the near future, reduced fertiliser use.
3. **Carbon farming sequestration**, specifically the planting of trees on unused and severely degraded land, soil carbon sequestration in mineral (or agricultural) soils and agro-forestry.
4. **Carbon storage in products**, mainly wooden construction elements.

Note that the list of activities is likely to expand.

As established in Articles 4 to 7 of the CRCF, the methodologies will follow the so-called QU.A.L.ITY criteria. These are the quantification of climate impacts (against a baseline), the additionality of the activity, its long-term storage and liability for early release into the atmosphere, and sustainability. The methodologies should set out robust conditions, tests and safeguards that eligible activities need to comply with to be certified under the scheme. However, as a voluntary framework, the decision on whether to participate in the scheme or not rests with the operators and certification schemes.

While the European Commission and its consultants are developing the methodologies, these are also being discussed within the EU Carbon Removals Expert Group (CREG) of which CMW is a member. Note that, in addition to CREG meetings, numerous online workshops, discussing particular sections of (at times specific) methodologies, e.g. quantification in forestry, are held throughout the year.

Unfortunately, the CREG is largely dominated by industry lobbyists, which skews the balance during discussions and diminishes vital voices from independent experts, researchers, and civil society. As an active member of the CREG and the CRCF process in general, CMW has sought to rectify this imbalance by hiring its own consultants to thoroughly review the methodologies and flag pertinent issues. This document sets out the feedback received for the soil carbon sequestration in mineral (or agricultural) soils and agro-forestry methodology by Öko-Institut, Greenhouse Gas Management Institute, and Carbon Plan. By sharing this information, we hope to contribute to the debate and shed further light on the numerous issues affecting the methodologies.

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Assessment of the draft technical specifications for certification under the EU CRCF

Soil carbon in mineral soils and agro-forestry

// Anne Siemons and Lambert Schneider

Summary of key findings and recommendations

This document provides an assessment of the proposed draft elements for an EU certification methodology on soil carbon in mineral soils and agro-forestry, provided on 11 October 2024. Key findings include:

- **Only new mitigation activities should be eligible:** The methodology allows rewarding past climate action. The methodology should include provisions to ensure that mitigation activities are only eligible if they are newly implemented and if they have considered the incentives from CRCF units when deciding to proceed with the implementation of the mitigation activities (see our textual proposal in our cross-cutting findings).
- **No consideration of public funding:** The eligible mitigation activities may also be funded through public funding. If mitigation activities receive both public subsidies and CRCF units, this could artificially lower CRCF unit prices and implicitly subsidise continued fossil fuel use by the buyers of the units. The methodology should either exclude mitigation activities that receive public funding or proportionally attribute the removals or emission reductions to the financial support provided (see our cross-cutting findings).
- **Nitrification inhibitors:** Using nitrification inhibitors could have negative effects on water quality and soil biodiversity and further research on their impacts is required. Given the involved risks, the use of nitrification inhibitors is unlikely to comply with the requirements of the provisional CRCF directive. The use of nitrification inhibitors should thus be excluded from eligibility for certification.
- **Leakage risks are not addressed appropriately and can lead to large overestimation of removals or emission reductions:** The methodology does not consider

potentially large sources of leakage, such as leakage from indirect land-use change. This is likely to lead to significant overestimation of removals or emission reductions. Tools and methodologies to account for leakage effects are available from other carbon crediting programmes and should be used.

- **No incentives for continuing carbon farming practices:** The minimum duration of the activity period shall be 5 years, except for carbon farming activities on permanent grassland, conversion to permanent grassland or agroforestry where it shall be 10 years. The draft methodology lacks provisions that incentivise operators to continue carbon farming practices and extend the monitoring period as required by recital 13 of the CRCF Regulation.
- **Important emission sources not considered:** The methodology does not consider potentially significant emission sources such as upstream emissions associated with the production of the fertilizer. The organisations developing the methodology should conduct a systematic assessment (e.g. based on lifecycle emissions data) which emission sources and sinks beyond those already specified in the methodology may be significant for different carbon farming practices.
- **Standardised baseline of zero for biomass is inappropriate:** A standardised baseline equal to zero is proposed for carbon removals in above-ground and below-ground biomass for agro-forestry activities, meaning that all new removals associated to the increment in biomass during the activity period can contribute to the net carbon removal benefit, provided that the trees or woody elements have not been planted more than [5] years before the start of the activity period. This provision is inappropriate as it would allow gaining credits from activities that happened in the past without any incentives from CRCF units and are therefore not additional.
- **Lack of appropriate provisions to demonstrate additionality**: Carbon farming activities remain eligible for unit generation until the end of the activity period if new legal requirements are introduced during the activity period which mandate the activity. This undermines best practices established in other carbon crediting programs, in particular in developed countries. Additionality is assumed if activities are only financed through remuneration from private markets. This is not appropriate and should be replaced by a more specific additionality test.
- **Provisions on storage, monitoring and liability are underdeveloped and miss critical provisions**: The CRCF Regulation defines that units from carbon farming activities are temporary and expire at the end of the monitoring period of the relevant activity. However, there are no provisions on the consequences of the expiry of units that were already used. Provisions are needed to clarify that buyers bear the responsibility for replacing temporary units upon their expiry. Alternatively, the methodology should clarify for which purposes temporary units may be used. Furthermore, provisions are needed on how the monitoring period is to be prolonged. Also, the consequences of no submission of monitoring reports during the monitoring period should be defined in the methodology. For the stated liability mechanisms, it should be specified which types of reversals are covered by which entities and how the risk assessment will be implemented.
- **It remains unclear how fulfilment with sustainability requirements will be ensured**: Provisions are lacking on how compliance with safeguard criteria should be ensured and how monitoring of environmental impacts should be implemented. Compliance with the requirement to generate co-benefits for soil health and reduce land degradation should

not be taken for granted for all carbon farming activities that lead to carbon sequestration in or reduced carbon emissions from mineral soils.

More detailed and further comments are provided below.

Detailed comments

Definitions

- **Reference to carbon removals:** The methodology refers to "carbon removals" throughout the text. Carbon removals are defined as "the anthropogenic removal of carbon from the atmosphere and its *durable* storage in geological, terrestrial or ocean reservoirs, or in long-lasting products" (Art. 2.1 (a) CRCF Regulation).
    - This is misleading because the removals achieved through carbon farming are per se temporary and they are defined as such in Art. 2.1 (h) of the CRCF Regulation.
    - It would be better to refer to "**temporary carbon removal benefits**" in the methodology when referring to the process of transferring carbon from the atmosphere into the soil through plants and other organisms. This would be consistent with the term used in Article 4.2 of the CRCF Regulation. Moreover, the methodology may refer to "**temporary carbon storage**" when referring to the SOC pool (see Don et al. 2023).
- **No definition of greenhouse gases (GHG) and no specification of Global Warming Potential values:** The methodology does not provide a definition of greenhouse gases and does not specify the GWP values to be used in quantifying the mitigation impact of carbon farming activities. This should be added in line with relevant EU legislation (see our cross-cutting findings).

Section 1: Scope

Section 1.1 Eligible activities

- **Specification of the type of eligible activities:** The scope of the methodology is very broad. The draft methodology states that there was consensus that the methodology should not prescribe a specific list of practices to be implemented but that any carbon farming activity happening on agricultural mineral soils is eligible and can be certified if it can be shown to comply with all quality criteria in the CRCF (p. 5-6). The methodology proposes a non-exhaustive list of practices as examples, including e.g. improved crop management or conservation tillage practices and organic soil improvers/amendments (p. 8). We are concerned about this approach towards eligibility of mitigation activities for several reasons:
    - The quality criteria in the CRCF provide a general guidance framework that should be implemented through rules and provisions that are applicable to specific mitigation activities. The rules on sustainability set in Article 7 of the CRCF are rather general and should be operationalised through detailed provisions of the specific methodology to ensure that unsustainable activities are excluded from certification. Therefore, **the methodology should specify an exhaustive list of activities that are eligible**.

  - **Some carbon farming measures can pose risks to soil health and biodiversity.** This relates in particular to the use of nitrification inhibitors which do not qualify as nature-based solutions (Ecologic Institut; Universität Gießen; Oeko-Institut 2022). Nitrification inhibitors may have negative effects on water quality and soil biodiversity and further research on their impacts is required (Corrochano-Monsalve et al. 2021; Kösler et al. 2019; Ecologic Institut; Universität Gießen; Oeko-Institut 2022). The involved risks are therefore likely not to be covered by the sustainability requirements suggested by the CRCF and the methodology on carbon farming. **The use of nitrification inhibitors should thus be excluded from eligibility for certification.**

- **Application of off-farm organic amendments:** Applying off-farm organic amendments is only eligible if the operator can demonstrate that the organic amendments are coming from organic resources that would otherwise not be used following circularity principles in that region (e.g. from organic resources that are currently incinerated or landfilled) (p. 8). The impacts on soils of external organic inputs strongly depend on the quality of these inputs (e.g. benefits to the plants depend on the diet of the animals if manure is applied (Petersen et al. 2013); biowaste compost may include plastic components (Braun et al. 2021). **The sustainability criteria defined in the CRCF and the draft methodology on carbon farming do not specifically address the quality of such inputs. Therefore, more precise quality criteria for external inputs should be defined in the methodology**.

- **Provisions on improved grassland management:** Improved grassland management activities should take place on land that has not been converted to cropland during the 5 years preceding the start of the activity period (p.8).

  - The wording should be changed from “should” to “shall”.

  - It is not clear whether the methodology refers to grassland that has not been *used* as cropland during the 5 preceding years or whether the activity referred to is the conversion of grassland to cropland (and not improved grassland management). This should be clarified. It seems more reasonable to require that the land has not been used as cropland during the 5 preceding years.

  - Specific guidance is missing in the methodology on how the use of the land in question in the preceding years should be tracked.

- **Addressing perverse incentives:** The methodology should additionally include provisions to address perverse incentives for operators to degrade agricultural land first in order to obtain credits for changing the way it is farmed thereafter.

- **Only new mitigation activities should be eligible:** The methodology allows rewarding past climate action. The methodology should include provisions to ensure that mitigation activities are only eligible if they are newly implemented and if they have considered the incentives from CRCF units when deciding to proceed with the implementation of the mitigation activities (see our textual proposal in our cross-cutting findings). The provisions included on page 15 of the methodology are clearly not sufficient as these seem to limit the start of the crediting but still allow crediting activities that were implemented in the past.

Section 1.2: Activity period, monitoring period and certification period

- **No incentives for prolonging the monitoring period:** The minimum duration of the activity period shall be 5 years, except for carbon farming activities on permanent grassland, conversion to permanent grassland or agroforestry where it shall be 10 years (p. 9).
    - The minimum duration of the monitoring period shall be 10 years, except for carbon farming activities on permanent grassland, conversion to permanent grassland or agroforestry where it shall be 15 years (p. 9). After the end of the monitoring period, carbon farming sequestration units shall expire unless the long term-storage of the removed carbon is proven through continued monitoring (Art. 12.1.(b) CRCF).
    - According to CRCF recital 13, "it is appropriate that the certification methodologies incentivise operators to prolong the monitoring period several times, with the aim of storing captured carbon for at least several decades. **The draft methodology does not include any provisions that incentivise operators to continue carbon farming practices and extend the monitoring period though.** Such provisions should be included.
- **Unclear provisions and rationale for the length of monitoring periods:** It is not clear why monitoring should continue after the end of the activity period for temporary units that expire. Also, the proposed lengths of monitoring after the activity period seem arbitrary and do not ensure any longer-term benefits. To make temporary units more attractive for the market, the monitoring periods would need to be much longer. Units issued for these activities are temporary in nature. Under the CDM, buyers were less interested in temporary credits which had to be replaced upon their expiry and were not fungible with credits from other sectors (World Bank n.d.; Pew Center on Global Climate Change 2022). **It is therefore questionable whether there will be high demand for units for carbon farming activities under the CRCF with the proposed monitoring period. If demand is low, the CRCF might not achieve its aim to facilitate investment in carbon farming activities.**

Section 2: Quantification

Section 2.1: Relevant carbon removal sinks and GHG emission sources

- The title should be changed to "Relevant carbon sinks and GHG emission sources".
- **Further specification of relevant emission sources needed:** The methodology states that carbon removals in mineral soils and above- and below-ground biomass, emission reductions from mineral soils and direct and indirect N_2O emission reductions from mineral soils should be included in the quantification of a carbon farming activity (p. 9). The provisions are not appropriate and should be revised:
    - With the proposed wording, the methodology does not clearly define the GHGs that should be covered in the quantification of emission reductions and removals. It should be clarified which gases are covered (e.g. CO_2 and N_2O

emissions) and which exact carbon pools are covered according to the IPCC nomenclature of carbon pools).

- **Important emission sources not considered:** The methodology does not consider potentially significant emission sources. For example, the application of additional fertilizer compared to the baseline scenario does not only involve N_2O emissions from field application, but also significant upstream emissions associated with the production of the fertilizer. The organisations developing the methodology should conduct a systematic assessment (e.g. based on lifecycle emissions data) which emission sources and sinks beyond those specified in the methodology may be significant for different carbon farming practices. Emission sources and sinks should be included unless their omission is conservative.

Section 2.2: Standardised baseline

- **Standardised baselines for soil carbon are associated with high uncertainties which will lead to adverse selection and systematic overestimation of emission reductions or removals:** Standardised baselines for carbon removal in soils and LULUCF soil emissions and agricultural soil emissions are yet to be developed (p. 9-10). Options for calculating these standardised baselines are included in Annex I of the methodology. The proposed approach raises several concerns:
    - **Site-specific conditions unlikely to be appropriately reflected through the standardised baseline:** It is questionable how standardised baselines can be applied while the condition of soils is highly site-specific. Soils are heterogenous even across small areas and their management and condition is highly dependent on the local context (see e.g. West and Six 2007; EDF 2021; Smith et al. 2020). In our assessment it is likely that a standardised baseline may significantly underestimate or overestimate to true (but unknown) soil carbon fluxes for a specific land parcel.
    - **High uncertainties in baseline levels lead to adverse selection and systematic overestimation of emission reductions and removals:** Given that standardised baselines are likely to considerably over- or underestimate true baseline levels, the calculated emission reductions or removals will only be partially attributable to the mitigation activities and partially an artefact of wrongly set baselines. A large overestimation of the baseline would lead to significant over-crediting. By contrast, a large underestimation of the baseline could lead to no CRCF unit issuance at all, although the project may actually reduce emissions. One might argue that underestimation in some projects would compensate for overestimation in other projects. In practice, however, large uncertainties can lead to selection bias or adverse selection, in particular if paired with information asymmetry. Projects with an overestimated baseline have a competitive advantage because they receive more CRCF units, while projects with underestimated baselines may not move forward or fail as they do not receive sufficient credits to cover their costs. This can lead to more carbon credits being generated from projects with overestimated baselines, which would thereby undermine the integrity across the portfolio of projects (CCQI 2024).

- **Standardised baseline of zero for biomass is inappropriate:** A standardised baseline equal to zero is proposed for carbon removals in above-ground and below-ground biomass for agro-forestry activities, meaning that all new removals associated to the increment in biomass during the activity period can contribute to the net carbon removal benefit, provided that the trees or woody elements have not been planted more than [5] years before the start of the activity period (p. 6, 10). This provision is inappropriate as it would allow gaining credits from activities that happened in the past without any incentives from CRCF units and are therefore not additional. The methodology should ensure that only mitigation actions started due to the incentives from CRCF units are credited.

Section 2.3: Activity-specific baseline

- **Methodology lacks provisions to determine what the baseline scenario is:** The methodology does not contain any provisions to determine what the likely baseline scenario is for the activity period. While the continuation of the historical land-use practices may be a reasonable baseline scenario, this is not necessarily the most plausible scenario in all instances. The lack of provisions to determine the baseline scenario can lead to a baseline that is set very differently than what is likely to occur in the absence of the mitigation activity.

- **High uncertainty in quantifying soil content could pose considerable challenges:** In the absence of a standardised baseline for carbon in mineral soils, an activity-specific baseline shall be determined by taking soil samples at the start of the project and then calculate the baseline with a model that simulates the continuation of the practices that were in place during the reference period (p. 6, 10). The reference period for the activity-specific baseline should cover the 3 previous years before the activity period starts (p. 10). Calculation of removals or soil carbon emissions shall be done either on the basis of a measure-remeasure approach or a measure-model-based approach. No specific sampling protocols and/or models are prescribed but criteria for these protocols and models to be validated will be provided. These criteria are yet to be determined (p. 6). We identify several challenges with the proposed approach:

    - **Determining the SOC content of soils is inherently challenging.** This is because of relatively small changes in SOC over time (compared to baseline stocks) or high soil heterogeneity across areas that may result in a high variance of carbon stock measurements, making it difficult to distinguish measure impact from other factors (i.e., a low signal-to-noise ratio) (West and Six 2007). Additionally, SOC stocks are affected by climate change and extreme weather events and sensitive to small management changes, which can lead to variations over time as well as to quick releases of accumulated carbon stocks. Furthermore, high soil heterogeneity across areas and lack of standardised sampling techniques (e.g. different sampling depths) can result in a high variance of carbon stocks measured. Field conditions like stony or dry soils may pose further technical obstacles to sampling (see Smith et al. 2020).

    - Additionally, **specific challenges regarding measurement of SOC stocks exist for different carbon farming activities that need to be taken into account**, e.g.:

  - Silvoarable agroforestry is a system where woody perennials such as trees or hedges and agricultural crops are grown on the same cropland. Such systems pose specific challenges for SOC determination. Permanent tree rows have a higher SOC sequestration rate than cropland and the tree rows also can affect the adjacent crop strips (Golicz et al. 2021). The number of measurement samples must therefore be higher to deliver accurate data compared to pure cropland to account for the different components of the system and their interactions.
  - The carbon sequestration potential of improved crop rotation has been found to depend on other factors including reduced tillage (Shrestha et al. 2015) and how single crops in the rotation are managed, e.g., with high- or low-input of organic matter and crop residue management (Vinther et al. 2004). Sequestration gains can be reversed quickly by tilling due to fast mineralisation processes of organic compounds.
  - Reduced or no till practices reduce soil disturbance and thus the mineralisation of SOC, but the measure only impacts the concentration of SOC in the topsoil layer. The literature is inconclusive on the effects on soil carbon sequestration of conservation tillage practice (Griscom et al. 2017; Conant 2012) and quantification will be challenging.
- The complexity and costs of measuring or modelling mitigation impacts of carbon farming pose severe challenges (EDF 2021). **It is questionable whether farmers will be able to undertake the efforts required to robustly quantify mitigation impacts or which other actors would be involved in the measuring and monitoring and bear the costs. This raises the question whether it is sensible to make funding for carbon farming conditional upon the verification of mitigation results.** If resulting units are principally usable for offsetting, high accuracy in quantifying mitigation results is inevitable though.

- **Initial carbon stocks may not always be a representative baseline:** The methodology assumes initial carbon stocks are a representative baseline for the future (p. 10). This may be appropriate in some cases but not in others. Depending on the past land use practices and any future land-use practices, it may also be plausible that baseline carbon stocks would increase or decrease in the baseline scenario (e.g. if a change in practices occurred in the past this could lead to continued uptake of soil carbon throughout the crediting period in the baseline scenario).

- **Further guidance necessary to avoid bias in the selection of SOC models or relevant model parameters:** The methodology provides relatively vague guidance on the appropriateness of SOC models to be used (pp. 10-13). There is a large variety of models and model outcomes depend considerably on the input parameters, with sometimes rather different outcomes. This poses the risk that mitigation activity proponents select a model or parameters that provide for greater soil carbon removals or emission reductions in the context of their projects. This may thus lead to a systematic bias in the selection of SOC models and parameters, which could lead to a systematic overestimation of emission reductions or removals. The methodology should provide further guidance on the use of any modelling (e.g. how measurements for initialisation of models should be carried out, what parameters should be selected to calibrate models, how they should be

validated based on on-site measurements). The methodology should also provide guidance on how exogenous factors or co-variates that are not related to the mitigation activity (e.g. extreme weather events that may affect carbon stocks) should be taken into account.

- **Sampling approach needs further elaboration:** It is not clear which exact statistical techniques are to be applied to test for significance in changes over time due to an intervention.
- **Approaches for determining biomass quantities need more specificity:** The general approaches described are appropriate but lack clarity how biomass carbon stocks should be quantified. The methodology should be clearer on several aspects, including how sampling should be undertaken, how allometric equations should be selected, how biomass expansion factors should be selected or how the quantity of carbon in biomass should be determine. Moreover, significantly more guidance would be necessary in relation to forest growth models, given that growth rates can be very site-specific. The lack of clarity can lead to selection bias in choosing these parameters, i.e. project developers choosing values that are favourable. This has been observed as a wide-spread issue in forestry projects which has led to considerable overestimation of emission reductions (Haya et al. 2023; Martin et al. 2018; Badgley et al. 2022). There is wide-spread recognition in the voluntary carbon market that more specific guidance is necessary and several methodologies for the forestry sector are currently undergoing review to incorporate more specific requirements regarding these parameters.

Section 2.4 Total carbon removals and emissions

- Provisions on monitoring the quantified mitigation impact are missing in the draft methodology and should be added.
- The title of this section should refer to “removals and emission reductions” (not “emissions”)

Section 2.5 GHG associated emissions

- **Insufficient provisions to address leakage emissions:**
    - **Indirect land-use change can lead to large leakage emissions that are not considered in the methodology:** Several mitigation activities that are eligible under the methodology could lead to a reduction in the level of agricultural services or products provided. The resulting leakage effects from indirect land-use change can be very significant. The statement that the risk is very low (p. 14) is wrong and not backed by the scientific literature. The ICVCM, the CDM and the Article 6.4 mechanism require considering this type of leakage effects. Respective tools are available and default emission factors to account for such effects have been developed under different frameworks. The methodology should be revised to fully account for leakage due to any changes in the level of agricultural services or products compared to the baseline scenario.
    - **Activity shifting:** To avoid the risk that carbon removals or soil emission reductions on certified parcels are compensated by an increase in soil

emissions on other, non-certified parcels under the control of the operator, the entire farmed land under the operational control of the operator should be included in the monitoring (p. 9). We welcome this measure to reduce potential leakage effects. However, **more precise guidance is needed on how leakage to other parcels is to be identified and what would be the consequences of leakage.**

  - To determine the risk of leakage, it should be assessed to what extent a carbon farming activity changes the level of agricultural outputs and environmental services produced on the respective area of land compared to the baseline scenario. Default factors can be assigned for different levels of leakage risk which must then be considered in quantifying the total mitigation impact of the carbon farming activity.

- **The considered emission sources are incomplete:** For example, the production of fertilizers can cause significant emissions, in the same order of magnitude as the onsite N_2O emissions from the application of fertilizer on fields. The methodology should systematically consider all relevant emission sources and sinks and only exclude sources and sinks whether this is conservative.

- **The provisions for estimating emissions from energy use are unclear and not appropriate:** The methodology should specify more precisely how emissions associated with the use of such fuels is estimated, including upstream emissions (e.g. from oil and gas exploration and refining). The IPCC Guidelines provide procedures for some parameters, but for example do not include procedures to calculate grid emission factors for any increase in electricity consumed under the mitigation activities. Moreover, the IPCC Guidelines provide best estimates but do not provide conservative estimates. Relevant CDM tools may serve as a reference how these emissions could be estimated.

- **The proposed materiality threshold (p. 14) is inconsistent with the principle of conservative quantification.** The methodology should be revised to include all emission sources or sinks, except where the exclusion is conservative (see our cross-cutting findings).

Section 2.7 Addressing uncertainties in a conservative manner

- **The consideration of uncertainty (p. 14) is too limited and lacks specificity:** Generally, it is appropriate and required to account for uncertainty. However, the approach needs improvement in several areas:

  - **The methodology is not sufficiently clear how exactly an uncertainty deduction should be made to the total sequestration impact**. The accounting for uncertainty should be reflected in the relevant equations.

  - **The consideration of uncertainty seems to be limited to measurement uncertainty**. This is inconsistent with, and sets a lower standard than, the requirements under the Clean Development Mechanism (CDM), the Article 6.4 mechanism and the Integrity Council for the Voluntary Carbon Market (ICVCM). The ICVCM requires that, in estimating overall uncertainty, “all causes of uncertainty shall be considered, including assumptions (e.g., baseline scenario), estimation equations or models, parameters (e.g.,

representativeness of default values); and measurements (e.g., the accuracy of measurement methods). The overall uncertainty shall be assessed as the combined uncertainty from individual causes" (ICVCM 2023). Similar rules apply under the CDM and the Article 6.4 mechanism. To follow best scientific practice, the consideration of uncertainty should include all relevant causes of uncertainty.

Section 3: Additionality

Introduction

The approach towards additionality is not appropriate and could lead to the certification of mostly non-additional mitigation activities. It needs to be improved in several areas. It is particularly problematic that any additionality demonstration is only required in the case of activity-specific baselines.

Robust approaches for demonstrating additionality of removal or carbon farming activities for activity-specific baselines should consist of a three-pronged approach that restricts eligibility to those mitigation activities for which project proponents can demonstrate that:

1. The mitigation activities are not obligated to be implemented due to legal requirements in the country where the project is proposed to take place (often referred to as "regulatory surplus test" or "legal additionality test");
2. The mitigation activity proponents have considered revenues from selling CRCF units at the time when making their investment decision (often referred to as "prior consideration");
3. either
    - need additional revenues from selling removal or carbon farming certificates for making activities profitable and/or for mobilizing funders that are willing to invest in them (often referred to as "financial additionality test" or "investment analysis" or "benchmark analysis" or "financial attractiveness").

      OR
    - face non-financial barriers that can be overcome through removal or carbon farming certificates (often referred to as "barrier analysis")

In its current form, the proposed provisions for the additionality section result in a high risk that non-additional carbon farming activities would be eligible for certification under the methodology. The following paragraphs outline the risks for each component of the additionality section.

Section 3.1 – Regulatory test

Robust "Regulatory surplus" or "legal additionality" "tests" usually consist of two parts:

1. Provisions that exclude eligibility of activities that are mandated by legal requirements in the country or region in which the project is being implemented.

2. Provisions that regulate (dis-)continuation of unit issuance in case new legal obligations that mandate the activity are adopted after the start of project implementation.

The methodology's provisions addressing the **first part** of the regulatory test **can be considered as robust and in line with best practice on voluntary carbon** markets. They stipulate that there shall be no legal obligation on the operator stemming from Union or national legislation, to carry out the carbon farming activity in the project area. Legal obligations are further clearly defined by stating that these encompass laws, statutes, regulations, court orders, environmental management agreements, planning decisions or other legally binding agreements.

The provisions addressing the **second part** of the regulatory test **are however problematic and have the potential to undermine the additionality of units issued under the methodology.** They stipulate that if new legal requirements are introduced during the activity period, carbon farming activities remain eligible for unit generation until the end of the activity period. This is problematic, because the methodology stipulates that the minimum length of the activity period must be 5 years (and 10 years for carbon farming activities on permanent grassland, conversion to permanent grassland and agroforestry) while there is no ceiling to its maximum length. This means that if new legislation is adopted that mandates operators to implement the carbon farming activity e.g. in year two of the project, operators, depending on the length of the activity period, could receive credits for further years during which the activity should not be considered additional anymore.

This provision therefore constitutes a potential risk for issuing large volumes of non-additional units and it should be adapted for the final methodology.

The provisions in its current form further undermine best practices on voluntary carbon markets. The IC-VCM e.g., recommends reassessing legal surplus of activities at every verification in case the crediting period is longer than five years.[1] Such an approach is also common practice by many carbon crediting programs on the voluntary carbon markets.

It is therefore recommended to amend the provision by deleting the following paragraphs:

> *In order not to discourage Member States from introducing mandatory national obligations that are more stringent or ambitious compared to Union or national obligations in force at the time where the activity starts, an activity may still be considered additional where such national obligations are introduced during the activity period. The same is true in case of mandatory national obligations adopted in the absence of Union obligations.*
>
> *In particular, such activity can still generate units eligible for certification up to the end of the activity period.*
>
> *Activities going beyond the level required under national or Union obligations can generate units eligible for certification for those additional*

[1] See Criterion 8.2 „Existing Host Country Legal Requirements" of the IC-VCM Assessment Framework, Version 1.1 https://icvcm.org/wp-content/uploads/2024/02/CCP-Book-V1.1-FINAL-LowRes-15May24.pdf

delivered emission reductions. Such activity can still generate units eligible for certification up to the end of the activity period.

and replacing it by the following:

"Operators must demonstrate at each re-certification audit that the carbon farming activity passes the regulatory test. If operators at any re-certification audit fail to demonstrate that the carbon farming activity still passes the regulatory test, the activity period for the activity will be terminated."

The effectiveness of the proposed addition is contingent on the length of the re-certification audit. Currently the methodology does not include any provisions on the intervals in which re-certification audits would take place. Provisions should be added that the first re-certification audit should take place after four years and annually thereafter.

Additionally, it is not clear whether the "introduction" of an obligation refers to the adoption or entry into force of such an obligation. This should be clarified.

Prior consideration (missing from the methodology)

Prior consideration is an important criterion for assessing the additionality of mitigation or removal activities and its inclusion in "additionality-tests" is recommended by quality assessment frameworks such as the IC-VCM and CCQI. Also rating agencies such as Calyx Global evaluate it in their assessment frameworks.

Requirements for demonstrating prior consideration are important because they:

- filter out projects for which there is a high likelihood that they would have occurred without revenues from selling removal certificates,
- are an effective approach for minimizing the risk that projects claim removal certificates during a time when carbon finance was neither considered nor needed for project activities to proceed.

The proposed methodology lacks any provisions on prior consideration, and it is proposed to remedy this by adding the following text as a new section 3.3:

3.3 Consideration of carbon credits (prior consideration)

The operators shall provide publicly available documented evidence of the consideration of certified units prior to the calendar date on which they committed to implementing the carbon farming activity (e.g., the date when contracts for the purchase or installation of equipment required for the carbon farming activity were executed or the date when the first expenditures are incurred).

In the case where the carbon farming activity does not involve expenditure, operators shall demonstrate that they considered certified units prior to the date when the first physical actions were taken to implement the carbon farming activity.

In either case, operators shall provide such documented evidence to the certification scheme no later than six months after the respective calendar date.

Documented evidence shall be subject to assessment by a certification body and/or the certification program as part of the validation of the carbon farming activity.

Section 3.2 – Financial test

The current provisions in section 3.2 are unclear and are not fit-for-purpose for a robust financial additionality "test". In carbon crediting mechanisms, the objective of financial additionality tests is to assess whether the proposed mitigation activity would not be financially viable without the revenues from carbon credits.

An overarching issue with the provisions is that they confuse the question of additionality of mitigation activities with the question of whether existing certification schemes should be eligible for recognition under the CRCF. As the proposed methodology is conceptualised using an activity-specific baseline (in contrast to a standardized baseline), the financial additionality assessment must deal with the financial additionality of the proposed activities. Considerations of eligibility of existing certification schemes under the CRCF should be dealt with elsewhere.

Further, the provisions make conceptually inaccurate assumptions, including the following:

- They stipulate that if existing certification schemes are financed through remuneration from the private sector, they are automatically additional because the activity would not take place without the certification scheme (p. 15). The fact that private entities purchase carbon credits or CRCF units however does not allow making any statement on the likelihood of additionality of a mitigation activity. Various carbon farming measures including e.g. the use of cover crops, inclusion of forage and grain legumes in crop rotations and buffer strips are often common practice in Europe already and/or are financially viable without additional funding.
- They stipulate that if schemes are financed through a combination of public and private funding, this is appropriate as long there is no overcompensation of the costs carried by the operator. Therefore project operators must include information on any form of financing received or applied for with regard to the activity in the certificate of compliance. Cumulation rules under the State aid legal framework would apply accordingly (pp. 15-16). However, placing a ceiling on the amount of support an activity can receive, is not a robust approach for ensuring financial additionality of mitigation or removal activities.

The proposed methodological approach does not assess whether mitigation activities are additional. It is inconsistent with the approaches required by the ICVCM, and any of the larger carbon crediting programmes (CDM, Article 6.4, VCS, Gold Standard, ACR, CAR). The approach would likely lead to the certification of mostly non-additional mitigation activities.

It is therefore proposed to replace the complete section 3.2 with the following provisions:

"Operators shall demonstrate that the carbon farming activity would not have taken place without the added incentive of the certification scheme by performing an investment analysis for the proposed activity.

Operators should transparently document the investment analysis as part of the documentation submitted for registration. Such documentation shall include information and evidence that substantiate and justify the assumptions, data and conclusions made and used for the investment analysis. All information and evidence provided shall be consistent with information presented to the operator's decision-making management and investors/lenders.

For performing the investment analysis, the operator shall apply a suitable financial indicator such as the net present value (NPV) or internal rate of return (IRR). For calculating the financial indicator the operator shall consider all relevant costs (CAPEX, OPEX) and revenues, including all form of subsidies and support schemes for the carbon farming activity.

All parameters and assumptions used in the investment analysis shall be internally consistent (e.g. cash flows shall be consistently expressed either in real or nominal terms).

Operators shall apply the investment analysis to perform one of the following approaches to demonstrate additionality:

Benchmark analysis

Under the benchmark analysis operators shall compare the financial indicators of the carbon farming activity against a benchmark that is appropriate for the financial indicator used (e.g. when applying equity IRR the benchmark shall be the cost of equity and when applying project IRR the benchmark shall be the weighted average cost of capital).

Additionality is demonstrated if the analysis shows that:

i. *The carbon farming activity would not meet the required financial benchmark without revenues from CRCF units;*

ii. *The financial performance of the carbon farming activity increases decisively through revenues from CRCF units; and*

iii. *Revenues from CRCF units raise the financial performance at or above the required financial benchmark.*

Investment comparison analysis

Under the investment comparison analysis, operators shall compare the carbon farming activity to alternative scenarios that are mutually exclusive and provide the same type of products or service as the carbon farming activity.

Additionality is demonstrated if the analysis shows that the mitigation activity would not be the financially most attractive scenario in absence of revenues from selling CRCF units.

Regardless the approach chosen to demonstrate additionality (benchmark analysis; investment comparison analysis), operators shall, as part of their

investment analysis, conduct a sensitivity analysis to show whether the conclusion regarding the financial attractiveness is robust to reasonable variation in the critical assumptions.

All elements of the investment analysis shall be assessed as part of the validation by a certification body and checked by the certification scheme.

No consideration of public funding: The eligible mitigation activities might already receive funding through public support schemes, e.g., through the Common Agricultural Policy. The financial additionality provisions recognize that peatland rewetting activities might already receive funding through public support schemes, e.g., through the Common Agricultural Policy. If mitigation activities receive both public subsidies and CRCF units, this could artificially lower CRCF unit prices and implicitly subsidise continued fossil fuel use by the buyers of the units. The methodology should either exclude mitigation activities that receive public funding or proportionally attribute the removals or emission reductions to the financial support provided (see our cross-cutting findings).

Section 4: Storage, monitoring and liability

The rules on storage, monitoring and liability are yet to be defined; the section of the draft methodology is presented in italics and or in square brackets, indicating that it is still being developed (section 4). **In its current form, the section is underdeveloped and misses critical provisions to address the risks of reversals that are inherent to mitigation activities in the land use sector.** To what extent the provisions on liability will be able to address reversals will depend on the detailed rules that are yet to be developed.

- **Lacking consequences of expiry of temporary units from carbon farming activities**: Units generated under the CRCF from carbon farming activities expire at the end of the monitoring period of the relevant activity (CRCF Regulation recital 13, Article 6, Article 12.1b). As a consequence, they will then be cancelled from the certification registry or from the Union registry unless the operator commits to prolonging the monitoring period according to the rules set out in the applicable certification methodology (recital 26, Article 12.1b).
    - However, **neither the CRCF Regulation itself nor the draft methodology on soil carbon in mineral soils and agroforestry contains any provisions on the consequences of the expiry of units that have already been used**. This is a severe gap. If the temporary units had been used by a buyer before their expiry, after the expiry the carbon removals associated with these units may not be stored in soils or biomass anymore. This would undermine the environmental integrity of the CRCF because it would lead to higher levels of emissions in the atmosphere than without the use of the mechanism.
    - For that reason, **provisions are needed to clarify that buyers bear the responsibility for replacing temporary units upon their expiry**. Provisions must be developed to ensure that registries inform buyers of units about the expiry of these units so that buyers can fulfil this responsibility. Alternatively, the methodology should clarify for which

purposes temporary units may be used. Provisions to address this should be specified in the in the delegated act(s) that are to be adopted on the requirements concerning the Union registry (Article 12.1a CRCF Regulation) and the implementing acts on the structure, format and technical details of the certification registries, of the recording, holding or use of certified units (Article 12.a CRCF Regulation).

- **Lacking provisions on prolonging the monitoring period:** As stated above, temporary units expire at the end of the monitoring period of the relevant activity unless the monitoring period is prolonged. However, the draft methodology does not contain any provisions on how this is to be done (see also comments on section 1.2). These need to be added.
- **Lacking provisions on monitoring of reversals:** The draft methodology states that operators shall monitor every [x] years over the monitoring period any identified risk of reversal over the stored carbon (p. 16). However, this provision addresses the monitoring of risks of reversals, but not of reversals **themselves**. This is a severe gap. The text should be revised to say "*any reversal over the stored carbon*" instead of "*any identified risk of reversals over the stored carbon*".
    - Considering the high costs associated with monitoring, in our view it would be acceptable to require monitoring of reversals to be done only every 5 years if credits are issued on an ex-post basis, so after the mitigation impact has been verified.
- **Missing rules if monitoring ceases:** Rules should also be formulated for the event that monitoring of reversals ceases. It should be clarified that in such cases units issued for the activity would expire and would need to be compensated for.
- **Clarification needed for liability mechanisms**: For reversals occurring during the monitoring period, the draft methodology foresees an insurance policy or comparable guarantee product with an insurance company that manages a pool of units from which reversals can be covered. Alternatively, operators should directly participate in a buffer pool to which they must contribute an amount of units that corresponds to the reversal risks. The certification scheme shall ensure the resilience, sufficiency and solvency of the buffer pool (p. 16-17).
    - **Lacking provisions on implementation of risk assessment**: The draft methodology states that the contribution to the buffer pool shall be determined by a risk assessment. If no risk assessment is conducted, a default risk rate of 20%, 25% or 30% (yet to be determined) shall be used (p. 16). It should be clarified under which circumstances no risk assessment needs to be conducted. Additionally, provisions should be added to exclude activities from eligibility for which the risk assessment is very high.
    - **Specification needed which type of reversals are covered**: It should be clarified that any liability provision covers unintentional reversals such as natural disturbances. It should also be clarified that intentional reversals are compensated through the pool if the operator does not or cannot fulfil their contractual arrangements so that he cannot be held liable.

  - We welcome the proposal in the draft methodology that units held in a pool of units for liability purposes shall expire after the end of the monitoring period, unless the monitoring period is prolonged.
  - **Provisions lacking on continued operation of the buffer pool in case of bankruptcy of the buffer pool operator**: Such provisions should be added.

- **Prohibiting updating the baseline in case of reversals**: Provisions should be added to prohibit that the baseline of a carbon farming activity is updated (adjusted upwards) in the case of reversals to make sure that the reversals are adequately accounted for.
- **Legal agreements that restrict land management practices that would result in reversals**: Provisions should be added to require legal agreements with project operators that restrict or prevent land management practices that would result in reversals (by the operators themselves or by third parties).
- **Clarification of text needed**: The draft methodology states that in the management of the activity special attention should be paid to mitigation practices resulting in a smaller risk of reversal due to disturbances (p. 16).
  - It should be clarified what is meant by “special attention” and whether this provision implies any consequences for the risk assessment, the buffer pool contribution or how reversals are to be addressed.

Section 5: Sustainability requirements

Section 5.1: Minimum sustainability requirements

The minimum sustainability criteria are partly inspired by the Do Not Significant Harm criteria and partly based on expert judgment. Mandatory co-benefits for the protection and restoration of biodiversity and ecosystems including soil health and the avoidance of land degradation are based on indicators that are listed in the Nature Restoration Law Art. 11. It will be discussed in the expert group whether a more cost-efficient approach could be to make use of the positive list of practice under Annex VII of the Nature Restoration Law (p. 7).

Following Article 7.2 of the CRCF, the draft methodology on carbon farming sets minimum sustainability requirements for carbon farming activities in section 5.

We welcome the safeguard criteria included in 5.1.(a) to (f) on climate change mitigation beyond the net carbon removal benefit and the net soil emission reduction benefit as well as adaptation, the sustainable use and protection of water and marine resources, safeguards regarding the transition to a circular economy and safeguards regarding adaptation (p. 17-18).

Provisions should be added on how compliance with these criteria should be ensured and how monitoring of environmental impacts should be implemented.

Section 5.2: Monitoring and reporting of the mandatory co-benefits for the protection and restoration of biodiversity and ecosystems, including soil health and the avoidance of land degradation

Section 5.2 of the draft methodology sets rules and requirements for monitoring and reporting of the mandatory co-benefits for the protection and restoration of biodiversity and ecosystems, including soil health and the avoidance of land degradation (p.19).

- **Further elaboration on monitoring and reporting of co-benefits needed**: We welcome that the methodology provides guidance on mandatory co-benefits for the protection and restoration of biodiversity and ecosystems, including soil health and the avoidance of land degradation. However further specification is required. It is not clear how monitoring and reporting on these co-benefits shall be implemented.
    - To ensure the implementation of co-benefits, operators should be required to assign roles and responsibilities for managing environmental risks of the project, define how monitoring must take place and how information on these environmental risks must be reported. Also, a follow-up procedure on any potential negative environmental impacts should be defined.
- **Clarification needed how activities are to show compliance with Nature Restoration Law**: The draft methodology refers to Article 11 of the Nature Restoration Regulation and its Article 11(2) that requires MS to put in place measures aiming to achieve an increasing trend at national level of at least two out of three indicators. Two indicators are listed in the draft methodology, while the following sentence says that to ensure alignment with the NRR, an activity must show an improvement on one of these “three” indicators (p. 19). The third indicator from the NRR should be added. It remains to be clarified how activities are to show compliance with one of these indicators.
- **Specify under which conditions co-benefits for soil health and reduced land degradation are considered to be fulfilled**: The methodology states that carbon farming activities that lead to carbon removals in mineral soils or reduced carbon emissions from mineral soils will by definition improve on the first indicator (p. 19), i.e. stock of organic carbon in cropland mineral soils. This would then imply that the activity is compliant with the mandatory co-benefits for the protection and restoration of biodiversity and ecosystems.
    - However, compliance with the requirement to generate co-benefits for soil health and reduce land degradation should not be taken for granted for all carbon farming activities that lead to carbon sequestration in or reduced carbon emissions from mineral soils. For example, while compost enhances SOC stocks in the soil, it can be overapplied and would then have negative effects on soil health. More specific provisions should be added.

Social risks or safeguards are not addressed by the draft methodology. Provisions to cover these should be added.

For monitoring and reporting voluntary co-benefits on other sustainability objectives, operators may use approved methodologies under other certification schemes (p. 20). Details on this remain to be clarified.

Overall, it is not clear how the methodology incentivises the generation of co-benefits going beyond the minimum sustainability requirements as required by Art. 7.3 of the CRCF. This should be clarified.

Information to be included in the certificate of compliance

The definition of this information is missing in the draft methodology. The information to be included in certificates and publicly available background information should be provided (see the specific proposals in our cross-cutting findings).

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Carbon Market Watch CRCF Survey Responses — Soil Carbon and Agro-forestry

Specify which type of activity your feedback refers to:

Soil carbon in mineral soils and agro-forestry

Feedback on: Definitions

N/A

Feedback on: Introduction

We recommend that all resources developed through the CRCF process clearly articulate the use case(s) that they are designed to support. This information should be included within each standalone document to enable informed interpretation, assessment, and use of the contents.

Paragraph 1 under sub-section “Scope”: The proposed minimum duration of carbon storage — ten years — is significantly shorter than practically all carbon credit units currently available across the carbon market. Practically no credits with this short of a duration have been issued across any of the major registries, such as Verra, Gold Standard, and the American Carbon Registry. While some credits that use “tonne-year accounting” might have this short of a duration, these types of credits represent a tiny fraction of the global carbon market and have been widely discredited (e.g., the registry Verra rejected efforts to implement tonne-year accounting in 2022). Critically, carbon dioxide remains in the atmosphere for thousands and thousands of years. The draft elements’ proposed duration is out of line with both market standards and the physical science of climate change if the credits are meant to support offsetting claims. Such short duration credited units cannot credibly serve as the basis for making climate neutralisation claims (e.g., “net zero” or “carbon neutral”) and provide negligible benefits to combating climate change.

Feedback on: 1. Scope 1.1 Eligible Activities

Paragraph 7: The Draft Elements should retain the requirement that all land under the operational control of an operator be included in the project monitoring. This is an important safeguard for preventing activity leakage.

Feedback on: 1. Scope 1.2 Activity period and monitoring period

The Draft Elements require a minimum ten year monitoring period. When compared to projects currently participating in the global carbon market, this is an anomalously short period of time for crediting carbon storage. Offset projects typically have durations of around 40 years, with the full range spanning around 20 years up to 100 years. Recent efforts to credit shorter duration projects, lasting as short as a single year, have been rejected by major registries, like Verra.

When used within the context of the European Union, regulations like the Green Claims Directive should be expected to help prevent misleading environmental claims on the basis of these short-duration units. However, the Draft Elements should anticipate that certified units originating from the approved method might also be used in non-EU contexts to make voluntary environmental claims that are not subject to other EU regulations. To minimise the likelihood of certified units being used to support misleading claims, certified units deriving from temporary carbon storage should be accompanied by language clearly stating that the units are inappropriate for making compensatory (i.e., offsetting) claims.

Feedback on: 2. Quantification 2.1 Relevant carbon removal sinks and GHG emission sources

N/A

Feedback on: 2. Quantification 2.2 Standardised baseline

Subsection (a): Adoption of a standardised baseline for soil carbon project activities risks generating non-additional credited units. The Draft Elements should require evaluation of whether or not the activities implemented by a project are widely adopted on a regional scale. This is sometimes referred to as a “Common Practice” criterion. Imagine a sub-region where no-till agriculture is practised by 70 percent of fields and adoption rates have steadily been increasing by 2 percent per year over the last five years. Projects seeking certified units for adopting no-till agriculture in this same sub-region should have to account for this broader trend when claiming additionality. Section A.2 of Version 1.1 of Climate Action Reserve’s Soil

Enrichment Protocol has such provisions that could help inform implementing this type of criterion.

Feedback on: 2. Quantification 2.3 Activity-specific baseline

Paragraph 5: The Draft Elements envision two approaches for determining initial soil organic carbon (SOC) stocks: i) conventional sampling and ii) “optimised sampling”, which allows for stratified sampling approaches to reduce costs. It is appropriate to use stratification to identify similar fields or parcels and arrive at an optimised sampling strategy across fields. However, within individual fields that are selected through the stratification process, the Draft Elements should require the same level of within-field subsampling that is required by the conventional sampling approach. This requirement would reflect the fact that SOC is highly heterogeneous at the local level.

Paragraph 6: The Draft Elements only require sampling soil to a depth of 30 cm, which risks systematic over-crediting. There is a wealth of literature and meta-analyses demonstrating the merits of deeper sampling (e.g., Angers and Eriksen, 2008; Slessarev et al., 2021; Cai et al, 2022). Specifically, changes in agricultural practices can result in both the accumulation of and the redistribution of carbon within the soil column. Crediting accumulation is fine, but it is incorrect to treat redistributed carbon as new, additional carbon storage. To avoid this problem, the Draft Elements should mandate sampling to 100 cm.

Feedback on: 2. Quantification 2.4 Total carbon removals and emissions

Subsection (a), Paragraph 1, list item number 2: The Draft Elements envision two approaches for quantifying total carbon removals: i) measure-remeasure and ii) model-based. Currently, the model-based approach requires randomly resampling 20 percent of fields. The Draft Elements should maintain or increase this level of resampling. Remeasurement is a critical safeguard for ensuring certified units reflect real climate benefits. For projects that use stratified sampling (referred to as “optimised sampling” in the Draft Elements), the resampling strategy should require random resampling to occur equally across all strata. Furthermore, the proposed mechanism to compensate for modelling errors using the buffer pool is ripe for abuse. Developers would have every incentive to tune models to generate the maximum number of credits. Upon remeasurement, if those modelled estimates were inaccurate, the public buffer pool would compensate for the error, while the developer would not suffer any financial consequences.

Subsection (a), Paragraph 2: The Draft Elements should require that bulk density be resampled throughout the project activity and monitoring period. Currently, the Draft Elements specify that “Soil bulk density does not have to be determined again.” Failure to remeasure soil bulk density

risks over-crediting, especially for projects that reduce or eliminate tillage. Many practices that aim to increase soil carbon removals affect the density of soil, especially in the upper portions of the soil column. The combination of fixed-depth sampling and changes in soil density runs the risk of over-crediting unless changes in soil density are also accounted for. As such, it is critical that the Draft Elements account for this dynamic to prevent systematic over-crediting.

Feedback on: 2. Quantification 2.5 GHG Associated Emissions

Paragraph 6: The Draft Elements are correct to point out that it is difficult to attribute indirect land use change to specific project instances. However, it is inaccurate to assert that the effects of indirect land use can be ignored because good soil management practices align with “a broader food system transformation.” As such, it is important that the Draft Elements retain the requirement that “The Commission will include an analysis on the possible effects of carbon farming activities on ILUC as part of the review of the CRCF regulation.” This report should be generated at regular intervals (i.e., every five years) to ensure credited activities do not incentivize harmful land use change.

Feedback on: 2. Quantification 2.6 Update of the standardised baselines

N/A

Feedback on: 2. Quantification 2.7 Addressing uncertainties in a conservative manner

Paragraph 2: It is incorrect to assert that increasing the number of fields included in a project automatically decreases uncertainty. Sample selection and the within-field soil sampling procedure are also critical components for ensuring positive outcomes. For example, taking measurements that fail to account for changes in bulk density across either a single field or thousands of fields have the same potential of overstating the climate benefits of changes to soil management practices.

Feedback on: 3. Additionality

Paragraph 1: The proposed additionality criteria — a regulatory test and a financial test — are insufficient to ensure that credited units represent new, additional climate benefits. The Draft Elements should also include a common practice criterion for additionality (see comments on section 2. Quantification 2.2 Standardised Baseline).

Feedback on: 3. Additionality 3.1 Regulatory Test

N/A

Feedback on: 3. Additionality 3.2 Financial Test

Paragraph 3: Remuneration alone is an insufficient test of financial additionality. Imagine a farmer who has regularly planted cover crops for years, without receiving payment. Under the proposed criteria, this business as usual activity could be considered additional if the farmer received any voluntary remuneration, be it a single euro or hundreds of euros. The Draft Elements should require evidence that the activities undertaken as part of the activity period impose additional costs (or result in foregone revenue). Many existing protocols have this type of requirement, which is sometimes referred to as a “financial barrier” test.

Feedback on: 4. Storage, Monitoring, and Liability 4.1 Monitoring rules and mitigation of any risk of release of the stored carbon

N/A

Feedback on: 4. Storage, Monitoring, and Liability 4.2 Liability Mechanisms

Paragraph 4: The Draft Elements envision two approaches for calculating the fraction of certified units that must be contributed to the buffer pool: i) conducting a risk assessment or ii) adopting a default contribution rate. The option for a default contribution rate should be removed. Imagine a scenario where the risk assessment approach yielded a buffer contribution rate of 50 percent of units, but the default contribution rate was 30 percent. Operators would likely opt to not use the risk assessment approach and instead take the lower contribution from the default approach. Furthermore, there does not appear to be any scientific basis for the proposed default approach. It is particularly problematic that the default approach applies the same risk to all replanted forests, no matter their location. If a spatially-explicit, scientifically rigorous risk assessment cannot be performed, project activities should not be eligible to receive certified units.

Paragraph 5: The final methodology should maintain the requirement to disclose information about the context of the buffer pool and the requirement to stress test the buffer pool. The results of those stress assessments should be made publicly available.

Feedback on: 5. Sustainability

N/A

Call for feedback: Draft elements for an EU certification methodology on carbon removals and emission reductions through carbon farming under the CRCF

Soil carbon in mineral soils and agro-forestry

Response by Tani Colbert-Sangree, Greenhouse Gas Management Institute

Reviewed by Olga Lyandres, Greenhouse Gas Management Institute

1. Definitions

Emission reduction is a regularly misused term to mean both lowering emissions across a time series (e.g., a national inventory) and the difference between a baseline and project scenario for crediting purposes. These are distinct concepts that are conflated to the general confusion of all stakeholders. For crediting purposes, it is better to say avoided emissions and enhanced removals, or emission reductions compared to the baseline scenario. “Soil emission reduction unit," “carbon farming sequestration unit,” and other terms would be impacted. If “soil emission reduction” is meant to refer to both reductions in emission of carbon from soil carbon pools (and N2O emissions) as well as increases in carbon removals, then emission reductions should be defined as “reductions in atmospheric levels of emissions”. Otherwise, the avoided soil carbon and N2O emissions should be distinguished from enhanced removals (in the form of soil carbon accumulation).

Carbon farming sequestration unit should only be used to refer to the portion of a project activity’s impact, and corresponding credits (if issued), that result from enhanced removal activities, not from avoided emission activities (e.g., N2O emissions from reducing fertilizer use). Some practices implemented through a project will avoid emissions that would have occurred in the baseline and other activities will enhance removals. Only enhanced removal activities involve the sequestration of carbon and only this portion of a project should generate or be labeled as carbon farming sequestration units.

Activity period – should this be the length of time that an activity is in practice or the timeframe over which an activity is eligible to be issued credits? Perhaps a second term is needed?

The definition of **reversal** is not sufficient. Reversals are typically defined regarding whether they were intentional or unintentional not whether they were voluntary or not. Both intentional and unintentional reversals should be defined as well.

GHG associated is defined as “emissions…which are attributable to its [the activity’s] implementation”. The use of the term “attributable” could be confusing as attribution is more typically associated with allocational GHG accounting frameworks (e.g., national or corporate level GHG accounting in which responsibility for emissions is assigned to entities). For a project-level accounting framework, which is a type of consequential GHG accounting, it would be more consistent to say “emissions…which are consequential to its [the activity’s] implementation”. This better identifies the intention of this term which is assumed to be to capture all emissions that are changed as a consequence of the project/intervention (to flip the perspective, a tree planting project would not be attributed the emissions from an auger used to dig holes – it would only need to account for the emissions related to the use of that auger that are beyond the baseline scenario and a consequence of the project).

Defining a “**tree**” as including shrubs could present challenges for quantification as the primary method for quantifying tree growth is allometric equations, which do not relate to shrubs. The methodology references trees (including shrubs) but the quantification methods would differ significantly between trees and shrubs.

2. Introduction

Activity period is mentioned in the Scope section. See comment below in question 4 relating to the activity period and monitoring period.

Related to the standardized baseline for agro-forestry activities, the current text appears to make a political decision to grant agro-forestry projects more credits at the expense of environmental integrity. The CRCF program could decide to do this, but it should acknowledge that doing so would weaken the additionality of credits generated from agro-forestry biomass that was not planted due to the incentive created by the opportunity to sell credits (e.g., biomass planted up to 5 years before the project was initiated).

If the goal is to encourage agro-forestry as a practice, use of lower-quality carbon credits will not (perhaps in the short term but definitely in the medium or long term) be a viable path forward – as the lower-quality will eventually be identified and then these agroforestry credits will not be viewed as valuable. Other mechanisms that do not undercut the quality of credits should be devised to support agroforestry practices in tandem with or separate from crediting, instead of methodology provisions that would lead to the overestimation of credits that will be used by entities with compliance obligations (or making claims toward voluntary emission reduction targets) in place of internal inventory emission reductions. The bottom line is that carbon credits as a policy tool require additionality.

At present, the current provision would weaken the environmental integrity of issued agro-forestry credits. Crediting is itself a form of "jumpstart" funding to enable novel technologies to catch on, which should not generate credits once they become common practices.

3. Scope 1.1 Eligible Activities

The provision, "Carbon farming activities that increase the application of externally sourced (off-farm) organic amendments are only eligible if the operator can demonstrate that the organic amendments are coming from organic resources that would otherwise not be used" is perhaps unnecessarily restrictive? I understand this would simplify accounting, but if a farmer chose to apply organic amendments this would just constitute a project emission source which could be quantified. I don't see the rationale for limiting activities in this way.

4. Scope 1.2 Activity period and monitoring period

Only minimum period lengths are specified - the crediting period should have a specified limit on the number of creditable years. It would make sense to define different crediting periods for soil carbon projects and agro-forestry projects given the nature of carbon removal practices and the timeframe for growth of trees. The Carbon Credit Quality Initiative identifies that the maximum number of years a project may be issued credits, to be considered high-quality, is 10 years for the majority of project types (e.g., soil carbon or soil-related avoided emission projects) and 40 years for afforestation, reforestation, and regeneration (ARR) projects (and agro-forestry would fall into this category).[1]

For the monitoring period, a minimum timeframe makes more sense. The monitoring period should have a longer minimum period associated with it, given that monitoring is the mechanism used to confirm the permanence of enhanced removals accomplished through the project. It is best practice among carbon crediting programs to monitor a project for at least 100 years from the start of the initial crediting

[1] See page 43 of the CCQI Assessment Methodology: https://carboncreditquality.org/download/Methodology/CCQI%20Methodology%20-%20Version%203.0.pdf

period.[2] Also, it should be noted that 100 years is already a substantial compromise compared to a truly "permanent" removal of emissions (meaning one that lasts forever). While this is the best practice among carbon crediting programs, if the intention of the CRCF Regulation of the European Parliament and of the Council is to ensure permanence as stated in provision (13) "***Permanent*** carbon ***removals*** provide enough certainties on the very long-term duration of several centuries" then the monitoring period should be aligned with this objective and extend beyond 100 years to ensure very long-term storage of carbon over several centuries.

5. Quantification: 2.1 Relevant carbon removal sinks and GHG emission sources

This section should provide guidance regarding definition of the project boundary, including a comprehensive list of carbon removal sinks and sources and specify for each whether they are included, excluded, or optional. Sources and sinks, related to the project or baseline scenario, that are excluded should be described and the rationale for their exclusion should be provided in the methodology (e.g., combustion emissions, deadwood, leaf litter, harvested wood products). Because the draft lacks reference to these processes, it is ambiguous how they are treated by the methodology. Careful consideration of each carbon pool is needed.

Related to those sources that are mentioned:

- Direct and indirect N_2O emissions from managed soils should specify fertilizer use (total quantity applied, application rate, type etc) and biogenic amendments (even if they are excluded).
- Combustion emissions related to the use of machinery are emission sources that should at least be included in the project scenario[3] relating to the use of vehicles, tractors, farm equipment or other emissions related to maintenance and management.
- Emissions sources that stay the same should also be mentioned and identified as excluded due to their expected lack of difference between the project and baseline scenario, such as harvest-related emissions as well as farming inputs shipment/transportation, etc.
    - There is no specification of how to quantify direct and indirect N_2O and CO_2 emissions from fertilizer use or machinery, except in section 2.5 "in accordance with the 2006 IPCC Guidelines…". This is not a specific recommendation as elsewhere in the EU certification methodology specific tiers are identified for the methods that must be used. Methodologies to perform this quantification should be similarly specified and section 2.1 could include a reference to section 2.5 to aid readers in navigating the document.
- N_2O and CH_4 emissions from the occurrence of fire that might be used to prepare the site for planting or as a management practice over the crediting/monitoring period should be included if it may be practiced as it could result in significant emissions.

6. Quantification: 2.2 Standardised baseline

The standardized baseline assumes zero carbon in above- and below-ground biomass and as a result allows for trees or woody elements planted more than 5 years before the start of the project to be

[2] See page 77 of the CCQI Assessment Methodology: https://carboncreditquality.org/download/Methodology/CCQI%20Methodology%20-%20Version%203.0.pdf

[3] Including emission sources in the project scenario, but not the baseline scenario is more conservative. These sources could also be included in the baseline scenario but from an integrity perspective its important they are accounted for in the project scenario.

quantified. The language in 2.2 b) also does not specify whether/how to account for carbon accumulated through natural regeneration of biomass (i.e., preexisting biomass) that was not planted in the past 5 years. At present the standardized baseline provisions would allow this source of non-additional biomass to be counted. This provision both inflates the baseline (baseline will appear lower than it actually is) when trees are present and then allows for the quantification of this biomass as project impact resulting in over-crediting of any pre-existing trees (and shrubs).

Lastly, what is to be done if trees or woody elements have been planted in the past 5 years? Can the project still move forward but exclude planted biomass from quantification? A provision could be added to specify that if there are planted woody elements or trees more than 5 years prior to the start of the project that the standardized baseline is not appropriate to apply and therefore the project is not eligible to be issued credits through the methodology (or insert provision to accommodate these situations conservatively).

7. Quantification: 2.3 Activity-specific baseline

Baseline assumption that 3-year reference period for establishing farming practices will be accurate/would not have changed over the project crediting period raises a risk of baseline inflation. Farming practices may be improved for many reasons or could be incentivized by multiple policies. The methodology currently could result in the crediting of practice changes that do not result from the incentive created by the opportunity to generate revenue from selling credits. Further, what is to stop a project from increasing the intensity of inputs/farming in the 3 years before registering a project activity to inflate their baseline?

Soil sampling to establish baseline SOC levels only has a minimum depth of 30cm. 30cm of depth is not sufficient to detect possible migration of SOC from deeper soil layers to the top 30cm of soil that can occur due to tillage practices. Typically, it is recommended that soil sampling occurs at least 15-20cm below the historical plowing depth (which will vary from farm to farm based on historical practices). If soil sampling depth is set at a minimum of 30cm, the quantified SOC in soils could be inaccurate as it may be the result of soil migration from lower soil layers instead of the changes in practices that result from the project activity.

When opting to use the pedo-transfer function option instead of measuring bulk density there should be guidance specifying what constitutes a validated regional pedo-transfer function. Guidance would also be useful to identify when it is okay to apply this approach compared to bulk-density measurements so it is not an unrestricted option that would allow project developers to game the approach selection.

8. Quantification: 2.4 Total carbon removals and/or soil emission reductions from the activity

The guidance is too flexible regarding the use of quantification methodologies – they just must qualify as IPCC Tier 3 methods. Flexibility in the use of methods allows project developers to potentially attempt to quantify their activities with multiple methods and then select the most favorable method. Too much flexibility and ambiguity hinder the ability for third party auditing and greatly reduce transparency.

IPCC methodologies are intended for quantifying annual carbon emissions and removals for a national inventory. They are applicable for larger scale areas, varied circumstances, and comprehensive

accounting of all carbon pools and fluxes. This means they are not necessarily fit for purpose for project accounting methods. Aspects of the IPCC methodologies can be incorporated into project methodologies, such as equations and default emission/carbon stock factors but in general the methods are not directly applicable to project accounting. Therefore, it is not advisable to simply suggest the projects use IPCC Tier 3 methods.

Furthermore, lower “tier methods” can be useful in project-level accounting as they improve standardization, transparency, and verifiability. More work is needed to define and describe the quantification approach than is presented in the draft element. Existing similar methodologies such as the Verra Afforestation, Reforestation, and Revegetation protocol and the CAR Forest Protocol (specifically the Reforestation components) should be consulted for guidance on how to define a clear quantification methodology that applies to project-level accounting. Some specific areas in need of clarification are noted below.

The model-based approach’s treatment of identified overestimation seriously weakens the environmental integrity of any project applying this methodological approach in two significant ways. The following provision would lead to overestimation and permanence issues: "In case the resampling shows that the model results overestimated the amount certified units by more than [20%], the certified units in the buffer pool (see Section 4.2) will be expired." Some questions that arise from this provision:

- Is verification occurring after issuance of credits? Issuance should only occur after verification confirms the results of the project activity. When a model’s overestimation is being determined, credits should not yet have been issued. A 3rd party auditor and the certification scheme should confirm the accuracy and compliance of any project, with the methodology, including the accuracy of modeling tools used, before any credits are issued to the project.
- If verification reveals the model is overestimating the credits the model should be corrected, and the quantified project impact should be adjusted to what sampling would inform. This way the model can be made more accurate for future crediting periods.
- If the overestimated impact from modeling error is credited and then in turn requires compensation and the elimination of buffer pool credits - then a significant overestimation issue also becomes a significant permanence issue.
    - Also, what if the project does not use the buffer pool permanence option but instead uses the insurance policy option? Then according to the methodology, nothing would need to occur resulting from this revelation of overestimation.
- The EU CRCF methodology should consider provisions that would ensure modeling approaches will include added layers of conservativeness and that only soil carbon confirmed by soil measurements are credited.

Soil bulk density is an essential aspect of measuring soil to ensure carbon accumulation is occurring and that it doesn’t simply appear soil carbon is accumulating in the top 30cm of soil due to soil compaction and carbon from deeper layers of soil migrating to the top 30cm. It is not in line with soil science to assume that soil bulk density will not change due to farming practice changes, or natural carbon movement in soil, and instead the methodology should require bulk density to be remeasured prior to the issuance of any credits and confirmed by 3rd party auditors. The methods for measuring soil bulk density should be specified within the methodology.

Relating to ground measurements, the specificity of the representative sampling methods would be beneficial to reduce the potential for project developers to favorably interpret the sampling

requirements and meet the methodology requirements while sampling in a way that leads to a greater quantified impact from the project.

- This provision related to transforming ground measurements into carbon stock estimates is confusing and could be more specific, “Special attention shall be paid to the fact that different natural characteristics such as climate conditions and varieties in tree species may have implications on the factors typically used to convert ground measurements into carbon stock.” This appears to be the only provision that speaks to how carbon should be quantified. Should these points of special attention be read as requirements? Should any Tier 3 method be required to be appropriate for the project’s specific climate conditions? I would say yes. Also, if multiple tree species are planted should the Tier 3 method apply separate allometric equations specific to each species? I would also say yes.
    - Whatever the method selected, uncertainty in the methods, allometric equations, and sampling should be incorporated into the uncertainty deduction. Limits on the allowable level of uncertainty should be identified.
    - There is no mention of allometric equations. Since these are the typical way of assessing tree growth, I would assume they will be used and therefore aught to be mentioned in the methodology.
    - There are some issues with the use of allometric equations, relating to the typical assumption for the carbon fraction of tree biomass at 0.5 for angiosperms and trees in tropical forests (See Martin et al. 2018), which shows up in the 2006 IPCC Guidelines Volume 4 Chapter 2 equation 2.8 which is cited by this methodology. These issues should be identified through the methodology if these tree species are potentially eligible, with alternative, conservative biomass fraction ratios indicated for quantification.

Relating to remote sensing data, the provisions state this quantification option "shall include calibration" - but the calibration method is not specified. The calibration method should be specified. Remote sensing data should also specify a level of resolution and the frequency of remote sensing data collection that is assessed to quantify the project site carbon that is required.

Relating to modelling, the requirements for eligible models should be clearly specified. This provision, “models that are able to reflect the characteristics of trees and woody elements in agro-forestry systems shall be privileged” does not explain what “privileged” means for a project. If agro-forestry system-models must be used, then the methodology aught to state this. If there are permissible exceptions to using an agro-forestry system model, then those exceptions should be detailed and the steps to prove eligibility for the exceptions must be robust. It is also unclear whether models must be calibrated, as the language says, “can be calibrated using a historic time series”, and if they must be calibrated then how? Functional requirements, such as the level of uncertainty, geographic relevance, species relevance, ability to adjust the carbon fraction of tree biomass (if necessary), and other parameters necessary to ensure the model applied is in line with CRCF goals should be identified to ensure the models used are robust and aligned.

The way that these three options for quantification may work together is also largely unclear. Significant, and unaddressed, questions are:

- Can project developers change methods through a crediting period?
- Must project developers apply the same methods for evaluating the baseline and project scenarios?

9. Quantification: 2.5 GHG associated emissions

The methodology speaks as though it intends to credit based on both the enhanced removals and the avoided emissions related to fertilizer reduction and other practices that cause soil carbon to be released. Yet, the sources of GHG associated emissions (typically referred to as “project emissions”) are not included in section 2.1 where the baseline emissions sources would need to be identified for a project to claim to have avoided emissions. Potential project emissions should be specified in this section, such as emissions from the treatment of crop residues, site preparation (for agroforestry), or other sources.

See comments in sections 2.1 and 2.4 relating to methods for quantifying sources of project emissions.

The materiality rule: "According to the materiality rule, any emission source within the activity boundaries shall be considered material where it is associated with emissions over the course of the activity period equal to or greater than [2%] of the expected gross carbon removals delivered over that activity period." There should be a cumulative maximum of excluded emissions due to the materiality threshold. If multiple, let’s say five, sources equal to 2% were excluded applying this provision’s guidance – 10% of the total project impact could be over- or under-credited. Other crediting programs deal with this by establishing a limit on the percentage of total emissions that may be excluded because individual sources fall below the de minimis threshold. Typically, this amount is no more than 5% of total emissions may be excluded.

- One further point, if the materiality rule is set in proportion to the amount of “expected gross carbon removals” instead of the total project impact (i.e., expected gross carbon removals – baseline removals and – project emissions), this would increase the materiality rule threshold and allow more sources of emissions to be excluded. It is not typical to define the materiality or de minimis threshold in relation to gross removals, rather it is typically defined in relation to the project’s total impact.
- The materiality provision also identifies materiality should be assessed over the entire activity period instead of at a shorter interval (e.g., each period in which credits may be issued). This would have the effect of minimizing project emissions related to site preparation and planting. These emission sources could be material compared to the expected project impact over the initial monitoring period, but not over the lifetime of the project. If so, this would create a timing issue whereby more credits are issued in the short term than should be, even if this is deemed immaterial by the next 40, 60, or 80 years of project activity. This is an issue because credits should only be issued for avoided emissions or enhanced removals that occur and not be issued for avoided emissions or enhanced removals that will occur in the future (there is uncertainty about whether that will come to be and the issued credit is being used in the present in place of GHG inventory emission reductions that would otherwise have occurred).
- In addition, specific sources/sinks excluded due to the de minimis materiality threshold can be pre-established in the methodology, for some sources that are likely to be de minimis for the vast majority of projects and thus standardized. This is favorable instead of leaving it up to the project developer to determine and justify as it improves transparency and reduces burden on project developers. But sources/sinks that are not reliably de minimis should not be excluded in this way.

Emissions associated with indirect land use change associated with changes in crop production could be significant. It is safe to assume that farmers will continue to prioritize crop yield while adopting new

farming practices, but some practices may impact yield (these practices may still be worth implementing as their cost-savings outweigh the loss of yield). A loss of yield that results from lower-cost farming practices could cause a market-shifting leakage effect. Crediting programs do acknowledge this issue and provide provisions to address these potential leakage emissions – see Verra's VM0042 for instance. VM0042 identifies productivity decline thresholds and if a farm-product (i.e., an individual crop) yield decreases by more than the threshold amount then the field producing that product are not permitted to be credited. There is further an exception if productivity initially declines following the adoption of a new practice, but then rebounds after the initial 3 years of implementation. A provision like this could be adopted to address this issue, while also acknowledging that productivity variation is typical and may be impacted by external factors as well. VM0042 allows for up to 5% productivity decline without taking any action which seems to be a fair provision reflecting the nature of farming production.

10. Quantification: 2.6 Updates of the standardised baseline

Updating the baseline every 5 years is what the most robust and reputable crediting programs do. In some cases, with appropriate contextual analysis, less frequent baseline updating may still be robust, such as if the project activity's circumstances are unlikely to change. But it is conservative to at least check and assess whether updating is required every 5 years.

11. Quantification: 2.7 Addressing uncertainties in a conservative manner

Please note the comments relating to section 2.4 about uncertainty.

To quote a review paper by Barbara Haya et al 2023, "Major sources of uncertainty in estimating onsite carbon stocks in the biomass pools fall into four categories: (i) accuracy of measurements in the field; (ii) choice of allometric models (including selection of wood density values and root:shoot ratios); (iii) sampling uncertainty related to plot size; and (iv) sampling uncertainty related to statistical representativeness of the plots within the whole landscape (Chave et al., 2004; Temesgen et al., 2015). For the soil and litter pools, substantial uncertainty exists around both the processes of organic carbon cycling, as well as accurately quantifying highly variable carbon stocks across space. Lastly, uncertainty surrounding carbon benefits from harvested wood products primarily relates to life cycle considerations, such as duration of use or potential climate benefits from product substitution." To ensure a conservative approach, all sources of uncertainty should be addressed through the methodology.

Uncertainty of carbon removals shall be estimated and accompanied by a deduction from the total carbon "removals". Notably there are potential areas of uncertainty that are missing from the provision that should be included in an uncertainty deduction. These sources of uncertainty include:

- Baseline scenario uncertainty – what if something else would have happened with the land? Is assuming zero carbon in baseline above- and below-ground biomass on the land with no uncertainty deduction a conservative judgment? On what basis and how certain is this judgment? Standardized approaches result in some amount of false positives (activities that meet the eligibility requirements to apply the standardized baseline but in fact should not) and false negatives (activities that do not meet the eligibility requirements to apply the standardized baseline but should be able to). A robust standardized baseline attempts to limit the occurrence of false positives as much as possible and may apply a conservative deduction into the methodology to accommodate some anticipated portion of activities that will be deemed eligible when in fact their baseline above- and below-ground biomass should not be considered

zero. At present the methodological approach does not take either step as the standardized baseline is unlikely to be accurate for many project instances because zero carbon in above- and below-ground biomass seems unlikely – except perhaps when transitioning from annual row crops to agro-forestry (perhaps there could be different standardized baselines depending on the type of land-use or land-cover that is being transitioned to agro-forestry?). These issues may also relate to the forthcoming standardized baselines identified in section 2.2.

- Quantification method uncertainty (separate from measurement errors or data processing). Within eligible IPCC Tier 3 methods that are used, how should their identified uncertainty be incorporated?
- Satellite imaging data uncertainty should also be specified and factored in (if applied).
- Ground measurement sampling approach uncertainty – there can be error in the taking of samples but also in the selection of plots/determination of 'randomness'.

The language in section 2.7 could be clarified as at present it is unclear if you are supposed to use the IPCC guidelines to quantify uncertainty from your modelled baseline and project or quantify a conservative estimate of the carbon removed (following the IPCC guidelines?) - and then assume that this IPCC guideline informed estimate is the conservative estimate against which error and the uncertainty deduction are determined? Specific section references and specificity in quantifying uncertainty for each emission sink and reservoir is necessary. Also, this language, "The level of uncertainty shall be deducted from the total carbon removals" has a few issues:

- First, "total carbon removals" only relates to project-enhanced removals, not any project emissions that occur through farming activities, planting, management, and harvest. Uncertainty exists for the methods used to calculate project emissions as well as baseline removals and emissions. Baseline uncertainty should not be excluded from the overall uncertainty estimate.
- Second, uncertainty deductions should be conservatively applied not just to total carbon removals but to other quantified project and baseline sources and sinks as well. Uncertainty deductions should be applied to deduct the quantified values of project removals and baseline emissions and conservatively add buffers to the values of project emissions and baseline removals.
- Third, the language is not precise on how the deduction should be applied. It raises the following questions for me as a reader, should the level of uncertainty (let's say it is 10%) be deducted on a 1:1 basis from the total carbon removals of the project? So, would the total carbon removals by the project be reduced by 10%? Is that the intention of the provision? If so, this would be a strong and conservative provision that would lead to higher environmental integrity, for the carbon removals value, but if true the language should specify this is the case.
- Finally, using consistently conservative approaches that both underestimate enhanced removals and avoided emissions and reduce uncertainty throughout the methodology is another tool to achieve an "acceptable level of uncertainty". Language to this effect would need to specify the selection of more conservative estimates (or the most conservative estimate) when multiple options are offered. This can reduce the burden of directly quantifying uncertainty and adjusting enhanced removals or avoided emissions, which can be subjective (unless very specific approaches are provided in the methodology). While this would not replace the need for an uncertainty deduction it could reduce the level of the deduction or simplify the deduction determination process (if provisions are added to specify this).

12. Additionality: 3.1 Regulatory test

The following provision is understandable but creates environmental integrity issues: “In order not to discourage Member States from introducing mandatory national obligations that are more stringent or ambitious compared to Union or national obligations in force at the time where the activity starts, an activity may be considered additional where such national obligations are introduced during the activity period. The same is true in case of mandatory national obligations adopted in the absence of Union obligations.” Issues are identified below:

- This provision would result in credits being generated that are required by law to occur, but it is a sensible rule to allow for stability within the credit market. So, how do you reduce the risk that a new law is enacted mandating the activities being credited through a CRCF methodology? Reasonable crediting period time limits (see comments in response to section 1.2 above, potentially the option for crediting period renewals (if the total length of allowable credited years is 10 years perhaps two crediting periods of 5 years each with renewal at year 5 would be appropriate and lead to high-integrity credits), and reassessment of the baseline to update for any changes in the regulatory context if crediting period renewal is allowed.
- The words “introducing” and “introduced” are somewhat ambiguous. Legislation can be introduced but not be enacted into law. This should be clarified to avoid misinterpretation.

In the Financial Test section, relevant to projects electing the project-specific baseline approach, it mentions the Common Agricultural Policy and State aid as potential policies that could incentivize or partially fund activities eligible through this methodology. The methodology should identify how these (and potentially other) policies may intersect or overlap with the aims of this methodology, identify how those programs provide support and whether credits are generated, and build an evidenced case for these policies not constituting a legal mandate and that the existence of these policies will not constitute double counting or double claiming.

13. Additionality: 3.2 Financial test

This provision language is not in line with a high environmental integrity additionality determination, "In case of schemes that are only financed through remuneration coming from private markets, additionality is assumed, as the activity would not take place without the certification scheme." What is the basis for this determination? Are there not common practice improvements that occur on farmland or other reasons why a farmer might adopt the undefined and non-limited practices that are eligible through this methodology? Do private markets invest in farming activities for reasons other than carbon credit revenue (e.g., ROI from farm product sales)? To say that every single practice that could be implemented on a farm is additional if financed by private markets’ remuneration is to grossly oversimplify farm economics (e.g., it ignores the multiple funding streams of farming) and private funding motivations. Again, **the key for determining additionality is whether the revenue from selling carbon credits is the decisive factor that leads to implementation of the project**, which is mentioned in the first paragraph of section 3.2 when it states, “determine whether the certification has an incentive effect”. If this is not the case, then the project is not additional and should not result in carbon credits. The methodology’s additionality provisions for private market funding sources erode the provision stating that there must be an “incentive effect” to be issued credits. The methodology should attempt to distinguish additional from non-additional farming practices regardless of funding source.

Requirement for projects financed by public and private funding - must reveal where finance is originating from. This could also extend to privately funded projects to increase the environmental integrity and confidence in additionality for those types of projects. There are multiple reasons that private funding could support a farmer's practice improvements – some may relate to the claims made relating to those practice changes, some may be purely financial and may or may not be decisively motivated by credits. It is important to distinguish between additional projects (motivated decisively by crediting revenue opportunities) and non-additional projects.

14. Storage, monitoring and liability: 4.1 Monitoring rules and mitigation of any risk of release of the stored carbon

The "special attention…paid to mitigation practices resulting in a smaller risk of reversal" should be specified and requirements relating to their monitoring and implementation should be detailed. Auditors should be required to confirm that these practices that reduce the risk of reversal are being implemented appropriately.

The monitoring of stored carbon by project activities must also continue at least until the end of the crediting period, and it is good practice to extend these practices to the full extent of the permanence expectation. In the case of the EU CRCF regulatory text, this is "***Permanent*** carbon ***removals*** provide enough certainties on the very long-term duration of several centuries". Monitoring requirements that confirm the continuation of removed carbon, should be aligned with the expectation for permanence.

15. Storage, monitoring and liability: 4.2 Liability mechanisms (N.A. for peatlands)

The wording "shall conclude an insurance policy" could be clarified. I believe the intent of this provision is that evidence must be provided revealing that an insurance policy will be active over the length of the monitoring period. Conclude, in my read, does not stipulate the extent of these requirements, rather it reads such that a policy should be completed (which does not necessarily mean it will remain active for the necessary timeframe). Also, please note that these insurance policies do not yet exist. While some may be in the process of development, it is risky to include them in a methodology before they have been publicly released, let alone tested by years of project activity.

The term "relinquished certified units" is not commonly used, and should either be defined to clarify its meaning or a more common term, such as retired (credits used against a compliance obligation or voluntary claim) or cancelled (eliminated credits that were issued mistakenly or from faulty accounting, or may be eliminated to compensate for reversals that have occurred). See ICVCM's definitions chapter for "Cancellation" and "Retirement": https://icvcm.org/wp-content/uploads/2024/02/CCP-Section-5-V2-FINAL-6Feb24.pdf.

Given that the impacts of climate change are being tracked/measured, our ability to predict these threats is inherently uncertain, and the impacts themselves are rapidly developing and intensifying, it is recommended that a shorter timeframe for the evaluation of the appropriateness of the buffer pool contribution be selected. So, if considering 5 years or 10 years for the assessment of the risk assessment methodology, which informs the buffer pool contribution, a 5-year timeframe would be more likely to accurately reflect the non-permanence risks facing projects from fire, disease, drought, storm,

temperature, etc. If a 10-year timeframe is selected, more conservative provisions should be selected within the risk assessment methodology to ensure the longer timeframe does not endanger the long-term viability of the buffer pool. Noting that the language here is the same between the tree planting methodology and this soil carbon methodology it is important to mention that the risk of reversal will differ substantially between project types and within soil carbon it will differ depending on the soil carbon agriculture practices implemented, the climate, the geographic location (e.g., proximity to population centers or other farms), and other factors that could be incorporated into different risk ratings for different project circumstances.

"The certification scheme shall address negligent and intentional reversals by operators through contractual arrangements." These contractual arrangements should ensure that intentional or negligent reversals will be backstopped by the buffer pool and **that operators are responsible for replenishing the credits from the buffer pool** (if intentional or negligent reversals are backstopped in this way). While most certification schemes operate buffer pools to address the risk of non-permanence, if a certification scheme does not operate a buffer pool and insurance products have not been created or are not available, then the CRCF methodology should specify whether the activity is no longer eligible or if credits may be purchased and retired from other crediting programs to compensate for the reversal. It is important to ensure that the physical reversal of enhanced removals is countered with previously unused credits that originate from projects that meet EU CRCF methodology requirements. Compensation for intentional or negligent reversals by project developers is important to ensure the long-term viability of the buffer pool to manage reversals that are intentional and unintentional in nature.

16. Storage, monitoring and liability: 4.3 Rules for operationalizing the requirement referred to in article 6(3) (N.A. for peatlands)

No comments.

17. Sustainability 5.1 Minimum sustainability requirements

No comments.

18. Sustainability: 5.2 Monitoring and reporting of the mandatory co-benefits for the protection and restoration of biodiversity and ecosystems, including soil health and the avoidance of land degradation

No comments.

19. Sustainability: 5.3 Monitoring and reporting of other voluntary co-benefits

No comments.

20. Annex 1: Options to calculate the standardized baseline for mineral soils (soil carbon on mineral soils only)

The methodology is considering two approaches to calculating the standardized baseline, the carbon flux approach and the practice-based approach.

The **carbon flux approach** estimates the baseline based on regional models developed by non-project developers (policy makers, academics or the like). These models would not be individually altered by project operators, which reduces the risk that estimates in baseline emissions would inflate potential credits generated resulting in higher integrity credits generated.

- This approach would have the selection bias risk, whereby project instances that would be credited more favorably by the established regional baseline would be more likely to register to generate credits. Whatever level the regional baseline is set to, projects with higher levels of soil carbon before the implementation of any practice improvements would stand to benefit more than projects with less pre-project soil carbon.
- If selected the selection bias risk would need to be appropriately considered and reduced.

The **standard practice** approach estimates the baseline based on determination of standard soil carbon farming practices. As the document notes, the question of defining what standard practice is presents a challenge. Standard practice is not always easy to characterize and it evolves. It depends on the geography, climate conditions, and production systems, and can vary significantly.

- The methodology doesn't provide a list of eligible practices, nor does it presently attempt to distinguish those practices that are implemented because they are common within their relevant geographic area. To be additional, crediting projects must be implemented because of the incentive created by the opportunity to generate revenue from selling credits, and therefore not be implemented because they are a common practice. Issuing credits for activities that are common or have been implemented prior to the project start date (e.g., by early adopters of the practice) would result in additionality concerns that undermine their integrity.
- Furthermore, if as this provision states, "In this approach, the baseline would be calculated using the same quantification method as for the carbon removals or soil emission reductions of the carbon farming activity" operators have flexibility to select the quantification approach to quantify emissions, there is the possibility for gaming and for project developers to quantify emissions in multiple ways and ultimately select the methods that maximizes potential credit generation.

21. Optional question on validation:

What would be in your view the best approach to ensure that the emission factors, sampling protocols, and/or models used to quantify carbon removals are validated? Which validation criteria would you recommend, and what should be the role of operators, certification schemes, academia, other public or private entities, and/or the European Commission in the validation process?

For the most part, I think carbon crediting programs like Verra have established well-functioning processes that can be mimicked for these purposes. Wherever possible, a limited number of vetted and well-regarded methods should be specified by the methodology – ideally, a single method should be

stated as required. With more options of methods to apply there is greater opportunity for project developers to test out calculations and quantify project impact using multiple eligible methods and then select the method that produces the most financially beneficial outcome and submit project documentation using this most beneficial method.

Regarding validation of models – the main role for academia is developing and/or calibrating models, while verification entities would be applying them. Some criteria could be included to ensure models are published/peer reviewed and applicable to the specific cropping system and conditions for the project. The models should also be open-source or public in some way so that auditors could reproduce the calculations and obtain the same results, possibly refine calculations.

Regarding the sampling methods and emission factors – the key thing is to accurately stratify the land according to climate, soil type, management practices, etc. Proper stratification can help ensure that sampling methods capture the representative characteristics of the soil and improve accuracy of the estimates (and possibly reduce the sampling burden). Proper stratification also allows for the selection of the most applicable emission factors by project developers. Using data collected and disaggregated by strata can then help refine emission factors. This could be done in partnership with academia.

22. Optional: general comments

No additional comments.