OBSERVATIONS IN RELATION TO CATEGORY ASSESSMENT

IMPROVED FOREST MANAGEMENT– PART I

AUGUST 2025

1. Purpose of these observations

The Governing Board (the Board) of the Integrity Council for the Voluntary Carbon Market (ICVCM), when considering the assessment of methodologies related to Improved Forest Management (IFM) identified that it would be beneficial to make available the ICVCM's observations for the purpose of supporting the future development of methodologies in this Category.

These observations are non-binding and do not impact or form any part of the Assessment Framework, Assessment Procedure, or any Decision (as defined under the Assessment Framework) and are published by the ICVCM for the purpose of information only.

The ICVCM may, from time to time, publish other observations for other Categories where it considers this may be useful for CCP-Eligible Programs and other stakeholders, and may update and revise its observations from time to time based on further assessment processes or information. Observations are not an exhaustive set of views of the ICVCM, and not all aspects addressed in assessment processes are included. No reliance may be placed on observations, as they are for the purpose of information only, and observations published are without prejudice to other ongoing assessments.

The Governing Board would like to express its gratitude to the experts and other stakeholders engaged in the assessment process who provided input to the ICVCM regarding this Category.

2. Category Details

Improved Forest Management (IFM) projects deliver enhanced forestry practices designed to increase carbon sequestration and reduce emissions. These enhanced practices include extending harvest rotation periods (storing more carbon in trees), production to conservation measures (preserving areas of forest instead of harvesting) and reduced impact logging (using techniques that minimise damage to forests and soils). IFM methodologies typically do not limit the practices that can be applied, and projects may implement several practices at the same time

3.Observations relating to IFM methodologies

The Board's observations regarding the assessment of IFM methodologies against the ICVCM Assessment Framework and its Core Carbon Principles generally relate to robust quantification and additionality.

The three methodologies within this Category to which these observations relate are:

- Improved Forest Management (IFM) on Non-Federal U.S. Forestlands version 2.1 applied under ACR
- Mexico Forest Protocol version 3.0 applied under CAR.
- VM0045 Methodology for Improved Forest Management Using Dynamic Matched Baselines from National Forest Inventories version 1.2 applied under VCS.

Older versions of the methodologies above and the remaining methodologies in this Category remain under assessment by the ICVCM.

The Board welcomes novel approaches like dynamic baselining to increase integrity and recognises that further research and empirical testing of such approaches in methodologies may identify new risks, and it will be attentive to these as part of ICVCM ongoing assurance and oversight.

4. Robust Quantification

A crucial consideration in strengthening the integrity of the voluntary carbon market is ensuring that GHG emission reductions or removals are robustly quantified, which means based on conservative and complete approaches and using sound scientific methods. The Governing Board considered the following issues when taking the Decisions for the methodologies in the IFM Category.

4.1. Inclusion of carbon pools and GHG emission sources

The assessment process highlighted that the significance of carbon pools and GHG emission sources in IFM methodologies is inherently linked to the type of IFM practice implemented and its effects on reducing timber supply levels during project implementation. For instance, practices involving reduced-impact logging, extended rotation periods, or set-asides may each affect different carbon pools, such as deadwood, soil organic carbon and harvested wood products (HWPs). This characteristic is noted in the diverse approaches that different IFM methodologies take when defining which carbon pools and GHG emission sources to include within carbon project boundaries. These approaches are shaped by the types of IFM practices encompassed in their scope and the consequent effects on timber supply levels during project implementation.

The ICVCM notes that version 1.2 of the VM0045 methodology by VCS addresses this subject by requiring a significance test to determine whether specific carbon pools and GHG emission sources are *de minimis*. Under this approach, any pool or source contributing less than 5 per cent of the total project-related emission reductions or removals – when aggregated – may be excluded from accounting. Other methodologies, such as CAR Mexico Forest Protocol and ACR IFM on Non-Federal U.S. Forestlands, address this subject by allowing projects to designate certain carbon pools as *de minimis* based on IFM activity type. These designations are subsequently validated by a VVB, ensuring methodological consistency and oversight. During assessment, ICVCM noted that some IFM methodologies exclude soil organic carbon pools and it is conservative to do so in most cases as IFM practices generally do not involve significant site disturbance and furthermore tend to reduce harvest activity (and thus site disturbance) compared to the baseline. It was also noted that, despite the different approaches to consider

the HWP pool in IFM methodologies, the risk of HWP causing significant overestimation is low, as this pool tends to be a low percentage of the carbon stored (<10 per cent).

4.2. Leakage

Leakage refers to emissions that are caused by the implementation of a project activity but that occur outside the project boundary. The assessment process considered leakage and relevant literature extensively and, in particular, appropriate leakage deduction rates for these types of activities.

The assessment process noted that, for the IFM category, if a carbon project reduces its harvesting volume below its baseline to increase its carbon stocks, it must account for leakage. This is because a reduction in harvesting within the project area will likely result in increased harvesting outside the project area in order to meet the consistent demand for timber and/or harvested wood products. Conversely, if the harvesting volume remains unchanged or even increases compared to the project's baseline, the risk of leakage is relatively low.

The ICVCM notes that leakage estimation is technically complicated and subject to significant uncertainty and variability, depending on variables such as type of IFM practices, type of forest and national market context. There is no clear scientific consensus on the best way to account for leakage, or indeed the most appropriate value that can be expected for IFM mitigation activities. Different IFM methodologies prescribe different rules and approaches for estimating leakage, leading to a range of possible outcomes and values. ICVCM's assessment noted that the methodologies assessed have different approaches to capture the potential for higher leakage deductions that have been shown in the literature.

The ICVCM notes that the VCS VM0045 applies a tiered set of default leakage deduction factors. For projects that do not involve a permanent reduction in timber supply, a leakage factor of 10 per cent is applied. Otherwise, leakage factors range from 20 per cent to 70 per cent depending on the extent to which the project deviates from the national average ratio of merchantable stocking to total stocking. Once established, the leakage factor is applied to the difference in live tree biomass removed between the project and baseline scenarios (the baseline scenario typically removes more live tree biomass than the project scenario). This approach estimates the likelihood of both activity-shifting[1] and market leakage[2] due to reduced timber availability and uses deduction factors that consider high levels of leakage (i.e., up to 70 per cent).

The ICVCM notes that the CAR Mexico Forest Protocol applies a default deduction factor of 20 per cent to the difference between project and baseline onsite carbon harvested to account for leakage – referred to in the methodology as "Secondary Effects Emissions." This approach does not distinguish between market and activity leakage. The Board further noted that this default

[1] Activity-shifting leakage is a type of leakage where the mitigation activity causes emissions to shift location. Mitigation activities can shift emissions to locations not targeted, or emissions not monitored, by the activity.

[2] Market leakage is a type of leakage where mitigation activities have an impact on the supply or demand of an emissions-intensive product or service, thereby increasing or decreasing emissions elsewhere. For example, forest management or conservation activities may reduce timber harvests within an intervention area, leading to increased harvesting in other areas to meet demand for wood products.

factor may not adequately capture scenarios where leakage exceeds 20 per cent, which can occur in IFM depending on forest type and market context. Accordingly, the Board has agreed that the current leakage approach in the CAR Mexico Forest Protocol requires a remedial action to align with the ICVCM Assessment Framework and qualify for CCP-Approved status. The remedial action requires an extension to the leakage calculation so that it is possible for the resulting secondary effects deduction value to be set well above 20% consistent with the latest research. The ICVCM Assessment Procedure[3] outlines the steps required for a program to achieve CCP-approval following the implementation of remedial actions.

The ICVCM notes that the ACR IFM for Non-Federal U.S. Forestlands methodology separates activity-shifting leakage and market leakage. For the first case, ACR requires project proponents and all associated landowners to demonstrate that there is no activity-shifting leakage beyond *de minimis* within their operations – i.e., on other lands they manage/operate outside the boundaries of the GHG Project (as defined). This requirement is an eligibility criterion under the ACR IFM on Non-Federal U.S. Forestlands methodology, such that a project is not issued carbon credits for any reporting period in which they cannot verifiably demonstrate adherence to these requirements.

For market leakage, ACR IFM for Non-Federal U.S. Forestlands methodology applies a tiered set of default leakage deduction factors based on two key variables: the reduction in total wood products produced by the project relative to the baseline, and forested property size. Once determined, the leakage factor is applied to the total carbon credits amount, including both reductions and removals. This differs from the approach used in the CAR Mexico Forest Protocol and VCS VM0045, where the leakage deduction is applied only to the difference in onsite carbon harvested or live tree biomass removed between the project and baseline scenarios. This means that the absolute number of carbon credits deducted from ACR IFM for Non-Federal U.S. Forestlands for leakage is equivalent to the leakage deduction of other methodologies that use a higher leakage factor applied to a smaller number (i.e., a change in harvesting volume).

For example, consider a project that generates 1,000 emission reductions/removals in a reporting period (ignoring any contributions to a buffer pool for simplicity). Of these, 500 are attributed to changes in harvesting volumes, while the remaining 500 stem from other factors, such as changes in forest stock due to biomass growth. Applying a 30 per cent leakage factor to 1,000 results in a deduction of 300 total emission reductions/removals , which is equivalent to applying a 60 per cent leakage factor applied to 500 emission reductions/removals attributed to changes in harvesting volumes.

The ICVCM observes that applying a 0 per cent leakage factor where a reduction in total wood products produced by the project relative to the baseline is less than 5 per cent may not adequately account for leakage in the ACR methodology[4]. The Board has agreed that when such a condition arises, it should not receive CCP Approval.

[3] Please refer to ICVCM Assessment Procedure

[4] The assessment process notes that 0 per cent leakage factor has not yet been applied to any registered project using ACR IFM on Non-Federal U.S. Forestlands, including older versions of the methodology.

The Board also observes that there is no harmonized definition across programs for the various leakage types that may occur (e.g., negative, market, activity-shifting, carbon, international etc.), which may impact alignment and clarity across the carbon market. It notes new studies are under development[5], and expects CCP-Eligible Programs to remain informed about work on leakage and review and/or revise leakage approaches and leakage discount factors in new versions of methodologies, as appropriate.

5. Additionality demonstration and Baseline determination

Emission reductions under an IFM mitigation activity are additional if the activity sequesters carbon dioxide at higher levels than would have occurred in its absence.

The assessment process recognized the tight interdependence between demonstrating additionality and establishing the baseline within the IFM category. As a result, different approaches to demonstrating additionality emerge depending on the baseline methodology – such as NPV maximization, historical-based, initial carbon stock, and dynamic baselines.

The ICVCM notes that the CAR Mexico Forest Protocol establishes baselines using historical data from forest inventories conducted in the project area prior to project start. Baseline carbon stocks within the quantification boundary are assumed to remain at initially inventoried levels for the duration of the project's crediting periods. Crediting is based on additional carbon sequestration every reporting period (i.e., on top of previously sequestered and maintained carbon from prior reporting periods), which then must be maintained for the length of the permanence period (up to 100 years). With respect to legal and policy changes, ICVCM notes that all projects under the CAR Mexico Forest Protocol are required to annually sign an Attestation of Voluntary Implementation. This attestation confirms that no laws, policies, or regulations mandate the project's implementation, such that legal additionality is attested on an annual basis.

The ICVCM notes that VCS VM0045 prescribes a dynamic matched baseline approach, involving remote sensing to demonstrate additionality and determine the crediting baseline at every verification. In summary, this approach compares the project's performance with matching baseline control plots that have been determined by the project developer, following methodology procedures and validated by VVB, to represent baseline conditions. The ICVCM assessment process identified the novel nature of this approach and noted that it has been designed to increase robustness. The assessment process also acknowledged that empirical testing of this method has not yet been conducted. In particular, it was noted that remote sensing data can sometimes become overloaded, especially when full canopy cover is achieved.

The Board notes that future improvements in technology might solve this potential challenge and recommends that the ICVCM Continuous Improvement Work Program (CIWP) on Measurement, Reporting and Verification (MRV) Systems (including Digital MRV) to explore this subject, assessing existing technologies and best practices that could address or mitigate this issue.

[5] e.g., Daigneault et al., 2025. A Global Assessment of Regional Forest Carbon Leakage (pending peer review).

The ICVCM notes that ACR IFM on Non-Federal U.S. Forestlands version 2.1 also adopts a dynamic baseline approach, operationalized through the ACR Tool for Dynamic Evaluation of Baselines. This tool enables ex-post adjustments to baseline carbon stock estimates throughout the crediting period, ensuring alignment with observed conditions and increased ambition over time.

The Board emphasizes that regardless of the approach used (such as those described above), the baseline scenario and quantification of baseline emissions or removals must be updated or reviewed at a frequency that appropriately reflects changing circumstances[6]. These could include changes in government policies, legal requirements as well as market conditions, and/or forestry dynamics.

6. Permanence

The ICVCM assessment process noted that the CAR Mexico Forest Protocol version 3.0 establishes a minimum permanence commitment (i.e. monitoring and compensation) of 30 years, with the option to extend up to 100 years. For projects committing to less than 100 years, credit issuance is adjusted proportionally to the duration of the permanence period, relative to a 100-year benchmark. This proportional issuance reflects the atmospheric benefit of storing carbon for a limited time, also known as Tonne-Year Accounting (TYA) approach.

Under the CAR methodology, permanence commitments must be formalized through a Project Implementation Agreement (PIA) and/or, in the case of communal or *ejidal* lands[7], through customary legal instruments such as an Assembly Act. All projects under CAR Mexico Forest Protocol are required to contribute to the CAR shared buffer pool, with contribution levels determined by a project-specific risk analysis.

The ICVCM acknowledges that the 30-year minimum permanence period reflects the historical legal and social context in Mexico, particularly related to *ejidos* and other community-based land tenure systems. It also recognizes that projects opting for a 30-year permanence period and using a 100-year TYA approach significantly reduce the volume of credits eligible for issuance. The Board have decided that the CAR Mexico Forest Protocol's permanence provisions mean that the ICVCM CCP Approval must contain a condition, to ensure that projects explicitly commit to a minimum permanence period of 40 years[8]. Recognizing the need to further consider *ejidos*, the 30-year permanence period using a 100-year TYA approach remains under assessment by the ICVCM.

7. Environmental and Social Safeguards

The Board underlines the importance of compliance with social and environmental safeguards throughout IFM projects, and notes that robust oversight mechanisms are important

[6] Please refer to ICVCM Assessment Framework 10.3 (a)

[7] *Ejido* or "*propiedad comunal*" is a form of Mexican communal land ownership, primarily used for agriculture, where community members cultivate individually assigned plots while collectively managing shared areas

[8] Please refer to ICVCM Assessment Framework 9.3 (b)

components of effective social and environmental protections in IFM, particularly in forestry projects involving non-native species.