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Document reference number and title: (Recommendation from the MEP to SBM020) **Draft Methodological tool: Reversal risk assessment**				
Item	**Section no.** (as indicated in the document)	**Paragraph/Table/Figure no.** (as indicated in the document)	**Comment** (including justification for change)	**Proposed change** (including proposed text)

1	-	Cross Cutting Comment on the document	The Draft Reversal Risk Assessment Tool proposal for activities that reduce non-renewable biomass has two fundamental issues: (1) Reversal risk assessment should not be applied to activities that reduce non-renewable biomass, as the credits generated are ordinary flow-based emission reductions with no need for permanence provisions. For example, the CDM (AMS-II.G), Verra/VCS, and Gold Standard have never required a buffer pool, reversal-risk rating, or permanence liability for clean cooking activities. As designed, this tool is not a risk-of-reversal tool; rather, it is a tool to calculate an emissions discount applied to these activities (disguised as a buffer contribution), even though no monitoring nor remediation is required. The design and application of this tool for activities that reduce non-renewable biomass risks setting an inappropriate precedent, both for other flow-based credits like renewable energy or fuel switching (which logically could also become subject to permanence requirements), and for activities where permanence does matter, as the assumptions and architecture of the tool are not fit for this purpose. (2) The scientific and evidentiary basis of the Draft Tool is insufficiently robust and should not be adopted in its current form as a general risk assessment framework. The primary issue is that it is based only on one model that cannot be used to determine absolute risk. The current approach elevates a narrow set of modeled defaults into regulatory risk factors, provides inadequate treatment of uncertainty and correlation, assumes zero natural-risk mitigation by default, and leaves human-induced and governance risk underdeveloped. This creates an asymmetric framework in which nature-based risks are standardized, extended over 100 years, and potentially used for exclusion, while risk-reduction tools such as governance, adaptive management, fire-risk reduction, insurance, reserves, and portfolio diversification are not comparably recognized. A scientifically credible Article 6.4 framework should follow a probabilistic and portfolio-based risk architecture: estimate expected and tail losses, disclose uncertainty, and recognize verified risk mitigation. If the MEP continues to develop	N/A see comment above

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			this Tool with a narrow application to activities that reduce the consumption of non-renewable biomass, that adoption should be accompanied by an explicit non-precedent clause to clarify the tool will not be used as a template for the reversal risk assessment of nature-based activities without substantial revision to ensure its design is more scientifically robust and better oriented toward the Agriculture, Forestry and Other Land Uses -AFOLU-sector context. In short, because its application to activities that reduce non-renewable biomass is inappropriate, the architecture designed for it cannot be migrated to AFOLU-sector activities. Despite these fundamental objections to the Draft Tool as presented, Emergent is also providing detailed comments to support the MEP in designing future versions of the Tool that can build a robust and high-integrity Article 6.4 framework for assessing and addressing risks of reversal.	

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2	5. Reversal risk assessment	paragraphs 17, 19–21	The tool applies fixed geographic defaults, assumes zero natural-risk mitigation, and provides no ex-post calibration. The Article 6.4 buffer becomes a flat levy rather than a risk-management instrument suited to context. Global-scale datasets (e.g., Global Forest Watch) are inappropriate for project-scale risk estimation. GFW's creators acknowledge accuracy variability by geographic, climatic, and ecological factors [GFW Blog], with especially poor forest loss detection in subtropical forests and sub-Saharan Africa. Two activities in the same subnational unit (one with fire-management brigades, fuel breaks, diversified species, and secure tenure; the other with none) receive identical buffer contributions. Excluding mitigation adjustments disincentivizes responsible practices because projects bear costs with no reward. This contradicts 20 years of carbon market incentive design. Rules set now will be inherited by future activity types (forestry, biochar, geologic storage; paragraphs 21 and 55 of the cover note).	Before finalizing, the MEP should publish a structured comparison against established non-permanence risk instruments, explaining each deliberate divergence with scientific or policy justification. Per CMA guidance at COP301, there is an imperative to design rules based on robust scientific evidence that reflect real risk at the scale and within the boundaries of all activities to which this tool will apply. A decision to exclude risk mitigation must be supported by a literature review of mitigation effectiveness at the relevant scale. The tool should adopt a core design principle: reversal risk ratings are reducible by verified risk-mitigation measures across all risk types, so that buffer contributions reward durability rather than merely tax
3	Cover note	Cover Note: Paragraphs 15 and 16	The tool acknowledges "reversal risk mitigation factors" but gives meaningful treatment only to human-induced risks, treating natural risk mitigation as zero by default. This ignores that durable governance and adaptive management are integral to permanence design. Land tenure, rights, benefit sharing, enforcement, community participation, long-term finance, and institutional continuity are central determinants of anthropogenic reversal risk.	Enable evaluation of governance quality alongside biophysical exposure, recognizing that the strongest durability mechanisms may be institutional rather than ecological. Incorporate governance, management, and finance as potential risk mitigation factors to reduce both anthropogenic and natural risk where they demonstrably change exposure, likelihood, severity, response, or recovery. Draw on expertise from other markets (e.g., insurance industry and bond rating agencies).

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4	Appendix 2. Methods used for deriving…	Section 3.1 Paragraphs 30 to 32	The MEP has yet to define the confidence objective; this should be done first to inform scenario selection. The "medium-medium" tr55bt716 disturbance scenario and SSP2-4.5 is justified only because there is "no clear reason" for the high case and "no sufficient justification" for the low case. That is a weak basis for a regulatory default. Scenario selection should be tied to the confidence objective and depends on the policy question of global emissions pathways.	Request the SBM to determine the confidence level it seeks for buffer pool solvency before developing reversal risk rating tools. Do not use a single central scenario to determine eligibility or negligible risk; instead, use an ensemble (e.g., emission scenarios, GCMs, and DGVMs).
5	5. Reversal risk assessment	Section 5.1.1 paragraph 20, footnote 16	The MEP argues that uncertainty in scenario selection "does not have any implications for the solvency of the reversal risk buffer pool account" because A6.4ERs are cancelled immediately with no post-crediting monitoring. This reasoning is logically inverted. If contributed A6.4ERs are cancelled immediately, the contribution is not a buffer; it is a permanent, irreversible issuance discount. A buffer holds assets against contingent liabilities and can be drawn down. A cancellation can never be recovered, returned, or reconciled against outcomes.	Immediate cancellation raises the required accuracy standard because it removes any possibility of ex-post correction. On that basis: (a) require default values be accompanied by published uncertainty ranges; (b) establish periodic reconciliation comparing modelled reversal risk against observed forest disturbance, with adjustment of defaults where systematic divergence is found; and (c) where cancellation (rather than buffer retention) is applied, require a central estimate with explicit uncertainty disclosure, rather than a single point value presented as settled.
6	Appendix 2. Methods used for deriving…	Appendix 2: Paragraphs 7 to 24	Appendix 2 projects historical disturbance into future risk to reduce credit issuance or increase buffer requirements. This creates asymmetry if historical trends are rejected or constrained for baseline setting: historical trends can penalize permanence but not recognize counterfactual loss or the value of avoided loss.	Methods used to assess risk should be consistent with those used for baseline setting.

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7	Cover note	Cover Note: Paragraphs 32 to 36	The tool claims "best available science" and "robust evidence," but natural-risk defaults derive from a narrow pathway: the Wu et al. absolute-reversal method, a global extension, selected disturbance scenarios, and a central SSP2-4.5 case. A single modeling framework cannot define global reversal-risk defaults, especially where disturbance, mortality, regrowth, and climate sensitivity are highly uncertain. If approved, this approach could also become an inappropriate template for nature-based activities.	Require scientific consensus including formal evidence review, multi-model comparison (including other SSPs per Van Vuuren et al 2026), transparent uncertainty ranges, sensitivity analysis, and independent expert review before defaults determine eligibility, buffer contributions, or negligible risk. Ensure this more robust approach informs the development of future tools, including those designed for nature-based activities.
8	Appendix 2. Methods used for deriving…	Appendix 2	The peer-reviewed Wu et al. Nature paper is primarily a CONUS forest-carbon risk analysis. The global analysis in Appendix 2 is a bioRxiv preprint, not settled science for global regulatory use without broader peer review. The Nature paper itself reports large uncertainty ranges around buffer adequacy, supporting its use as a warning signal for relative risk, not as a deterministic global default for calculating buffer pool contributions.	Treat Wu et al. and related work as one input into a broader risk framework, not the default architecture. Require robust review of model uncertainty and alternative accepted models
9	5. Reversal risk assessment	paragraph 21	The tool defines reversal risk mitigation as interventions that reduce or eliminate risk (citing tree thinning for wildfire), yet sets natural risk-reduction factors to zero because the MEP could not identify jurisdiction-wide measures. This is internally inconsistent. Cross-scale effects and non-linear thresholds in forest and fire ecology mean mitigation need not be uniformly applied across a jurisdiction to achieve landscape-scale impact (e.g., targeted thinning, fuel breaks, containment zones, connectivity corridors). Historical lack of jurisdiction-wide frameworks reflects the nascent state of jurisdictional programs, not impossibility or ineffectiveness.	Allow project-, landscape-, or jurisdiction-scale natural-risk mitigation factors. Eligible measures should include: fuel treatments, prescribed fire, fire breaks, hydrological restoration, species/site selection, pest & disease monitoring, integrated pest management, community fire management, enforcement, and adaptive management plans. Develop a mechanism that reflects this reality and is flexible enough to be adjusted based on actual risk mitigation performance

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10	5. Reversal risk assessment	Paragraph 21	Paragraph 37 requires the wrong scale, excluding many effective measures. Activity risk reduction is often project-scale. Recognizing only jurisdictional defaults makes risk mitigation invisible for well-managed activities, becoming potentially exclusionary for both non-renewable biomass and nature-based activities. Paragraph 21 sets natural-risk reduction to zero because the MEP found no jurisdiction-wide measures (footnote 17). This conflates two questions: does the measure reduce risk? And is it administered jurisdictionally? Only the first determines whether carbon is lost. The result is internally inconsistent: footnote 7 cites tree thinning as reducing wildfire risk; paragraph 21 assigns it zero. Fire and forest-health literature confirms targeted interventions alter landscape-scale probability without uniform jurisdictional application.	Allow independently verified site-specific and landscape-specific mitigation measures. Replace the scale-based test with an effect-based test: a reversal risk mitigation measure shall be eligible for a reduction factor where it is evidenced, sustained and monitored over the relevant monitoring period, verified, and tabulated (assigned a fixed reduction value by the mechanism, by measure type, rather than self-asserted by the activity participant) irrespective of the administrative scale at which it is implemented.
11	5. Reversal risk assessment	Paragraph 22, Questions 02 and 03	Human-induced risk is central to non-renewable biomass activities, but the draft defers it to stakeholders for lack of empirical basis. This ignores extensive expertise in insurance, country risk analysis, political risk analysis, land tenure assessment, project finance, governance, and natural resource management.	Convene risk specialists, actuaries, forest governance experts, and practitioners to design human-induced risk factors. Use indicators for tenure security, enforcement, benefit-sharing, finance continuity, political risk, conflict, land-use pressure, and project governance
12	5. Reversal risk assessment	Sections 5.1 and 5.1.1 paragraph 17, 19 to 21	In Equation 1, Fbuffer sums natural and human-induced risk ratings; the MEP acknowledges this requires statistical independence and compatible distributions. Equation 2 similarly adds wildfire and other natural risk factors. The same independence condition must hold for both. However, these terms are not independent: human-induced risks influence natural risks, and natural risks interact. Wildfire, drought, insects, disease, windthrow, and management are correlated or causally linked. Drought drives both mortality and fire severity; governance affects ignitions, suppression, and recovery.	Replace simple addition in both Equations with a joint risk framework accounting for covariance and tail dependence. At minimum, require a correlation adjustment. Consider expected-loss distributions and Monte Carlo- or scenario-based aggregation. Project-level risk scores should feed a portfolio solvency model rather than being added as point estimates.

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13	5. Reversal risk assessment	Paragraph 18	The draft does not recommend an upper risk limit for clean cooking but leaves it open for other activity types. An upper limit for nature-based activities would exclude high-risk geographies where carbon finance is most needed and where active management could reduce risk.	Avoid upper limits unless the tool enables recognition of verified natural-risk mitigation and allows proponents to demonstrate risks are manageable. For manageable risks, require higher contributions with stacked insurance, reserves, step-up requirements, or shorter duration claims rather than exclusion. Upper limits should apply only where risks are demonstrably unmanageable (e.g., DGVMs predict complete forest unviability).
14	Cover note	Section 3.7 Paragraphs 48 to 51	"Negligible risk" treatment remains a deterministic bottleneck. A single 100-year percentage threshold could become a de facto exclusion screen for non-renewable biomass activities, even where risks can be priced and remediated.	Define negligible risk probabilistically and narrowly. Clarify that failure to meet the "negligible risk" standard does not result in exclusion where monitoring and remediation mechanisms are in place.
15	4. Applicability	Paragraphs 12 and 15	Though formally limited to non-renewable biomass activities, the tool is already positioned as the foundation for forestry, geologic storage, and biochar modules. The clean-cooking/fNRB structure is not transferable to project-level forestry or blue carbon without major redesign.	Include a guardrail that future nature-based modules will undergo separate scientific review and will not inherit defaults, aggregation logic, negligible-risk thresholds, or zero-mitigation assumptions from this clean-cooking application.
16	Appendix 2. Methods used for deriving…	Appendix 2: paragraphs 36–39	The tool is valid for 5 years (paragraph 4) with recommended reassessment every 2–3 years (Appendix 2, paragraph 37), but neither establishes any mechanism for testing risk ratings against observed outcomes. No requirement exists to compare modelled vs. observed disturbance, buffer inflows vs. reversal events, or triggers for revision on systematic divergence. This is a material gap. The value of a non-permanence risk instrument lies in its demonstrated capacity to keep the pool solvent without over-charging. Established programs recalibrate against observed performance. The MEP's own cited literature (Anderegg et al. 2025; Haya et al. 2023; Wu et al. 2026) is precisely ex-post assessment of buffer adequacy.	At intervals of no more than three years, conduct reconciliation of Appendix 1 reversal risk factors against observed forest disturbance data for applicable jurisdictions. Where systematic divergence is identified, revise factors irrespective of the five-year validity period. Consider routine updates as improvements occur (e.g., AI models with new training data), balancing stability with the need to avoid excessive or unexpected consequences

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17	4. Applicability	paragraph 15	Paragraph 15(b) requires identifying "a geographic area or region, rather than a specific parcel or plantation" as the biomass source. Appendix 2, paragraph 35, applies the modelled disturbance risk of that entire region to the credited carbon. This creates a fundamental attribution problem. A clean-cooking activity does not own, manage, monitor, or control the forest reservoir determining its buffer risk. Consequences: (i) mitigation cannot be recognized because the activity has no lever; (ii) modeled disturbance applies to the entire forest while the activity avoids only a fraction of extraction, overestimating exposure; (iii) it sets precedent by attributing whole-landscape risk to an activity with no control, harmful if inherited by future modules.	State explicitly in the Cover Note and tool that the geographic-default approach is a consequence of the absence of a controllable, project-level reservoir in this activity type, and is therefore not transferable to activity types in which the participant holds, manages, and monitors the reservoir
18	Appendix 1. Default values...	Appendix 1: Tables 1 to 3	Default values are punitive and potentially prohibitive: multi-national natural risk defaults sum to ~26.7% (Asia) and ~32.0% (Latin America) before human-induced risk. Without uncertainty ranges, site-specific alternatives, or mitigation factors, these values can render activities uneconomical or make "negligible risk" unattainable. Appendix 2 acknowledges the historical component excludes losses below 10% and the forward-looking component includes only stand-clearing disturbances, meaning modeled risk does not match the Reversals Standard's broader definition. Coarse resolution data can erroneously detect 100% pixel loss when only partial loss occurred, overestimating risk in lower-severity fire regimes. This is exacerbated at coarse grid projections. The tool treats areas at risk of partial, low-severity disturbance as facing catastrophic loss, ignoring fire tolerance and forest structure. It penalizes ecosystems with low-severity disturbance while potentially underestimating risk for slower processes. No scientific literature precedent supports this approach.	Provide confidence intervals, allow replacement of defaults with verified site-specific assessments, and clarify that high defaults trigger risk pricing/remediation, not categorical exclusion. Do not use this partial metric as comprehensive reversal risk. Clarify it estimates only the most extreme disturbances and requires methods for low- and medium-severity degradation, partial biomass loss, and recovery dynamics. Incorporate methods for different disturbance regimes reflecting actual severity and frequency ranges based on scientific evidence.

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19	5. Reversal risk assessment	Paragraph 18 - Paragraph 18 Question 01: The MEP seeks feedback on how to combine natural and human-induced reversal risk factors. Please note that the MEP will consider whether this approach or any alternatives may be more appropriate for combining natural and human-induced reversal risk ratings, subject to how these terms are calculated in the revised draft methodological tool. The MEP notes that reversal risk ratings may be additive if they are statistically independent and from the same probability distribution; an alternative approach may be more appropriate if natural and human-induced reversal risk ratings are statistically dependent. Stakeholders are requested to provide comments on how any recommendations about the determination of human-induced reversal risks or human induced reversal risk reduction factors should inform the calculation of Fbuffer,i,t.	In Equation 1, Fbuffer sums natural and human-induced risk ratings; the MEP acknowledges this requires statistical independence and compatible distributions. Equation 2 similarly adds wildfire and other natural risk factors. The same condition must hold for both. These terms are not independent: human-induced risks influence natural risks, and natural risks interact. Wildfire, drought, insects, disease, windthrow, and management are correlated or causally linked. Drought drives both mortality and fire severity; governance affects ignitions, suppression, and recovery. Proposal: Replace simple addition in both Equations with a joint risk framework accounting for covariance and tail dependence. At minimum, require a correlation adjustment. Consider expected-loss distributions and Monte Carlo- or scenario-based aggregation. Project-level risk scores should feed a portfolio solvency model rather than being added as point estimates.	N/A

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20	5. Reversal risk assessment	5.1.2. Paragraph 22 Question 02: On what basis should the MEP determine default values for human-induced reversal risks? What is an appropriate choice for these values? Should the values vary across jurisdictions (e.g., to reflect variation in relevant factors related to land use and land-use change), and why or why not?	Human-induced risk is central to non-renewable biomass activities, but the draft defers it to stakeholders for lack of empirical basis. This ignores extensive expertise in insurance, country risk analysis, political risk analysis, land tenure assessment, project finance, governance, and natural resource management. Proposal: Convene risk specialists, actuaries, forest governance experts, and practitioners to design human-induced risk factors. Use indicators for tenure security, enforcement, benefit-sharing, finance continuity, political risk, conflict, land-use pressure, and project governance	N/A