CONSERVATION INTERNATIONAL

RECOMMENDATIONS TO THE ARTICLE 6.4 SUPERVISORY BODY ON ACTIVITIES INVOLVING REMOVALS

The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), by its decision 3/CMA.3 "Rules, modalities and procedures for the mechanism established by Article 6.4", requested the Supervisory Body to elaborate and further develop, on the basis of the rules, modalities and procedures of the mechanism, recommendations on "activities involving removals, including appropriate monitoring, reporting, accounting for removals and crediting periods, addressing reversals, avoidance of leakage, and avoidance of other negative environmental and social impacts, to be considered at COP27."

This submission presents Conservation International´s recommendations for consideration by the Article 6.4 Supervisory Body as it continues its work to develop guidance to the CMA on removal activities under the mechanism. It is presented in response to the call from the Article 6.4 Supervisory Meeting for comments within the structured consultation process and builds on our views expressed in past submissions to this Body.[1] [2]

Cross Cutting Question 1. Discuss the role of removals activities and this guidance in supporting the aim of balancing emissions with removals through mid-century.

According to the IPCC, "Carbon dioxide removal (CDR) will be necessary to achieve net-negative CO2 emissions".[3] Nature-based options to remove carbon dioxide from the atmosphere should be considered by the Article 6.4 Supervisory Body to mitigate climate change and to meet the goals of the Paris Agreement.

Nature-based removals are particularly important in the near term as ready-to-go, proven climate solutions. The majority of existing removals activities are biological in nature and methodologies for these types of removals have already been widely tested and monitored over several decades. As noted by the IPCC, Working Group III report, "afforestation, reforestation, improved forest

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[1] **"RECOMMENDATIONS TO THE ARTICLE 6.4 SUPERVISORY BODY ON ACTIVITIES INVOLVING REMOVALS**" by The Nature Conservancy, Conservation International, Environmental Defense Fund, Wetlands International, Rare, Ocean Conservancy, Ocean & Climate Platform and National Wildlife Federation. March 2023.

[2] "**RECOMMENDATIONS TO THE ARTICLE 6.4 SUPERVISORY BODY ON ACTIVITIES INVOLVING REMOVALS**". The Nature Conservancy, Conservation International and Environmental Defense Fund.

[3] IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 36 pages. (in press), page 19.
https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

management, and soil carbon sequestration are currently the only widely practiced [carbon dioxide removal] methods (high confidence)."[4]

Cost effective tropical natural climate solutions, including both reductions and removals, can deliver significant climate mitigation in the coming decades. The protection, improved management, and restoration of forests and other ecosystems have the potential to reduce emissions and/or sequester 7.3 GtCO2e each year between 2020 and 2050 (up to $100 USD per tCO2e).[5] Furthermore, beyond climate change mitigation benefits, nature-based removals can deliver additional benefits: "Reforestation, improved forest management, soil carbon sequestration, peatland restoration and coastal blue carbon management are examples of CDR methods that can enhance biodiversity and ecosystem functions, employment and local livelihoods, depending on context". [6] Other examples of co-benefits include increasing soil fertility and water security[7].

Cross Cutting Question 3. How are these elements understood, in particular, any interrelationships in their functions, timeframes, and implementation? (a) Monitoring period (b) Crediting period (c) Timeframe for addressing reversals

Regardless of the sector of removals, monitoring is fundamental to ensure that GHG impacts are credible and verifiable, as it enables the detection of reversals. While the monitoring techniques and technologies needed to accurately quantify projected or claimed GHG impacts vary widely, the most robust systems usually use a combination of two types of approaches to monitoring: (1) ongoing/automatic monitoring, e.g., on-site and/or remote sensing to detect any changes and (2) site visits to validate ongoing monitoring, check equipment function, record in-person measurements.

There is a minimum threshold of data and monitoring requirements that are set out by standards, and carried out by the project proponents with support from the government and local communities. These should be vetted by the 6.4SB for every relevant methodology to ensure high quality.

[4] IPCC WGIII Summary for Policymakers, page 40. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf.

[5] IPCC WGIII, page 108. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf.

[6] IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 36 pages. (in press), page 21. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

[7] Smith, P. et al. Land-management options for greenhouse gas removal and their impacts on ecosystem services and the sustainable development goals. Annu. Rev. Environ. Resour. 44, 255–286 (2019).

Questions on specific elements

B. Monitoring and Reporting: 1. What timeframes and related procedures should be specified for these elements referred to in A6.4-SB003-A03?

a. For initial monitoring and submission of monitoring reports (paragraph 3.2.14);

Monitoring capacity should be in place at the onset of any activity that is intended to generate credits to be used under Article 6.4. Under no circumstance should credits be generated for results that may have occurred before monitoring was in place. Monitoring should continue over the course of the period in which the activity seeks to generate credits, and it should be sufficiently robust to verify that the activity is ongoing and to detect and quantify any reversal that occurs.

E. Addressing Reversals: In order to minimize the risk of non-permanence of removals over multiple NDC implementation periods, and, where reversals occur, ensure that these are addressed in full.

There is often the misconception that nature based removals are at higher risk of reversals than removals from other sectors. In fact, removals from all sectors carry a certain risk of reversals (though some are more apparent than others) and should therefore be treated equally under Article 6.4 guidance on removals.

This misconception is fueled by two factors:

- Reversal events in nature, like deforestation or wildfires, are dramatic and visible, while forest regrowth or compensatory policy measures are difficult to readily perceive. Reversals in other sectors are not as visible.
- At the same time, there is a widespread misunderstanding of the difference between carbon stocks and carbon flows in all sectors. This is exacerbated by a misunderstanding about accounting for forest carbon, which builds in a certain amount of natural forest die-off.

Please find more information under Annex 1. *Technical Note: Understanding Risk of Reversals in Nature Based Removals*

Regardless of the sector or activity type where removals come from, climate policy mechanisms have been designed to address potential risks (e.g. buffer pools, insurance among others) and these are discussed in the following sections. The same approach should be followed to deal with reversals from any sector given that they all carry an inherent risk of reversals.

E.1. Discuss the applicability and implementation aspects of these approaches, including as stand-alone measures or in combination, and any interactions with other elements of this guidance:

a. Non-permanence risk buffer (pooled or activity-specific);

Appropriately sized buffer pools tend to effectively address the risk of reversals, by withholding an amount of credits from being traded and setting them aside to form a "buffer pool" which is later used when a reversal occurs. In many cases, the amount withheld is not based on any actuarial assessment of the risk of reversal and it can vary. However, to be most efficient, the percentages of credits allocated to the buffer should match the actuarial risk of reversal for all activities covered by the buffer. The allocation should then take into account how reversals are detected, quantified, and reported.

b. Insurance / guarantees for replacement of ERs where reversals occur (commercial, sovereign, other);

Financial instruments like insurance can also be used to address risks of reversals. Insurance mechanisms are designed to incorporate information about the statistical risks to an asset, using actuarial techniques. Therefore, these types of approaches may be preferable in some circumstances.

Insurance is one way to guarantee that the liability for any reversal will be addressed in full, and the insurance industry has established ways of assessing risks and developing insurance tools to account for them. To discourage risky practices, insurance companies frequently set management requirements for insured projects. In theory, removals from all sectors could purchase insurance to cover the risk of reversals, though very few insurers currently provide this service.

In many cases, a requirement to provide proof of insurance for any credit transaction under from activities outside NDCs might be appropriate. Parties may even require proof of insurance as a pre-condition for authorization of transacting credits, as a way to minimize their own liabilities.

c. Other measures for addressing reversals in full.

We emphasize the need to proactively minimize risks of reversal as a means of addressing the potential for reversals. We believe that the burden of systems to address reversals should be proportionate to the quantity of carbon at risk, and there may be a *de minimis* level that requires no international measures.

E.2. Discuss the appropriate timeframe(s) for applying the approaches, including any interactions with other elements of this guidance and the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

E.3. What risks of non-permanence need to be minimized, and how can these risks identified, assessed, and minimized?

REDD+ and other land-sector activities have a long record of empirical studies and analyses that identify and quantify the risks (or "drivers") of deforestation, degradation, and other activities that could generate a reversal event. Methods for most activities are mature and widely accepted, and some are included in IPCC guidance for national inventory reporting. New, more accurate and efficient technologies for detecting and monitoring changes in land-based carbon stocks and fluxes are emerging all the time. These emerging approaches should be supported and made available to host countries, as they may make the delivery of mitigation activities more cost-effective.

E.4. In respect of risk assessment, how should the following elements be considered in the implementation of the approaches in (a) and any other relevant elements in this guidance?

a. Level of non-permanence risk assessment, e.g., activity- or mechanism-level

We favor assessments that are specific to activities, and we would discourage a sectoral or broad categorical assessment of risk. A host country should always be aware of the amount of credits that have been transferred and the risk profile associated with that quantity of credits. Insurance, diversification, and other risk management measures should be applied by host countries.

b. Timing for risk assessment(s) c. Entity(ies) responsible for risk assessment(s), e.g., activity proponent, 6.4SB, actuary

Qualified experts in the activity should be employed to assess risk, with protections in place to avoid conflicts of interest. Once quantified, these risks should be assessed through actuarial techniques, and the management of risks should be addressed through the range of available risk management approaches.

G. Avoidance of other negative environmental, social impacts Discuss considerations to be given to core elements for avoidance of other negative environmental, social impacts; where possible, identifying the applicable scope, i.e., relevance to all 6.4 mechanism activities, to removals activities, or to specific removal activity categories or types.

Experience can be drawn from the COP decisions on REDD+, specifically the Cancun Safeguards and from international REDD+ programs. The Cancun Safeguards, are a precedent under the United Nations Framework Convention on Climate Change (UNFCCC), therefore these should be used as a starting point and Article 6.4 mechanism safeguards must not fall below this standard.

Annex 1. Technical Note: Understanding Risk of Reversals in Nature Based Removals

There is often the misconception that Nature Based Removals are at higher risk of reversals than removals from other sectors. In fact, removals from all sectors carry a certain risk of reversals (though some are more apparent than others) and should therefore be treated equally under Article 6.4 guidance on removals.

This misconception is fueled by two factors:

- Reversal events in nature, like deforestation or wildfires, are dramatic and visible, while forest regrowth or compensatory policy measures are difficult to readily perceive. Reversals in other sectors are not as visible.
- At the same time, there is a widespread misunderstanding of the difference between carbon stocks and carbon flows in all sectors. This is exacerbated by a misunderstanding about accounting for forest carbon, which builds in a certain amount of natural forest die-off.

Regardless of the sector where removals come from, climate policy mechanisms have been designed to address potential risks (e.g. buffer pools, insurance among others).

KEY TAKEAWAYS: The data below illustrates several points supporting a sector-agnostic approach to managing the risk of reversals from removals under Article 6.4:

1. The risk of reversal for REDD+ is low: less than 1% per decade.
2. We can differentiate source of risk into localized geographical factors ("proximate") and deeper categorical factors ("underlying drivers"). **Both** are dynamic.
3. Categorical risks of reversal are expected to rise in the future –in part due to decarbonization of other sectors –unless incentives for REDD+ increase.
4. Under reasonable expectations, land-sector mitigation today is cost-effective, even if it is reversed in the future.

A. Can we quantify the statistical risk of reversal?

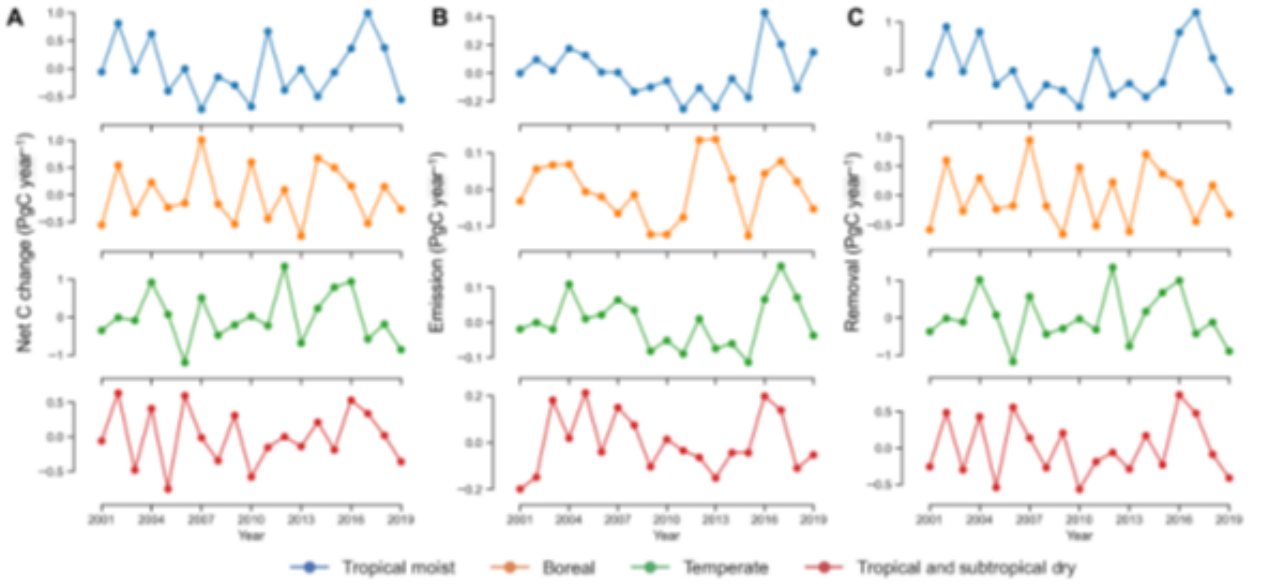
Yes. Overall, the global **average gross loss of forest carbon stock** was **<1% per year during the period 2000-2019**.[†] These gross losses were **more than compensated** by forest carbon removals during this same period, in all biomes, resulting in a **net gain in carbon stocks**. ***The expectation of 100% reversal would vastly overstate the risks.***

[†] Xu et al. 2021.

Table 1. Changes in terrestrial carbon stocks (2009-2019). Xu et al.2021, clipped from Table 1.

Biome.	2000	2019
	Carbon stock (PgC C)	Carbon stock (PgC C)
Boreal		
Forest	27.61	28.07
Nonforest	13.04	12.90
Total	**40.65**	**40.97**
Temperate		
Forest	56.45	56.85
Nonforest	6.95	7.48
Total	**63.40**	**64.33**
Tropical moist		
Forest	150.66	150.28
Nonforest	3.44	4.06
Total	**154.11**	**154.34**
Tropical dry		
Forest	27.47	29.42
Nonforest	26.19	26.33
Total	**53.66**	**55.75**
Other biomes		
Forest	9.69	10.45
nonforest	54.05	54.78
Total	**63.74**	**65.23**
Global		
Forest	271.97	275.15
Nonforest	104.06	105.95
Total	**376.03**	**381.09**

Graphic 1. Interannual variability in stocks, emissions, and removals (2000-2019). Xu et al. 2021, Figure 5. There is no trend that would indicate increasing emissions in any biome over 20years.



B. Can we identify the different types of risks of reversals?

Yes. As far back as 2002, we understood that risk factors fit into two categories: **proximate factors** and **underlying drivers**.[†]

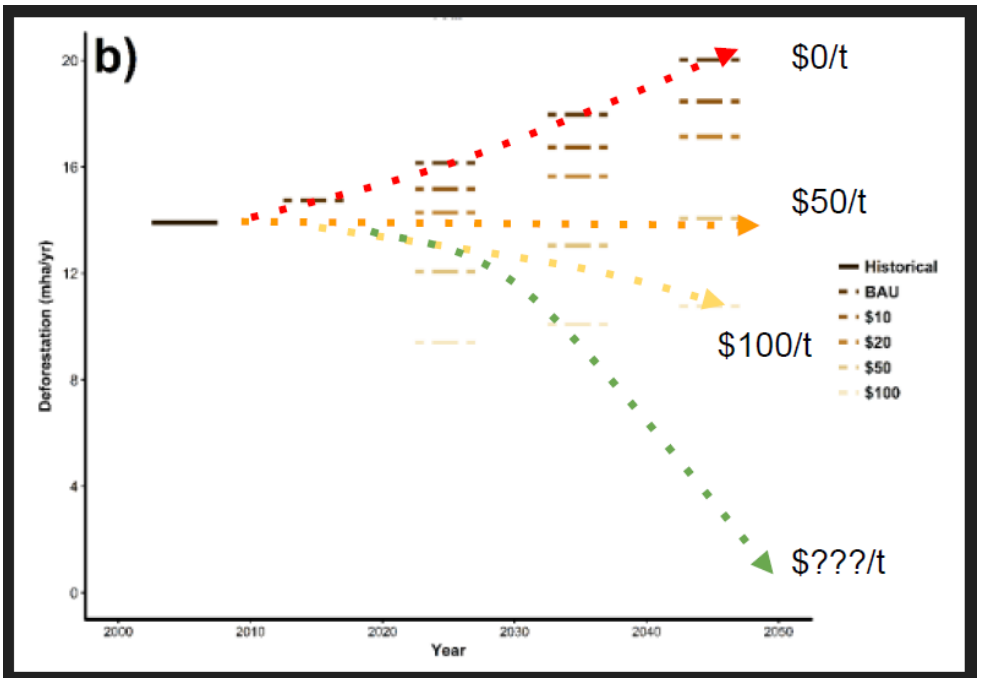
- **Proximate factors** can be mapped geographically and associated, through spatial statistics, with measured deforestation. These factors account for ***geographically specific*** risks.
- **Underlying drivers** emerge from the interaction of global market forces and other factors. As a result, they are less predictable, temporally and spatially. However, we can attribute emissions to such drivers *ex post facto*.[‡] These drivers account for ***categorical*** risks.

Annual global emissions from forests stem from the combined effects of these two risk categories. [†]Geist and Lambin 2002. [‡]E.g., Lapola et al. 2023 for the Amazon forest.

C. Are risks expected to change in the future?

Yes. The process of decarbonization of other sectors plus other factors are expected to **increase** pressures on forests. As explained by Busch et al. 2019, projections indicate that **deforestation rates will go up** in the absence of carbon incentives (please see Graphic 2 below). Therefore, the protection of existing forest stocks –even keeping them at static levels –will **require increasing incentives if we are to counter-balance these increasing pressures**.

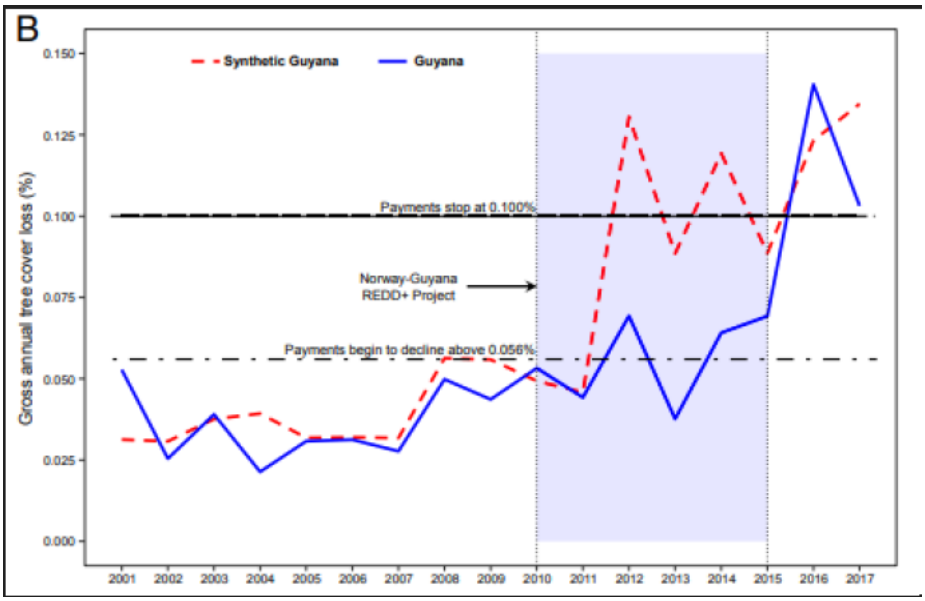
Graphic 2. Carbon prices must rise to >$50/t to maintain static levels of deforestation. Busch et al. 2019. Supplementary Fig. 6b



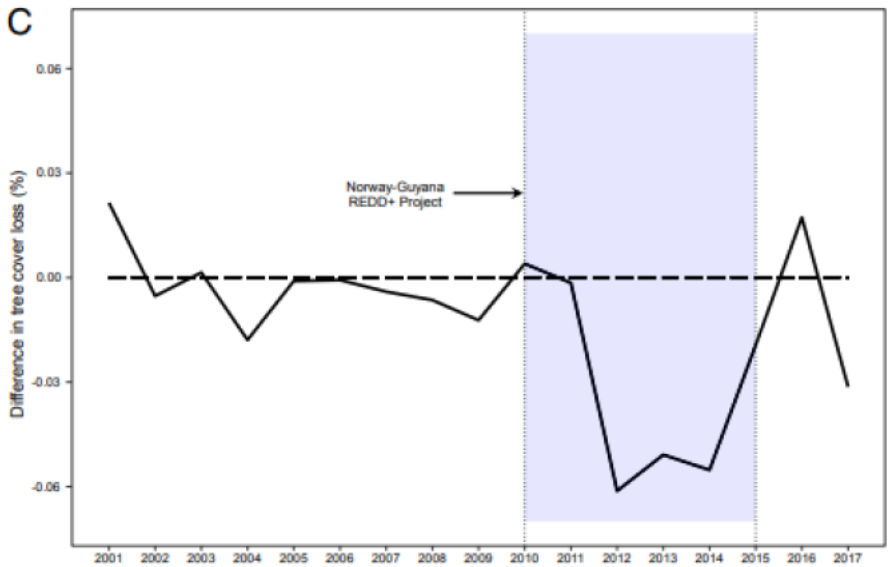
D. Can we quantify the effect of policy interventions and incentives, even in historically low-risk areas?

Yes. Limited examples demonstrate a measurable effect of policies to protect forests.

Graphic 3. Policy interventions in Guyana had a measurable effect in keeping deforestation low. Roopsind et al. 2019.



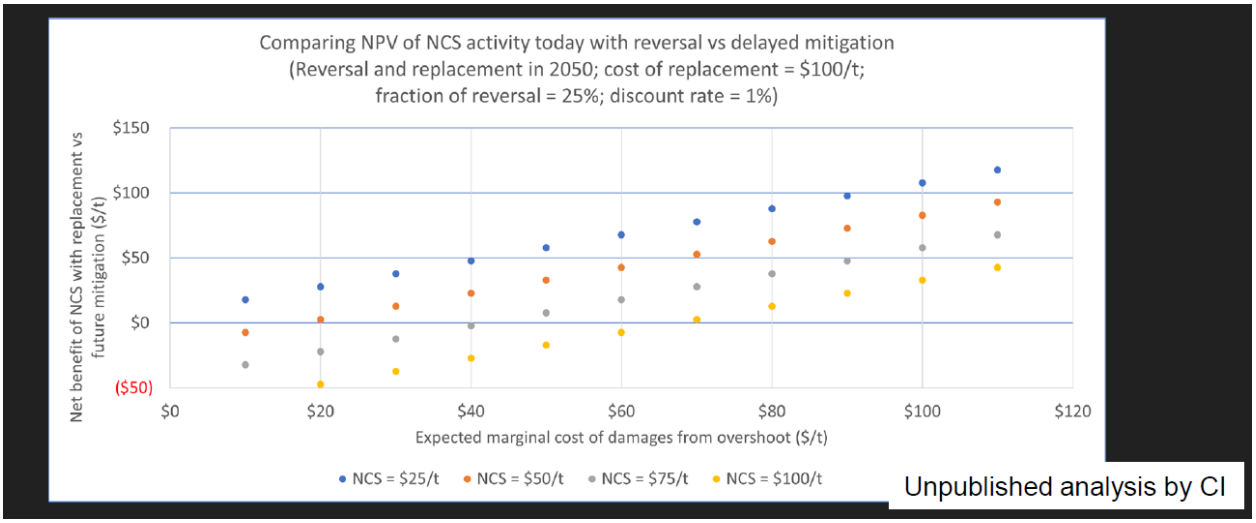
Graphic 4. Policy interventions in Guyana had a measurable effect in keeping deforestation low. Roopsind et al. 2019.



E. Could Nature-Based Removals be worthwhile, even if reversed?

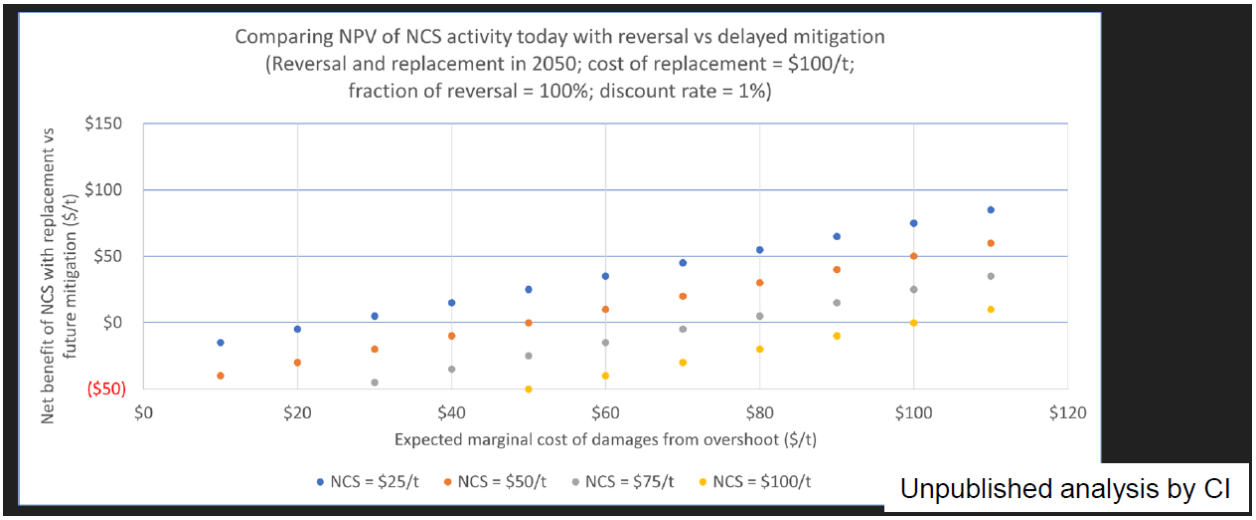
Yes. Under reasonable expectations, nature-based removals is almost always worth doing today, even if we expect 100% reversal in the future (which is unlikely).

Graphic 5. Comparing Net Present Value (NPV) of NCS activity today with reversal vs. delayed mitigation. Unpublished analysis by Conservation International.



Yes. Under more realistic expectations of reversal rates and discount rates, the case for NCS today is even stronger.

Graphic 6. Comparing Net Present Value (NPV) of NCS today with reversals vs delayed mitigation. Unpublished analysis by Conservation International.



Graphics 5 and 6 are results of an internal analysis that compares the net present value of land-based mitigation to the social costs imposed by climate damages in scenarios that overshoot 1.5 degrees. The figures illustrate that near-term climate mitigation is valuable because it reduces the risk of overshoot and its associated damages. In these figures, any investment above the $0 horizontal line is cost-effective, globally. These analyses include significant levels of future reversal, which is compensated by other mitigation in 2050 at a cost of $100 per ton CO2-e. CI can conduct this analysis for any time period, at any cost for both types of mitigation, any discount rate, and any level of reversal.

Annotated list of References for the Technical Note

Annotated list of references with hyperlinks, which taken together, make a compelling case for the value of investing in land-based mitigation, especially tropical forests.

- Xu et al. 2021. Changes in global terrestrial live biomass over the 21st century. Information in the "Carbon emissions" section of the results, when summed across categories, indicates that the average rate of loss of tropical forest carbon was approximately 0.6% per year for the study period, 2000-2019. Figure 5 shows no rising trend in emissions for any biome during this period. Table 1 shows that overall terrestrial carbon stocks increased in every biome, with removals more than compensating for emissions

- Geist and Lambin 2002. Proximate Causes and Underlying Driving Forces of Tropical Deforestation.

The authors were among the first to separate the effects of proximate causes, which act locally, and underlying driving forces, which act globally or regionally. These concepts help us to understand the sources of risks to tropical forests, how to address them, and how to think about additionality as related to dynamic risks, not solely historical emissions.

- Lapola et al. 2023. The drivers and impacts of Amazon forest degradation.

The authors showed that Geist and Lambin's conceptual framework can be extended to tropical forest degradation (beyond deforestation) to explain trends in Amazonian forests.

- Busch et al. 2019. Potential for low-cost carbon dioxide removal through tropical reforestation

The authors linked historical empirical data on land-use change (deforestation) to economic drivers as a means of estimating the cost of future reforestation across all countries in the tropics. In the course of the analysis, they estimated the future rates of deforestation and reforestation under a range of carbon price scenarios (including $0 per ton CO2-e), projecting that economic drivers will cause future deforestation rates to rise in the absence of compensating incentives to keep forests standing. Figures illustrating these future paths can be found in the supplemental information.

- Roopsind et al. 2019. Evidence that a national REDD+ program reduces tree cover loss and carbon emissions in a high forest cover, low deforestation country.

The authors found strong evidence that REDD+ payments were effective in keeping deforestation emissions about 35% lower than they would have been in the absence of payments, and they documented that deforestation rates rose by 200% when payments were withdrawn. In this case, even relatively small incentives were sufficient to counteract risks driven by global market drivers. This is illustrated in Figure 3.

- In addition, Schwartzman et al. 2021 showed how temporary emissions reductions can lead to permanent results. Figure 1 shows a number of hypothetical emission pathways and the corresponding impacts on atmospheric GHG levels. Mathews et al. 2022 reached a similar conclusion using an established Earth system climate model. A 2022 report published by WRI found that tropical forests yield disproportionate cooling benefits compared to other biomes, when other biogeochemical processes are taken into account, suggesting that they should be a high priority for investment.