

This Briefing Note is a collaborative effort between Kaya Partners and the Inevitable Policy Response (IPR). Main note authors: Andreas Stokkendal Poulsen and Lara Gutierrez Santander of Kaya Partners with an Executive Summary /Conclusions by IPR. Final funding estimates and conclusions are the responsibility of IPR.

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Brazil can show the way for scaling Nature Based Solutions at COP30

If the current public/private initiatives fail to mobilize the \$1.6 trillion investment in NBS IPR estimates is needed globally by 2050, other large-scale government-to-government funds modelled after the Amazon Fund within the context of NCQG objectives, will need to be deployed if the world is to stabilize climate and nature.

Executive Summary - Inevitable Policy Response (IPR) Conclusions

- **The 2025 COP 30 will be held in Brazil and is certain to focus attention on Nature.**
- **Nature-based solutions (NBS) to reduce CO₂ emissions arising from the agriculture and land sectors will play a critical role in temperature stabilization this century.** The Inevitable Policy Response Forecast Policy Scenario ([IPR FPS](#)) forecasts NBS, encompassing sustainable agriculture, ending deforestation and land conversion, and afforestation in a biodiverse manner, could help reduce global GHG emissions down to ~11.59 GtCO₂e in 2050 (in total, a 77% drop from current levels). These NBS solutions help drive existing land CO₂ emissions from over 3 GtCO₂ today to net negative in 2050 (-3.5 GtCO₂), contributing 20% to GHG emissions reductions in 2050. In the nearer term, IPR forecasts land CO₂ emissions halving to ~1.4 Gt by 2030.
- **Global NBS deployment today is far from the scale suggested by ambitious climate scenarios.** 2030-2035 is a critical inflection point when global deforestation must end and solutions to sequester carbon need to already be delivering at pace. In 2023 IPR forecasted that globally these NBS can deliver **2 GtCO₂** mitigation per year by 2030, growing to **5.6 GtCO₂/yr** by 2050. Sub-Saharan Africa, China, Brazil and Southeast Asia are key countries for NBS delivery (estimated at 30% of total abatement) due to their size and greater sequestration potential of their forests.
- **Realizing the climate benefits from NBS will require significant uplift in investment and soon.** IPR FPS 2023 estimates **\$354 billion in cumulative investment by 2030, rising to \$1.6 trillion in cumulative investment by 2050**, is needed to deliver the 5.6GtCO₂ of mitigation per year. This implies **annual global investment of \$36bn by 2030, growing to \$75bn per year by 2050**. While these investment levels appear more modest relative to the energy sector, attaining these levels will require concerted policy and capital mobilization particularly given competing land uses for agriculture, development and infrastructure (see [Appendix B](#)) Given uncertainties on funding, particularly for Tropical Africa, IPR will be reassessing its flagship forecast early in 2025.
- **The replicability, scalability and near-term impact of existing instruments to scale NBS including compliance and voluntary markets remain uncertain and it is critical that other mechanisms be activated over the next five years.** Voluntary and carbon markets could grow but despite decades of deployment these have not mobilized finance at sufficient scale. Notwithstanding these limitations, NBS are being increasingly being recognized as a viable investment class by investors attracted to the potential for long-term, viable, and sustainable returns into projects and various climate, agricultural and biodiversity-related debt instruments i.e. climate bonds based on sustainable development criteria and farm loan products that promote forest-friendly agricultural expansion. Biodiversity markets in addition to carbon markets, while nascent, are also expected to grow.
- **Biodiversity is a key adjunct.** NBS needs to be biodiverse and the push to maintain biodiversity helps NBS. High quality NBS projects implemented appropriately can support relatively higher levels of biodiversity, for example, afforestation using a natural mix of trees rather than monoculture can produce more positive nature outcomes.

- **Brazil has massive potential to scale NBS.** Brazil represents 10% of global NBS mitigation in IPR [FPS 2023](#) and will need cumulative investment of \$56bn by 2030, about 16% of global NBS spend, growing to \$138bn in cumulative investment by 2050, to deliver these CO₂ reductions.
- **IPR analysis suggests Brazil could succeed in shoring up needed investment levels for climate in the longer term, offering a potential model for the globe.** Private sector funding has started flowing and is crucial in whether by 2030 funding requirements are met, rural credit schemes are expanding, and a compliance carbon market is advancing through the Brazilian Congress. However, private capital flows are currently low due limited track record and high perceived risk of these investments. A scaling up of concessional finance and catalytic capital will be key to accelerate private finance. A recent BCG [paper](#) calls for \$2bn in catalytic capital for the agricultural transition in Brazil by 2030 and recently a new catalytic capital fund for Brazil was [announced](#) with goals to disburse \$500M by 2030, leveraging \$2.5bn in commercial capital. A new Climate Champions [report](#) “Scaling nature finance now: the opportunity for investors in Brazil and beyond” further explores growing investment opportunities and momentum. Our current estimates show a shortfall by 2030, although private investors could still surprise on the upside.

Large funds and government-to-government funding mechanisms for Brazil NBS have also been introduced, many with lofty goals and allocations. The revived government to government [Amazon Fund](#) to prevent deforestation has in recent years has received country donor pledges of **\$1.2 bn**. A newly launched and highly ambitious Brazilian pasture recovery program (**PNCPP**) aims to mobilize **\$120 bn** in public/private funds to convert 40 million hectares into viable crop production over ten years. If moderately successful, these schemes could close the financing gap to get to \$138bn and deliver upon Brazil’s NBS promise.

- **At the global level, successful delivery of NBS in both the near (2030) and long term (2050) remains uncertain. As the host of COP30 in the Amazon, Brazil is again offering a promising alternative private sector funded model for protecting all tropical forests.** Introduced at COP28, a **Tropical Forests Forever Facility (TFFF)** would pay tropical countries per hectare of forest they maintain, funded by governments, private companies and financial institutions. The TFFF would be a fund of funds taking 20-year deposits in return for fixed low interest rates, with deposits invested and returns allocated to tropical forest countries and partially to investors. If properly designed, it could be another key element for NBS funding. Although it would not directly generate carbon credits, it would indirectly target avoided CO₂, and its simplicity in design would avoid complicated carbon accounting methodologies (i.e. related to additionality and permanence). Current proposals would result in \$3.5-5bn in annual payments. To scale (an estimated \$36bn is needed per year to tackle tropical deforestation globally) recent proposals call for direct contributions from oil companies which could result in \$30bn additional investment per year although in practice oil investment may fall shorter than this (see Table 1). Concessional finance could also fill gaps.
- **If the current public/private initiatives fail to mobilize the \$1.6 trillion needed globally by 2050, other large-scale government-to-government funds modelled after the Amazon Fund will need to intervene if the world and is to stabilize climate and nature.** China will likely achieve its NBS potential, and Brazil is making notable progress. Southeast Asia could enhance existing initiatives or replicate Brazil’s strategies. Government-to-government funding may therefore be most needed in large developing regions such as Sub-Saharan Africa due to its extensive land area, growing population, and advancing agricultural economy. Although delays could jeopardize the nearer term objectives, substantial scaling efforts into the 2030s would help close the gap. This presents a significant risk but may be unavoidable. The outcome of COP30 will be crucial in addressing this land challenge. IPR will revisit its land forecasts this year with the potential of downgrading its nearer term policy forecasts for land and nature.
- **This November’s COP29 negotiations on a New Collective Quantified Goal (NCQG) for climate finance could create a robust framework to support scaling of NBS worldwide.** This captures both public and private initiatives. Ambitious financial commitments will demonstrate seriousness of international commitment, in turn encouraging countries with significant potential to prioritize NBS in their policies, strategies and budgets.

Table 1 outlines current and *estimated potential* funding levels for global and Brazilian Nature-Based Solutions (NBS) in comparison to investment requirements identified in IPR FPS 2023. These estimates are based on literature and discussions with experts where available. **It suggests that Brazil has the potential to attract adequate capital, which, if strategically designed and promptly deployed, could significantly advance towards achieving NBS goals by 2050.** However, **achieving 2030 goals for both Brazil and the world is more of a challenge, and global mobilization for 2050 remains uncertain.** Negotiations on the NCQG at COP29 could provide further insights on financing. But the current funding and policy landscape remains fragmented and inconsistent and at this stage indeterminate on how existing and new instruments will expand. Private finance will be critical to promote sustainable and regenerative agriculture but will need require catalytic capital to de-risk investments, build a track record and attract capital flows. For forest protection, government-to-government funding is likely to be necessary.

Table 1: Summary of NBS for climate investment needs against funding commitments/potential estimated by instrument, Brazil & Global (indicative, non-exhaustive)ⁱ

			Cumulative investment ⁱⁱ			
		Source of funding	Brazil		Global	
			2030	2050	2030	2050
IPR FPS 2023 estimates to reach NBS forecastsⁱⁱⁱ		Public/private	\$56bn	\$138bn	\$353bn	\$1,600bn
NBS funding commitments and potential						
Voluntary markets	Voluntary carbon markets (NBS) ^{iv}	Private	~\$2-3bn	~\$7.5-15bn	~\$7.5-15bn	~\$75-150bn
	Voluntary biodiversity markets ^v	Private	~\$2-3bn	~\$7.5-15bn	~\$7.5-15bn	~\$75-150bn
Debt	Debt-for-nature swaps ^{vi}	Both	None (since 2020)	Unknown	Unknown	Unknown
	Rural credit schemes ^{vii}	Public	~\$2-3bn	~\$10bn	Unknown (Brazil: \$2-3bn)	Unknown (Brazil: ~\$10bn)
	Climate/sustainability-linked bonds ^{viii}	Both	~\$2-3bn	~\$20-30bn	~\$20-30bn	~\$200-300bn
Results-based payments	Direct Govt to Govt ^{ix}	Public	~\$5bn	\$10bn	Unknown (Brazil: \$5bn no significant proposals being considered)	Unknown ^x (Brazil: \$10bn in Brazil, no significant proposals but would be key to emergency funding especially in Tropical Africa.
	Carbon markets: Compliance (NBS) ^{xi}	Private	~\$2-3bn	\$7.5-15bn	\$10-15bn	~\$75-150bn
	Article 6	Public	Unknown	Unknown	Unknown	Unknown
Cross-cutting major programs	Brazil PNCPD (grants, low-interest loans, technical assistance) ^{xii}	Public, Private, PPPs	~\$25bn	~\$70bn	Unknown Brazil: ~\$25bn	Unknown Brazil: ~\$70bn
Tropical Forests Forever Facility (TFFF)	Oil revenues ^{xiii}	Private	~\$3-5bn	Unknown	~\$10-20bn	~\$250-350bn
	Other (sovereign wealth, private contributions, blended finance) ^{xiv}	Both	~\$1-1.5bn (current proposal)	~\$8-12bn (current proposal)	~\$10-15bn (current proposal)	~\$80-115bn (current proposal)
TOTAL						
Expected cumulative Ex Cross cutting if deployed at scale			~\$45-52bn	~\$140-176bn	~\$98-143bn	~\$846-1,305bn
Gap			~\$5-11bn gap	Up to \$38bn surplus	~\$210-250bn gap	~\$300-750bn gap

ⁱ This table provides a non-exhaustive list of current, emerging and proposed financing mechanisms and market potential for delivering NBS in Brazil. Estimates may under- or over-estimate future market potential.

ⁱⁱ Starting in 2025.

ⁱⁱⁱ IPR FPS 2023 Value Drivers Database. [Link](#)

^{iv} To date, the cumulative value of the VCM is ~\$10.8Bn. Statista [Link](#). VCM market in 2023 was valued at \$723M. [Link](#). Future global and Brazil-specific investment levels are IPR estimates and extrapolations based on 1) Interview with Sean Kidney, CBI (2024) 2) McKinsey & Co (2022). The green hidden gem – Brazil's opportunity to become a sustainability powerhouse. [Link 3](#)) Integrity Council for the Voluntary Carbon Market; as cited in Citi GPS (2023) Voluntary Carbon Markets: A Critical Piece of the Net Zero Puzzle. [Link 4](#)) CarbonWise (2024) [Link](#)

^v Voluntary biodiversity market investment levels are IPR estimates and extrapolations based on 1) World Economic Forum (2023) Biodiversity Credits: Demand Analysis and Market Outlook. [Link](#)

^{vi} \$2bn to date. Carbon Brief (16 July 2024) Q&A: Can debt-for-nature 'swaps' help tackle biodiversity loss and climate change? [Link](#)

^{vii} IPR extrapolation of current allocations towards Brazil's RenovAgro program to reduce GHG emissions and strengthen sustainable agriculture (\$1.4bn in 2024). USDA (August 1, 2024) Brazil Unveils 2024-2035 Crop Plan with Funds for the Upcoming Agricultural Season. 2050 levels are conservative estimates. [Link](#)

^{viii} IPR estimates based on 1) Interview with Sean Kidney, Climate Bonds Initiative.

^{ix} IPR extrapolation based on current funding commitments of \$1.2bn for Amazon Fund. Climate Funds Update, Amazon Fund ([link](#))

^x To fill the gap for the low \$780bn in additional investment directly from governments may be needed, to fill the gap for the high \$330bn.

^{xi} IPR estimates/interpolation based on various industry estimates including 1) Morgan Stanley (2023) [Link](#)

^{xii} IPR (conservative estimate) for 2030 and 2050 based on target funding level for PNCPD \$120bn over ten years. FAO FAOLEX Database, Decree No. 11.815 creating the National Programme for the Conversion of Degraded Pastures into Sustainable Agricultural, Livestock and Forestry Production Systems and its Interministerial Steering Committee (PNCPD) [Link](#)

^{xiii} IPR (conservative) estimates and interpolation based on current estimates of oil revenues reaching up to \$30B annually. Brazil assumed to receive ~10% of global revenues. longer term Brazil payments unknown.

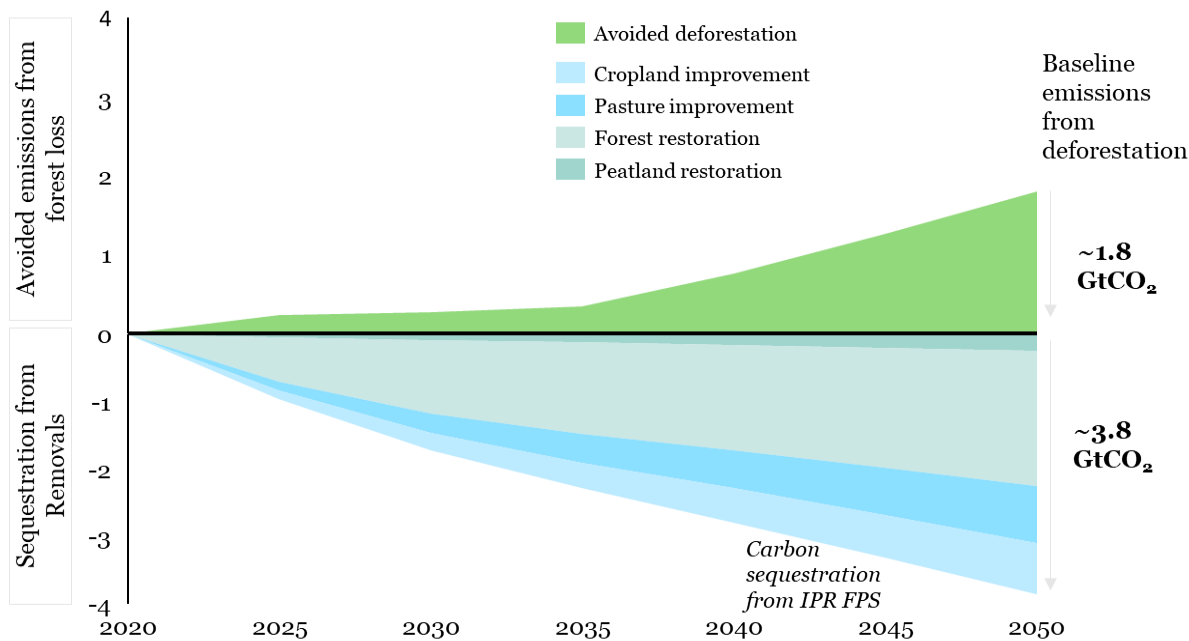
^{xiv} IPR estimates and interpolation based on current estimated levels of \$3-5B in global annual payments. Brazil assumed to receive ~10% of global revenues.

Introduction: Nature Based Solutions (NBS) are a critical lever to address climate change

Nature-based solutions focusing on climate encompass a range of land use practices that are key for reducing emissions by 2050 in line with a below 2°C climate objective. These carbon management focused practices are a subset of wider nature positive solutions and can be broken down into those that *prevent* the loss of existing ecosystems, such as avoided deforestation, or *restore* ecosystems, such as reforestation and agricultural soil health improvements ([Appendix A](#))¹ Figure 1 shows IPR’s anticipated emission reduction requirement of NBS broken down by these traits ². Under IPR’s Forecast Policy Scenario (FPS), NBS contribute a total of **5.6 gigatons of CO₂ mitigation per year (GtCO₂/year)**, with **avoided deforestation** reducing emissions by 1.8 GtCO₂/year, while **soil carbon and ecosystem restoration** remove 3.8 GtCO₂/year from the atmosphere (of which 1.6 GtCO₂/year is removed by 2050 due to practices that improve carbon retention in agricultural land and 2.2 GtCO₂/year is removed by 2050 due to ecosystem restoration practices).

Figure 1: Role of nature-based solutions for climate within IPR’s FPS 2023

Land-based sequestration (GtCO₂)



Notes: The reference scenario projects the land use change we would expect to see without NBS policies that conserve forest land, improve practices to optimize sequestration, and create new ecosystems. These values represent the difference in removals and reduction between the FPS 2023 scenario and this reference scenario, as a baseline. Ecosystems described here refer to major land-based and carbon-rich ecosystems (e.g. forests, peatland, mangroves, pastureland).

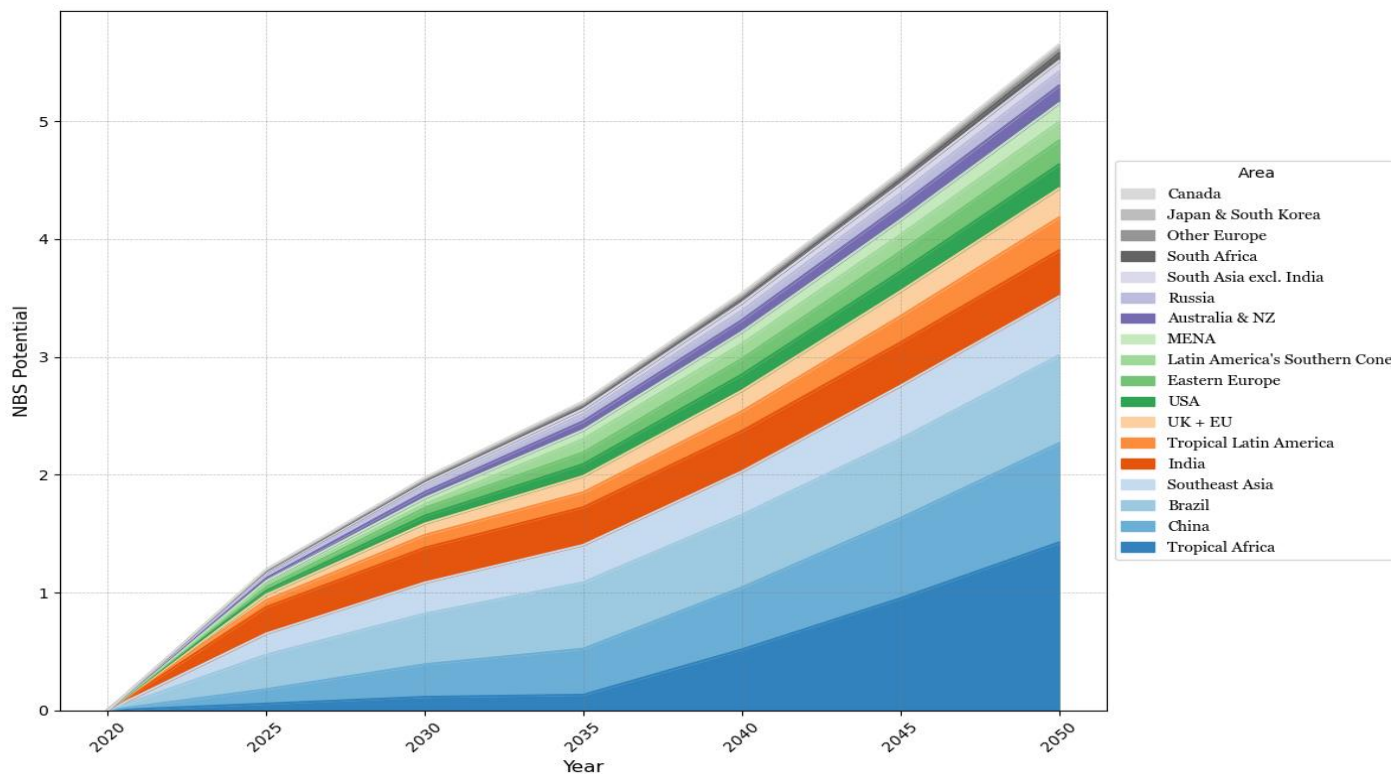
China, Brazil, Southeast Asia and Sub-Saharan Africa are key regions for avoided deforestation/conversion and NBS removals.

These countries have significant potential due to their size and presence of tropical forests in their territories which sequester carbon faster (Figure 2). Collectively, these regions account for over 50% of global NBS abatement potential.

¹ Nature-based solutions broadly cover solutions that deliver nature positive (i.e. biodiversity) as well as climate (i.e. carbon sequestration or reduction) outcomes. This paper focuses on NBS solutions for climate outcomes but acknowledges broader NBS for nature positive outcomes will have climate co-benefits. The UNEP for examples estimates that total investment needs for broader NBS solutions need to scale to \$542 billion annually by 2030 and to \$b annually by 2050 but this figure includes funding needs for areas such as sustainable fishing, water protection, wastewater management and pollution abatement [UNEP (2023) State of Nature for Finance]. See [Appendix A](#) for a breakdown of NBS definitions that focus on climate outcomes.

² For comparison, the UNEP defines NBS as “Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits”. [Link](#)

Figure 2: Global abatement of CO₂ with NBS expected to reach 5.6MtGO₂ in 2050, with Brazil, China and Sub-Saharan Africa with the greatest potential



Source: IPR FPS 2023

But realizing these climate and ecosystem benefits from NBS will require a significant uplift in investment, and soon. IPR FPS 2023 estimates **\$354 billion in cumulative investment by 2030, rising to \$1.6 trillion in cumulative investment by 2050**, is needed to deliver the 5.6GtCO₂ of mitigation per year.³ This implies annual global investment of \$35.5 billion in 2030, growing to \$75.4 billion by 2050. These funding levels may appear more modest relative to implied investments in energy sector decarbonization but will still require concerted policy and capital mobilization, in particular to ensure sufficient availability of land for delivering NBS.⁴ There has been some notable progress in the field, such as the Kunming-Montreal Protocol and the obligation for countries to submit action plans for halting biodiversity loss ahead of COP16 in Colombia later this year, but the decade-long challenge of funneling private capital into NBS remains largely unresolved. It is evident that a fundamental rethink of the instruments deployed to catalyze these investments is desperately needed.

Existing instruments to scale NBS globally are not scaling fast

The suite of instruments available to NBS include voluntary carbon markets (VCM), debt markets, international trade of carbon projects, carbon pricing schemes, and biodiversity markets. We explain briefly here the pros and cons of these commonly cited conduits for investment, as well as provide potential growth in these markets in the near and long term.

At \$0.72bn in transactions in 2023⁵, VCM will remain too small to finance NBS needs, or to serve as a standalone solution for it, within the necessary timeframe of the remaining carbon budget. Over the past year, avoided deforestation⁶, the most prevalent type of NBS credits, have faced significant reputational challenges, resulting in a >60% decrease in their value⁷. This decline is largely due to a series of media scandals questioning their integrity due to over crediting, land-grabbing accusations and questions about benefit sharing. Forest conservation projects are poorly suited for support by carbon markets as they rely on the definition of

³ IPR FPS 2023 Value Drivers Database (July 2024) [Link](#)

⁴ IPR forecasts that land supply will roughly meet land demand by 2050, due to significant improvements in yield, movement towards alternative protein, constraints on urban sprawl, and limits to deployment of bioenergy based on sustainability guardrails. However, without major investments and market transformation, the land demand-supply mismatch could grow. See IPR (March 2024) Land and Nature Quarterly Forecast Tracker. [Link](#)

⁵ Ecosystem Marketplace (2024). [Link](#) To date, the cumulative value of the VCM is ~\$10.8Bn. Statista [link](#)

⁶ Also known as REDD+ credits.

⁷ Opcit.

counterfactuals – hypothetical situations describing how deforestation rates would have been without the project. This is inherently unobservable and challenging to prove, making such projects susceptible to criticism. Additionally, they often fail to adequately account for co-benefits like ecosystem services and community benefits. These issues have led to intense scrutiny of many credits, fuelling doubts about the effectiveness of carbon markets in scaling NBS and the integrity of credits as a tool for companies to meet voluntary net-zero commitments. That said, structural demand for carbon credits related to nature-based removals such as from reforestation has proven to be more resilient to scrutiny.

The VCM market for NBS focused projects could grow to up to \$15 billion in 2030 and up to \$150 billion in 2050 (cumulative market value).⁸

Several initiatives are working to address the VCM integrity issues, but reaching a consensus is complex and unlikely in the near term. Efforts to establish minimum standards for the quality of the credits, led by the Integrity Council on the Voluntary Carbon Market (IC-VCM), and for the claims that firms can make when they buy them, led by the Voluntary Carbon Markets Initiative (VCMI) and the Science-based Targets Initiative (SBTi), have so far been unable to restore the credibility of the market. In particular, SBTi's hesitancy in defining the role of NBS, especially avoided deforestation credits, in firms' net-zero strategies is expected to continue stifling demand. Efforts focused on jurisdiction, such as the LEAF coalition—a group of private-sector and sovereign buyers committed to purchasing credits from these schemes—are designed to address many of the integrity issues found in standalone, smaller-scale projects. However, these efforts are also encountering funding and implementation challenges. For example, many participating countries have complained about donor countries and buyers trying to enforce standards that are very difficult or even impossible for developing countries to comply with.

Debt markets are increasingly being used to scale NBS, but they are applicable only in limited cases and fail to channel funds at scale from the Global North to the Global South. Debt-for-nature swaps, which allow developing countries to exchange debt relief for commitments on environmental conservation, have gained momentum with over **\$2bn** across six swaps completed since 2020. Total debt relief stands at \$8.4bn through 150 swaps since the 1980s. While debt-for-nature swaps encourage innovative financing and boost local economies, they also face high transaction costs, create dependence on external donors, and face challenges related to local governance and political instability. They are also complex to implement and mostly suited to smaller states given the scale of the provided debt relief. Recent examples include \$150mn of face-value debt relief for Cape Verde and \$1.1bn for Ecuador⁹. Larger developing countries such as Brazil and Chile have issued sustainability-linked bonds worth approximately \$4bn and \$8bn in recent years, and biodiversity-linked bonds reached a global high of \$165.4bn in 2023¹⁰. Despite their significance, the broad definition of what qualifies as sustainable and the lack of standardization across bond types have led to concerns over greenwashing and inconsistency in impact and investor confidence. In future, climate bonds based on sustainable development criteria could be earmarked for NBS and sustainable agriculture.

Global cumulative investment in climate bonds focused on NBS could range between ~\$200-300bn.¹¹

Compliance-based carbon pricing schemes could provide substantial funding for forest protection and other types of NBS in the long-term but so far remains focused on tackling emissions-intensive sectors like energy and industry. These mechanisms include direct carbon taxes and emissions trading schemes (ETS) and are expanding globally. To date, however, only New Zealand's ETS explicitly prices emissions from land use change and is confined to deforestation-only, while Denmark's proposed carbon tax on livestock emissions will only indirectly impact land use emissions. Some jurisdictions allow NBS offsets for compliance, though usually from domestic projects only, creating little fungibility and flow of credits between jurisdictions. Notably, compliance schemes that admit credits from avoided deforestation activities are still absent in the jurisdictions where tropical deforestation occurs. Implementing these schemes also takes considerable time, meaning that their positive impact on NBS will only be felt in the long-term.

⁸ Future global and Brazil-specific investment levels are IPR estimates and extrapolations based on 1) Interview with Sean Kidney, CBI 2) McKinsey & Co (2022). The green hidden gem – Brazil's opportunity to become a sustainability powerhouse. [Link 3](#)) Integrity Council for the Voluntary Carbon Market; as cited in Citi GPS (2023) Voluntary Carbon Markets: A Critical Piece of the Net Zero Puzzle. [Link 4](#)) CarbonWise (2024) [Link](#)

⁹ African Development Bank Group (2022). [Link](#)

¹⁰ BNEF (2024).

¹¹ Sean Kidney, CBI

Industry estimates vary widely on the market size for compliance markets, but investment in NBS focused credits could reach up to \$15bn by 2030 and \$150bn by 2050 (cumulative investment).¹²

Progress in finalizing the rules needed to fully operationalize international carbon credit trade between countries through Article 6 of the Paris Agreement has been insufficient, and uncertainty continues to cloud the inclusion of NBS. Although this year's Bonn Conference was an opportunity to reset the negotiations that became fraught last year at COP28, many difficulties still need to be negotiated among the 116 parties to the UNFCCC. For example, there is no agreement on the carbon removal activities and methodologies to be included under Article 6.4, or on the transparency requirements for Article 6.2 transactions¹³. Additionally, the text that parties agreed upon, which will be the basis for continuing negotiations at COP 29 in Baku, includes an ambiguous reference to postponing discussions on "avoided emissions" to 2028, while simultaneously recognizing "conservation enhancement" activities as emissions reductions, causing confusion. The fact that negotiations will occur simultaneously with discussions on the new climate finance target (NCQG¹⁴) could also see progress stalled, although the Azerbaijani Presidency may view progress in Article 6 as an opportunity to deliver something in the absence of agreement on the NCQG.

The potential funding that Article 6 could deliver for reducing or sequestering land-based CO₂ emissions in key regions is not yet known.

Biodiversity markets have been pitched as an alternative to carbon markets which would place a higher value on the ecosystem services that standing forests can provide. This has been the result of growing policy momentum derived from the adoption of the Global Biodiversity Framework which requires countries to submit action plans to address biodiversity loss ahead of COP16 in Colombia. This is pushing countries to adopt policies to protect and restore nature, such as the EU's Nature Restoration law, the UK's Biodiversity Net-Gain policy, and China's Biodiversity Plan. IPR's 2023 [Nature Scenario](#) explored how greater quantity and quality of NBS could be supplied through emphasis on achieving positive nature outcomes, compared with policies that focus on climate alone.¹⁵ Land used for generating biodiversity credits could also overlap with land used to generate carbon credits, offering the possibility of additional sources of revenue for landowners.¹⁶ Nature-related disclosures are also on the rise, with 416 companies committed to the Taskforce on Nature-related Financial Disclosures (TNFD), most of which will report for the first time in 2024, while over 50,000 companies will be required to include some of these disclosures under the EU's Corporate Sustainability Reporting Directive (CSRD). Meanwhile, the Science-Based Targets for Nature will start validating the first corporate nature and biodiversity targets in late 2024. This will increase transparency and test the assumption that increased stakeholder pressure drives change.

Biodiversity markets are currently nascent (\$8 million) but could scale to \$15bn in total investment by 2030 and up to \$150bn by 2050.¹⁷

Despite this progress, the integrity concerns of carbon markets are overshadowing biodiversity markets and limiting demand. Protecting biodiversity can also capture carbon, but carbon markets rarely account for this value. Biodiversity credits aim to fill this gap by tackling ecosystem damage and providing an opportunity for corporates to mitigate impacts on nature beyond their control. Though recent growth has been driven by compliance schemes in the UK and New South Wales in Australia, they only allow domestic offsets. Commitment fatigue from the climate agenda and the scepticism of carbon markets further complicate efforts to establish voluntary biodiversity markets emphasized by its current size totalling no more than \$8 million in annual revenue¹⁸. Moreover, developing credible methodologies to quantify positive biodiversity outcomes is difficult, making it challenging to create effective markets for these credits to have any substantial impact in the short to medium term.

¹² IPR estimates/interpolation based on various industry estimates including 1) Morgan Stanley (2023) [Link](#)

¹³ There are two market-based mechanisms for international carbon trade under Article 6 of the Paris Agreement. Article 6.2 covers bilateral trade of carbon credits between countries, while Article 6.4 establishes centralized, and UN-supervised mechanism to create and trade credits.

¹⁴ The New Collective Quantified Goal (NCQG) is a global climate finance target to be set by the end of 2024, aiming to mobilize funds for climate actions in developing countries. It succeeds the COP15 commitment of \$100bn annually by 2020, which was not met.

¹⁵ High quality NBS projects implemented appropriately can support relatively higher levels of biodiversity, for example, afforestation using a natural mix of trees rather than monoculture could produce more positive nature outcomes. IPR FPS + Nature 2023.

¹⁶ FPS Nature 2023 found NBS solutions focused on achieving nature positive outcomes could deliver a modest increase in total annual NBS revenues (i.e. +13%) compared to a scenario focusing on climate policies alone. [Link](#)

¹⁷ Voluntary biodiversity market investment levels are IPR estimates and extrapolations based on 1) World Economic Forum (2023) Biodiversity Credits: Demand Analysis and Market Outlook. [Link](#)

¹⁸ BNEF (2023) – Biodiversity Markets Primer

Other innovative solutions are emerging in the NBS space which can provide strong risk-adjusted returns for investors, but their focus remains removals from regenerative agriculture and ecosystem restoration. These include hybrid solutions like the \$200m Principal Protected Outcome Bond model recently announced by HSBC and the World Bank which links investor’ financial returns with the generation of carbon credits from reforestation projects in Brazil¹⁹. Moreover, in the regenerative agriculture space there is increasing interest in models that harness regenerative agriculture as tool to increase the value of land, providing a profitable pathway for nature-based solutions that is not reliant on carbon credits.

Brazil can show the way to scaling nature-based solutions but is encountering its own hurdles

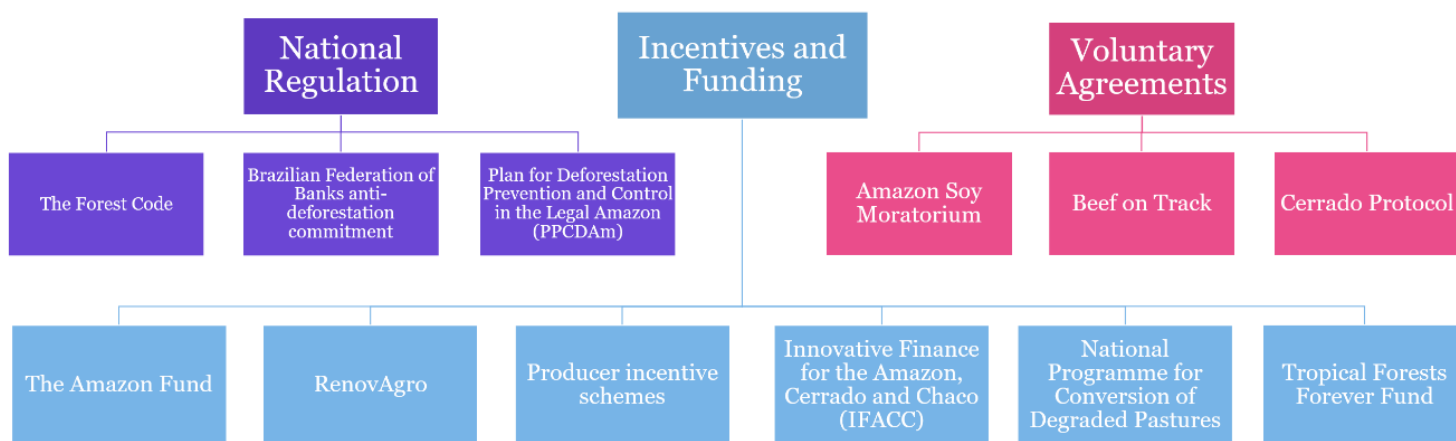
Brazil taking decisive action on scaling NBS is absolutely critical for the achievement of global climate outcomes, but it has also been the country that has grappled most with the question of how to scale NBS. More than 59% of the country is covered by forests²⁰ and it has historically had to deal with the dilemma of prioritizing development and agricultural production versus forest protection. The country is home to a significant portion of the Amazon Rainforest, one of the world's most critical carbon sinks alongside the Congo Basin and the Southeast Asian rainforests. Brazil is also home to the Cerrado, the largest savannah in the world and nicknamed the “upside-down forest”, given that a significant part of its carbon sequestration happens under the ground in its expansive root system.

Brazil has some of the greatest NBS potential in IPR’s below 2°C FPS scenario, holding about 10% of the total global potential.

Around 90% of that potential could be achieved through ecosystem restoration such as afforestation and reforestation (see Figure 2). The Brazilian Agricultural Research Corporation (Embrapa) has mapped 152mn hectares in the country occupied by pastures, 34mn of which are severely degraded^{21 22}. The extensive degraded lands could be repurposed for regenerative agriculture without the need for further deforestation, providing a dual benefit of enhancing ecosystem health while supporting agricultural productivity.

Brazil has advanced notably in addressing deforestation and promoting reforestation through a mix of national regulation, incentives and funding, and voluntary agreements (see Figure 3). Recent improvements include strengthened forest protection policies and increased funding for land restoration projects (see Appendix C for more details). Specific initiatives aim to tackle deforestation linked to major agricultural sectors like cattle and soy, and new regulations are being introduced to ensure supply chain transparency and reduce illegal deforestation. There have been some promising attempts to scale delivery of benefits from the VCM, including a recent announcement by a coalition of governments and companies to pay Para state \$180 million in forests credits for avoided deforestation.²³

Figure 3: Brazilian progress made so far towards addressing deforestation, elaborated in Appendix C.



Notes: Non-exhaustive list of programs, funding and policies.

Source: Kaya Partners, 2024

¹⁹ World Bank Group, 2024. [Link](#)

²⁰ Global Forest Watch, 2024. [Link](#)

²¹ Valor International Agribusiness, 2023. [Link](#)

²² Brazil currently has 61mn hectares of productive land ([Link](#))²², which is enough to feed over 600mn people globally

²³ Climate Change News (September 24, 2024). [Link](#).

Despite having a growing body of environmental legislation and incentives for forest protection, deforestation and degradation in key ecosystems continues apace. When Lula won the elections in 2022, one of his campaign promises was to tackle deforestation, committing to achieve zero deforestation by 2030. Although deforestation in the Legal Amazon decreased by 62% in 2023, the Cerrado saw deforestation grow by 43%²⁴. Challenges that persist include gaps in policy coverage for key biomes like the Cerrado and difficulties in enforcing compliance with forest conservation laws. While various programs and financial incentives are in place, their effectiveness and coordination remain uncertain. All this is exacerbated by climate change, with yet another year of historic droughts and fires in the Amazon²⁵. With important deadlines approaching, Brazil risks falling behind in meeting its environmental goals if these issues are not comprehensively addressed.

Despite the excitement around a possible compliance carbon market in Brazil, it appears unlikely to materialize soon enough to scale NBS. Discussions on establishing a compliance carbon market in Brazil have been ongoing for years, since the legal basis for the carbon market was established in 2009 with the National Climate Change Policy (PNMC). Currently, there is a bill being fast-tracked through Congress that intends to do exactly that, and the government is putting substantial effort into getting it passed before COP30.

There are still significant disagreements on the bill, such as on how to accommodate legacy REDD+²⁶ credits from VCM casting serious doubt on its prospects of becoming law anytime soon. The original bill aimed to introduce a compliance market like the EU ETS, where compliant emitters surrender allowances equal to their emissions. Yet efforts to introduce voluntary carbon units into the scheme and to regulate the carbon market have led to a “Frankenstein” piece of legislation that continues to be deformed by the back and forth between the House and the Senate²⁷. Finding a solution will be difficult, given recent revelations of irregularities in the Brazilian VCM under investigation by the Federal Police²⁸, and Lula’s current political difficulties with Congress²⁹. Moreover, the current text includes an extended implementation period, which means the scheme will only enter into force five years after it is passed – too late to scale NBS sufficiently to bring deforestation down to zero by 2030. Moreover, it has also become clear that land use and agriculture emissions have been exempted from the scope of the bill, signalling a clear win for the agribusiness lobby.

The only way to truly address the issue is to have strengthened command and control measures that work in tandem with a change to economic incentives for deforestation and conversion on the ground. It is not enough simply to have penalties for offenders, although these should exist and be notable. These must work alongside incentives schemes, an effort that will require a shift of whole economies that have been developed around agriculture and mining, to shift to a cleaner and lower-carbon model that values natural capital and the ecosystemic services that forests and ecosystems provide. The role of forest commodities and the involvement of indigenous communities in this regard is particularly important. This can only be achieved by implementing instruments that are able to swiftly channel a sizeable amount of international private sector finance into forest protection.

NBS is growing as a viable investment class in Brazil, with increased capital flows into projects and various climate and biodiversity-related debt instruments, and with investors attracted by the potential for long-term, viable, and sustainable returns. As outlined above, a \$200m bond announced by HSBC and the World Bank links investor returns with carbon credits generated from reforestation projects in Brazil. Regenerative agricultural schemes that are non-reliant on carbon credits are emerging with viable returns.³⁰ These private sector focused approaches are either smaller volume or nascent and could scale. But there is a real risk of these falling short in meeting the urgent needs to halt deforestation by 2030, tackle nature loss in line with the Kunming – Montreal Global Biodiversity Framework adopted in December 2022 and set the world on a path towards a Paris-aligned climate objective.

Recently introduced or revived government-to-government funding mechanisms with large allocation goals could be central to tackling the land and climate challenge in Brazil. Brazil’s PNCPD program launched this year aims to convert degraded pastures into sustainable systems with a target of attracting \$120bn in public, private, and joint funding over ten years has already secured funding from Japan and could offer more attractive returns for investors than other, costlier restoration programs. The Amazon Fund has seen public sector funding increase under the Lula Administration to \$1.2 billion, with Norway as a major donor.

²⁴ World Economic Forum (2024) The Cerrado: Production and Production ([link](#))

²⁵ The Guardian, 2024. [Link](#)

²⁶ REDD+ (Reducing Emissions from Deforestation and Forest Degradation) is a framework that rewards developing countries with results-based payments for reducing emissions through decreased deforestation. The “+” refers to additional activities, such as sustainable forest management

²⁷ Política por Inteiro, 2024. [Link](#)

²⁸ The Financial Times, 2024. [Link](#)

²⁹ The Financial Times, 2024. [Link](#)

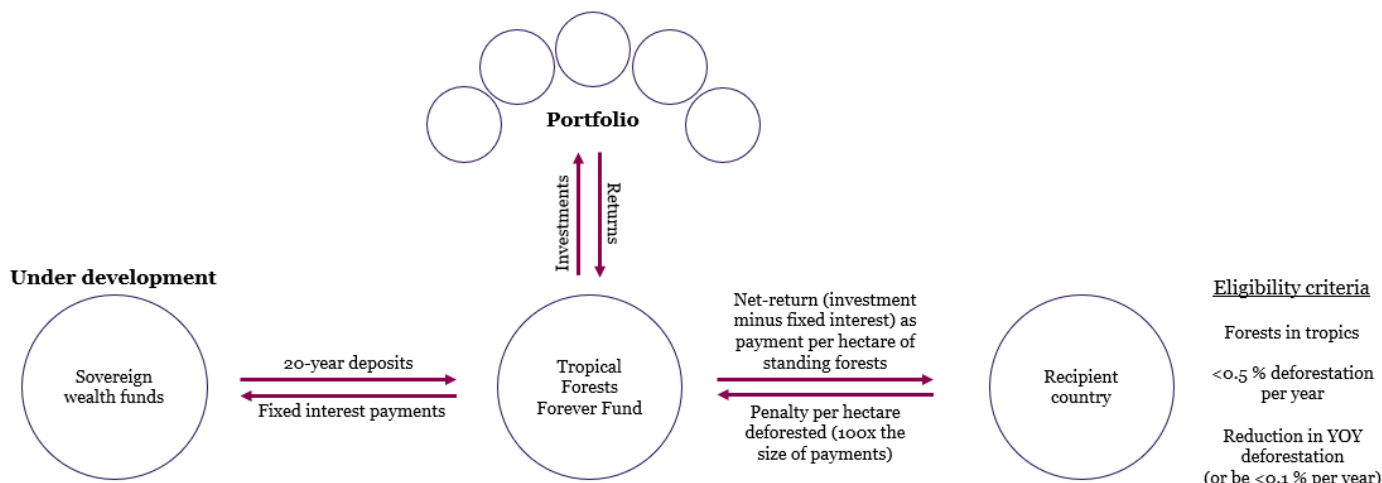
³⁰ See for example Cultivo, Traive, Agrolend. The IFACC Knowledge Hub also provides a list of various financial instruments in the market. [Link](#)

Taking the Amazon Fund, the PNCPD and other recent allocations suggests Brazil could succeed in shoring up needed investment levels for climate, if not in the next five years, in the longer term, offering a potential model for the globe. Private sector funding has started flowing and rural credit schemes are expanding (with over \$1bn allocated in 2024). A scaling up of concessional finance and catalytic capital will also be key. If moderately successful, these larger schemes could close the financing gap to get to \$140 billion and deliver upon Brazil’s longer term NBS promise (see [Table 1](#)).

Brazil is promoting a new and pragmatic solution to scale NBS

Brazil is pursuing a promising alternative financing model for global NBS, but the current design may face capitalization constraints. Protecting all *tropical forests* is estimated to require \$36bn per year³¹. While the investment forecasts for all NBS globally is significantly higher, achieving the \$36bn would make a substantial contribution to climate mitigation and help preserve vital functions within global climate systems. At COP28, Lula announced the Tropical Forests Forever Facility (TFFF) with a goal of raising capital from governments, central banks, sovereign wealth funds and other investors and which would pay countries for the hectares of tropical forests they maintain or reforest³². Deforestation would be penalized at a rate 100 times higher than payments, regardless of past or future commitments. The TFFF would be a fund-of-funds, taking 20-year deposits in return for fixed low interest rates. It would then reinvest these funds at higher returns, redistributing the surplus as payments for forest protection. However, the most recent design of the fund, developed by the World Bank in collaboration with the Brazilian government, would only result in \$3.5-5bn of annual payments, far from what is needed (i.e. would only address 10% of the challenge)³³. Recent discussions also call for \$25 billion in concessional finance / guarantees leveraged 5:1 with private capital but with some scepticism around mobilizing initial capital.

Figure 4a – A new payment scheme to scale NBS into the TFFF



Source: Kaya Partners, 2024.

On the positive side, this simple payment scheme has been pitched as a rapidly scalable alternative to carbon markets. Rewarding countries for the hectares of forest maintained makes complicated accounting methodologies for counterfactuals as well as issues like additionality, permanence and leakage redundant. Moreover, it liberates substantial resources that are spent on consultants, verifiers and several intermediaries present in the VCM today. The scheme thus offers a clear incentive for countries to increase forest cover over time. However, concerns have been raised over the lack of operational details and limited safeguards for biodiversity regarding criteria for regenerating trees and degrading areas. Importantly, it also maintains countries’ sovereignty in managing proceeds and developing their own deforestation policies. This reflects a shift towards simpler financing models for NBS

³¹ Amazon 2030 (2024) [Link](#) – The figure assumes that protecting one hectare of forest costs US\$30 per year. Tropical forests, including the Amazon, Southeast Asia, and the Congo Basin, amounts to 1.2bn hectares, which totals US\$36bn. According to these estimates, the funding need for Brazil alone would require US\$14.8bn

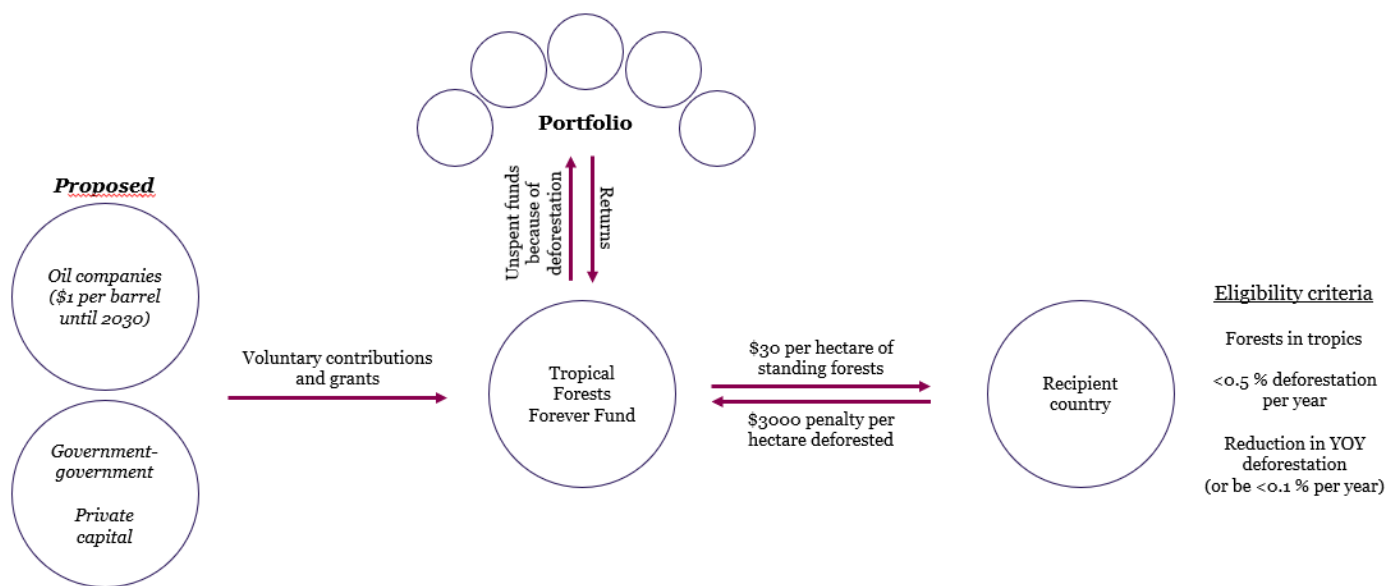
³² Reuters (December 1, 2023), Brazil proposes global forest conservation fund at COP28. [Link](#).

³³ Global Foundation (2024) [Link](#) – The latest proposal for the TFFF targets a fund size of \$100-125bn, with eligible tropical countries accessing average annual returns of 3.5-4%, which would result in just \$3.5-5bn for forest protection each year in an optimal scenario.

like the TFFF, drawing on Brazil’s experience while remaining complementary to initiatives like the Amazon Fund and its domestic carbon market.

To meet the estimated \$36bn needed annually, the TFFF could be capitalized or supplemented by a parallel fund accepting contributions from private actors and governments. Concretely, a group of influential Brazilian think tanks recently proposed that the TFFF could be complemented by oil companies which could contribute \$1 per barrel of oil produced until 2030, which could generate up to \$30bn per year. These funds could be collected through contributions or partnerships and could be directly dispersed as payments to generate immediate impact, unlike the current design of the TFFF, provided that the proposal gains traction among policymakers. While politically controversial, this capitalisation method would be economically feasible, as \$1 per barrel is minimal compared to the current oil price of around \$75, monthly price fluctuations averaging \$8 in 2023, and the over \$7tn in subsidies received by the oil industry annually. However, getting the most resistant oil companies on board, which have traditionally evaded responsibility, is unlikely, leaving a funding gap. This gap could be filled by expanding the fund’s scope to include contributions from private capital, hard-to-abate sectors and government-to-government funding.

Figure 4b – An alternative proposal to fund the TFFF to the required scale



Source: Kaya Partners, 2024.

For this oil revenue funding variation to succeed, it would have to overcome the difficult task of gaining support from civil society and the private sector. Civil society proponents have raised concerns about greenwashing and moral hazard over the proposal to link the mechanism’s budget to fossil fuel revenues. This dependence comes with an additional risk, as declining fossil fuel production could reduce available funds in the long term. Relatedly, oil companies and hard to abate sectors that could potentially contribute to the fund could be reluctant to engage fearing greenwashing accusations. To address these concerns, proponents would thus have to engage with voluntary and future compliance-based private sector net zero frameworks to ensure that these types of contributions are recognized. And we ask, would it not be easier to reduce the subsidies by the equivalent amount instead and redirect the money to the fund?

COP30 in the Amazon presents a critical opportunity for Brazil to position the TFFF as a credible and practical solution for scaling NBS globally. Lula will see this as a key deliverable and the key Ratchet COPs of 2025 and 2030 are part of the IPR drivers for acceleration in policy action. Brazil, with its immense NBS potential, its geopolitical non-alignment with traditional powers, and role as a major fossil fuel exporter, is uniquely positioned to bridge global disparities on this issue. The occasion of COP30 means that Brazil will push hard for an agreement on the TFFF, which could likely consist of a ‘coalition of the willing’ formed by leading sovereign wealth funds, oil companies, governments and large private capital providers, to demonstrate that meaningful and credible contributions are brought to the table.

While the mechanism appears promising, its impact will be inherently constrained by the absence of adequate policies from recipient governments. Although countries will have freedom to decide how payments are integrated into specific policies and incentives, there is no guarantee that there will be adequate benefit-sharing of the resources with local communities, who are ultimately carrying out deforestation. Robust multi-level governance, environmental rule of law and co-designing payment mechanisms with local communities to create enabling conditions for maintaining forests and sustainable land use practices will be key. Equally, the success of the mechanism will heavily depend on the institutional capacity of governments at multiple levels to execute the resources. Brazil provides a clear example of these challenges.

Approaching COP30, the successful delivery of global NBS for both the near (2030) and long term (2050) remains uncertain.

If the private capital does not mobilize the \$1.6 trillion needed globally, alternative government-to-government funding similar to the Amazon Fund will be required. Among major NBS contributors, China is expected to achieve its potential and Brazil is making strides. Southeast Asia could enhance existing initiatives or explore strategies similar to Brazil's. Government-to-government funding may be particularly crucial for large developing regions like Sub-Saharan Africa, which has extensive land areas, a growing population, and an evolving agricultural sector. While delays could threaten short term goals, scaling efforts in the 2030s might help bridge the gap. This presents a risk but may be unavoidable. The outcome of COP30 will be crucial in addressing this land challenge. IPR will revisit its land forecasts this year with the potential of downgrading its nearer term policy forecasts for land and nature in its Annual Review in early 2025.

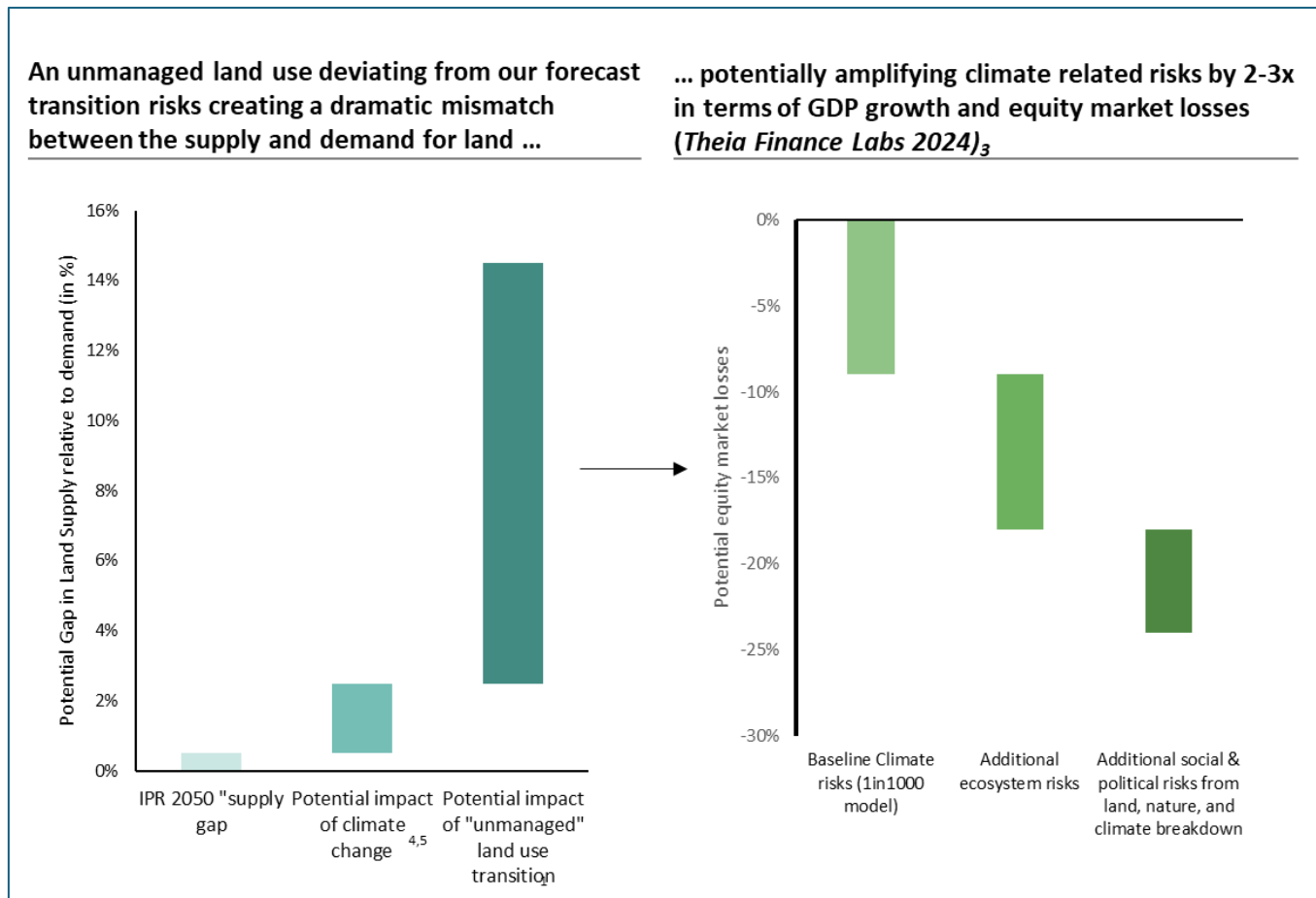
Appendix A: NBS for Climate in IPR’s Forecast Policy Scenario Glossary

NBS in IPR FPS 2023	Description	Mitigation Impact
Avoided deforestation and conversion	Practices that prevent the loss of existing ecosystems including: <ul style="list-style-type: none"> • Avoidance of conversion, destruction or degradation of forests • Avoided conversion of temperate grasslands, tropical savannas and shrublands • Avoided conversion, destruction or degradation of global peatlands 	Avoids release of carbon from trees, grasslands, plant matter and soil into atmosphere
Agricultural improvement	Practices that improve carbon retention in agricultural lands including: <ul style="list-style-type: none"> • soil carbon management • grazing management (i.e. optimal intensity) • agroforestry 	Reduces release of carbon from soils and grasslands in agricultural systems
Ecosystem restoration	Practices that create new ecosystems including: <ul style="list-style-type: none"> • Reforestation or conversion from non-forest to forest in previously forested areas • Restoration of peatlands: rewetting of damaged and degraded global peatlands • Restoration of damaged and degraded global mangrove forests 	Sequesters carbon from atmosphere into soils, wood, plant matter, grasslands

Sources: IPR FPS 2023; UNEP State of Finance for Nature (2023) [Link](#)

Appendix B: The Potential Global Land Crunch

IPR expects improvements in crop yield, food waste, and changes to diets to help mitigate the growing demand for land. However, without market transformation, the gap between the supply and demand for land will grow dramatically.



Key findings
 IPR forecasts that land supply will roughly meet land demand by 2050, thanks to significant improvements in yield, movement towards alternative protein, constraints on urban sprawl, limits to the deployment of bioenergy based on sustainability guardrails, as well. While nature-based solutions will grow dramatically, limitations remain. **Overall demand / supply mismatch** is thus limited to **~1% by 2050^{5,1}**.

However, **without major investments** and market transformation underpinning this forecast, the **land demand-supply mismatch could grow dramatically**. A more pessimistic view on land demand, coupled with the expected reduction in land supply from climate change identified by the IPCC⁴, the **mismatch could grow to ~15%**, with major ramifications for food security and land prices.

Such a scenario would create significant downside risks for both political and ecosystem stability, potentially **increasing the financial risks** from climate change **by a factor of 2-3x³**. Therefore, we think policymakers will act. This reinforces the need for integrated land and energy analysis.

Source:
 1. World Resource Institute (2023): [What's Causing the Global Land Squeeze? | World Resources Institute \(wri.org\)](https://www.wri.org/publications/2023/04/whats-causing-the-global-land-squeeze/)
 2. IPR Land Use forecast
 3. Theia Finance Lab (2023): [1in1000 Finstab Final](#)
 4. IPCC: [Special Report on Climate Change and Land — IPCC site](#)
 5. IOP Science (2011): [Climate change impacts on global agricultural land availability \(iop.org\)](#); AGU (2018): [Quantifying Land and People Exposed to Sea-Level Rise with No Mitigation and 1.5°C and 2.0°C Rise in Global Temperatures to Year 2300 - Brown - 2018 - Earth's Future - Wiley Online Library](#); Our World in Data (2019): [Land Use - Our World in Data](#)

Appendix C: Brazil’s progressive policy and funding landscape for land use and agriculture (non-exhaustive)

Key provisions		Impact
National Regulation		
The Forest Code	<ul style="list-style-type: none"> The Brazil Forest Code requires Amazon landowners to keep 35-80% of their property covered in native vegetation, while in the Cerrado, it is only 20-25%. Compliance with the Forest Code remains challenging to authenticate due to poor availability and quality of official data. 	Reduces deforestation and promotes protection of native vegetation.
FEBRABAN rule³⁴	<ul style="list-style-type: none"> A new rule from the Brazilian Federation of Banks (FEBRABAN) will require slaughterhouses to track implement tracking systems to monitor their supply chains and ensure no illegal deforestation occurs in the Amazon and Maranhão. It takes effect in December 2025. Adopted by 21 banks, including major institutions such as Santander and Bradesco, the rule will not come into effect until December 2025, will only apply to the Amazon and Maranhão state and will cover only illegal deforestation. 	Reduces investment from flowing towards pastoral practices associated with illegal deforestation, in doing so, reducing deforestation.
PPCDAm³⁵	<ul style="list-style-type: none"> Since 2004, the Brazilian government has been implementing the Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm) aimed at reducing illegal cutting of forests and based on a three-pillared strategy which includes: (i) territorial and land-use planning, (ii) environmental control and monitoring, and (iii) fostering sustainable production activities. In 2023 the Lula administration launched the first phase of the plan which is aimed at reducing deforestation between 2023-2027. 	The new plan has a renewed focus on improving intelligence to assist tracking, repression of environmental crimes, their production chain and linked crimes, and investing in the bioeconomy.
Incentives and Funding		
The Amazon Fund³⁶	<ul style="list-style-type: none"> Established in 2009 as a REDD+ initiative against deforestation to promote sustainable land use in the Amazon. Under Lula funding has risen and to date has raised \$1 billion, largely from Norway. The fund has supported 75mn hectares of sustainable management. Mainly funded by public sector contributions (US, Germany, Japan, Norway, and UK as the largest donors), although private sector involvement through carbon offsets is growing. 	Reduces deforestation in the Amazon, promotes sustainable land practices, and reduces forest degradation. Attracts external capital for Amazon protection.
RenovAgro³⁷	<ul style="list-style-type: none"> A rural credit line that offers low-interest government credit for agriculture practices that reduce emissions, restore degraded land. Approximately \$1.4 billion USD is allocated for eligible projects in 2024. 	Supports the recovery of degraded pastures, integrated crop-livestock-forestry systems, and the adoption of low-carbon technologies, in doing so, reducing deforestation and emissions. Seeks to encourage sustainable and modernized agricultural practices.
National Program for the Conversion of Degraded Pastures (PNCPD)³⁸	<ul style="list-style-type: none"> Aims to mobilize \$120bn from Brazil and the international community to convert 40mn hectares of degraded pastureland into sustainable agricultural and forestry production systems over the next ten years. Japan is the first signatory and a major contributor, as recently tracked by IPR.³⁹ 	Capital attraction towards land restoration, reduce deforestation, and low-emission agricultural practices.
Producer incentive schemes	<ul style="list-style-type: none"> Many soy traders and meatpackers have introduced company-specific incentives such as premium payment, grants, and technical support, to encourage sustainable agricultural practices. The Innovative Finance for the Amazon, Cerrado and Chaco (IFACC) offers technical assistance and advice to help financial institutions create instruments 	Evidence is yet to suggest whether these initiatives can grow at pace.
Voluntary Agreements		
Amazon Soy Moratorium (ASM)	<ul style="list-style-type: none"> An industry-wide agreement where commodities traders committed to not purchasing soybeans from land deforested after 2008. The ASM was initially launched in 2006, following a high-profile Greenpeace campaign highlighting the link between soybean cultivation and deforestation in the Amazon. The agreement was extended every 1-2 years until 2016, when it was made permanent. 	Reduces deforestation from Amazon soybean supply. General consensus is that it has been successful in this respect, as less than 2% of the total soy area in the 2018/19 crop year was non-compliant with the ASM.

³⁴ Febraban [Link](#)

³⁵ <https://infoamazonia.org/en/2023/04/14/ppcdam-new-plan-against-deforestation-includes-technologies-to-anticipate-devastation-and-investment-in-bioeconomy-to-develop-the-amazon/>

³⁶ <https://www.amazonfund.gov.br/en/home/>

³⁷ BNDES, Renovagro – Programa de Financiamento a Sistemas de Produção Agropecuária Sustentáveis, [Link](#)

³⁸ <https://www.gov.br/agricultura/en/news/ministry-of-agriculture-presents-pasture-conversion-program-to-investors-in-the-united-states-of-america>

³⁹ IPR QFT 2024/Q2 (05-2024), Sector: Protection & restoration, Announced, Score: 3; Cooperation with Brazil to protect Amazon rainforest - Japanese Prime Minister Fumio Kishida and Brazilian President Luiz Inacio Lula da Silva agree to bolster efforts in combating climate change, particularly focusing on enhancing the protection of the Amazon rainforest. - During their meeting in Brasilia, they sign a comprehensive cooperation agreement under the Green Partnership Initiative, which includes financial contributions and assistance for regenerating degraded farmland to prevent deforestation and promote sustainable agriculture.

		The impact has been notable, so much so that agribusiness cohorts have been challenging it with Congress to see it ended.
Beef on Track ⁴⁰	<ul style="list-style-type: none"> An initiative launched in 2019 by Imaflora, in collaboration with Brazil's Federal Public Prosecutor's Office. Through monitoring, auditing, and reporting, the program brings together cattle producers, slaughterhouses, supermarkets, and civil society to promote responsible cattle farming and environmental conservation. 	Increases transparency and accountability in Brazil's beef supply chain, particularly in the Amazon. Promotes practices that prevent deforestation, slave labor, and illegal land use.
Cerrado Protocol ⁴¹	<ul style="list-style-type: none"> A voluntary monitoring system aimed at regulating cattle suppliers in Brazil's Cerrado biome. Launched by Proforest and Imaflora, it responds to growing concerns about deforestation and socio-environmental issues linked to cattle ranching, such as land conflicts and forced labor. It includes criteria for compliance with the Rural Environmental Registry, avoidance of deforestation, and protection of indigenous and conservation areas. By doing so, it helps stakeholders in the beef supply chain, including meatpackers, retailers, and investors, to align with international environmental and social standards. 	Modelled on the success of the Amazon's Beef on Track initiative, aiming to balance production with environmental conservation and social justice.

Note: This table provides a non-exhaustive overview of current key policies, incentives and voluntary agreements to reduce deforestation and conversion and promote ecosystem restoration.

⁴⁰ <https://www.beefontrack.org/>

⁴¹ <https://www.cerradoprotocol.net/the-cerrado-protocol>

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