ALMA Brasil
ACCELERATING LAND-USE MITIGATION IN THE AMAZON

OGCI
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TRANSITION FINANCE
Ensuring Sustainability

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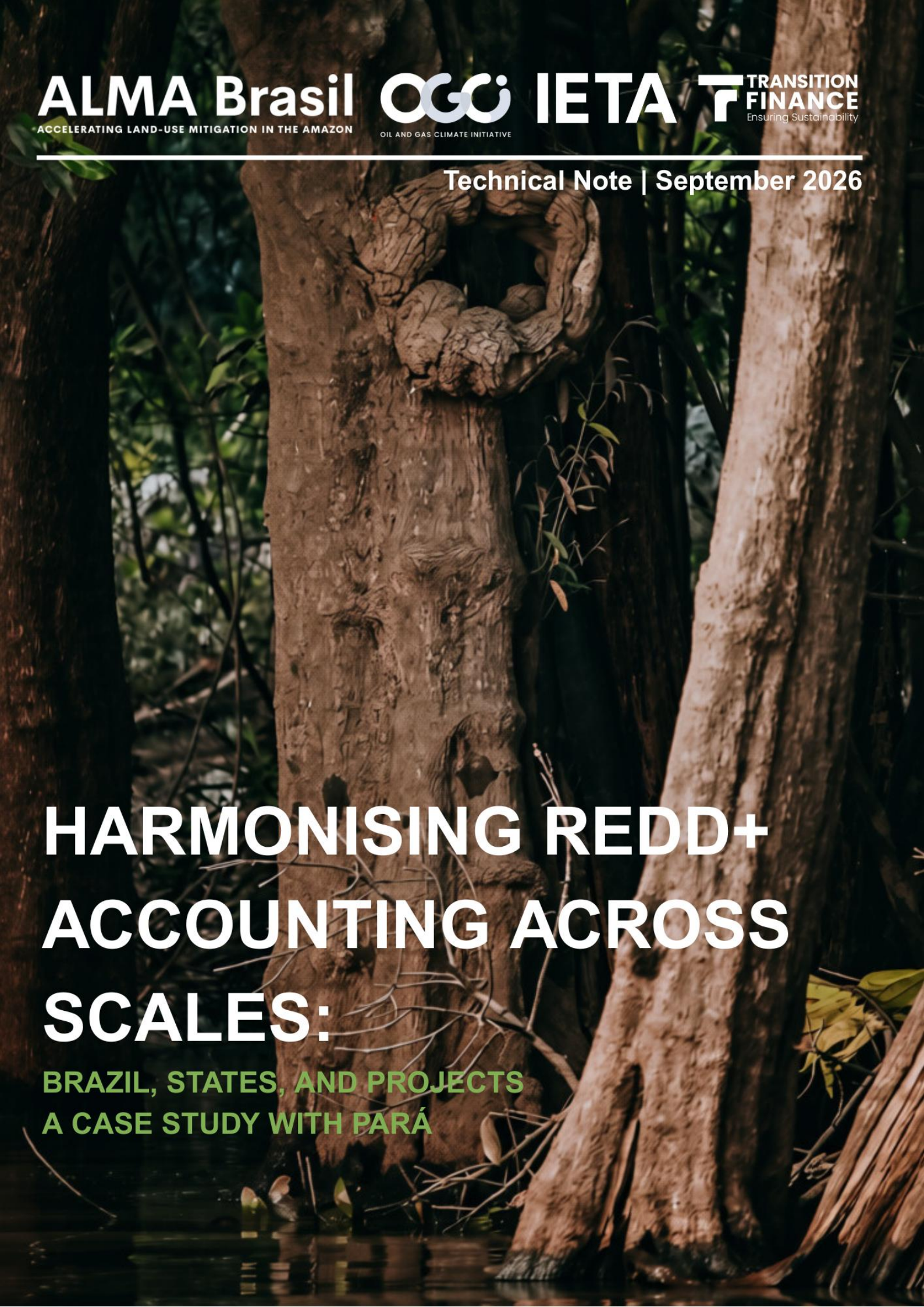

HARMONISING REDD+ ACCOUNTING ACROSS SCALES:

BRAZIL, STATES, AND PROJECTS
A CASE STUDY WITH PARÁ

ABOUT THIS TECHNICAL NOTE

This technical note is a product of the findings of ALMA Brasil 2.0, an initiative that continues the work of its Phase 1.0 (October 2023 to December 2025). ALMA Brasil is a collaboration between the Oil and Gas Climate Initiative (OGCI), the International Emissions Trading Association (IETA), and their associated experts. Since mid-2024, the initiative has been supported by technical advisory from Transition Finance. The initiative is focused on engaging and identifying potential solutions for nesting REDD+ projects within jurisdictional programmes, using the State of Pará and the REDD+ projects identified within it as a case study, in the context of Brazil's regulatory framework as a whole. The note is a supporting document to the development of the document *Design Options for nesting REDD+ Projects within Jurisdictional Programmes*, and draws on scientific research and engagement with governments, independent carbon market standards, as well as technical and scientific organisations, private sector representatives and other stakeholders. The findings of ALMA Brasil are primarily aimed at disseminating knowledge and promoting an informed debate, with a view to strengthening the integrity and legal certainty of carbon markets.

Status of this note: *This note presents the technical findings of the IETA project team. It is offered as non-binding technical input for the consideration of the authorities, programmes and other stakeholders referred to in it. It is not a template or model instrument for adoption, it does not represent an agreed position of IETA or OGCI, or the commercial position of any OGCI member company or of any other participant in the initiative, and it is not advice on which any person should rely. Certain findings, including the robustness of a shared risk-based approach across varying parameters, remain under technical development at the date of publication.*

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EXECUTIVE SUMMARY

ALMA Brasil is a collaboration between OGCI and IETA supporting the development of high-quality REDD+ (Reducing Emissions from Deforestation and Forest Degradation) credits, at project and programme level, by finding viable solutions for nesting. Since 2024, it has worked with the state of Pará on this challenge, focusing on how project-level and jurisdictional REDD+ results can be reconciled. This note provides the technical background, grounded in the Pará case and intended to inform a document that brings design options for nesting, adaptable to other jurisdictions. A supplementary appendix addresses safeguards and nesting.

Pará combines an advancing jurisdictional REDD+ programme, currently under validation against its TREES baseline, with 36 identified project-level REDD+ initiatives covering approximately 5.4 million hectares. A national layer is also taking shape: Brazil's Emissions Trading System, established under Law 15.042/2024, is still under design, and the treatment of areas excluded from national accounting remains under discussion. Reconciliation at jurisdictional level is required under TREES in any case; what is open is how it is done. Today it is done by deducting project credits in full, after they have been issued and before TREES credits are issued.

Key topics of this note:

01. Multiple methodologies operate side by side in Pará's territory, each built on a distinct approach, and they cannot be expected to produce identical results. The objective is the reconciliation of accounting outcomes and the avoidance of double counting, rather than convergence on a single methodology.

02. Brazil's Law 15.042/2024 provides for excluding areas from national accounting, and the mechanism for doing so is still being drafted. The approach raises technical questions that any such mechanism will need to address, including how it would treat deforestation a project has already prevented, longstanding projects' own track record, and risk that shifts toward new frontiers.

03. Among the ways to reconcile jurisdictional and project-level results, the option examined here is territorialising emission reductions through a risk map: each area receives a deforestation risk score, which sets the volume a project may credit, by agreement between the project and the jurisdiction. This prevents the sum of project-level allocations from exceeding the jurisdiction's total. The approach was tested against five projects selected to illustrate a range of conditions rather than a representative sample. Findings are preliminary: a robustness check is still underway, and the approach is presented for further evaluation rather than as a preferred solution.

04. Turning this option into a workable system would depend on:

- A shared risk map that governments, jurisdictional programmes and project-level standards can use as a basis for their own baselines;
- Further technical validation, including the robustness check now underway;
- A risk map built with input from the parties whose results it will govern;
- Structured dialogue with jurisdictions, standards and project developers.

Together, these offer Pará, and other Brazilian jurisdictions structuring REDD+ programmes, technical grounding for the accounting side of nesting.

01 Context

Brazil's carbon market is undergoing rapid transformation. The Brazilian Emissions Trading System (SBCE), established under Law No. 15.042/2024, is currently being designed and is expected to become the country's primary compliance mechanism for greenhouse gas emissions[1]. Alongside this development, several jurisdictional REDD+ programmes are being structured across Brazilian states, seeking to complement national-level policy with subnational crediting mechanisms. A voluntary carbon market also operates in parallel, with an established base of project-level REDD+ initiatives and growing potential for engagement with the international carbon market, including through the cooperative mechanisms established under both Article 6 of the Paris Agreement and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Within this landscape, the State of Pará occupies a strategic position in Brazil's climate agenda. It is the country's second-largest state by territorial extension, covering approximately 1.25 million km², and accounted for 13.6% of Brazil's gross greenhouse gas emissions in 2023, one of the highest shares among all federative units, driven mainly by land use change and deforestation.[2] It is against this backdrop that Pará has been structuring its Jurisdictional REDD+ Programme, currently undergoing validation and verification under the TREES standard, seeking to establish a jurisdictional-scale market-based remuneration mechanism for deforestation reduction and forest conservation results.

This programme is being implemented in a territory that already hosts a number of project-level REDD+ projects. Research carried out by ALMA Brasil between February and April of 2026 identified 36 REDD+ projects located in the state, covering approximately 5.4 million hectares. These projects are certified under two independent standards, the Verified Carbon Standard (VCS) administered by Verra, and Cercarbono. These projects present varying degrees of maturity, ranging from initiatives still under development to projects that have already completed multiple monitoring, verification and issuance cycles.

Although the area currently covered by projects is significant, only a portion of these initiatives have completed verification and issuance. In total, 13 projects have already issued Verified Emissions Reductions (VERs) covering approximately 2.1 million hectares and totalling around 16 million credits[3]. These figures should be interpreted with caution, as they reflect projects developed under different methodologies, crediting periods and monitoring cycles. Certification standards have also undergone successive methodological revisions in recent years, with progressively more conservative criteria for baseline setting, risk accounting and quantification of emission reductions, meaning that more recent projects tend to generate fewer credits per hectare than earlier generations of REDD+ projects.

Another relevant aspect concerns the temporal distribution of these issuances. Approximately 97% of issued credits are associated with vintages prior to 2023, the first year of the crediting period proposed by Pará's Jurisdictional Programme (2023-2027). Because credit issuance depends on the completion of monitoring, validation and verification processes that often take place months or one or two years after the emission reductions themselves occur, a share of issuances tied to 2023-2027 vintages will continue to emerge well after 2027, posing an ongoing reconciliation challenge for jurisdictional accounting throughout the programme's implementation. The summary of this data can be found in **Figure 1**.

[1] Important to note that, although the SBCE will not cover all of Brazil's emissions (e.g. land-related emissions are not regulated), it will create governance for carbon markets in the country.

[2] SEEG (Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa), 2024.

[3] 1 credit refers to 1tCO_2e reduced or removed.

In addition, Pará accounts for the largest share of REDD+ credits issued among Brazilian states (**Figure 2**), a position that reflects its high concentration of REDD+ projects. This concentration, combined with an advanced jurisdictional REDD+ programme and a rapidly evolving national regulatory environment shaped by the Brazilian ETS and other instruments under Law No. 15.042/2024, makes Pará particularly relevant for the development of accounting harmonisation approaches between projects and jurisdictional programmes. This context offers a distinctive opportunity to examine challenges related to transition rules, credit reconciliation, the prevention of double counting and the integration of different accounting scales.

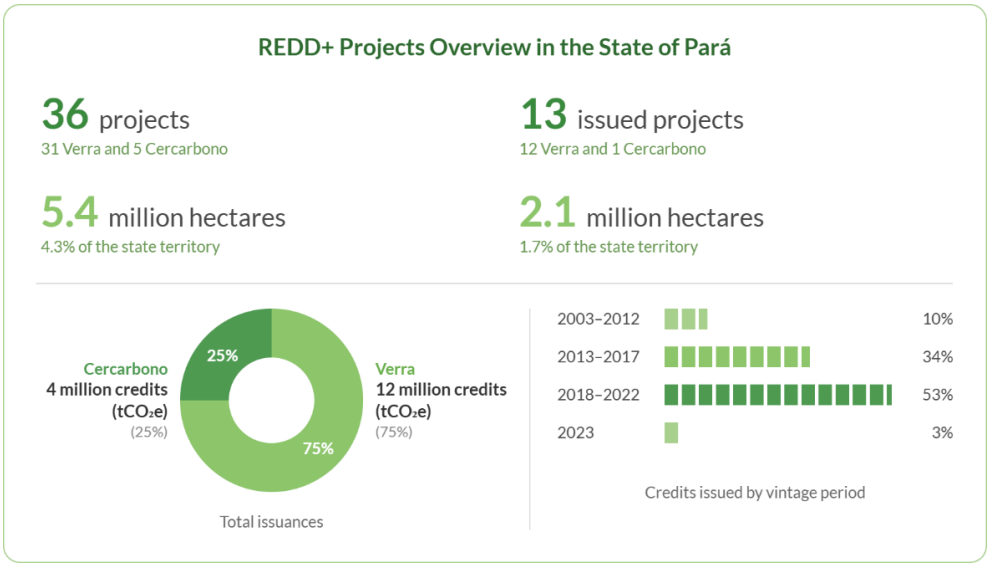

Figure 1 - Projects and issuances in the state of Pará. *Sources: Verra and Cercarbono public registries*

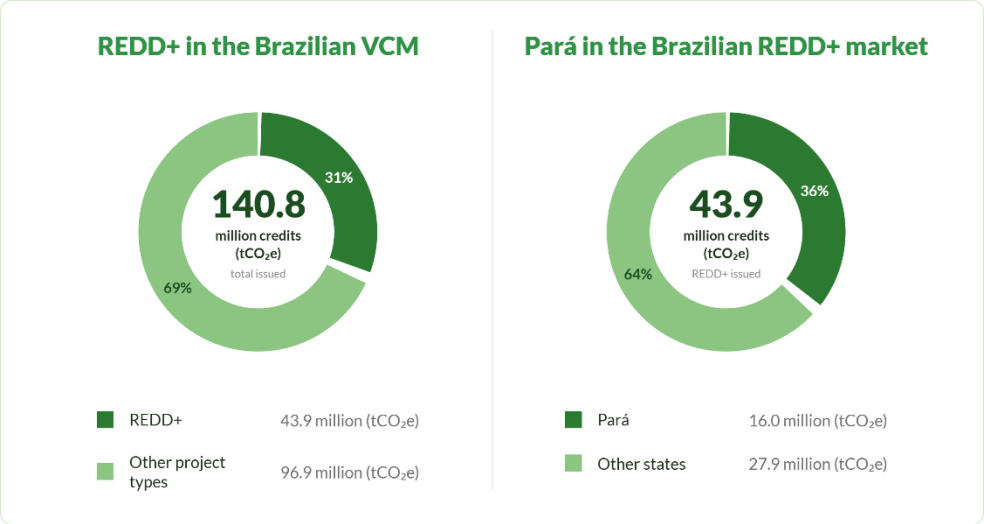

Figure 2 - Left: REDD+ share of total credits issued in Brazil's voluntary carbon market. Right: Pará's share of REDD+ credits issued in Brazil. *Sources: CAD Trust, Verra and Cercarbono public registries*.

This technical note therefore aims to present the discussions developed under the ALMA Brasil 2.0 Project, focusing on accounting harmonisation between projects and jurisdictional programmes. Drawing on the case study of the state of Pará, it seeks to present technical elements, challenges and regulatory options that can inform the integration of national, state and project-level accounting, contributing to the development of a consistent, transparent accounting framework aligned with international best practice.

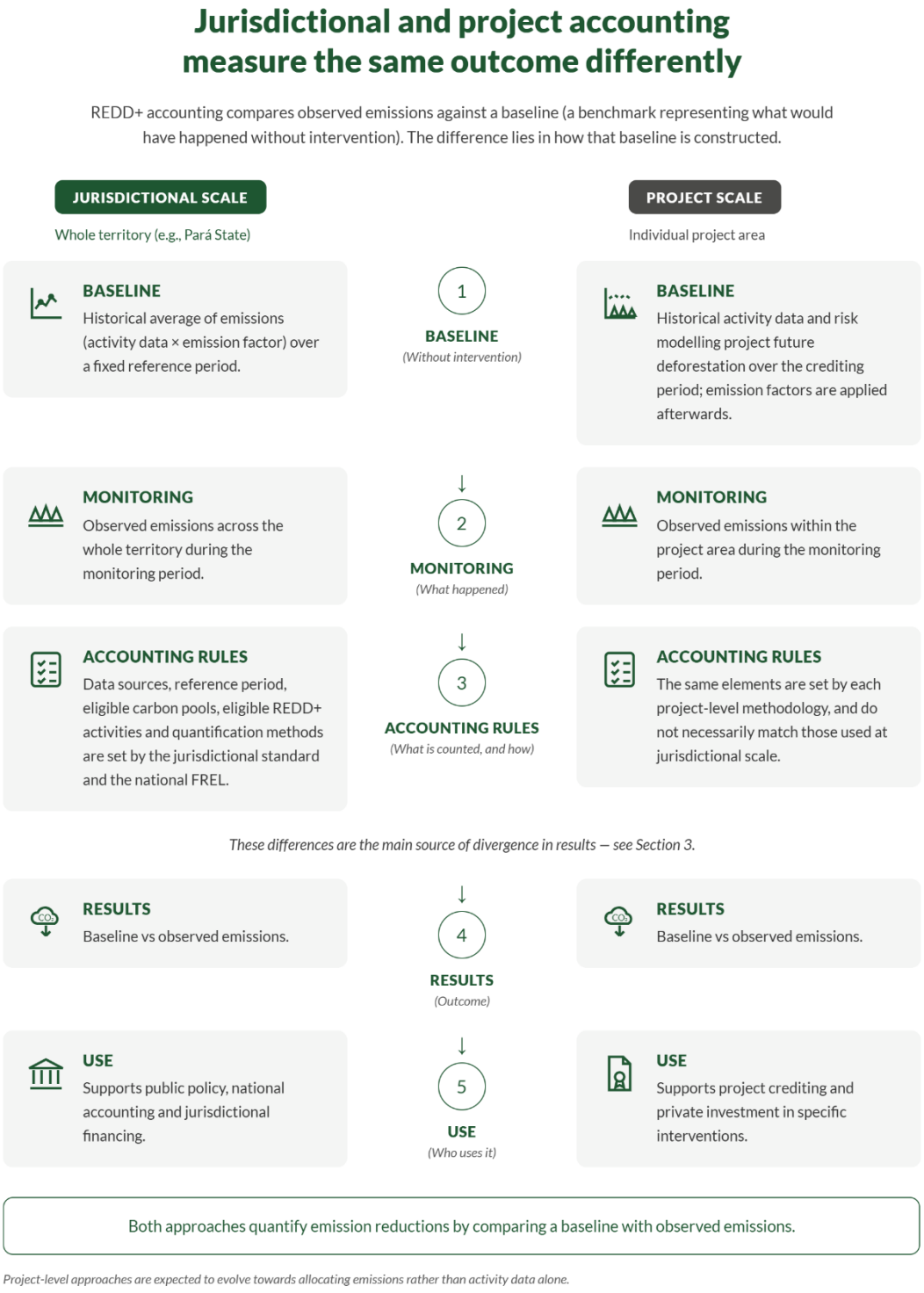

Figure 3 - How REDD+ results are accounted for in the jurisdictional and project scales.[4]

[4] Figure 3 and Table 1 simplify selected elements of each approach for comparison. Jurisdictional and project-level approaches serve distinct and complementary functions in the REDD+ architecture, and these comparisons carry no ranking of credibility between them.

02 How Different Methodologies Work

Understanding how each standard builds its baseline and quantifies results is a precondition for explaining why their numbers diverge and for proposing how to reconcile them across scales. The different standards and respective methodologies currently applied in Pará are described as follows.

2.1. Project-level methodologies: Cercarbono, Equitable Earth[5], and Verified Carbon Standard

Cercarbono

Cercarbono is a Latin American voluntary carbon certification programme that certifies mitigation initiatives across multiple sectors. It has one REDD+ focused methodology, latest reviewed in March 2026.[6]

Cercarbono's methodology places the responsibility for building the baseline scenario on each proponent, within a defined methodological process: identification and justification of the baseline scenario, consistency with the applicable national or jurisdictional FREL/FRL and REDD+ accounting framework, the use of appropriate activity data and emission and removal factors, conservative adjustment below business as usual, and periodic reassessment. Within that process, future deforestation is projected using two complementary approaches: a dynamic model based on explanatory variables (population pressure, road proximity, agricultural suitability) and a simpler fixed historical rate, with the more conservative of the two prevailing. The baseline is adjusted below business as usual by the greater of 10% or the quantified relative uncertainty. The historical period used is normally no shorter than 10 years prior to the project start date, and the baseline is reassessed every five years, or upon a material change in the reference FREL.[7]

The methodology covers four REDD+ activities: avoided deforestation, avoided forest degradation, sustainable forest management and enhancement of forest carbon stocks. It accounts for deforestation and degradation as distinct segments and distinguishes planned from unplanned activities only within degradation (planned degradation refers to authorised harvesting). The methodology applies to projects and jurisdictional programmes under three modalities and requires consistency with the applicable national or jurisdictional FREL/FRL[8].

Equitable Earth

Equitable Earth is a newer voluntary carbon standard distinguished by a centralised, model-based approach to setting baselines using satellite-derived biomass data. Its current REDD+ methodology[9] was last revised in March 2026.

Every project's baseline is derived from a single, centrally run process: a Jurisdictional Reference Level (JRL) is calculated from historical forest biomass loss observed over a 10-year reference period, forming a total emissions "budget" for the jurisdiction. A spatio-temporal risk model then maps where future forest biomass loss is most likely to occur at pixel level, and the budget is allocated proportionally to that risk, constrained by available biomass stock. A project's baseline is

[5] Although there are no public records for projects in Pará in Equitable Earth registry, during engagements carried out with the standard itself and developers, it was informed that there were projects under development in Pará.
[6] Cercarbono consulted documents: Methodology M/LU-REDD+, v3.1; Guidelines for Using Models in Baseline Carbon Quantification in the Land Use Sector, v1.1; Cercarbono's Protocol for Voluntary Carbon Certification v4.5.2.
[7] Forest Reference Emission Level.
[8] Forest Reference Level (FRL).
[9] Equitable Earth consulted documents: Methodology for Terrestrial Forest Conservation, M002, v1.0.2; Baseline Setting Module, M002, v1.0.1; Future Improvements and Limitations, M002, v1.0, Equitable Earth Standard, v1.3.1.

the sum of the carbon risk values allocated to the pixels within its area; no independent, proponent-built baseline is permitted. The scope already combines avoided deforestation and degradation as a single activity type, covering only unplanned events. Despite the "jurisdictional" terminology used for the reference level, Equitable Earth methodology is focused on project level approaches. The 'jurisdictional' refers to the fact that the reference level is created at whole jurisdiction level, normally a country, and in Brazil a state.

VCS Verra

Verra administers the Verified Carbon Standard (VCS), the largest voluntary carbon crediting programme in the world, in operation since 2007. Its current REDD+ methodology, VM0048[10], was published in 2023, with several reviews since then. It will replace current REDD+ methodologies from the standard, such as VM0007 and VM0015. Projects registered under those methodologies remain active until they transition, with baselines defined by the proponent for the project area rather than allocated from a jurisdiction-wide total.

Under VM0048, independent Activity Data Providers were contracted to build a historical forest cover map for the state or territory where the project is located, based on a historical reference period of at least 10 years, to identify where deforestation has occurred. These maps follow the local forest definition, and are built after consultation with government bodies and local experts. The maps are then used to stratify[11] points, which are assessed by the independent Activity Data Providers, through visual interpretation of very high-resolution satellite data, first to show that the map meets particular accuracy thresholds (typically 90% for forest/non-forest accuracy), and secondly to define the actual deforestation rate over the period. This "jurisdictional scale" construction refers only to the geographic scope of the analysis, not to a formally registered Jurisdictional Programme, which is a distinct institutional modality[12] under Verra's Jurisdictional and Nested REDD (JNR) framework. VM0048 is a project-level methodology, and the 'jurisdictional' refers only to the fact that these maps are made at whole jurisdiction level, not individually per project. A risk map is then generated from this historical mapping and a set of explanatory variables (e.g. distance from past deforestation, distance from road, distance from river etc), estimating the relative probability of future deforestation across the remaining forest, and used to proportionally allocate the jurisdiction's total projected deforestation among the projects operating within it, so that each project's baseline reflects the risk level observed in its own area, rather than a value it defines independently. This allocation applies to activity data. Emission factors are estimated separately by the project proponent. The baseline is periodically reassessed at the end of each Baseline Validity Period cycle (baselines run for 6 years, though projects that start before the start of the period can use them for another two years).

It is important to note that only the avoided unplanned deforestation module (VMD0055) is currently operational; the corresponding degradation module is still under development, so avoided forest degradation is not creditable under VM0048.[13]

2.2. Programme-level methodology: TREES standard

TREES (the REDD+ Environmental Excellence Standard)[14] is the crediting standard administered by the Architecture for REDD+ Transactions (ART), created specifically to channel results-based finance to government-led REDD+ programmes rather than to individual projects. The version used by Pará's current crediting period is TREES v2.0

[10] Verra's consulted documents: VM0048 - Reducing Emissions from Deforestation and Forest Degradation, v1.0; VMD0055, v1.1; VT0007, v1.0; VCS Methodology Requirements, v5.0; VCS Standard (v5.0).

[11] Stratification is the process of dividing an area into relatively homogeneous groups (strata) based on shared characteristics, such as forest cover or land-use conditions.

[12] In the context of Verra's JNR Framework, a modality refers to the type of REDD+ implementation and accounting approach.

[13] Information from July 2026.

[14] TREES consulted documents: The REDD+ Environmental Excellence Standard (TREES), v2.0; The REDD+ Environmental Excellence Standard (TREES), v3.0. Among the changes introduced in v3.0: a mandatory 1% discount to the crediting level per crediting period (unless conservativeness is otherwise demonstrated) and an extension of the subnational accounting interim deadline from December 31, 2030, to December 31, 2035.

published in August 2021. Version v3.0 was released in June 2026, but existing participants may continue under the version accepted at registration until the end of their current crediting period (for Pará, 2027), adopting the latest version only at the start of the next one.

Only national governments, or subnational governments one administrative level below national, may participate in the ART programme, with a minimum forest area of 2.5 million hectares required. ART does not credit projects directly, nor does it prescribe how private-sector or community-led activities should be recognised, or "nested", within a national or subnational programme - that arrangement is left entirely to the participant. However, TREES does require accounting reconciliation: any emission reductions already verified or issued within the accounting area, including project credits, must be disclosed and deducted from the volume of TREES credits issued, to avoid double issuance between the national or subnational programme and activities operating within it.

The crediting level is calculated as the average annual emissions over a fixed five-year historical reference period and is recalculated every five years; once set, it can only fall or stay the same from one crediting period to the next, never rise. The standard covers deforestation and forest degradation as a single combined pool, without distinguishing planned from unplanned activities; degradation may be excluded from accounting only where it represents a minor share of total emissions. Removals are credited separately, against their own crediting level.

2.3. National accounting methodology: Brazil's national FREL

Brazil's national Forest Reference Emission Level (FREL)[15] is the way the country calculates its own results in reducing deforestation and forest degradation, submitted to the UNFCCC under Decision 12/CP.17 to access results-based payments for its national REDD+ policies. The current version covers all six Brazilian biomes (Amazon, Atlantic Forest, Caatinga, Cerrado, Pampa and Pantanal) over the five-year reference period 2016/17–2020/21. This is an important reference point to keep in mind when pursuing accounting harmonisation across scales because it is the baseline against which the country's own performance is measured.

The FREL aggregates each biome using the approach best suited to its available data: net emissions (deforestation minus removals from post-deforestation forest regeneration) for the Amazon and Cerrado, and gross deforestation emissions for the Atlantic Forest, Caatinga, Pampa, and Pantanal. Forest degradation (from fire and disordered logging) is included only for the Amazon, where monitoring data is available; enhancement of forest carbon stocks from secondary vegetation regrowth is also estimated separately for the Amazon. Activity data draws on INPE's own satellite monitoring programmes (PRODES and DETER).[16]

Pará's TREES jurisdictional programme uses the carbon stock map used to construct the national FREL as its input layer, updated annually to reflect losses from forest degradation. Understanding how the national FREL is constructed is therefore a precondition for understanding Pará's own quantification.

Table 1 compares all methodologies mentioned above.

[15] Consulted document: Brazil's Forest Reference Emission Level for the construction of a national FREL for the 2016/2017–2020/2021 period, submitted to the UNFCCC (modified version, Mar 2024).

[16] INPE (National Institute for Space Research) is Brazil's federal agency for satellite-based environmental monitoring. Its PRODES programme provides the official annual deforestation estimates, while DETER generates near real-time deforestation alerts for enforcement purposes.

Table 1 - Comparison of methodologies applied in Pará and Brazil. The table compares selected methodological elements. It is not a comprehensive comparison of the accounting frameworks, which differ in objective and scope.[4]

Aspect	Project-level			Jurisdictional Approaches	
	Cercarbono	Equitable Earth	Verra	Brazil's FREL	TREES
Baseline construction	Proponent-built, consistent with the applicable FREL/FRL; dynamic model or fixed rate (more conservative prevails), adjusted below business as usual	Centralised risk model allocates a jurisdiction-wide budget to pixels	Independent activity data providers build a historical map; risk map allocates jurisdictional total to projects	Fixed historical average, biome-specific approach	Fixed historical average, jurisdiction-wide; stratification at the participant's discretion
Risk map basis	Explanatory variables (population pressure, roads, agricultural suitability), modelled per project	Satellite-derived biomass loss, pixel-level, constrained by biomass stock	Explanatory variables (distance from past deforestation, roads, rivers), not biomass-based	Not applicable	Not applicable
Reference period	≥10 years, reassessed every 5 years	10 years, reassessed every 5 years	≥10 years, reassessed at end of each 6-year Baseline Validity Period	5 years, reassessed every 5 years	5 years, reassessed every 5 years
Degradation included?	Yes	Yes	Not yet (module pending)	Yes, Amazon biome only	Yes, unless demonstrated to be *de minimis*

03 Main Drivers of Accounting Divergence

It is natural for distinct approaches to produce distinct results when quantifying emission reductions from deforestation for the same territory, even where efforts are made to minimise such differences. To think through strategies for harmonisation, it is necessary to clarify the main reasons behind these differences. They arise from the parameters each approach adopts: the historical reference period, the data source and its resolution, the forest definition, and the scope of degradation data. Some of these parameters are defined or monitored at national and jurisdictional level, not by the certification methodology.

Pará offers a useful illustration: it has a jurisdiction-scale baseline submitted to ART, based on the same datasets as those in the Brazilian FREL, while also having projects that use the jurisdiction-scale baseline produced under Verra's VM0048 methodology and the Cercarbono methodology, and projects under development reported under Equitable Earth. This allows us to understand, through a concrete example, how different parameters can change results. The discussion that follows draws on work carried out for the case of Pará, with support from the independent technical consultancy Space Intelligence, using activity data from three sources: the Brazilian FREL, the TREES baseline for Pará (based on the Brazilian FREL), and the data published by Verra for the state of Pará.

3.1. Historical reference period

Different windows for averaging historical deforestation can shift the baseline substantially, even with identical underlying data. Holding the data source constant, this alone produces a nearly 1.6-fold difference across the average annual deforestation areas that underlie the three baselines calculated for Pará (**Figure 4**).

3.2. Data source and sensor resolution

Methodologies draw on different satellite-derived deforestation datasets, at different resolutions, with different minimum mapping units and filtering rules. Those differences are presented in **Table 2**, including a direct comparison of deforested areas detected by each data source for the same year. For 2018/19 the two sources differ by 20,227 ha, around 4% of the area detected.

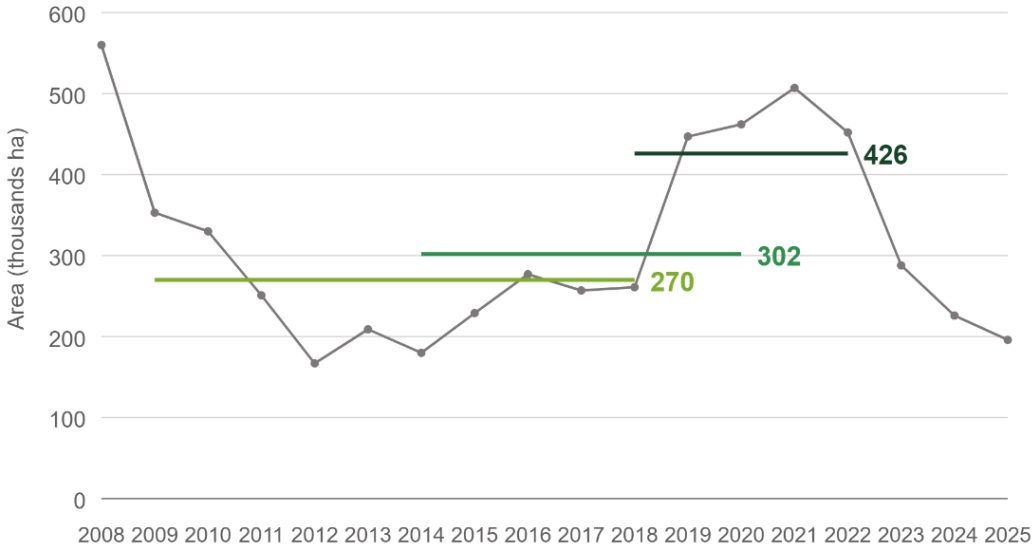

Figure 4 - Annual PRODES deforestation in Pará (thousand ha), 2008–2025. Horizontal lines show the average annual deforestation over the reference period used by each baseline: Verra's Pará baseline (2009–2018), Brazil's FREL (2014–2020), and the Pará TREES baseline (2018–2022). PRODES data as supplied by Space Intelligence.

Table 2 - Differences in parameters for identifying deforestation, between the datasets used in the Pará comparison.

Aspect	TREES baseline for Pará / Brazilian FREL (PRODES/DETER)	Verra, VM0048/VMD0055 data for Pará (CTREES)
Sensors (primary maps)	Landsat (optical)[17]	Landsat, Sentinel-2 (optical) + Sentinel-1 (radar)
Sensors (bias correction points)	Not applicable. PRODES maps are produced by visual interpretation of the primary imagery.	Planet, Maxar data (thousands of points assessed by eye).
Resolution	30m	10m (maps), ~3m or better (bias correction points).
Minimum mapping unit	6.25 ha for the official rate; 1 ha for mapping[18]	0.5 ha[19]
Deforested area detected, 2018/19	464,364 ha	444,137 ha

[17] The values shown are those applying over the reference periods compared here. From PRODES 2024 onwards, mapping is based on Sentinel-2 (optical) and Sentinel-1 (radar) imagery at 10m resolution, with full tile coverage. INPE, A taxa consolidada de desmatamento para os nove estados da Amazônia Legal para 2025 é de 5.731 km², 27 February 2026.

[18] Each site is counted as deforested only once. PRODES maps deforested areas from 1 ha, but only polygons above 6.25 ha are counted towards the official rate, in order to preserve comparability with the historical series begun in 1988.

[19] Must match the minimum area threshold of the applicable forest definition, per VMD0055.

3.3. Forest definition, including the treatment of secondary forest and regrowth

What counts as forest, and specifically, whether previously cleared land that has regrown counts as forest again, is a major driver of divergence between the baselines proposed by Verra and FREL-based ones (Brazil or Pará). PRODES (used by Brazil and Pará) only detects clearing of primary forest; a secondary forest area that regenerated and is then cleared again does not register as deforestation. Verra's CTREES data follows Brazil's official forest definition (0.5 ha resolution, 10% canopy cover, 5m height), which includes secondary forest, so the same (i.e., the second) clearing event does count as deforestation. This single difference in scope is estimated to be the major factor of the divergence in deforestation area detected between PRODES and CTREES for Pará.

The same underlying question - what counts as forest, and when regrowth counts again - also shapes how standards treat the removals side of the ledger. Brazil's FREL estimates carbon removals from secondary vegetation regrowth separately, currently only for the Amazon and using its own reference period. Cercarbono treats these removals as a distinct segment (Carbon Stocks Enhancement). Equitable Earth and Verra do not currently credit carbon removals from secondary vegetation regrowth. Equitable Earth has identified this as a planned improvement[20].

3.4. Scope of degradation data

What counts as degradation, and how much of it is included, is a matter of accounting scope rather than data availability. One example of this is how Pará has aligned with some elements of the Brazilian FREL and adapted others for its own baseline, so that the national and state approaches do not fully match.

In this sense, the following differences can be observed: 1. Fire: while the national FREL only accounts for fire emissions on managed forest land, Pará's TREES baseline includes all forest fires; 2. Logging: the national FREL only accounts for disordered selective logging (unplanned extraction, identified by irregular road and storage-patio patterns), while Pará's TREES baseline includes both disordered and geometric selective logging (organised spatial pattern associated with a management plan). At project level, VM0048 does not yet account for degradation.

3.5. Considerations and limitations of this analysis

These drivers do not weigh equally. On the figures presented here, the reference period has a larger effect than the dataset: the same PRODES series over three reference periods produces a nearly 1.6-fold difference in average annual deforestation, while the two datasets differ by around 4% for the same year.

This matters for harmonisation. Divergence that follows from measurement would require better data. Divergence that follows from parameter choices can be reconciled by agreement between the parties that set them.

Several elements were outside the scope of this analysis. Emission factors, which apply to both baseline and monitoring, were not assessed. Equitable Earth's parameters were not assessed either, since the comparison was limited to datasets already published for the whole of Pará; this could be addressed in future ALMA Brasil work. Uncertainty and conservativeness rules also differ across approaches and influence quantified results. The comparison of detected deforested area uses a single year, 2018/19. From PRODES 2024 onwards the Brazilian dataset relies on the same Sentinel sensors and resolution as the Verra data, so some of these differences are narrowing.

[20] Equitable Earth, Future Improvements and Limitations, M002, v1.0, item 2.1.

04 Harmonisation Through Allocation

Reconciling accounting differences across scales is not merely a technical exercise to avoid double counting. When done well, it gives jurisdictions a defensible basis for structuring carbon markets across scales in a way that is coherent today and adaptable as other architectures evolve. It also keeps incentives aligned, ensuring active projects that are stopping deforestation have the incentives to keep doing so. A nesting framework that reduces project carbon issuances severely could risk such projects failing, causing an uptick in deforestation rates and a breaking of community agreements, going against a state's aims to reduce deforestation and meet safeguards, effectively making implementing a jurisdictional approach to REDD+ harder. But likewise, a nesting framework where projects issue too many credits would reduce the income the state could otherwise use to stop deforestation in other hotspots. In the case of Pará, an allocation approach designed now, calibrated to the state's specific mix of active projects and its emerging jurisdictional programme under TREES, can inform how similar reconciliation might eventually work at the national level.

It is important to mention three broad approaches for reconciling project-and jurisdiction-level results.

- Where project-level claims are small relative to the jurisdictional total, a **subtraction** approach simply deducts verified project credits from the jurisdictional volume before issuance.
- Where the overlap is material enough to affect the jurisdiction's own results, the parties may instead **negotiate an adjustment**, typically realigning the project's baseline with the jurisdictional one. Both approaches, however, are reactive: they resolve overlaps after they arise, on a case-by-case basis, which becomes unwieldy as the number of active projects grows.
- A **territorialised allocation** approach instead divides the jurisdictional reference level into shares (quotas) distributed spatially across the territory, so that the sum of project-level baselines is structurally prevented from exceeding the jurisdiction's total. This reconciles accounting outcomes across scales. It does not make the underlying methodologies converge, and each standard continues to quantify results under its own rules. It also depends on the jurisdictional reference level itself being robust, since that level becomes the ceiling for everything within the territory.

Beyond the size of the overlap, the choice between them affects how accurately results are reported and how the interests of local stakeholders are protected.

Given the number of active projects already operating in Pará and the state's move toward jurisdictional crediting, a territorialised allocation approach offers more predictability than resolving overlaps individually as they emerge. It offers predictability to project developers and a structural safeguard for the jurisdiction, without requiring renegotiation each time a new project or monitoring period arises. Other guardrails are possible, such as capping at a project's own historical rate or applying conservative deductions based on uncertainty thresholds. The approach examined here anchors to the jurisdictional total because that is the constraint the jurisdiction itself must respect.

Risk maps offer a practical instrument for implementing territorialised allocation. Rather than allocating quotas uniformly across a jurisdiction, a risk map assigns each unit of territory a deforestation risk score, so that quotas can be distributed in proportion to

where deforestation is likely to occur if activities are not implemented to stop it. Areas facing negligible risk, such as inaccessible or already-protected forest, receive little or no allocation, while higher-risk areas, typically those near existing deforestation fronts, roads, or settlements, receive a correspondingly larger share.

This logic underpins Verra's own methodology for unplanned deforestation (VM0048, operationalised through VT0007 and VMD0055), and Equitable Earth's M002 applies the same principle: the allocation each project receives is a function of the deforestation risk within its boundaries, not simply its share of jurisdictional forest area. A risk-based approach has two practical advantages for a territory like Pará. First, it ties allocation to where mitigation is to areas where deforestation is critical, rather than distributing credits to areas where deforestation was never a realistic threat. Second, it can be built from the same activity data and forest monitoring systems already used for jurisdictional accounting, avoiding the need for a parallel data infrastructure. The resolution and accuracy of jurisdictional datasets differ from those used at project level, as **Table 2** shows, and allocation inherits those characteristics.

To test how sensitive this allocation approach is to the underlying data, Space Intelligence built two risk maps for Pará: a Pará allocated TREES baseline and a Brazil FREL allocated baseline, both using as many relevant covariates as possible, recalculated as new deforestation data become available[21]. These were compared against Verra's own VM0048 map, which Clark Labs generates from a fixed, prescriptive set of variables. The two designs answer different requirements: a wider and updating set of covariates aims at the closest fit to observed deforestation in a given jurisdiction, while a prescribed set aims at consistency across jurisdictions, reproducibility and verifier confidence.

The comparison drew on five projects, selected to illustrate a range of conditions rather than to provide a representative sample: different underlying methodologies (Verra VM0048, VM0015, VM0007, and Cercarbono), project start dates spanning 2017 to 2023, and baselines that sit on both the high and low end relative to their peers. The Pará allocated TREES baseline and the Brazil FREL allocated baseline share the same datasets and reference period, and their near-identical values serve as a consistency check. The result of interest is the comparison with the Verra allocation, which, built from a different dataset and set of covariates, differs from both in both directions and by larger margins (**Table 3**).

Table 3 - Deforestation baselines allocated to different projects under TREES, Brazil FREL and Verra VM0048 baselines, 2023–25 average, in tCO_2e/yr. For TREES and Brazil FREL, a Space Intelligence developed risk map was used to allocate baseline deforestation from the jurisdiction to the project level.

Project	Pará allocated TREES baseline (tCO_2e/yr)	Brazil FREL allocated baseline (tCO_2e/yr)	Verra VM0048 baseline (tCO_2e/yr)
A	261,767	262,614	411,390
B	61,932	54,688	18,544
C	154,201	154,191	61,521
D	612,070	587,154	132,556
E	186,281	173,357	139,539

[21] These spatial allocations were developed by Space Intelligence as a comparability exercise, translating Pará's TREES baseline and Brazil's FREL into spatially explicit risk maps. Both maps were built on a common reference period, 2018-2022, so that the comparison isolates the effect of the risk mapping approach rather than of the reference period. Space Intelligence obtained the same PRODES, DETER and forest carbon stock datasets used in the original submissions and applied a predictive model to distribute deforestation risk across the territory. The maps were validated using a fit test modelled on Verra's VT0007 procedure, with an R^2 of 0.85. The resulting jurisdiction-wide totals for 2023-2027 match the figures already established in Pará's TREES baseline and Brazil's FREL; the exercise redistributes these totals spatially rather than recalculating them.

The Verra allocation is built from a different mapping dataset, developed for Pará specifically, and does not yet include forest degradation[22]. Its risk mapping follows a standardised procedure set by the methodology to be applicable across many countries, and it rests on a different reference period. These differences act together, and this comparison does not separate their individual effects. What it does show is that the jurisdictional totals are largely insensitive to the choice of risk map: since the risk maps redistribute Pará's TREES and Brazil's FREL totals spatially rather than recalculating them, crediting potential at the state level remains stable, even where allocation to any individual project can vary substantially.

One way a risk map can be applied is as a cap on project-level issuance: a project may credit only up to the volume the risk map allocates to its boundary, regardless of its actual performance beyond that threshold. The cap would be established by agreement between the project and the jurisdiction, rather than by an adjustment to the methodology under which the project is registered. A cap set from a jurisdictional risk map inherits the scope of the data behind it. Where a project-level methodology detects forms of loss that the jurisdictional dataset does not, such as degradation or clearing of secondary forest, the cap will constrain it more than a methodology whose scope matches the jurisdictional one.

Looking at **Figure 5,** the effect of a cap becomes visible project by project. Only Project A shows the Verra baseline (411,390 tCO_2e) exceeding both the Pará allocated TREES baseline and the Brazil FREL allocated baseline for the same area. This divergence traces back to the underlying risk models rather than to the project's actual performance: Verra's risk map relies heavily on distance to forest edge as a predictor of deforestation risk, while the risk maps built by Space Intelligence incorporate a broader set of predictor variables. Project A's boundary contains numerous small patches of non-forest, which increase its edge density and, under the Verra model, its estimated deforestation risk. Distance to forest edge is a well-established predictor of where clearing occurs, so a fragmented boundary may also reflect genuine exposure. This is a difference in how risk is modelled. It does not establish that either allocation is more accurate for that area. Without a cap, Project A could issue credits up to its full Verra-based baseline; under a cap set at the risk map's figure, its issuance would be limited to the lower Pará allocated TREES or Brazil FREL allocated value instead. For the remaining four projects, the Verra baseline already sits below both risk-map figures. Thus, of the five projects examined, only Project A shows a meaningful difference between an uncapped and a capped approach. The approach depends on jurisdiction-specific datasets, so it does not transfer directly to jurisdictions with different forest definitions or monitoring systems. A cap based on the jurisdictional risk map can apply to any project, regardless of its methodology. For projects whose baselines were built by the proponent under earlier methodologies, the gap to the cap may be wider than the allocated baselines in Figure 5 suggest, which makes the options discussed below and in Section 6 most relevant to them.

Applying such a cap, however, requires care so as not to discourage project activity within the territory. One option to mitigate this risk is to allow a percentage above the cap for projects in specific regions, for instance those facing the highest deforestation pressure, or located in areas with unusual conditions or forest types perhaps not well captured by the national mapping datasets used in the jurisdictional baselines, rather than applying a hard ceiling uniformly across the state.

[22] Verra's VM0048 baselines shown here reflect deforestation only, since the corresponding degradation module is not yet published. Part of the gap between Verra's baseline and the Pará allocated TREES and Brazil FREL allocated baselines, which include degradation, may narrow once that module becomes operational; this cannot yet be assessed.

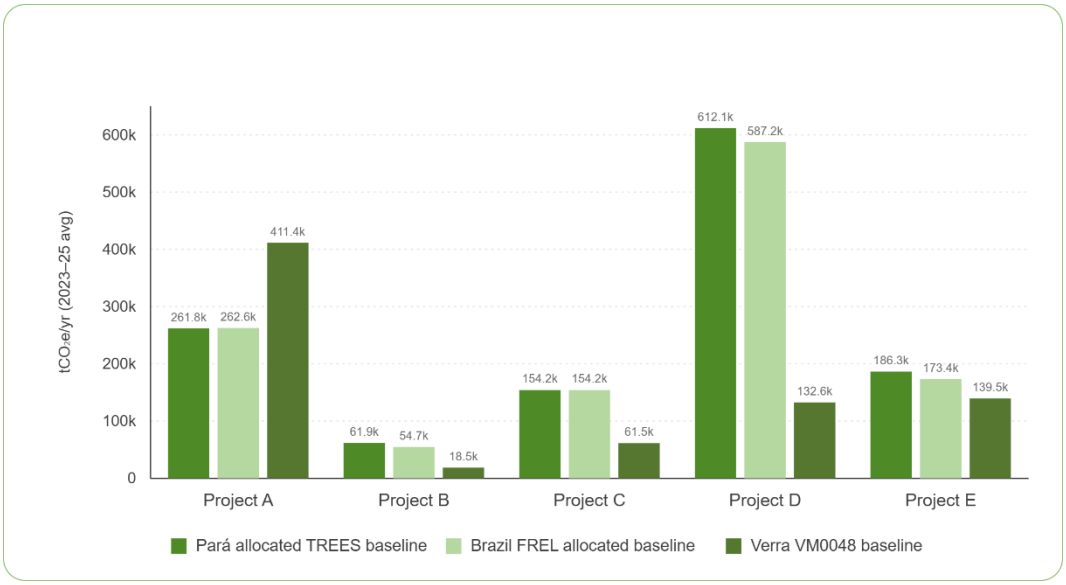

Figure 5 - Deforestation baselines allocated to different projects under TREES, Brazil FREL and Verra VM0048 baselines under 2023-25 (see Table 3). Note: The Figure shows allocated baselines - the baselines currently registered by each project under its own methodology are not shown.

05 Key Issues to Consider for an Opt-out Proposal

Harmonising accounting across scales also requires that jurisdictional programmes, whether national or subnational, reconcile their accounting with the individual projects operating within their boundaries. In Brazil, Law 15.042/2024, introduced a requirement that adds a new layer to this task.

Under Article 43 of the law[23], landowners and legitimate usufructuaries within an established jurisdictional REDD+ programme have the right to communicate, at any time and unconditionally, their property's exclusion from the programme's accounting. The mechanism prevents the same results from being counted both in the jurisdictional programme and in a privately issued credit. CONAREDD+ receives these requests, though no formal procedure for processing them has yet been established. This is more than a right and an accounting adjustment: according to the law, a private project on a property within an established jurisdictional REDD+ programme may only generate carbon credits once its exclusion has been communicated[24]. How property rights and safeguard compliance would be verified in practice remains an open question.[25]

The initial draft approach currently proposed by CONAREDD+ follows a defined sequence (**Figure 6**).

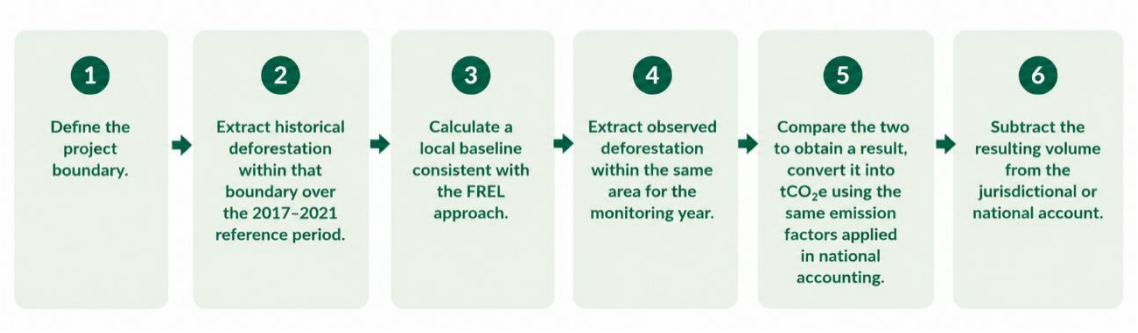

Figure 6 - Steps defined by CONAREDD+ for an initial proposal for area exclusion from national accounting.

Space Intelligence tested this approach against the same five REDD+ projects examined throughout this note, plus Flona Jamanxim, the federal conservation unit CONAREDD+ used to illustrate and discuss the draft proposal. As a conservation unit rather than a carbon project, it is not subject to the same eligibility conditions and serves here as a reference point, not a comparable case. Applied to this set, the approach raises <u>three points of attention</u>:

First, some carbon standards require project crediting areas to consist of forest that has not been cleared in the prior 10 years, subject to thresholds that vary by standard. As such, any deforestation within the 2017-2021 reference

[23] Brazil Law 15.042/2024, Art. 43, §§6º, 7º, 10-12.

[24] How area exclusion will affect the generation of ITMOs is not yet clear. Any unit eligible to become an ITMO will need to be registered under the SBCE and therefore aligned with national accounting, so the question is a live one. Brazil's ITMO framework is itself still open: a public consultation was held in July 2026, with no further developments up to the date of publication of this note.

[25] Under Article 43, the original title to a carbon credit belongs to whoever holds property or legitimate usufruct over the area. As an exception, §13 allows a market-based jurisdictional programme to attribute that title to the proposing public entity, subject to third-party rights, which is why landowners may exclude their property at any time. The aim is to prevent the same avoided emissions being counted both in the jurisdiction's volume and in the project's credits over the same area. How excluded areas are treated may also bear on any future international transfers (ITMOs) under Article 6, still to be defined.

window is, by construction, largely excluded, so the measured baseline is expectedly close to zero, especially for projects registered after that period (**Figure 7, Table 4**). This eligibility rule governs where a project may credit. It does not determine how project baselines are set: under methodologies that allocate from a jurisdictional total, the baseline draws on losses observed across the whole jurisdiction, so a project with little historical loss inside its own boundary may still hold a substantial baseline. The two figures measure different things, which is why they differ by orders of magnitude. On these figures, an exclusion that deducts only the historical rate measured inside the project boundary would leave most of the project's credited volume outside the jurisdictional deduction.

The baseline deforestation levels here mostly relate to small levels of encroachment at the margins of the projects, or mismatches between datasets (i.e. deforestation being seen in one dataset but not in the dataset used by the project to define its area). Projects that predate or overlap the reference period show only marginally higher baseline deforestation, and Flona Jamanxim, whose boundary was not subject to that eligibility rule and therefore includes previously deforested areas, shows substantially higher baseline deforestation, illustrating what the metric looks like without the starting forest area constraint.

Second, the same logic penalises longstanding projects for their own success: because the CONAREDD baseline is drawn from deforestation still occurring inside the boundary, a project that had already reduced deforestation for years before the reference period is compared against a baseline that reflects its own effectiveness rather than a genuine without-project scenario, so its measured performance appears worse than it is.

Third, because the draft approach only looks at historical deforestation within the project boundary, it cannot capture deforestation risk that shifts toward new frontiers, such as areas newly opened up by roads, which may show no past deforestation but face high future risk.

None of this is unfolding in isolation. How project-level REDD+ activities nest within Pará's jurisdictional programme has been under discussion for some time, among the state, project developers, and a wider group of organisations working on REDD+ in Brazil. In the approach assessed by ALMA Brasil, the volume a project can credit is set by the same risk assessment the jurisdiction uses for its own baseline. A shared jurisdictional risk map is one mechanism for doing this. Excluding an area from national accounting settles which territory each scale covers, and leaves open how much each can claim within it. Other reconciliation and nesting arrangements may apply, depending on the jurisdictional framework, the relevant standards and the arrangements agreed between the parties.

Until that reconciliation happens, clarity about what each figure represents remains important: buyers increasingly expect legal certainty about what they are purchasing, including how the jurisdiction where a project sits treats its regulatory standing.

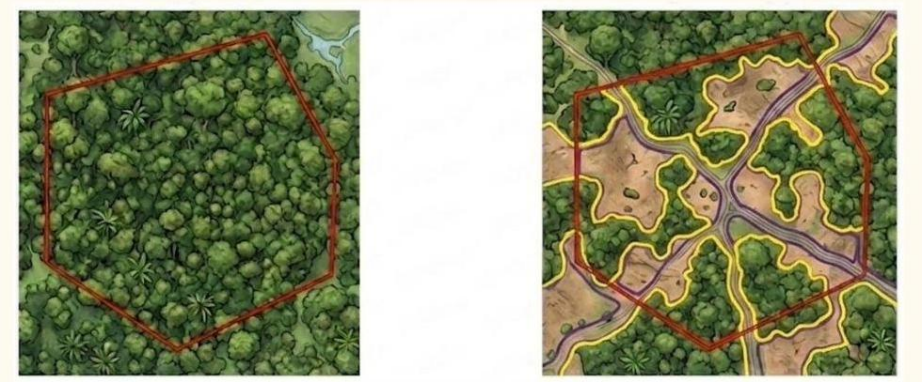

Figure 7 - Forest eligible (red boundary, left) and ineligible[26] areas within a project boundary once roads and clearing are present (yellow, right). To be clear, in the right-hand image, if this was the situation at project start, only the forest areas outlined in yellow would be included in the 'project area. Already existing non-forest patches would not be 'forest', and thus by definition cannot be included in the project area submitted to independent standards, such as Verra or Cercarbono. *Source: Space Intelligence.*

Table 4 - CONAREDD+ baseline deforestation by project, according to whether the project predates or follows the 2017–2021 reference period. Note, for Projects A-E, these rates equate to carbon baseline numbers that are around 1000 times smaller than those predicted by any method in Table 3. *Source: Space Intelligence.*

Project	Project start (pre/post reference period)	CONAREDD+ baseline deforestation (ha/yr)	CONAREDD+ baseline deforestation (%/yr)
Project A	Pre	40.2	0.028%
Project B	Post	0.0	0.000%
Project C	Post	3.6	0.005%
Project D	Pre	47.1	0.012%
Project E	Post	10.4	0.003%
Flona Jamanxim	N/A (not subject to the rule)	10,208.8	0.784%

[26] Eligibility is fixed at project start: areas already cleared or crossed by roads at that point are not part of the forest area. Roads or clearing appearing after the start do not make the area retroactively ineligible; they are captured by monitoring (and count against the project's measured performance).

06 Options for Cross-scale Accounting

Accounting harmonisation across scales matters because it underpins a secure, transparent environment for investment in forest conservation. Jurisdictional programmes, such as Pará's, must reconcile their own accounting while remaining consistent with national legislation, a task made harder by the divergent accounting approaches described throughout this note. Market participants therefore need to know which methodology produced each reported figure: a hectare or a credit accounted for at one scale does not necessarily correspond to the same figure at another.

Pará accounts to ART for the projects operating in its territory, whether or not those areas are excluded from national accounting. Today that reconciliation happens after project issuance and before the issuance of TREES credits: projects credit under their own methodologies and the jurisdiction deducts the full verified volume. An allocation approach would set the creditable volume in advance, from the same risk-based assessment the jurisdiction applies to its own baseline, with the full issued volume still deducted. This note examines that second route; it does not assume it has been chosen.

The main option examined in this note is the development of jurisdictional risk maps as a tool for allocating national and subnational baselines down to the project level, not for replacing how those baselines are calculated. A shared risk map allows national, jurisdictional, and project-level accounting to draw on the same spatial assessment of deforestation risk, directing attention to the areas that need it most, and eventually becoming a powerful policy tool. This approach may affect the volumes some projects are able to credit. It also supports confidence in the credits that are issued, in a market that increasingly recognises credit worth as tied to the integrity of the broader jurisdictional and national system it belongs to, not only to the project generating it.

This allocation could happen in four steps. First, a risk map is built using the same historical reference period underlying Pará's TREES baseline, excluding areas of projects already active during that period from the data used to calibrate the model. Second, the map is applied back across the state, including those excluded areas, assigning each location a risk value based on its characteristics rather than its actual observed deforestation. Third, that risk value defines a crediting cap for each project over the 2023-2027 baseline validity period. Fourth, issuance is tracked year by year against a cumulative ceiling for the period as a whole. The ceiling is cumulative rather than annual because deforestation pressure and verification cycles do not follow calendar years: a project that credits more in one year and less in the next remains within the same total. How projects entering partway through a baseline validity period should be treated, and how monitoring periods that span two such periods are handled, would need to be defined together with the jurisdictions and standards involved. Some standards are already developing procedures for these cases. Following Verra's own logic, for example, a project starting in 2025, two years into Pará's 2023-2027 baseline period, would receive a risk allocation covering only the years still remaining, 2025 to 2027, moving onto the next baseline period once it begins in 2028.

Setting a cap from the jurisdictional risk map ties a project's credit potential directly to that same risk assessment. It also gives project developers a planning advantage. The risk map is spatially explicit: it shows in advance which areas carry higher deforestation risk, and therefore higher credit potential under the cap. Developers can use that to direct investment and monitoring efforts toward those areas, with more predictability than they have

today. For this advantage to translate into the intended impact, project boundaries need to follow where mitigation is needed, with guardrails against boundary optimisation. The areas the map flags as highest risk are often deforestation frontiers, where land tenure is frequently unresolved and local communities may be affected, so project design in those areas brings greater safeguard and tenure demands with it.

Figure 8 illustrates how this works in practice. A project whose claimed issuance stays within the jurisdictional risk map is credited in full, since its claim already matches the risk the map assigned to that area. A project claiming more than that faces a cap. How to treat the remaining credits (over the cap) is a matter that needs further discussion. One option is to establish a transition period, where a limited margin above the cap (supplementary cap) can still be recognised, so that projects are not penalised abruptly while the approach beds in. Only volume claimed beyond that margin goes unrecognised.

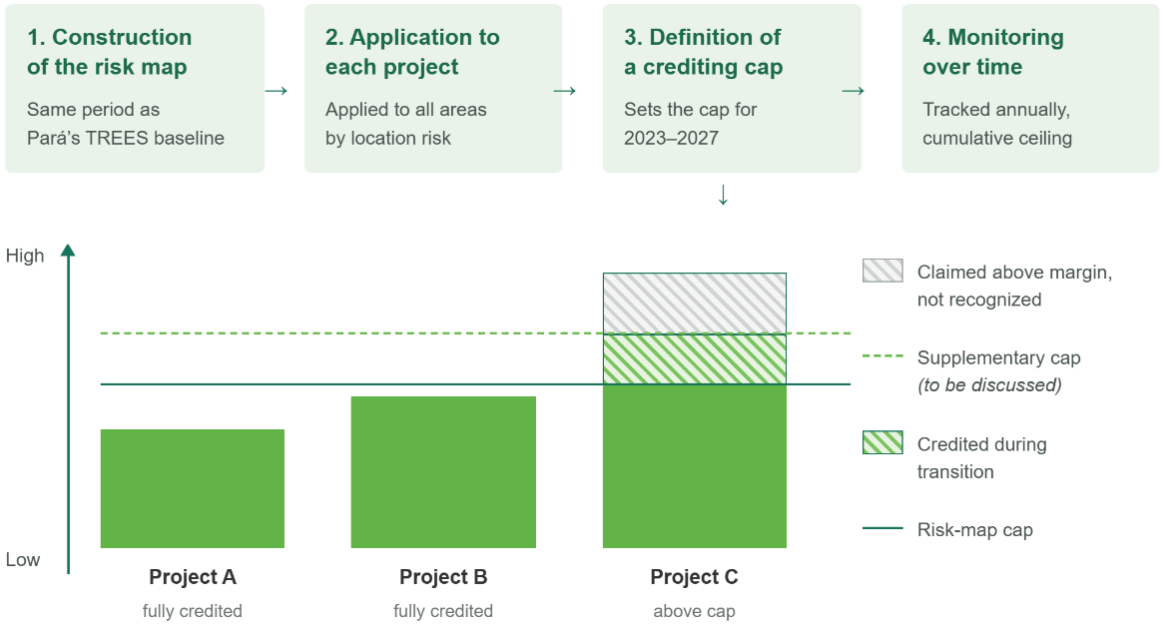

Figure 8 – Explanation of how to apply a cap based on jurisdictional risk maps.

Reaching a workable version of this approach is not a technical question alone, as it touches national regulation, jurisdictional programmes, international standards, and the project developers operating on the ground, and would require the conditions set out in **Table 5.**

Table 5 - Conditions for a workable risk-map approach.

01 Interoperability with existing standards

A risk map closes the reconciliation gap most cleanly if TREES, the national FREL, and project-level methodologies such as those developed by Verra, Cercarbono, Equitable Earth or others working in Pará are able to use it as a basis for their own baselines, rather than adding a fourth, parallel calculation. Whether to do so is a matter for each standard to determine independently, and nothing in this note seeks or implies a common position among them.

02 Further technical analysis

Space Intelligence's work so far indicates the direction a risk-based approach could take, but a robustness check testing how sensitive its results are to different risk-map parameters is still underway. That work should inform any option before it is treated as a final proposal, and would benefit from technical input from the standards whose methodologies the approach would interact with.

03 A risk map developed with public participation

Since the map would determine how much each jurisdiction and project can account for, its construction cannot be a technical exercise alone; it needs input from the parties whose results it will govern. Its authorship and governance need to be defined alongside its method, since methodological choices made at jurisdictional level affect every participant.

04 Structured dialogue with jurisdictions, standards and project developers

Pará is one jurisdiction among several structuring REDD+ programmes in Brazil, and the standards, project developers and Indigenous Peoples and local communities operating within them are the ones most directly affected by how any eventual nesting approach is designed. Their engagement is what would turn a technical proposal into one that is actually adopted. The objective throughout is the reconciliation of accounting outcomes and the avoidance of double counting, not convergence on a single methodology.

07 Final Considerations

The divergence in accounting results across national, state, and project scales documented throughout this note reflects accounting frameworks and approaches developed for different objectives, scopes and scales. Retrospective, jurisdiction-wide baselines and prospective, project-level baselines each serve distinct functions in the climate architecture, and results calculated under one approach do not automatically translate into the other. Harmonisation means ensuring that results produced under these different logics can be reconciled, traced, and trusted by the parties that rely on them.

This has consequences beyond methodology. As jurisdictional REDD+ programmes advance alongside an already consolidated project-level market and a national compliance system under development, unresolved accounting divergences become a market risk. Buyers, investors, and regulators increasingly assess the credibility of a credit by the coherence of the system it belongs to. Climate finance already flows into the territory. Strengthening coherence across scales is what would allow it to reach the pace and scale required to sustain the downward trend in deforestation in Brazil.

The analysis presented here is grounded in the case of Pará and reflects the methodological versions in force at the time of writing. The parameters and risk-map design assessed here reflect Pará's forest cover, deforestation dynamics and programme design, and would need to be rebuilt for any other jurisdiction. The robustness of a shared risk-based approach across varying parameters remains an open question, still under technical development. The accounting tensions identified stem from differences in accounting approaches that predate any particular version of a standard, which places them at the core of REDD+ programme design generally. Other jurisdictions structuring REDD+ mechanisms across Brazil and elsewhere face the same underlying challenge of reconciling national, state, and project-level results, even where their public policy priorities differ, whether centred on deforestation reduction targets, attracting investment, or specific land tenure arrangements. Pará's experience offers a reference point for that broader effort, adaptable to the objectives each jurisdiction sets for itself.

Brazil's regulatory framework is still being defined, particularly through CONAREDD+ and the rules implementing the national ETS. These processes advance alongside programmes and projects that already operate under established accounting logics, verified histories, and market expectations. How these processes account for that existing architecture will bear on the conditions that have allowed investment to flow into the territory so far, and on their extension as the national system matures.

Closing that gap does not require a single step. It requires a shared spatial basis that the parties can use, technical validation of that basis, and agreement on who builds it and under what governance. Each of these can advance while projects continue to operate and jurisdictions continue to account under the rules in force. Together they would let national, state and project-level results operate as parts of one credible system, capable of directing resources toward forest conservation at the scale the challenge demands.

Appendix 1: Beyond Carbon Accounting: Safeguards and Nesting

Safeguards as part of nesting strategies

While this technical note focuses on accounting harmonisation between jurisdictional and project-level results, ALMA Brasil has been addressing, in parallel, the observance of safeguards, including land tenure regularity. This is an agenda that intersects with accounting harmonisation and needs to be advanced jointly.

Nesting aims to strengthen and scale territorial results while avoiding double counting. The rights of the Indigenous Peoples and Local Communities (IPLCs) contributing to reduced deforestation must be respected and fulfilled at every scale at which REDD+ operates, national, subnational and project, with their tenure, consent and benefit-sharing secured.

Neither independent standards nor jurisdictions are starting from zero on this front. Independent standards each have their own guidance for how safeguards must be observed. Jurisdictions, whether national or subnational, rely primarily on the Cancun Safeguards as their reference framework, adopted for Brazil through CONAREDD+ Resolution 15/2018[27]. What nesting has to resolve is how these two already-existing systems relate to one another.

Understanding these differences has been part of ALMA Brasil's work: comparing methodologies across standards and promoting technical dialogue among developers, standards and verifiers toward a functional safeguards nesting strategy. This work is still ongoing, but one conclusion is already clear: all projects must meet the same minimum safeguards requirements, and the context of each project determines what applies in addition.

Projects and programmes implement, monitor and report on safeguards differently, as per **Figure 9**. Projects operate within the boundaries of a project area and its zone of influence and are complementary to existing public policies that are also incorporated into programmes. They are both verified by entities accredited under the respective standards, and monitoring and reporting systems are more complex for programmes. Reporting follows the same chain as accounting: project-level information feeds into the programme, and the programme informs national systems.

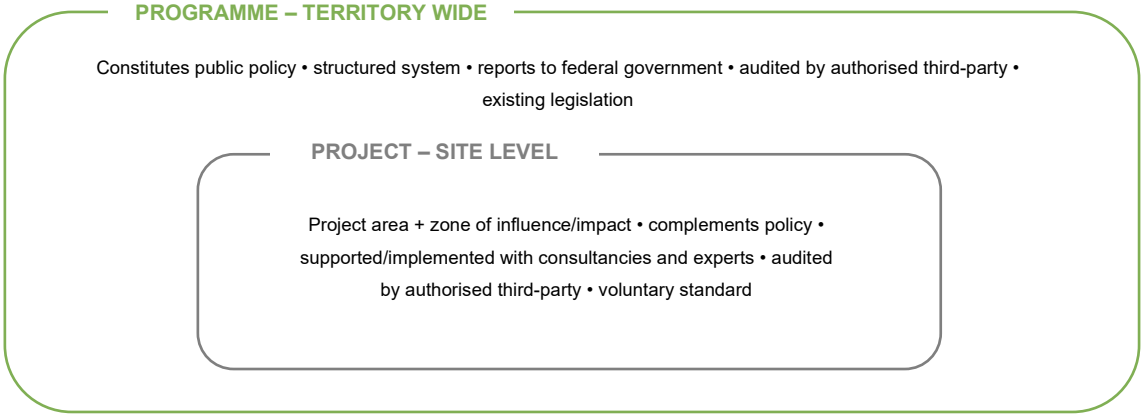

Figure 9 - Different characteristics of safeguards aspects in project and programme levels.

[27] CONAREDD+ Resolution No. 15/2018, which adopts the national interpretation of the Cancun Safeguards for Brazil.

This distinction extends to what each project must observe. General requirements, applicable to all projects, cover socio-environmental risk assessment and identification of directly or indirectly affected parties, stakeholder engagement, an operational and transparent grievance mechanism, and compliance with environmental and labour law. Specific requirements apply only to collective territories, or to projects with direct impact on Indigenous Peoples, Quilombola communities and traditional peoples: FPIC[28] under ILO[29] Convention 169, benefit sharing built with the communities, alignment with territorial management instruments, and the requirements set out in CONAREDD+ Resolution 19/2025.

Recent methodological advances

Several independent standards operating in Pará have revised their safeguards requirements in the last two years, creating an opportunity to move faster by building on work already done rather than starting from scratch.

Verra: updated its core standard at the end of 2025 and, six months later, issued a dedicated guidance document consolidating requirements on right to operate, sustainable development, stakeholder engagement and safeguards[30].

Cercarbono: published a stand-alone safeguarding principles and procedures document in 2026[31].

Equitable Earth: revised its core standard in March 2026. Grievance mechanism requirements have applied since v1.0 and were separated into a standalone document in November 2025.[32].

ART: has included safeguards requirements directly in the standard since TREES v2.0 in 2021, where Section 12 sets out the seven Cancun Safeguards with their themes and indicators, accompanied by a separate guidance document. TREES v3.0, released in June 2026, streamlined safeguards reporting without substantively changing the requirements; a guidance document for v3.0 is expected to follow.[33].

Taken together, this timeline shows that safeguards requirements across voluntary standards continue to develop, reinforcing the case for aligning Pará's nesting framework with what is already emerging rather than waiting for each standard's most mature version.

Table 6 cross-references how the four standards address the dimensions where requirements diverge most, alongside the corresponding Cancun Safeguard. Standards converge on the themes covered by Cancun even without explicit alignment; they diverge mainly in how prescriptive each requirement is.

[28] Free, prior and informed consent.

[29] International Labour Organization.

[30] Verra: VCS Standard v5.0 (Dec. 2025); VCS Guidance on Right to Operate, Sustainable Development, Stakeholder Engagement and Safeguards v5.0 (Jun. 2026).

[31] Cercarbono: Protocol v4.2 (Mar. 2023); Safeguarding Principles and Procedures v3.0 (Apr. 2026).

[32] Equitable Earth: Standard v1.3.1 (Mar. 2026); Grievance Mechanism Requirements and Procedures v1.0 (Nov. 2025).

[33] ART: TREES v2.0 (Aug. 2021); ESG Safeguards Guidance v2.0 (Oct. 2023); TREES v3.0 (Jun. 2026).

Table 6 - Comparative overview of safeguards requirements across independent standards, cross-referenced with the Cancun Safeguards.

Dimension	VCS v5.0	Cercarbono v4.2 + Safeguarding v3.0	Equitable Earth v1.3.1	TREES v3.0	Cancun Safeguard
Legal & environmental compliance	Natural habitat and ecosystem integrity protection.	Sustainable management of natural resources via environmentally sound technologies.	Ecological Condition pillar: biodiversity, soil, water, ecosystem extent and connectivity.	Consistency with national forest programs and relevant international conventions and agreements; non-conversion of natural forests and other ecosystems; enhanced environmental and social benefits	A, E
FPIC	Mandatory where IPLCs hold rights; documented process with right of withdrawal at any time.	Mandatory, based on communities' own protocols.	Mandatory for core IPLC stakeholders; halts if consent is permanently withheld.	Mandatory via dedicated indicators for activities affecting land, resource or livelihood rights, with full stakeholder participation.	C, D
Benefit sharing	Mandatory where rights-holders are present; jointly designed with communities, reported annually.	Mandatory via effective-participation protocol, including financial transparency.	Mandatory; share expressed as % of budget, published in the registry.	Mandatory reporting on the processes used to develop arrangements, eligible stakeholders, allocation criteria, process for revising agreements, implementation, and how relevant safeguards are met.	B, D
Grievance mechanism	Prescriptive: set timeline, documented steps, appeal instance, no retaliation; VVB[34]-verified.	Two layers, internal and external (EcoRegistry), with ongoing monitoring.	Dedicated document (Grievance Mechanism v1.0), VVB-verified.	Non-discriminatory, non-cost-prohibitive dispute resolution, including judicial/administrative procedures; outcome indicator on effective recourse.	B
Permanence & leakage risk	Non-Permanence Risk Tool, mandatory buffer pool, reassessed at each verification.	Reversal prevention/monitoring plan and leakage risk, updated at each monitoring report.	Reversal mitigation plan; risk assessed across delivery, reversal, compliance.	Leakage deduction; Reversal Risk Rating tool used to calculate Buffer Pool contribution; safeguards require both risks to be integrated in the design, implementation and periodic assessments of REDD+ policies and measures.	F, G

[34] Validation and Verification Body.

Integration mechanisms as the way forward for nesting

Previous phases of ALMA Brasil already indicated the option of pursuing integration mechanisms between project-level and jurisdictional safeguards systems, such as integrating grievance mechanisms and a potential integrated operation with independent standards. These discussions still need further development to ensure legal certainty for all parties involved.

Other work has proposed similar approaches. The UN-REDD[35] Programme's REDD+ Academy Learning Journal on nesting[36] describes an integrated safeguards system built around four components: safeguards reporting that aligns project-level information with jurisdictional and national systems, grievance redress mechanisms connecting project to jurisdictional channels, benefit-sharing systems that ensure access for Indigenous Peoples and Local Communities, and implementation tools such as FPIC guidance and risk screening.

This remains an ongoing discussion, but the recent improvements across independent standards described above make deeper integration between these two universes increasingly feasible.

Resolution 19/2025 as a national benchmark

CONAREDD+ Resolution 19/2025 gives Brazil its own benchmark for this integration process. It is the first national instrument with specific requirements for forest carbon programmes and projects in collective territories[37], applicable regardless of the standard adopted, structured around five pillars (**Figure 10**).

These pillars align closely with what the comparative analysis above already shows converging across standards, offering Pará a ready reference for the specific-requirements layer described earlier, rather than a new compliance burden to design from scratch. Reinforced attention to collective territories, where this additional layer applies, and simplified integration for projects that are not located in, and do not directly affect, these territories, remain the operating principle for how the nesting framework should treat safeguards going forward.

What remains open is how this gets operationalised: how project-level evidence, produced in each standard's own format, can feed into the REDD+ System (SISREDD+) without duplicate verification, and what threshold determines when a project adjacent to, but not inside, a collective territory should be treated under the additional layer. These are, in essence, questions of harmonisation across scales, the same structural challenge that carbon accounting faces, now applied to safeguards.

[35] The UN-REDD Programme is the flagship UN knowledge and advisory partnership on forests and climate. We work to reduce forest emissions and enhance forest carbon stocks.

[36] UN-REDD Programme, FAO, UNDP and UNEP. REDD+ Academy Learning Journal: Nesting Approaches for REDD+. 2024.

[37] In Brazil, collective territories include Indigenous Lands, Quilombola Territories, and other legally recognised collective landholdings, where rights are exercised collectively by traditional communities rather than through individual private ownership.

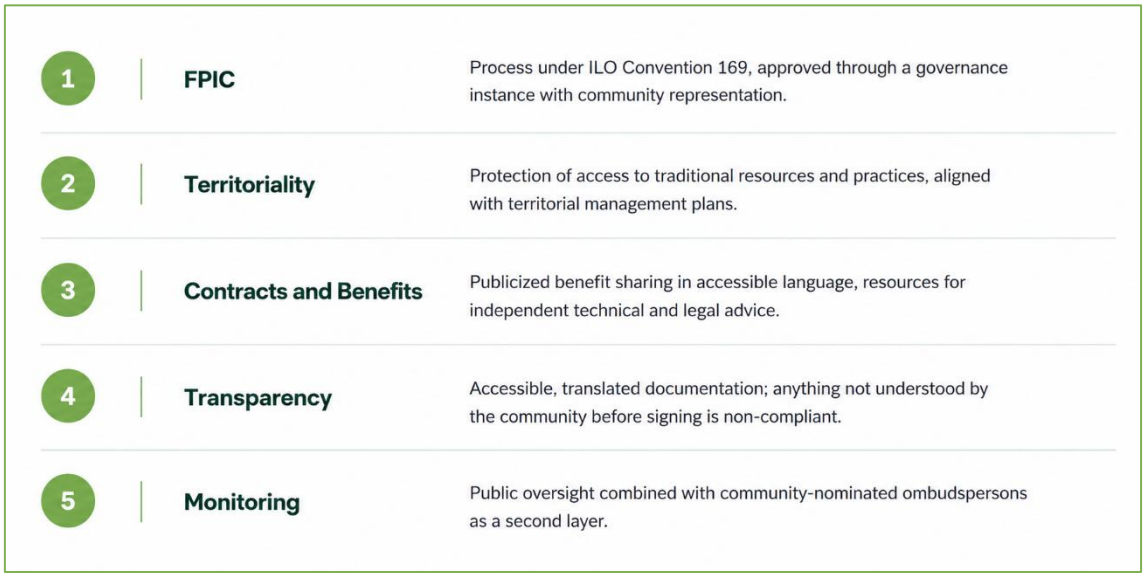

Figure 10 - CONAREDD+ Resolution 19/2025 main pillars for safeguards - project and jurisdictional level REDD+.

References

Standards and methodologies

ART. The REDD+ Environmental Excellence Standard (TREES), v2.0, August 2021.

ART. The REDD+ Environmental Excellence Standard (TREES), v3.0, June 2026.

ART. ESG Safeguards Guidance, v2.0, October 2023.

Cercarbono. Methodology M/LU-REDD+, v3.1.

Cercarbono. Guidelines for Using Models in Baseline Carbon Quantification in the Land Use Sector, v1.1.

Cercarbono. Protocol for Voluntary Carbon Certification, v4.2, March 2023.

Cercarbono. Protocol for Voluntary Carbon Certification, v4.5.2.

Cercarbono. Safeguarding Principles and Procedures, v3.0, April 2026.

Equitable Earth. Equitable Earth Standard, v1.3.1, March 2026.

Equitable Earth. Methodology for Terrestrial Forest Conservation, M002, v1.0.2.

Equitable Earth. Baseline Setting Module, M002, v1.0.1.

Equitable Earth. Future Improvements and Limitations, M002, v1.0.

Equitable Earth. Grievance Mechanism Requirements and Procedures, v1.0, November 2025.

Verra. VCS Standard, v5.0, December 2025.

Verra. VCS Methodology Requirements, v5.0.

Verra. VCS Guidance on Right to Operate, Sustainable Development, Stakeholder Engagement and Safeguards, v5.0, June 2026.

Verra. VM0048 Reducing Emissions from Deforestation and Forest Degradation, v1.0.

Verra. VMD0055 Estimation of Emission Reductions from Avoiding Unplanned Deforestation, v1.1.

Verra. VT0007 Unplanned Deforestation Allocation, v1.0.

National and jurisdictional instruments

Brazil. Law No. 15.042/2024, establishing the Brazilian Emissions Trading System (SBCE).

Brazil. Forest Reference Emission Level for the construction of a national FREL for the 2016/2017 to 2020/2021 period, submitted to the UNFCCC, modified version, March 2024.

CONAREDD+. Resolution No. 15/2018, on the national interpretation of the Cancun Safeguards.

CONAREDD+. Resolution No. 19/2025, on forest carbon programmes and projects in collective territories.

Data sources

INPE. PRODES and DETER deforestation monitoring programmes.

INPE. A taxa consolidada de desmatamento para os nove estados da Amazônia Legal para 2025 é de 5.731 km², 27 February 2026.

SEEG. Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa, 2024.

Other documents

UN-REDD Programme, FAO, UNDP and UNEP. REDD+ Academy Learning Journal: Nesting Approaches for REDD+, 2024.

About the partners

OGCI

The Oil and Gas Climate Initiative is a CEO-led initiative comprised of 12 of the world's leading oil and gas companies, producing around a quarter of global oil and gas on an operated basis.

For the past decade, OGCI member companies have worked together to reduce their own emissions, while also driving action across the wider oil and gas industry to reduce emissions to achieve net zero operations in the timeframe of the Paris Agreement.

To help scale emissions reductions across a broader network of companies, OGCI works closely with the Oil & Gas Decarbonization Charter (OGDC), an initiative launched at COP28, which comprises 56 signatories representing approximately 40% of global oil production.

As OGDC secretariat, OGCI and its member companies are sharing a decade's worth of their own expertise reducing emissions with OGDC's signatories through technical consultations, mentorship programs and longer-term collaborative partnerships. Priority topics include methane emissions abatement, flaring reduction and energy efficiency.

Since 2017, OGCI members have reduced their own total operated methane emissions by 63%, routine flaring by 72%, and carbon intensity by 24%. OGCI members have also invested a cumulative total of $125 billion in low-carbon technologies and solutions, including acquisitions and R&D, since 2017.

In 2016, OGCI launched Climate Investments to manage a $1 billion fund to develop and accelerate the commercial deployment of low emissions technologies.

OGCI's members are Aramco, bp, Chevron, CNPC, Eni, Equinor, ExxonMobil, Occidental, Petrobras, Repsol, Shell and TotalEnergies.

Read more in OGCI's latest annual Progress Report and see our current Performance Data here.

IETA

IETA is a non-profit organisation representing businesses committed to advancing smart, well-designed and effective carbon markets that support the goals of the Paris Agreement.

For more than 25 years, IETA has been at the forefront of carbon market development. As the first international, multi-sectoral business group dedicated to pricing and trading greenhouse gas emissions reductions, IETA's work began with the Kyoto mechanisms and evolved alongside the growth of the EU ETS and carbon markets across North America, China, Korea, New Zealand and Latin America.

Today, IETA's work spans the rapidly evolving carbon market landscape, including digitalisation, aviation, natural climate solutions, voluntary carbon markets and carbon removals. In 2004, IETA also co-founded Carbon Expo, which continues today as Partnership for Market Implementation (PMI).

At the heart of IETA's work is a simple principle: markets work. Well-designed markets drive innovation, lower costs and deliver better outcomes for society. Applied to climate change, a fair price on carbon turns ambition into measurable progress toward net zero and Paris-aligned goals. For over 25 years, IETA has helped shape and progress carbon markets — supporting affordable, real-world climate action.

Read more here

ALMA Brasil

ACCELERATING LAND-USE MITIGATION IN THE AMAZON

ALMA Brasil is a collaborative initiative led by the Oil and Gas Climate Initiative (OGCI) and *International Emissions Trading Association (IETA) to support the development and scale-up of high-integrity forest carbon markets in the Brazilian Amazon.*