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Accelerating Just Transition

Building Investment Readiness in LAC Agricultural Carbon Markets

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This policy brief was drafted by BIOCARBON acting as Partnership for Agricultural Carbon (PAC) Executive Secretariat, with support from the Voluntary Carbon Markets Integrity Initiative (VCMI) and the Inter-American Institute for Cooperation on Agriculture (IICA).

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VCMI Voluntary Carbon Markets Integrity Initiative

IICA

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About VCMI

The Voluntary Carbon Markets Integrity Initiative (VCMI) is an international non-profit empowering companies, governments and non-state actors to realize the full potential of high-integrity voluntary carbon markets (VCMs). VCMI provides guidance on how different actors can make voluntary use of carbon credits to make a meaningful impact on climate action. The Claims Code of Practice enables companies to make 'Carbon Integrity' Claims, recognizing their achievements in going above and beyond science-aligned emissions cuts to accelerate global net zero. The Access Strategies Program supports host-country governments to establish policies and processes necessary to build and strengthen a cohesive governance of VCMs that underpin their country's participation in high-integrity voluntary carbon markets. Learn more on vcmintegrity.org.

About IICA

The Inter-American Institute for Cooperation on Agriculture (IICA) is the specialized agency for agriculture of the Inter-American System that supports the efforts of Member States to achieve agricultural development and rural well-being. The Institute provides cooperation services through close and permanent work with its 34 Member States, addressing their needs in a timely manner. Without a doubt, IICA's most valuable asset is the close relationship it maintains with the beneficiaries of its work. IICA has broad experience in areas such as technology and innovation for agriculture, agricultural health, safety and agrifood quality, international trade and regional integration, territorial development and family farming, natural resource management, climate action and the innovation and bioeconomy.

IICA works to promote a more active and informed participation of the agricultural sector in national and international climate processes. In addition to building capacity in agricultural negotiators and engaging with high level decision makers, the Institute works to drive finance towards the sector to enable climate action. In 2023, IICA held the Inter-American Board of Agriculture Meeting where ministers of the region required additional capacity building efforts to accelerate access to private climate finance including through carbon markets. Through PAC, IICA's goal is to assist ministries of agriculture and other sectoral actors in the Americas to better understand whether, when and how they can capitalize on voluntary carbon market opportunities to help achieve development and climate goals simultaneously.

About the Partnership for Agricultural Carbon

Latin America and the Caribbean (LAC)'s agriculture sector can lead the way on climate and biodiversity action by leveraging the potential of carbon market mechanisms. The Partnership for Agricultural Carbon (PAC) was established to enable countries to tap into this potential. PAC's integrated approach to aligning carbon markets with sustainable agricultural practices makes it a suitable vehicle to drive high-integrity projects that deliver both climate mitigation and biodiversity conservation at scale.

By providing technical expertise and capacity-building support, PAC can support countries to ensure that their carbon projects achieve meaningful biodiversity outcomes. PAC's framework emphasizes biodiversity as a core benefit of carbon projects, allowing countries to attract premium-priced carbon credits while advancing their Nationally Determined Contributions (NDCs) and sustainable development goals.

PAC's contributions are readily available to countries in the region, offering a pathway to scale up nature-based solutions such as agroforestry, regenerative agriculture, and silvopasture. By prioritizing biodiversity and integrating sustainable land-use practices, PAC enables LAC countries to deliver transformative impacts that extend beyond carbon sequestration, supporting long-term ecological and economic resilience.

PAC serves as an essential partner for countries in the LAC region to harness the power of voluntary carbon markets (VCMs) and sustainable agriculture. By leveraging PAC's resources and expertise, countries can make significant strides toward their climate and biodiversity goals, mobilizing the private sector to drive sustainable change for both people and nature.

By leveraging PAC as a strategic platform, LAC countries can position themselves at the forefront of global efforts to harness the potential of VCMs and sustainable agriculture. This approach not only addresses the region's financing needs but also supports broader global climate and biodiversity objectives.

If you are interested in collaborating with PAC or would like to find out more information, please contact Daniel Ortega-Pacheco, Executive Director, at dortega@biocarbon.com.ec.

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Executive summary

The agriculture sector in Latin America and the Caribbean (LAC) holds untapped potential to drive both national climate goals and rural development. While it plays a vital role in regional GDP and employment, the sector remains an underutilized avenue for cost-effective climate mitigation. Agriculture contributes up to 35% of regional greenhouse gas emissions, yet generates less than 1% of globally issued carbon credits. In parallel, the rise of voluntary carbon markets (VCM) and the implementation of Article 6 of the Paris Agreement offer emerging pathways to unlock new climate finance flows, despite persistent barriers to accessing international financial institutions.

Recent trends show growing demand for nature-based solutions and jurisdictional approaches that promote environmental integrity, benefit smallholder farmers, foster carbon capture and enable verified emission reductions at scale. Nevertheless, LAC countries face persistent barriers to attracting private investment into agricultural carbon markets. These include fragmented monitoring systems (MRV), unclear land tenure, regulatory gaps, reputational risks, and limited access to blended finance instruments undermining investor confidence and excluding small-scale producers.

To address these challenges, the Partnership for Agricultural Carbon (PAC) Ag Carbon Investment Readiness Index (IRI) offers a first-of-its-kind diagnostic tool for LAC. It benchmarks countries across five readiness pillars: (1) Enabling Policy & Regulation, (2) Institutional Capacity, (3) Financial Systems & De-risking, (4) Market Ecosystem & Innovation, and (5) Inclusiveness & Farmer Engagement.

Rather than serving as a ranking tool, the IRI is designed to support public policy reform, guide technical assistance, and enhance coordination among development partners and climate financiers. The tool applies a structured, weighted scoring methodology to identify readiness gaps and investment opportunities for inclusive and high-integrity agri-carbon markets.

Drawing on preliminary inputs from applying the IRI to the Brazilian context, key areas of intervention have emerged to accelerate the development of jurisdictional and policy-based agricultural carbon programs. These include strengthening MRV, registry systems, and methodologies; clarifying regulatory mandates; improving benefit-sharing mechanisms, arrangements or agreements[1]; and expanding the availability of risk-mitigation instruments. The Brazil case underscores the value of the IRI in informing targeted actions that can mobilize private capital at scale.

These initial insights will be further scrutinized and refined through additional country-level applications of the IRI. This phased implementation will deepen understanding of investment barriers and enable the co-design of actionable solutions to foster enabling environments for agri-carbon finance across the region.

[1] The terms "benefit sharing mechanisms, agreements, or arrangements" are used interchangeably in the VCM. This should be interpreted differently from those provisions associated to access and benefits-sharing under the Convention for Biological Divertisy. Benefit sharing actions remains central to the development of agri-carbon projects, particularly in Latin America.

Early Recommendations

- **Governments:** Operationalize national carbon market frameworks, integrate Article 6 strategies, and improve MRV infrastructure to enhance market credibility.
- **Donors and Multilateral Development Banks (MDBs):** Utilize the IRI for readiness diagnostics, channel blended finance into agri-carbon investment vehicles, and fund jurisdictional pilots with robust safeguards.
- **Private Sector:** Engage early in co-designing programs with public actors, align investments with IRI-defined readiness signals, and support transparent readiness tools and farmer aggregation models.

In addition, all actors must ensure that Indigenous Peoples and Local Communities (IPs and LCs), especially small farmers, should be engaged from the design stage of carbon market programs and projects. Agrifood systems characteristics pose unique barriers to engagement such as limited access to finance, capacity for collective action, and transformative support. Their participation should be supported through guaranteed access to markets and financing mechanisms, while recognizing their vital role in sustainable land management and climate solutions for the region.

The IRI represents a foundational tool to align climate ambition with investment practicality. By enabling country-level diagnostics, it supports the mobilization of sustainable finance and lays the groundwork for LAC to emerge as a global hub for high-integrity, low-carbon agriculture. Diversify climate finance is at the center of the challenge to amplify implementation of climate action on agriculture and food security. Demand for projects triggers climate finance and can generate win-win goals towards fostering sustainable agriculture and generating high integrity carbon credits. Lessons and methodologies are adaptable for use in Africa and Asia, expanding the framework's global relevance.

Glossary

ACRONYM	DEFINITION
AFOLU	Agricultural, Forestry, and other Land Uses
ARR	Afforestation, Reforestation, and Revegetation
ERPA	Emission Reductions Payment Agreements
CLPI	Free, Prior and Informed Consent
GDP	Gross Domestic Product
GHG	Greenhouse gases
IPs	Indigenous people
IRI	(PAC) Investment Readiness Index
LAC	Latin America and the Caribbean
LEAF	LEAF Coalition is a unique public private partnership
LCs	Local Communities
MDBs	Multilateral Development Banks
MRV	Monitoring, Reporting, Verification
NDCs	National Determined Contributions
PACM	Paris Agreement Crediting Mechanism
SBCE	Brazilian Greenhouse Gas Emissions Trading System
REDD+	Reducing emissions from deforestation and forest degradation in developing countries (+)
TCAF	Transformative Carbon Asset Facility
VCM	Voluntary Carbon Market

1. Agriculture in LAC: economic importance, untapped mitigation potential and carbon market trends

1. 1. Regional context

Agriculture is central to LAC's economy, contributing 7% of GDP, 15% of employment, and 15% of global agricultural exports in 2022 (Conroy et al., 2024). Yet it is also a major source of emissions: 58% of LAC's total GHG emissions come from the AFOLU sector including 38% from land use, land-use change, and forestry, and 20% from agricultural practices such as residue burning, livestock, and fertilizer use (Brassiolo et al., 2023). Moreover, the region's agricultural production is carbon inefficient. LAC produces 12.5% of global agricultural output but generates 22% of global sectoral GHG emissions (Conroy et al., 2024), also for 25% of anthropogenic methane emissions (PAC, 2023).

This is particularly relevant in the LAC context, where work in agrifood systems is often informal, seasonal, and precarious, with many smallholders operating outside formal safety nets or institutional structures. These characteristics pose unique barriers to engagement such as limited access to finance, capacity for collective action, and transformative support, which Just Transition strategies must address (see FAO & CGIAR, 2024).

Transforming the AFOLU sector is critical for meeting NDC and net-zero goals(World Bank, 2025b). Over one-third of agricultural emissions - 2.4 billion tons CO_2e annually -could be avoided through low-emission livestock and crop practices. Total mitigation potential is estimated at 0.9 $GtCO_2e$/year (PAC, 2023)

However, the agrifood sector's mitigation potential remains largely underutilized. Agriculture has the third largest global sectoral mitigation potential (14.5%) yet represents the second-smallest number of carbon credits issued across all VCM sectors (0.9% of total credits issued globally between 2003-2023, FAO, 2025). At the same time, agrifood carbon credits accounted for less than 1% (0.36%) of company's offsets needs, further reflecting the current underutilization.

Although around 80% of LAC countries include AFOLU in their NDCs (PAC, 2023), weak enabling environments, limited de-risking tools, and high perceived risk constrain investment (CLIC, 2025). Simultaneously, AFOLU-related goals in LAC's NDCs tend to lack specific and clear targets. Further, high-risk profiles often place opportunities outside investors' mandates (Convergence, 2025). Limitations are evident when considering that in 2020/2021, LAC received only 6% of global climate funding, much of it from domestic public spending in Brazil (CLIC, 2025). This underscores a broader trend of underinvestment in LAC's agriculture sector, which remains both limited and unevenly distributed.

The main key barriers to investment can be summarized as:

- High MRV costs and often lower mitigation potential than forestry or energy (FAO, 2025), depending on specific projects or contexts.
- Limited context-relevant adapted methodologies to develop agri-carbon projects in LAC.
- High upfront costs, limited access to finance, and low technical capacity among smallholders (PAC, 2023).
- Low carbon credit prices, making only low-cost projects viable (World Bank, 2025c).
- Unclear land tenure, non-existent, inconsistent or weak policies, and governance gaps, increasing sector risk (PAC, 2023), exacerbated by the ongoing deforestation of tropical forests areas.
- Reputational risks stemming from low-integrity offsetting (see Carbon Market Watch, 2020) and land-use crediting experiences in other sectors (e.g. CDM, REDD+), such as over-crediting, reversal, lack of Free, Prior and Informed Consent (FPIC), or missing safeguards, which have reduced trust and confidence among investors and local communities (PAC, 2023, 2024)

1. 2. Voluntary carbon market trends

On the other hand, recent VCM trends show growing opportunities for agriculture and nature-based solutions:

- **Rising preference for nature-based solutions and removal credits:** In 2024, VCM removal credits commanded a 281% average price premium, benefiting afforestation, mangrove restoration, and agroforestry projects, the largest category of removals. Retirements of nature-based carbon removal credits issued by independent registries rose nearly 25%, driven by both increased supply and stronger buyer interest (Forest Trends' Ecosystem Marketplace, 2025).

- **Price resilience:** While prices for most project types fell in 2024, nature-based removals, including agriculture, increased to USD 15.50/tCO_2e by April 1, 2025. Agriculture on its own saw an 18% increase in prices in 2024, driven by increased prices in all major clusters (e.g., Livestock Methane, Sustainable Agricultural Management, Soil Carbon) (Forest Trends' Ecosystem Marketplace, 2025). Other types like agroforestry, blue carbon and Afforestation, Reforestation, and Revegetation (ARR) also experienced a 20% increase in price. Demand remains small: agriculture retirements totaled 2.8 million credits (1.5% of the market) out of 181.5 million (Forest Trends' Ecosystem Marketplace, 2025).

- **Increased supply and demand in bearish markets:** Agriculture is gaining prevalence in project registration despite the broader global slowdown (Forest Trends' Ecosystem Marketplace, 2025). Even though Agriculture is the smallest category in terms of issuances and retirements, retirement volume grew by 60% over the last year with nearly 3 million credits retired

- **High-integrity push:** The Integrity Council for the Voluntary Carbon Market (ICVCM)'s core carbon principles and independent rating agencies are potential drivers of demand; helping buyers to identify high quality projects and feel more confident in the purchases they make. At the time of writing the ICVCM has not approved any agriculture specific methodologies, but assessment is ongoing.

- **Innovation and economies of scale:** innovative approaches to MRV that reduce costs and increase the environmental integrity of projects continue to be developed with great potential to facilitate large-scale investments and provide sufficient benefits to farmers. This in turn, is opening more possibilities for new projects (CLIC, 2025; FAO, 2025) and improving transparency. Promising areas for investment include: automating data; use of AI; remote sensing to achieve large-scale; jurisdictional level impact; remote sensing of methane at fine scales; robust estimates of emissions where environmental data is poor; modelling of farm practices emissions; bundling tech financial and MRV servers; providing open source data to estimate baselines and mitigation impacts; and improved modelling of carbon project impacts on cobenefits (water, biodiversity, people)(FAO, 2025) including estimation of carbon removals from soils and forest restoration areas..

- **Insurance as a de-risking tool:** Evolving carbon credit insurance products are helping manage uncertainty, scale investment, playing a critical role in de-risking and scaling up investments in carbon credit projects, boosting the demand for them (World Bank, 2025c, 2025b).

Seizing these opportunities requires substantial capacity building and project investment (CLIC, 2025). Governments will need to mobilize additional revenue through effective taxation and strategic public finance to create fiscal space for development priorities (World Bank, 2024). Without coherent strategies, host countries risk missing the benefits of carbon markets (World Bank, 2024). For LAC, key priorities include equitable benefit sharing with smallholders, Indigenous Peoples, and local communities; defining the legal status of credits; and determining projects' revenue use (World Bank, 2024, 2025b).

1.3. Jurisdictional and policy-based crediting

To design scalable and inclusive carbon market strategies, it is essential to understand the types of crediting approaches that can align with country-level climate goals, institutional capacity, and sectoral characteristics, particularly in agriculture. This section introduces jurisdictional and policy-based crediting as two complementary frameworks for enabling emissions reductions at scale.

According to World Bank (2025a), jurisdictional crediting involves measuring and issuing carbon credits for climate mitigation efforts carried out within a defined area, typically aligned with governmental administrative boundaries. Meanwhile, policy-based crediting aims to achieve large-scale impact by supporting emissions reductions through the implementation and enforcement of policies and regulations. Both approaches share key strengths: they enhance environmental and social integrity at scale, achieve emissions reductions beyond individual projects, and drive systemic climate action. Both also require strong governance and stakeholder coordination to address complex issues like baseline setting and MRV.

Programmatic approaches are particularly well-suited for agricultural carbon projects in LAC (PAC, 2023). They enable the pooling of mitigation activities across multiple farms, generating economies of scale to reduce transaction and administrative costs (World Bank, 2025a) At the same time, revenues can fund policy implementation, provide financial incentives for sustainable practices, and strengthen local government capacity.

While evidence for jurisdictional agri-carbon programs is limited, jurisdictional REDD+ programs serve as a valuable example of their potential in the region. Jurisdictional REDD+ (JREDD+) credits are sold mainly in the VCM. While projections value the market at USD 10–50 billion by 2030, it remains uncertain whether demand will grow quickly enough to absorb current and future supply from new jurisdictional projects (McCall-Landry & McLaughlin, 2024). Policy-based crediting is still emerging, with only a few pilots, such as the World Bank's Transformative Carbon Asset Facility (TCAF) TCAF-supported Uzbekistan iCRAFT project, which demonstrates how these programs can advance national goals like NDCs and NBSAPs.

In 2024, JREDD+ per ton prices ranged from USD 6–12. Forecasts suggest an average price of USD 15 by 2028, with a range of USD 8–27, though uncertainty is high. Further, the recent increase in demand from regulated sources for JREDD+ suggests increasing market potential (McCall-Landry & McLaughlin, 2024). In November 2024, the ICVCM approved three JREDD+ methodologies, reinforcing the high-integrity status of these credits and providing greater confidence to market participants

(ICVCM, 2024). At the same time, financing momentum is building in the region in support of JREDD+. Ecuador secured a USD 30 million agreement with the LEAF Coalition [2] to address deforestation and forest degradation, joining similar deals in Costa Rica, Guyana, and Brazil (Emergent, 2024; McCall-Landry & McLaughlin, 2024). These transactions signal investor interest in large-scale, high-integrity programs in LAC.

To accelerate implementation, per ton price floors such as LEAF's USD 10 Emissions Reduction Payment Agreement (ERPAs), alongside concessional debt and blended finance could play a crucial role. The region will also need to improve its understanding of program costs, build technical capacity, and secure upfront financing to enable agricultural carbon programs at scale (McCall-Landry & McLaughlin, 2024).

[2] LEAF Coalition is a public private partnership coordinated by EMERGENT.

1.4. Paris Agreement Article 6

Baku COP29's final decisions on Article 6 provides clarity on the rules for cross-border transfer of carbon operations. UNFCCC's Decision SBM014 (2024) regulated the requirements for removal activities under Article 6.4, opening new opportunities for agriculture, including soil carbon sequestration ARR, agroforestry, silviculture, biobased products, amongst others. At the same time, Article 6.2 provides a platform for sectoral partnership through jurisdictional programs that contribute to one or more NDCs through cooperative approaches. The establishment of partnership-specific mitigation goals and embedding public-private partnerships into landscape-level programs allows for the integration of blended financing mechanisms, including carbon finance, to support sustainable rural economies (PAC, 2023). According to the Article 6 pipeline (UNEP Copenhagen Climate Centre, 2025), by September 2025 there were 102 bilateral agreements between parties for cooperation under Article 6.2. The different types of agreements highlight the flexibility that parties have when engaging and define methodologies and requirements for cooperation.

However, the full operationalization of Article 6 markets is still limited. According to the survey by Forest Trends' Ecosystem Marketplace (2025), 61% of actors in the VCM agree that the jurisdictions where they operate are not ready to participate in the Article 6 carbon market. In contrast, the recent confirmation of an UN-administered interim carbon registry for the Paris Agreement Carbon Mechanism PACM (Article 6.4.) will provide alternatives for credits to be issued and tracked until full deployment the market (World Bank, 2025c). Key regulatory gaps remain, including the development and approval of agriculture-specific methodologies under Article 6.4 and robust rules on credit durability and permanence. All things considered, effective implementation of Paris aligned carbon markets will require a significant investment in capacity building, institutional strengthening, and the development of regulatory frameworks to support the growth of agricultural carbon projects that unlock the region's untapped potential.

It is also relevant to consider that national regulations establishing carbon pricing mechanisms such as cap and trade systems, or carbon taxes, are already evolving and often integrate use of domestic and/or international carbon credits (e.g. Colombia, Singapore, South Korea, Japan). Such mechanisms can further drive significant demand for carbon credits from the agriculture sector.

1.5. Carbon Insetting in Agriculture

Carbon insetting refers to climate mitigation interventions implemented within a company's own value chain, often targeting Scope 3 emissions. These projects aim to generate measurable greenhouse gas (GHG) reductions or carbon sequestration while delivering social and environmental co-benefits across the landscapes and communities linked to supply chains (SBTi, 2024). Insetting is conceptually distinct from offsetting, which involves purchasing carbon credits from external activities. Instead, insetting focuses on embedding decarbonization within the company's operations often through nature-based solutions such as agroforestry, reforestation, and regenerative agriculture (WEF, 2022).

In Latin America and the Caribbean (LAC), agribusinesses are increasingly exploring insetting as a pathway toward carbon neutrality. Major companies in sectors like coffee, cocoa, and soy have begun piloting insetting initiatives to decarbonize their supply chains, strengthen supplier resilience, and respond to external pressures such as investor scrutiny, regulatory trends, and shifting consumer preferences (IPI, 2025a; Acampora et al., 2023). These efforts can reduce long-term risks and position companies as leaders in sustainable production.

Nonetheless, insetting remains constrained by several barriers. These include high implementation costs, lack of standardized methodologies, insufficient policy incentives, and a prevailing trust gap in corporate sustainability claims. Furthermore, while insetting may catalyze new streams of voluntary climate finance in agriculture, its impact could be limited if interventions primarily benefit large agribusinesses. Without targeted inclusion mechanisms, smallholder farmers—who are central to the region's agricultural landscape—may remain excluded from insetting opportunities.

As the region develops taxonomies and guidance on sustainable finance, further efforts are needed to define credible, transparent, and inclusive insetting frameworks, ensuring alignment with robust monitoring, reporting, and verification (MRV) standards and integration into broader national climate and rural development strategies. Insetting could offer a new, sustained stream of resources to promote agricultural carbon projects and agricultural transformations in LAC that, by definition, will act mainly on a voluntary basis. However, the funding potential of insetting in the region remains uncertain, and will likely only come from big agribusiness, potentially not including smallholder farmers in the insetting process.

[3] Term used in GHG accounting to indicate the classification of an organization's GHG emissions according to the GHG Protocol Corporate Standard (WRI & WBCSD, 2004). Indirect GHG emissions (other than those covered in scope 2 - indirect GHG emissions associated with the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company.) that occur in the value chain of the reporting company, including both upstream and downstream emissions. For example, emissions associated with the extraction and production of purchased materials, transportation of purchased fuels, and using sold products and services (SBTi, 2024b)

2. PAC Investment Readiness Index (IRI)

2. 1. The funding gap and need to attract private investment

The Baku-Belem Roadmap to (USD) 1.3 trillion (UNFCCC, 2025), the New Collective Quantified Goal on Climate Finance, creates great momentum for attracting climate finance to promote low-carbon agriculture and agri-carbon projects. Alongside the roadmap, the Sharm El-Sheikh Joint Work on Agriculture (SJWA) creates a learning space to enhance coordination between projects, policies, and finance (FAO, 2024). Placing agricultural carbon markets within the scope of the (SJWA will be key to unlocking political traction, especially as progress continues under both PACM and ICVCM. ICVCM is expected to deliver agriculture-specific methodological guidance ahead of COP Belem.

Despite the momentum, considering the level of climate finance needed to fund the sectoral actions and interventions needed to stay within a 1.5ºC average temperature increase by 2050, global agri-food systems require USD 1.1. trillion annually until 2030 to meet the targets under the Paris Agreement (CPI & FAO, 2025). At the same time, countries with agrifood finance needs will require a collective USD 201.5 billion annually until 2030 to meet their NDCs' commitments, of which LAC alone will require approximately 33% of total finance needs (CPI & FAO, 2025).

Furthermore, LAC faces a sustainable development financing gap averaging USD 99 billion annually between 2023 and 2030 (OECD et al., 2024). Meeting the SDG targets linked to food systems alone will require an additional USD 309 billion per year over the same period (OECD et al., 2024). Climate-related investment needs are also significant, representing 1.9%–4.9% of the region's GDP (European Investment Bank., 2024).

Public budgets and institutional capacities are limited, making it near impossible for public finance alone to meet these demands (OECD et al., 2024). Bridging the gap will require mobilizing private sector capital, engaging civil society, and leveraging international partnerships to pool resources for a sustainable agricultural transition. As Convergence (2025) notes, the only way to narrow the SDG investment gap in developing countries is to direct even a small share of the USD 482 trillion in private sector assets toward sustainable development and climate goals. In this case, catalytic and concessional funding will be essential to de-risk investments in developing countries and attract capital.

Moreover, RFSI (2025) recognizes the growing interest in regenerative agriculture investments, offering new opportunities for low-carbon agriculture projects and agricultural climate solutions, such as biochar. Latin America is already relevant in this regard, accounting for 12% of tracked deals in the second quarter of 2025 (RFSI, 2025). However, right-fitting remains a challenge as well as a crucial piece of the puzzle to unlock transformative investments for agriculture (RFSI, 2025).

The Fourth International Conference on Financing for Development (FfD4)

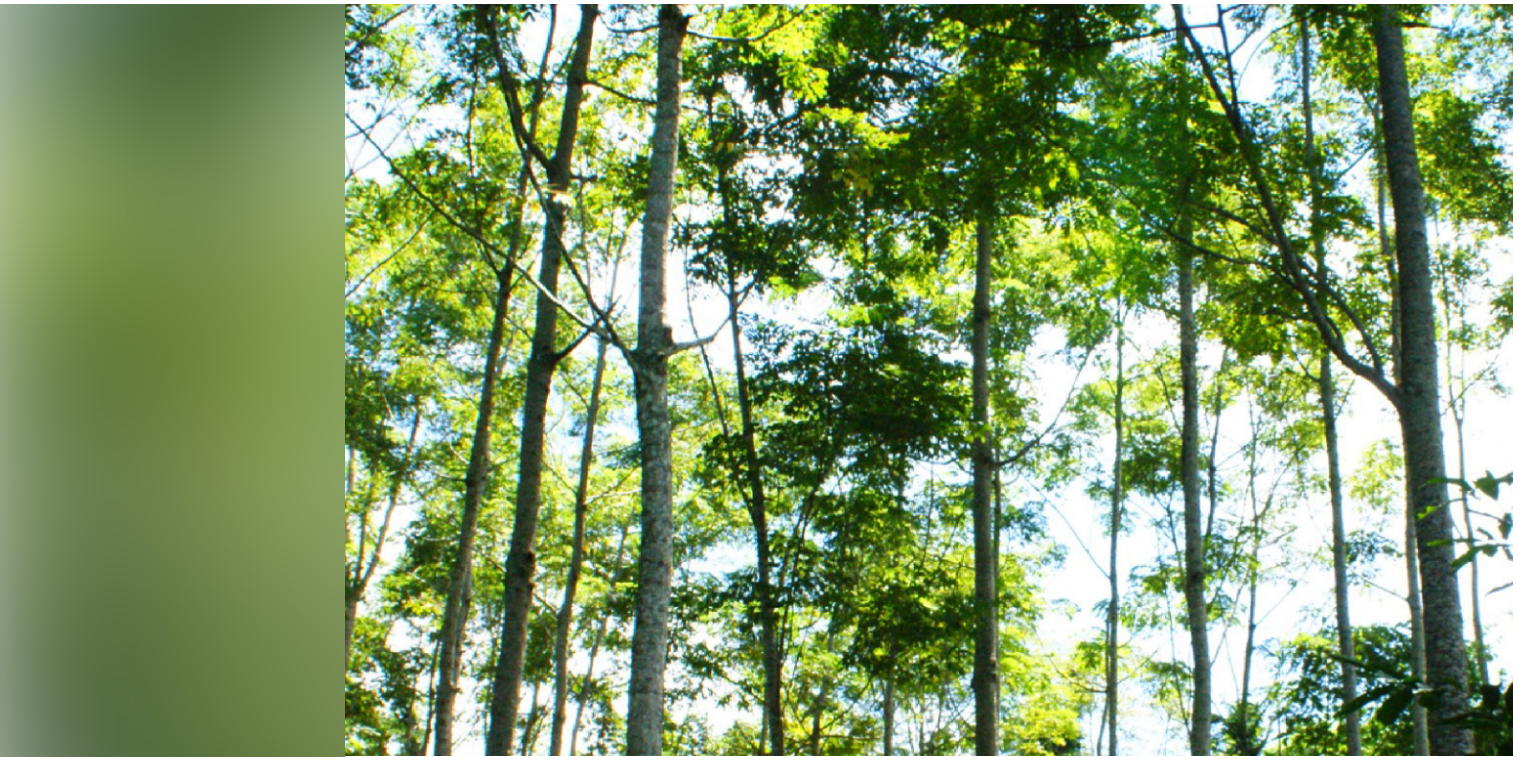
Outcome Document, Compromiso de Sevilla (2025), stresses the urgent need to strengthen the enabling environment to attract long-term, high-quality private investment in sustainable development, particularly in agriculture and food systems. It underscores the potential of private investment to stimulate rural economies through better infrastructure, logistics, and knowledge sharing, and calls for policies that encourage greater private sector participation. The outcome document also urges the use of de-risking instruments such as first-loss capital, guarantees, and local currency financing. In addition, it calls on MDBs and development finance institutions (DFIs) to harmonize impact metrics and align incentives with sustainable development goals tailored to national contexts.

2. 2. The PAC Ag Carbon IRI

A core barrier lies in the lack of clear, country-level assessments of investment readiness for high-integrity agri-carbon markets. Investors and policymakers alike require a structured framework to understand the necessary enabling conditions such as regulatory, policy, institutional, financial, and social, that contributes to a country's ability to generate and scale high-quality carbon assets from agriculture.

To address this need, this document introduces PACs' Investment Readiness Index (IRI). The IRI provides a regionally adapted, data-driven diagnostic tool to benchmark readiness, inform policy design, and prioritize capacity-building. Moreover, the IRI offers an analytical lens for understanding, at the country level, the policy gaps that must be addressed to unlock climate finance at scale – especially for smallholder-inclusive, jurisdictional, and policy-based crediting systems.

The IRI provides a structured framework to assess the enabling environment for high-integrity, inclusive agri-carbon market development in LAC. In essence, the IRI is a diagnostic tool that can aid governments, donors, and private actors in identifying priority actions to build enabling environments for scalable, high-integrity agri-carbon markets. It integrates globally recognized methodologies from the climate finance, carbon market, and agricultural investment fields (see Annex 1), while adapting them to regional realities, especially in countries with limited institutional capacity or rural financial inclusion.



2. 3. Design Principles, Structure and Scoring Approach

The IRI has been developed based on the following guiding principles:

- Adaptability to LAC national contexts, including different levels of market maturity and institutional development.
- Alignment with Paris Agreement Article 6, and the facilitation of scalable jurisdictional / policy-based crediting approaches.
- Support for inclusive carbon market mechanisms, especially those benefiting smallholder farmers and local cooperatives.
- Transparency and replicability, using publicly available and verifiable data sources where possible.

The IRI is structured around five core thematic pillars, each of which includes a set of sub-indicators drawn from the PAC Policy Tracker and other publicly available sources. These pillars aim to reflect the multidimensional nature of investment readiness:

PILLAR	FOCUS AREAS	SAMPLE INDICATORS
1. Enabling Policy & Regulation	National frameworks supporting carbon market participation, including Article 6 integration and nesting policies. Country-level assessment of the finance required for agrifood systems to meet national climate targets.	Legal basis for carbon crediting; national registry; Article 6 roadmap; Ag/Forestry Sector Instruments.
2. Institutional Capacity	Technical and governance readiness for MRV, methodologies application, credit issuance, and transparency.	MRV system operational; defined roles of ministries and agencies; registry oversight, legal enforcement and penalties.
3. Financial Systems & De-risking	Availability of blended finance, public-private instruments, and agri-carbon funding mechanisms, subsidies and incentives align with climate goals and regenerative agriculture.	Carbon funds, de-risking tools & insurance, results-based finance facilities (e.g., TCAF, GCF), incentives or subsidies for ARR.
4. Market Ecosystem & Innovation	Local project developer ecosystem, innovation in digital MRV, and presence of ag-tech incubators	Agri-tech landscape (# of startups); number of projects certified under ICVCM-aligned standards (in forestry or agriculture sector), fintechs serving agricultural sector, accelerators covering agri-tech sector.
5. Inclusiveness & Farmer Engagement	Targeted support for smallholders, cooperatives, local communities and rural women; benefit-sharing mechanisms. Public funds or initiatives to support early-stage farmer aggregation.	Inclusion in national programs, benefit-sharing, safeguards policies or guidelines in place, Perception of land tenure security.

The current PAC IRI scoring system uses a 1 - 4 ordinal scale for each indicator. 1 = Fragmented / Early-stage or Inexistent / High need for support. 2 = Moderate / Developing. 3 = Strong / Established. 4 = Fully operational / Integrated into climate and ag-finance ecosystems.

PAC's IRI applies both pillar-level and indicator-level weighting to reflect the relative importance of each component in determining investment readiness. Foundational elements such as Enabling Policy & Regulation and Institutional Capacity receive higher weights because they establish the legal, institutional, and governance frameworks without which other factors cannot function effectively. Supporting elements such as Market Ecosystem & Innovation receive smaller, yet significant weights as they enhance scale and efficiency once core systems are in place. All weights are informed by peer-reviewed literature, global best practices, and expert validation to ensure the index balances technical rigor with contextual relevance for LAC agri-carbon markets (see Annex).

Each pillar has a total weight of 1 (i.e., weights across all indicators in a pillar sum to 1), ensuring comparability across pillars. The purpose is not to rank countries, but rather to generate a country-by-country investment profile that highlights both strengths and gaps. This approach enables to:

1) Perform gap analyses to support policy recommendations.
2) Provide information to prioritize the allocation of technical assistance and donor engagement.
3) Monitor readiness improvements over time.

Indicators are drawn from publicly available sources including PAC Carbon Policy Tracker (PAC, 2024), verified public reports and government documentation such as Abatable, MSCI, FAOLEX, UN's Sustainable Development Goals indicators. The IRI will also benefit from expert validation from the PAC Expert Group and IICA country offices' staff.

The methodology has been designed to support replicability across LAC countries and iterative updates aligned with ongoing data collection efforts. Table 2 shows a summary of the application of the index:

COMPONENT	DESCRIPTION	DETAILS / PARAMETERS
Scale	Ordinal	1–4 scale per indicator: 1 = Fragmented; 2 = Developing; 3 = Established; 4 = Fully operational
Granularity	Indicator Rubrics	Detailed, context-specific scoring criteria for each indicator across five pillars.
Indicator Weights	Variable	Differentiate critical from supportive indicators (e.g., legal basis > startup density)
Pillar Weights	Fixed (total = 100%)	Enabling Policy & Regulation (25%), Institutional Capacity (20%), Financial Systems & De-risking (20%), Market Ecosystem & Innovation (15%), Inclusiveness & Farmer Engagement (20%)
Aggregation	Weighted Average	**Step 1: Indicator scores × indicator weights = pillar score;** **Step 2: Pillar scores × pillar weights = final score**
Normalization	0–100 scale	Facilitates cross-country comparability
Validation	Mixed-methods	Desk review + expert interviews + PAC group review
Example Indicator	Legal Basis for Carbon Crediting	4 = Full ETS & agri inclusion; 3 = ETS with partial agri coverage; 2 = Voluntary market recognition only; 1 = Draft laws or No policy

2. 4. IRI Implementation and pilots

The operationalization of the PAC Ag Carbon IRI will follow a phased approach, balancing analytical rigor with experts consultation and ensuring alignment with regional capacities and the PAC's broader agenda on enabling high-integrity carbon markets.

1) **Index testing and country pilots:** the PAC secretariat in coordination with IICA offices and the PAC Expert Group will select four countries with active agri-carbon engagement and strong policy momentum to test data availability (Brazil, Colombia, Perú and Panamá) and scoring procedures and identify methodological gaps or regional adjustments needed.

2) **Refinement:** the methodology will be refined to improve indicators, definitions, weights, and scoring protocols through an expert consultation. The outputs will support country-specific policy dialogues and engagements with multilateral institutions and carbon finance platforms.

3) **Integration with PAC Knowledge Ecosystem:** the IRI will be a foundational element in PAC's knowledge architecture, feeding the PAC's Carbon Policy Tracker and supporting case study development and targeted technical assistance offers.

3. Case study: Brazil readiness for agricultural carbon markets

The following case study applies PAC's Investment Readiness Index (IRI) to Brazil, assessing its enabling environment for high-integrity, inclusive agri-carbon markets. Using the IRI's weighted scoring framework, the analysis benchmarks Brazil's performance across the five pillars (see section 2.3), identifies policy and capacity gaps, and highlights priority actions to unlock climate finance at scale.

3. 1. IRI score and analysis

1) Enabling Policy & Regulation

INDICATOR	SCORE	WEIGHT	WEIGHTED SCORE
Legal basis for carbon crediting	1	0.40	0.4
National registry	2	0.20	0.4
Article 6 roadmap	2	0.20	0.4
Agrifood/forestry policy instruments	2	0.20	0.4
TOTAL	—	**1.00**	1.6/4 → 40%

Brazil has a partial but incomplete regulatory basis for agricultural carbon markets. Federal Law No. 15042 establishes the framework for carbon trading, but many provisions depend on secondary regulation and full functionality is not expected until 2030. The Brazilian Emissions Trading System (SBCE as per Portuguese initials) registry is under development with unclear scope, and while Article 6 is recognized and a robust roadmap is set to be revealed by October 2025, alignment and linkage remain partial. Complementary policies such as the ABC Program, Action Plan for Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), and the Forest Code support mitigation, but the absence of an operational system and regulatory clarity justify a moderate score of 1.6/4.

2) Institutional Capacity

INDICATOR	SCORE	WEIGHT	WEIGHTED SCORE
MRV system coverage	2	0.25	0.50
Clear institutional roles	1	0.25	0.25
Registry oversight	1	0.25	0.25
Legal oversight and enforcement	1	0.25	0.25
TOTAL	—	**1.00**	1.25/4 → 31,25%

Brazil's institutional capacity for agricultural carbon markets is still under development. While MRV methodologies must align with the National System for Emissions Registry (SIRENE as per Portuguese initials) to prevent double counting, their application is limited to activities with consolidated standards. The Interministerial Committee on Climate Change exists, and Law 15042 mandates the creation of a Market Management Authority to regulate the SBCE, operate the registry, and oversee auctions. However, its legal status and structure remain undefined, with no bill yet created. The penalty framework is also pending, leaving compliance and enforcement mechanisms uncertain. These gaps justify a low to moderate score of 1.25/4, reflecting promising early institutional arrangements but limited operational capacity.

3) Financial Systems & De-risking

INDICATOR	SCORE	WEIGHT	WEIGHTED SCORE
Carbon funds for agrifood	2	0.25	0.50
Credit guarantees & insurance	2	0.25	0.50
Incentives/subsidies for ARR	2	0.25	0.50
Results-based finance facilities	2	0.25	0.50
TOTAL	—	**1.00**	2/4 → 50%

Brazil has several financial instruments that could underpin agricultural carbon markets, such as the Amazon Fund, ABC Program incentives, and a provision dedicating 5% of SBCE revenues to indigenous and traditional communities. Insurance schemes like Proagro and Garantia Safra, along with international funding (e.g., GCF $96m Results-based payment system), also offer real and potential support. However, the effectiveness, scalability, and integration of these mechanisms remain uncertain and largely untested, warranting a moderate score of 2/4.

4) Market Ecosystem & Innovation

INDICATOR	SCORE	WEIGHT	WEIGHTED SCORE
Agri-tech ecosystem	4	0.20	0.8
Certified projects under ICVCM	3	0.20	0.6
Fintech presence in ag	3	0.20	0.6
AGtech Accelerators	4	0.20	0.8
Access to mobile financial services	3	0.20	0.6
TOTAL	—	**1.00**	3.4/5 → 68%

Brazil shows strong potential for market ecosystem and innovation. The country hosts a vibrant agtech ecosystem with over 2,100 startups (2022), innovation hubs like Agtech Garage and ESALQTec, and São Paulo ranking as the top startup ecosystem in Latin America. Fintechs such as Akkwa AgFintechand Rural Pago provide digital financial solutions, and 84% of adults have access to mobile financial services. This facilitates diffusion amongst smallholder farmers and hard to reach communities. These conditions indicate emerging innovation capacity for agricultural carbon markets, justifying a high score of 3.4.

5) Inclusiveness & Farmer Engagement

INDICATOR	SCORE	WEIGHT	WEIGHTED SCORE
IPs and LCs Inclusion in national programs	2	0.25	0.50
Cooperative models	2	0.25	0.50
Equity-focused MRV policies	2	0.25	0.50
Benefit-sharing/grievance	2	0.25	0.50
TOTAL	—	**1.00**	2/4 → 50%

Brazil has legal provisions to support inclusiveness in carbon markets, with Law 15042 recognizing the rights of indigenous peoples, land reform beneficiaries, and private landowners over credits generated on their lands. The law also mandates that 50–70% of proceeds from SBCE projects benefit indigenous and local communities when working in their territories or with them. In addition, two national interpretations of the Cancún safeguards (REDD+) provide guidance for ensuring social and environmental integrity that could be easily adapted to agricultural projects. However, land tenure insecurity (around 24% in 2024) and pending due diligence frameworks create barriers to full farmer engagement and equitable participation. These gaps justify a moderate score of 2/4.

Final Summary

PILLAR	WEIGHTED SCORE (OUT OF 4)	% READINESS
Enabling Policy & Regulation	1.6	40%
Institutional Capacity	1.25	31,25%
Financial Systems & De-risking	2	50,0 %
Market Ecosystem & Innovation	3.4	68,0 %
Inclusiveness & Farmer Engagement	2	50,0 %
Total IR (Avarage)		**47,85 %**

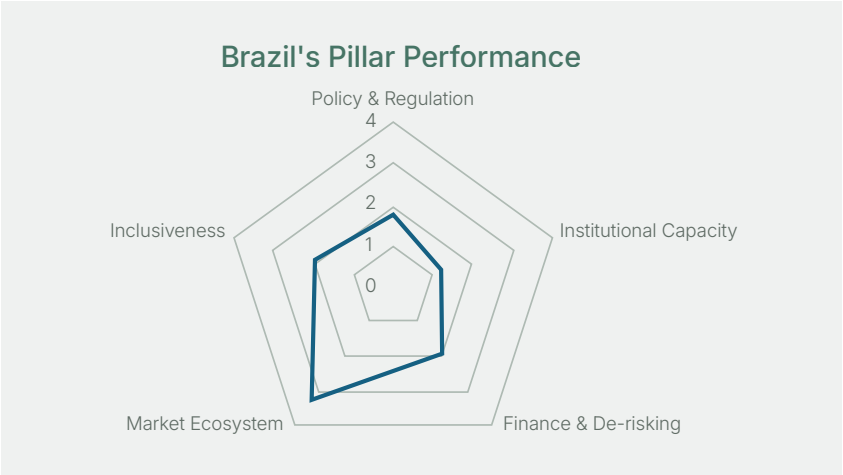


Figure 1. Brazil's Investment Readiness Across PAC Ag-Carbon IRI Pillars (2025 Assessment)

- **Strengths:** Brazil shows relative maturity in Market Ecosystem & Innovation, bolstered by a vibrant agri-tech sector, digital MRV capabilities, and a growing ecosystem of startups and accelerators. Brazil's Sustainable Taxonomy, currently under development, is expected to include a dedicated chapter on agriculture. If finalized with robust MRV provisions and socio-environmental safeguards, it could offer critical regulatory clarity for identifying high-integrity, green investments in agri-carbon markets. These factors reflect a favorable environment for innovation and carbon project incubation.

- **Moderate Capacity:** The Financial Systems and Inclusiveness pillars are in transition: while there are relevant public funds (e.g., Amazon Fund) and emerging incentive structures (e.g., Renovagro Program), consistent implementation, safeguards, and benefit-sharing mechanisms remain under development. The recent carbon markets Federal Law (No. 15042) secures a benefit sharing requirement for projects with IPs and LCs on their lands of at least 50% of the proceeds, presenting a big step forward towards fair distribution in carbon markets.

- **Weaknesses / Constraints:** Institutional Capacity and Policy & Regulation pillars are still fragmented. Although the legal foundation (Federal Law No. 15042) exists for carbon market development, full operationalization including registry oversight and legal enforcement is still pending secondary regulation. Additionally, the regulation of the Brazilian cap and trade should define rules regarding the methodologies and the authorization of projects using approved methodologies.

3. 2. Path Forward and PAC's recommendations for Brazil

Brazil presents a robust regulatory framework to develop agricultural carbon markets, however they still lack the institutional capacities to fully operationalize them. Advancing the regulatory clarity under Article 6, strengthening market oversight institutions, and deepening inclusion frameworks for smallholders, IPs and LCs will be critical next steps. Prioritizing these areas would significantly improve Brazil's IRI profile in future assessments. According to the analysis, here are different actions that key stakeholders can take to accelerate the development of agricultural carbon markets in Brazil:

- **For MDBs:** prioritize soft credit and guarantees for blended finance that could potentially unlock private investment in agricultural carbon at scale. On the other hand, provide technical assistance to develop context-relevant methodologies and build indigenous capacities for MRV at the federal and local levels.

- **For the government:** finalize secondary regulations under Law 15042 and clearly define the SBCE Authority's mandate, powers, and compliance mechanisms. It must ensure a unified registry aligned with SIRENE and Article 6, clarify benefit-sharing rules with IPs and LCs, and integrate existing incentives like the ABC Program, as well as rural insurance programs with carbon market participation.

- **For project developers:** align projects with national MRV requirements and international standards, while embedding strong community engagement and benefit-sharing mechanisms. At the same time, developers could anticipate regulations by implementing the high integrity principles for the voluntary carbon market in their projects since its conception.

- **For farmers:** Smallholder farmers can enhance participation by organizing into cooperatives, adopting sustainable practices like soil management and agroforestry, and keeping basic records to facilitate MRV. Cooperatives should also serve as capacity building centers to ensure equitable access to insurance and finance opportunities for smallholder farmers.

- **For agribusinesses:** Leverage insetting strategies to support jurisdictional programs that decarbonize supply chains, generate verified credits, and deliver shared value to producers and ecosystems.

4. Policy recommendations

As LAC seek to scale carbon finance for agriculture while ensuring environmental integrity and social inclusion, the need for a systematic, regionally grounded approach to investment readiness has never been greater. The PAC Ag Carbon IRI offers a practical yet ambitious tool to fill this gap helping countries benchmark their enabling environments, identify reform priorities, and signal alignment with international carbon market and climate finance expectations.

Defining the indicators for this index presented several challenges, primarily due to the uneven availability of systematic data across countries. In particular, data on agritechs and fintechs serving the agricultural sector, regulatory sandboxes, and association indices for assessing farm aggregation were largely absent in most national datasets. The IRI is designed not as a ranking, but as a capacity-building and policy-structuring framework, enabling national stakeholders and global partners to co-develop credible pathways to readiness. Its emphasis on jurisdictional and policy-based crediting reflects the urgent demand for scalable, programmatic solutions that transcend the limitations of project-by-project finance, especially in agriculture and land use.

The insights generated by the IRI will directly support:

- Sectoral market access strategies, informing how countries can address readiness gaps, and where donors should focus resources.
- Donor dialogue in preparation for COP30, OECD CMP engagements, and G7 discussions.
- Country-level technical assistance of carbon market nesting strategies, MRV strengthening, and inclusive benefit-sharing models as part of PAC's Country Engagement plans.

Drawing on the preliminary inputs generated by the PAC Ag-Carbon IRI use in the Brazilian case, the following actions have been identified as areas of work to incentivize the development of agri-carbon markets. These measures will be further scrutinized as IRI is explored on a country basis aiming to foster the necessary conditions for mobilizing private sector investment and scaling climate-smart agricultural solutions.

For Governments

- Clarify roles and mandates for jurisdictional crediting
- Integrate VCM policy into national planning (NDCs, Article 6 strategies)
- Strengthen MRV and registry systems aligned with ICVCM principles
- Invest in statistical infrastructure to improve coverage and availability of data that could guide investment decision making.

For Donors and MDBs

- Deploy IRI as part of readiness support diagnostics
- Prioritize blended finance instruments (e.g., credit guarantees for livestock/agroforestry)
- Fund jurisdictional pilots with robust safeguards and farmer/biodiversity co-benefits

For Private Sector / Developers

- Engage with public sector to co-design credible jurisdictional approaches
- Use IRI-aligned diagnostics to identify investable ecosystems
- Contribute to bottom-up readiness through transparent project screening tools

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ANNEX

Ag-Carbon Investment Readiness Index (IRI): Brazil Case Scoring Summary

This annex presents the non-weighted scoring results for Brazil's readiness across the five IRI pillars. Each indicator was scored on a scale from 1 to 4 based on the predefined rubric. The table includes the code, description, and score per indicator.

1. Summary Table: Brazil Scoring by Pillar and Indicator

PILLAR	INDICATOR	SCORE
Enabling Policy & Regulation	Legal basis for carbon crediting	1
	National registry	2
	Article 6 roadmap	3
	Ag/Forestry sector instruments	2
Institutional Capacity	MRV System Operational	3
	Institutional roles	1
	Registry oversight	1
	Legal enforcement & penalties	1
Financial Systems & De-risking	Carbon funds	2
	De-risking tools & insurances	2
	Results-based finance	2
	ARR incentives/subsidies	2
Market Ecosystem & Innovatio	Agri-tech ecosystem	4
	Certified projects (VVB-aligned)	3
	Fintech for agriculture	3
	Agtech accelerators	4
	Access to mobile financial services	3
Inclusiveness & Farmer Engagement	Inclusion in national programs	2
	Benefit-sharing mechanisms	2
	Safeguards policies	2
	Property rights	2

2. Scoring Approach and Rubric Used

Each indicator also has a relative weight within its pillar, reflecting its importance.

The total score per pillar is calculated as:

$$\text{Pillar Score} = \sum_{i=1}^{n} (\text{Indicator Score}_i \times \text{Weight}_i)$$

Each pillar has a total weight of 1 (i.e., weights across all indicators in a pillar sum to 1), ensuring comparability across pillars. The purpose is not to rank countries, but rather to generate a country-by-country investment profile that highlights both strengths and gaps. This approach enables to:

1) Perform gap analyses to support policy recommendations.
2) Provide information to prioritize the allocation of technical assistance and donor engagement.
3) Monitor readiness improvements over time.

Each indicator was scored based on the following general rubric, adapted per thematic area:

SCORE	DESCRIPTION
4	Fully functional, integrated, and operating at scale with supporting policy
3	Substantially developed with some gaps or limitations in scope or scale
2	Moderate progress, under development, or regionally fragmented
1	Early-stage, fragmented, or inexistent / high need for support

Note: Some indicators have custom rubrics depending on the dimension assessed (e.g., Article 6 compatibility, registry functionality, etc.). For example:

Legal Basis for Carbon Crediting

- **4:** National legal framework fully compatible with carbon markets and clearly integrates agriculture
- **3:** Carbon pricing in place, some elements on market regulation missing
- **2:** No pricing, but voluntary carbon allowed and agriculture recognized
- **1:** No enabling framework for carbon markets

Pillar 1: Enabling Policy & Regulation

Indicator	Score = 1	Score = 2	Score = 3	Score = 4
Legal basis for carbon crediting	No legal recognition or framework for carbon crediting.	Draft legal provisions exist but are not approved or sector-specific.	Legal provisions approved but limited to sectors outside agriculture/land.	Comprehensive legal mandate for carbon crediting in agri/land sectors.
National registry	No national registry or concept developed.	Initial/pilot registry in place with limited use or voluntary access.	Registry developed and functional but lacking full digitalization or access.	Fully functional national registry with digital access and public interface.
Article 6 roadmap	No roadmap or national position on Article 6 engagement.	Initial discussions or exploratory documents underway.	Roadmap under development with sectoral targets under consideration.	National Article 6 strategy with agriculture and land sector pathway.
Ag/Forestry sector instruments	No instruments targeting agriculture or forestry for carbon mitigation.	General policies exist but lack alignment with carbon crediting.	Some policies aligned with mitigation but fragmented or pilot-based.	Strong sectoral policy with carbon integration, targets, and budget support.

Pillar 2: Institutional Capacity

Indicator	Score = 1	Score = 2	Score = 3	Score = 4
MRV System Operational	No MRV system in place or under consideration.	Initial MRV components exist but are fragmented or manually operated.	Operational MRV system with limited sectoral scope or verification capacity.	Robust, digitized MRV for agri/forestry GHG emissions across value chain.
Institutional roles	No clear roles or responsibilities for carbon market governance.	Informal or overlapping responsibilities among agencies.	Roles defined but with coordination challenges or capacity gaps.	Clear mandates and interagency coordination structures established and operational.
Registry oversight	No oversight body or mechanisms for carbon registry.	Registry housed in single ministry without independent checks.	Oversight exists but lacks transparency or enforcement capabilities.	Independent oversight body with transparency, audit, and recourse functions.
Legal enforcement & penalties	No legal enforcement mechanisms for carbon-related non-compliance.	Legal framework exists but lacks implementation or sanctions.	Some enforcement measures implemented but limited in scope or capacity.	Enforced legal accountability with penalties and public enforcement for compliance violations.

Pillar 3: Financial Systems & De-risking

Indicator	Score = 1	Score = 2	Score = 3	Score = 4
Carbon funds	No carbon funds in place or under consideration.	Climate or environmental funds exist but with limited or no focus on agriculture.	Carbon funds exist with some agricultural component or early-stage pipelines.	Dedicated carbon finance vehicles supporting agricultural mitigation at scale.
De-risking tools & insurances	No de-risking instruments targeting agri-carbon or carbon markets.	Pilot projects or informal instruments (e.g. co-ops, guarantees) are being tested.	De-risking tools deployed in limited geographies or sectors (e.g., drought insurance).	Scaled and accessible insurance schemes or guarantee instruments for agri-carbon investments.
Results-based finance	No results-based payment (RBF) schemes in agriculture or carbon space.	RBF mechanisms under design or small-scale piloting.	RBF deployed in some regions or programs with partial reach.	National or jurisdictional RBF schemes supporting GHG mitigation outcomes.
ARR incentives/subsidies	No incentive/ subsidy schemes for afforestation, reforestation (ARR).	Ad hoc or one-off support schemes, with minimal reach or consistency.	Operational but fragmented incentives/ subsidies for ARR with partial carbon relevance.	Institutionalized subsidy schemes targeting ARR with climate co-benefits and carbon linkages.

Pillar 4: Market Ecosystem & Innovation

Indicator	Score = 1	Score = 2	Score = 3	Score = 4
Agri-tech ecosystem	Underdeveloped agri-tech sector with no carbon-related technologies.	Small, emerging agri-tech ecosystem with limited reach and capabilities.	Broad ag-tech adoption, mostly general-purpose, with few carbon-specific innovations.	Thriving agri-tech market, with tools and platforms explicitly supporting agri-carbon MRV and finance.
Certified projects (VVB-aligned)	No agriculture or forestry projects certified under ICVCM-aligned standards.	Isolated or pilot projects under non-aligned or voluntary frameworks.	Several operational ARR projects with credible certification under recognized standards.	Multiple certified ARR projects under VCS, Gold Standard, or ICVCM-aligned schemes across regions.
Fintech for agriculture	No fintech products or services tailored to agricultural or carbon sectors.	Limited fintech coverage with ad hoc applications in rural/agricultural settings.	Multiple fintech platforms offering services to farmers or project developers.	Diverse and scaled fintech ecosystem tailored to agriculture and low-carbon finance.
Agtech accelerators	No dedicated support structures or accelerators for agri-carbon innovation.	General innovation programs include limited agriculture support.	Several agri-tech or green accelerators active, but not carbon-specific.	Dedicated agri-carbon innovation hubs and accelerator programs at national or regional level.
Access to mobile services	Very low mobile financial service penetration in rural/agricultural zones.	Mobile coverage exists, but services not tailored or accessible to rural actors.	Moderate mobile service availability with tailored apps reaching farmer segments.	Mobile financial services and tools cover over 80% of rural populations, with targeted tools for agri-carbon

Pillar 5: Inclusiveness & Farmer Engagement

Indicator	Score = 1	Score = 2	Score = 3	Score = 4
Inclusion in national programs	No inclusion of agri-carbon in agricultural or climate programs.	Agri-carbon activities mentioned, but limited targeting of farmers or groups.	Explicit provisions for farmer participation in programs, with partial integration of carbon.	Fully integrated agri-carbon pathways in public policies and subsidy schemes targeting smallholders.
Benefit-sharing mechanisms	No policies or mechanisms for sharing carbon revenues with landholders.	Ad hoc or project-specific arrangements exist with limited scale.	Formal but uncoordinated benefit-sharing across select programs or regions.	National or jurisdictional protocols mandating transparent revenue sharing with farmers and communities.
Safeguards policies	No safeguards related to carbon programs in agriculture.	General social/environmental policies exist but not carbon- or farmer-specific.	Sectoral policies address E&S risks, but limited enforcement or coverage in rural areas.	Comprehensive safeguards (e.g., Indigenous, gender, environmental) embedded in agri-carbon initiatives.
Property rights	Lack of land tenure recognition or conflicting property frameworks.	Customary rights informally recognized but not legally protected.	Partial legal clarity or progress on securing tenure, especially for vulnerable groups.	Over 75% of smallholders enjoy secure, documented property rights supporting crediting participation.

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