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Acre's ISA Carbono: Examining Conflicts over Environmental Services in Amazon Conservation Policies

ISA Carbono de Acre: Análisis de Conflictos sobre Servicios Ambientales en Políticas de Conservación de la Amazonía

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Abstract

Brazil plays a key role in global climate governance through Payment for Environmental Services (PES) and REDD+ initiatives. This paper analyzes Acre's System of Incentives for Environmental Services (SISA) and its ISA Carbono Program, a jurisdictional REDD+ framework linking forest conservation with the sustainable development of Indigenous Peoples and local communities. It explores how ISA Carbono reflects convergences between Indigenous worldviews and Western climate mitigation approaches, particularly through the adaptation of its benefit-sharing structure to the ART/TREES methodology and Acre's engagement in the LEAF Coalition. Addressing a gap in climate finance, the paper examines how Indigenous perceptions and agency shape emerging benefit-sharing mechanisms and assesses whether these align with global standards for equitable and sustainable climate governance. Acre's experience offers insights for integrating Indigenous perspectives into climate policy frameworks.

Key words: Green Economy; Climatic Colonialism; REDD+; Indigenous Peoples; Benefit Sharing.

Resumen

Brasil desempeña un papel clave en la gobernanza climática mundial a través de las iniciativas de Pago por Servicios Ambientales (PSA) y REDD+. Este documento analiza el Sistema de Incentivos para Servicios Ambientales (SISA) de Acre y su Programa ISA Carbono, un marco jurisdiccional REDD+ que vincula la conservación de los bosques con el desarrollo sostenible de los pueblos indígenas y las comunidades locales. Explora cómo ISA Carbono refleja las convergencias entre las cosmovisiones indígenas y los enfoques occidentales de mitigación del

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cambio climático, en particular a través de la adaptación de su estructura de distribución de beneficios a la metodología ART/TREES y la participación de Acre en la Coalición LEAF. Abordando una brecha en la financiación climática, el documento examina cómo las percepciones y la agencia indígenas dan forma a los mecanismos emergentes de distribución de beneficios y evalúa si estos se ajustan a las normas globales para una gobernanza climática equitativa y sostenible. La experiencia de Acre ofrece ideas para integrar las perspectivas indígenas en los marcos de las políticas climáticas.

Palabras clave: Economía Verde; Colonialismo Climático; REDD+; Pueblos Indígenas; Distribución de Beneficios.

I. INTRODUCTION

The Amazon Rainforest is a key element in the Earth System balance and a tipping element at a global scale.[1] Reaching the 20% threshold of deforestation could lead to an irreversible decline of the forest ecosystem, pushing Earth to a climatic tipping point.[2] In this sense, Brazil's policies on conservation and environmental management bear impact on global climate stability as it houses approximately 50% of the Amazon Rainforest.[3]

Reflecting on that, Brazil has been proposing and testing initiatives on forest conservation, climate mitigation and international cooperation mechanisms.[4] Over the past decades, it has emerged as a key player in the development of Payment for Environmental Services (PES) programs, especially through its role in discussions at the creation of the REDD+ (Reducing Emissions from Deforestation and Forest Degradation).[5] It has also contributed to the establishment of broader jurisdictional REDD+ approaches, including the nationwide Amazon Fund and initiatives spearheaded by subnational states, such as *ISA Carbono* in Acre.[6] Considering the scope of such initiatives, at national and subnational scales, it is fundamental to consider their impacts and influence on Indigenous Peoples and Local Communities (IPLC) in the Amazon.[7]

Given the growing evidence that securing their land rights, helps climate mitigation,[8] the increasing participation of IPLC in decision making stages at regional, national and international stages[9] and the ongoing revision of the financing system of *ISA Carbono*, we could be about to witness important consequences for the environmental management of Acre, especially regarding benefit sharing schemes. Additionally, the establishment of the new Brazilian Greenhouse Gas Emissions Trading System (SBCE) could influence *ISA Carbono* by emphasizing national carbon market structures, potentially undermining local governance. In dialogue with different

[1] WANG *et al.* (2023).
[2] SCIENCE PANEL FOR THE AMAZON (2021); IPCC (2022); ARMSTRONG MCKAY *et al.* (2022).
[3] PEREIRA & VIOLA (2019); PEREIRA & VIOLA (2021); PAES (2022).
[4] BOYD (2008); CENAMO *et al.* (2014); RECIO (2022).
[5] SANTILLI *et al.* (2005).
[6] DUCHELLE *et al.* (2014); GREENLEAF *et al.* (2023); MOUTINHO & GUERRA (2017).
[7] HACON (2013); ALKMIN (2023).
[8] PACHECO & MEYER (2022); OGAR *et al.* (2020).
[9] CPI-ACRE (2021).

theoretical currents on environmental governance, this work aims to discuss how the *ISA Carbono* integrates Indigenous Perspectives and Practices into its structure.

1.1 Forest conservation and REDD+ initiatives, under climate finance critique

REDD+ mechanisms underwent a long process of transformation since its first discussions at COP11 (2005 in Montreal). When created, they were focused mainly on financially supporting countries that achieved lower carbon emissions through reductions of its deforestation rates, which was innovative considering that the Kyoto Protocol did not consider this.[10] It changed over time allowing the inclusion of other aspects in its implementation such as forest conservation, reduction of forest degradation, sustainable management and improvement of forest carbon stock.[11] Brazil also advocated compliance with the principle of common but differentiated responsibilities, pursuing accountability for polluting countries. These actions have established the country as a proactive player in the development of climate finance instruments, although important improvements are still needed.[12] This trajectory dates back to the early debates on REDD+, initially proposed by Santilli,[13] who criticized the absence of an international financial mechanism to support emission reductions in tropical countries through land-use changes such as avoided deforestation.

In order to discuss economic and political repercussions at global and local levels, we draw from a poststructuralist approach towards Political Ecology and Ecological Economies to allow a critical examination of power dynamics within social and environmental discourses at all scales: Allowing a fluid interpretation of discourses and practices, as proposed by Fletcher.[14] Drawing from Political Ecology, this paper builds on key contributions by Büscher and Fletcher,[15] as well as Latour[16] critiques of the use of neoliberal instruments to support environmental policies. Considering more-than-human perspectives, it is vital to include the Rights of Nature frameworks proposed by Indigenous Leaders like Kopenawa[17] and Krenak.[18] Their insights stress the spiritual connections that IPLC have with the forest, offering critical perspectives on Western approaches to environmental governance and highlighting forms of environmental management rooted in cultural ties.[19]

Different groups of stakeholders—both within Brazil and internationally—have fundamentally different understandings of "nature", "sustainability" and how and why nature should be conserved.[20] At the core of these discussions, is the role that such instruments play in supporting global efforts to face the climate crises, at the same time that they provide alternatives for climate adaptation while really allowing not only the transfer of resources to communities on tropical countries, but the material improvement of their quality of life and the assurance of their rights.

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[10] SANTILLI *et al.* (2005).
[11] DUNLO & CORBERA (2016); UNFCCC (2011).
[12] DUCHELLE *et al.* (2014); CORREA *et al.* (2019); GUERRA & MOUTINHO (2020); SANTILLI *et al.* (2005).
[13] The creation of REDD+ was initially proposed by SANTILLI *et al.* (2005), who criticized the absence of an international financial mechanism to support carbon emission reductions in tropical countries through land use changes (e.g., deforestation avoidance). Due to the significant reduction of deforestation in Brazil early in the century, the Amazon Fund was established in order to manage REDD+ resources in the country.
[14] FLETCHER (2010); FLETCHER (2017).
[15] BÜSCHER & FLETCHER (2015).
[16] LATOUR (2017).
[17] KOPENAWA & ALBERT (2013).
[18] KRENAK (2019).
[19] CUNHA & ALMEIDA (2000).
[20] ADLOFF & HILBRICH (2021).

The Amazon Fund[21] is a critical component of this strategy, as it channels international resources into efforts to preserve the Amazon rainforest while supporting sustainable livelihoods for IPLC.[22] On the other hand, the *ISA Carbono* from Acre, is the first subnational jurisdictional REDD+ program and serves as a global model of how to integrate economic incentives with environmental protection, with governance and monitoring structures counting with civil society participation.[23] Understanding these differences is essential to balance global market solutions with locally rooted knowledge systems. This alignment—or lack thereof—shapes the inclusivity and effectiveness of international climate finance mechanisms like the *ISA Carbono*.

In addition to taking part in formalized financial incentives as governance mechanisms, IP have been critical in reclaiming and protecting their territories and thus often securing the existence of rainforests with their climatic services.[24] However, local governance functions still need to be better considered in the PES systems. Several authors highlight the lack of involvement of IP in the structuring of REDD+ initiatives, and their unequal participation in the benefit sharing processes, while taking most of the burdens.[25] There are challenges in aligning IP needs with state level governance, as well as the monitoring of its impacts.[26] Other issues involve imbalance in power allocation, generation of conflict at community level and non-compliance of social safeguards,[27] as well as potential displacement and dispossession of land and territories.[28]

There are also cases with close involvement from IPLC in which deeper participation in decision instances needs to be broadened in order to attract more international attention and resources to support conservation and land rights.[29] In this sense, *ISA Carbono* serves as an innovative case as it counts with a governance system approved by law (2.308/2010), which assures the execution of the program's resources contemplating IPLC needs, regardless the political orientation of the executive. It also counts with a participatory steering committee, and thematic chambers of women and IP. The existence of such legal structures allows and reinforce local communities' participation and voice in decision-making.

1.2 Acre's Conservation Role between worlds

Practices of sustainability vary according to different worldviews, which collide in the Amazon. It is a frontier zone between the expansion of capitalism and its reinvention[30] and a zone of millenia-old practices of existence and of forest management by IPLC practices.[31] The connectivity of the territory to global agendas is discussed as an aspect that connects the fringes of the western and capitalist influence to its cores.[32] In this region, various products tied to global markets are extracted, including rubber, Brazilian nuts, beef, soybeans, iron ore, bauxite and gold. More

[21] Amazon Fund (created in 2008) is a Brazilian initiative aimed to gather international REDD+ investments in order to support projects that promote sustainable development and conservation in the Brazilian Amazon.
[22] CORREA *et al.* (2019); HORN (2023).
[23] GUERRA & MOUTINHO (2020).
[24] FELLOWS *et al.* (2024); PACHECO & MEYER (2022).
[25] SATYAL *et al.* (2020).
[26] MATUK *et al.* (2020).
[27] ALUSIOLA *et al.* (2021).
[28] SARMIENTO-BARLETTI & LARSON (2017).
[29] DIGIANO *et al.* (2016).
[30] HARVEY (2018); ALMEIDA (2012).
[31] LEVIS *et al.* (2017).
[32] CASTRO (2010).

recently, carbon credits have gained traction due to their potential to create new market opportunities and reduce deforestation.[33] This dynamic is particularly significant in Acre, which showcases a duality: it exemplifies both peripheral remoteness due to its position within global capitalism and a central role in pioneering conservation initiatives.

Based on the recognized conservation movement that arose in the state due to the Rubber Tapper struggles, led by Chico Mendes,[34] and later aligned with progressive policies connected to the Brazilian Worker's Party governments that ruled the states from 1998 to 2014, Acre went through deep changes regarding its conservation policies.[35] In 2010 Acre created the *Sistema de Incentivos para Serviços Ambientais* (SISA), a key instrument of the state's environmental management strategy, which integrates the payment of environmental services and established a regulatory and legal system that promoted sustainable development while reducing deforestation.[36]

In this sense, a deeper understanding of IPLC's role in protecting the forest is valuable, giving not only insights into how to better understand practices of sustainability,[37] but also into the creation and structuring of instruments that allow those populations to be suitable and justly rewarded. On the other hand, scholars such as Kopenawa and Albert[38] and Krenak[39] argue that Indigenous Cosmologies offer alternative pathways for addressing environmental degradation—pathways that transcend the narrow confines of capitalist exploitation as well as the market-based response to climate emergency.[40] Therefore, the participation in the *ISA Carbono* structure would give valuable understanding of how different theoretical approaches can be understood and perceived in international PES instruments for Amazon conservation.

Among Brazil's environmental management features, two features are noteworthy. Firstly, the implementation of PES and jurisdictional REDD+ initiatives serves as key strategies for fundraising and financing Amazon conservation. However, these initiatives have been criticized for not addressing core climate change issues since they focus on offsetting emissions elsewhere. Secondly, environmental governance in Brazil is bolstered by the participation of IPLC in governance, particularly in states like Acre, where IP play a crucial role in advocacy.[41] IPLC knowledge systems offer alternative pathways prioritizing nature's rights, territorial sovereignty, and communal management over market-oriented climate governance alternatives.[42] As the climate crises intensifies, *ISA Carbono* presents a valuable case for understanding global environmental governance, particularly regarding the convergence of Indigenous Rights, forest conservation, and decolonial perspectives.

The structure of this paper unfolds as follows: In its first section, the paper introduces its argument and the role of Acre on global climate financing. Secondly, the methodology is presented. In the third section, the theoretical framework is discussed, showing concepts around environmental governance and neoliberal conservation tools implemented in Acre. After that, in the fourth part, we discuss how *ISA Carbono* works, the main transformations it is passing through, especially regarding the rationalities of Acrean populations and their participation in it.

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[33] ALVES *et al.* (2024); EARTH INNOVATION INSTITUTE (2022); PRESSLER (2010); GREENLEAF (2024).
[34] ALLEGRETTI (2008).
[35] NEVES (2025); DUCHELLE *et al.* (2014).
[36] DUCHELLE *et al.* (2014).
[37] SCHMIDT *et al.* (2021).
[38] KOPENAWA & ALBERT (2013).
[39] KRENAK (2019).
[40] FORD *et al.* (2020).
[41] CPI-ACRE (2021).
[42] ALEXANDER *et al.* (2011).

In the fifth section the ongoing discussions regarding the regulation of the carbon market in Brazil are approached and their implications for REDD+ projects. In the sixth part we discuss major repercussions of the current discussions for IP in Acre. Finally, in the conclusion we discuss the status-quo and the potential for integrating IP knowledge systems into climate protection strategies, drawing lessons from Acre's experience to inform more equitable and sustainable governance models.

II. METHODOLOGY

This study employs a qualitative approach that combines a literature review and semi-structured interviews to analyse the *ISA Carbono* Program under the SISA in Acre. The literature review focuses on two aspects focusing, firstly, on contemporary discussions surrounding theoretical currents related to green colonialism, aiming to understand how varied interpretations of these theories manifest in conservation governance in Acre and Brazil. Additionally, the research examines recent findings on new aspects of jurisdictional REDD+ frameworks in the Brazilian Amazon, such as the regulation of the Carbon Market in Brazil (law 15.042/24), evaluating how these frameworks either reflect or neglect diverse perspectives on sustainability practices and theoretical currents linked to green colonialism discussions.

This article is part of the doctoral research "Global Climate Change and Local Realities: Perceptions of International Conservation Agenda and International Cooperation in the State of Acre, Brazil", carried out within the scope of the Global Sociologies Program at the *Freie Universität Berlin*. Although the focus of this article is based on literature and theories related to the topics of green capitalism and green colonialism, data collected throughout the field activities—research diary and interviews—were used as a complement.[43] Thus, the analysis considered the integration of literature review, participant observation and semi-structured interviews to develop a comprehensive understanding of the *ISA Carbono* Program in the context of green colonialism and Rights of Nature discussions.

III. MARKET-ORIENTED ENVIRONMENTAL GOVERNANCE

The integration of market-based environmental governance mechanisms, such as PES and REDD+, has introduced significant contradictions in their ability to address the structural causes of climate change. According to Hacon,[44] these frameworks, which rely on the commodification of nature, often fail to account for the complex socio-environmental relationships that sustain Indigenous Territories and also fail to address the core issue of capitalism when seen through the lens of climate change. Alkmin, for instance, adds that the essential issues of capitalism are the:

> "Infinite growth as an economic imperative; the organization of society around consumption; the separation between producers and the means of production; the

[43] Field activities included participant observation at COP29 in Baku, Azerbaijan (Nov. 24), and in Acre (Mar-Jun 25), focusing on revisions to the *ISA Carbono* benefit-sharing system through participatory fora in Feijó (May 8-9) and Rio Branco (June 27-28, and June 12-13). A visit to the Kaxinawa Nova Olinda Indigenous Territory aligned with their invitation to the "8th Seeds Exchange Festival" (May 11-20), providing insights into how *ISA Carbono* policies impact the territory and interact with other Indigenous Peoples. Interviews explored the alignment or conflict between traditional perspectives and market-driven approaches, assessing the impact of environmental policies on extractive communities and the potential for achieving environmental justice through carbon projects.

[44] HACON (2013).

> increase in income concentration and social inequality; and, finally, the continued use of fossil fuels, the main vector of the climate crisis".[45]

Although investments under REDD+ programs are still not regulated and, thus, are not part of any market, they obey a neoliberal logic.[46] The commercialization of carbon credits emitted from non-deforested areas to be sold to companies and countries to compensate for their emissions, the core of REDD+ logic, allows the creation of new markets, the expansion of capitalism's reach, and the colonization of new regions located previously at its periphery, as pointed out by Harvey.[47] Thus, the intersection between REDD+ and Indigenous Territories in the Amazon becomes quite relevant when seen from the perspective of the expansion of the capitalism.[48] On the other hand Leroy[49] and Martinez-Alier[50] highlight the environmentalism of the poor as a counterpoint to these market-driven approaches, emphasizing that IP view nature as integral to their cultural and spiritual survival, not as a mere provider of ecosystem services, which could provide new insights to conservation efforts allied to IPLC self-determination. By reducing forests to tradable carbon stocks, these mechanisms overlook broader environmental and social issues, such as biodiversity loss and local livelihoods. Proposing new standards of conservation, based on a more connected view of the nature, would open new spaces of dialogue and propositions in environmental governance.

Moreover, as noted by Castree[51] the logic of environmental governance driven by global markets tends to externalize responsibility, prioritizing financial incentives over systemic change and open space for a broader neoliberalization of nature, opening new frontiers for capital accumulation. Hacon[52] underscores that while PES schemes may generate financial resources for conservation, they often entrench inequalities by failing to address the structural drivers of deforestation, such as land concentration and extractivist economies, or simply ignore this issue, allowing polluters to compensate for their actions by not addressing the core of the issues. In the case of REDD+ by keeping the source of the resources separete from the places where abatement might be done, fictional markets are deepening the relation between conservation and finance markets.[53] These contradictions raise questions about whether market-oriented mechanisms can meaningfully contribute to climate mitigation or merely reinforce existing power dynamics, via the strengthening of neoliberal tools of climate governance. To explore these questions further, it is essential to analyse how different sustainability practices reflect and challenge the underlying assumptions and values of market-oriented governance frameworks.

IV. PRACTICES OF SUSTAINABILITY

Sustainability practices encompass diverse approaches and worldviews that guide how societies interact with nature. These practices often reflect competing or complementary perspectives, such as the commodification allowed by PES tools, the ethical and spiritual dimensions captured by the Rights of Nature and others. Adloff and Hilbrich[54] propose categories of sustainability practices to better understand the entanglements of natures/cultures practices that reflect competing or complementary perspectives, such as the commodification allowed by ecosystem

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[45] ALKMIN (2023).
[46] VECCHIA & GONCALVES (2024).
[47] HARVEY (2013).
[48] ALKMIN (2023).
[49] LEROY (2012).
[50] MARTINEZ-ALIER (2014).
[51] CASTREE (2010).
[52] HACON (2013).
[53] BÜSCHER & FLETCHER (2015).
[54] ADLOFF & HILBRICH (2021).

services tools and the spiritual dimensions captured by the Rights of Nature.[55] These categories reflect distinct approaches to environmental governance, each with its own set of assumptions, values, and implications. What is apparent is that different actors align themselves with different practices, influenced by their own interests and organizational structures. This alignment is crucial for understanding differing conceptions of nature and sustainability that coexist.

4.1 Ecosystem services

The concept of environmental (or ecosystem) services, part of the broader Green Capitalism framework, includes functions that aren't direct material products, such as biodiversity maintenance, water cycling, and carbon storage.[56] In the Amazon, particularly with carbon dioxide commercialization, this reflects the expansion of capitalist practices into newly colonized areas,[57] while also presenting opportunities to protect forests and alleviate poverty. Büscher and Fletcher[58] propose a framework comparing historical and contemporary capital accumulation regimes, highlighting major conservation approaches. They describe an initial *fortress conservation* phase, characterized by establishing protected areas and centralized control, transitioning to *flexible conservation*, which detaches conservation from specific land parcels and relaxes regulations. We are now moving toward *fictitious conservation*, where conservation efforts are entirely separated from investment sources, driven by financing and speculation. In this context, PES marks a transition from the former to the latter, allowing offsetting strategies for countries and companies in the global north.

Additionally, Eikermann stresses that we have been witnessing a transition from conservation policies under a command-and-control logic to another aligned with the market and forest PES, based on compensation.[59] Scheba & Scheba even discuss that PES projects under the carbon stock logic aim to showcase ways through which those projects are a win-win situation for everyone involved, private investors, national economies, local populations, biodiversity, local consumers, tax payers, developments agencies, among others.[60] When applied through an Amazon lens, Carlos Nobre remembers that such instruments have demonstrated the need for more nuanced approaches to forest conservation—ones that do not solely focus on carbon sequestration but also acknowledge the broader ecological, cultural, and social value of forests.[61]

In Acre, this approach is embodied in the PES schemes that underpin the state's participation in REDD+ programs, under both volunteer and jurisdictional schemes. Private organizations in Brazil developing volunteer carbon projects are strongly aligned with the view of the green economy. They take advantage of existing regulations and potential REDD+ markets as a pragmatic tool for generating financial returns while contributing to forest conservation.

This perspective, which prioritizes the economic value of ecological functions, has been embraced by various Brazilian NGOs, carbon consultancies and government actors as a way to

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[55] ADLOFF & HILBRICH (2021) proposed a third category, geoengineering, reflecting overcontrolling nature via engineering solutions to regulate climate. As it does not apply directly to the Acrean reality, this specific sustainability practices is not be covered in the argument of this article.
[56] FEARNSIDE (2018).
[57] HARVEY (2018).
[58] BÜSCHER & FLETCHER (2015).
[59] EIKERMANN (2015).
[60] SCHEBA & SCHEBA (2017).
[61] NOBRE (2014).

align environmental protection with economic incentives. Alkmin[62] provides important insights by approaching the power relations among nations and how the concept of Climate Colonialism serves as an analytical frame supporting these discussions, under which climatic initiatives serve as means to deepen the dominance over less sovereign nations. Consequently, as discussed by Vecchia and Gonçalves,[63] REDD+ and PES schemes are aligned with the logic of neoliberal governance of the climate, representing a framework where environmental policies are intertwined with market mechanisms. This approach emphasizes that preserving forests and their ecosystem services - such as carbon stocks - can generate financial returns, reflecting a regulatory environment reliant on technical measures to manage natural resources. This understanding is often antagonised by actors who reject the notion that the forest is a resource to be exploited for profit.

4.2 Rights of Nature

In contrast, many IP align more closely with the Rights of Nature paradigm. This approach posits that nature has intrinsic rights that must be respected, independent of human use or economic benefit. A more radical view of the nature ethics, highlights the intrinsic value of nature and considers people and non-human life forms as one community.[64] The starting point for these approaches is the thesis that humans are not independent beings.[65] Joas[66] points out that humans, due to animals' charisma, tend to sacralise them, providing not only a humanistic feature to them, as well as more then human one. Civil society movements advocating for an ecologization of modernity are closely tied to Latin American discourses and Indigenous Cosmologies that reject the separation of nature and society, with recent discussions on new hybrids of Western and Indigenous thought even leading to their incorporation into laws,[67] as the Article 71 of the Ecuadorian constitution that grants nature the right to exist, to preserve and maintain its vital cycles, its structure, its functions and evolutionary processes.[68]

According to such views, the forest is not a collection of resources to be explored but rather a living entity with which they share a reciprocal relationship. The Rights of Nature framework, while less dominant in global environmental governance, offers an alternative to the commodified view of ecosystem services by focusing on the ethical and spiritual dimensions of environmental stewardship, especially bringing up contributions from the Buen Vivir discussions, as presented by Gudynas.[69] Indigenous Perspectives on sustainability challenge the capitalist logic of carbon markets and PES schemes, advocating instead for a model that honours the cultural and spiritual significance of the forest. These communities emphasize the importance of maintaining the forest as a sacred space, rejecting the notion that it should be reduced to a commodity.[70,71] The Rights of Nature perspective, which is gaining traction in certain international legal frameworks, resonates strongly with Indigenous Worldviews and has the potential to offer a more equitable and sustainable approach to forest governance, beyond already important theoretical considerations.[72]

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[62] ALKMIN (2023).
[63] VECCHIA & GONÇALVES (2024).
[64] SOULÉ (1985).
[65] ADLOFF & HILBRICH (2021).
[66] JOAS (2019).
[67] ULLOA (2015); ULLOA (2017).
[68] ECUADOR (2021).
[69] GUDYNAS (2011).
[70] LAKHANI (2021).
[71] REDVERS *et al.* (2025).
[72] DURMAZ & SCHROEDER (2025).

While one view treats nature as a quantifiable resource aligned with REDD+ frameworks for financial returns through carbon credits, the other advocates for the forest's intrinsic rights, opposing exploitation for profit. This ethical perspective emphasizes the spiritual and cultural connections IP have with the forest, creating tension in REDD+ programs due to conflicting stakeholder goals. Neoliberal climate governance aims to promote conservation through economic incentives but risks reinforcing systemic inequalities and overlooking nature's intrinsic rights, particularly in newly capitalized areas involving marginalized groups critical to global climate discussions. The following section explores the structure of *ISA Carbono*, its alignment with jurisdictional REDD+ initiatives, and the dynamics of carbon markets.

V. SISA: BUILDING ENVIRONMENTAL MANAGEMENT PRACTICES IN ACRE

Brazil has proposed several REDD+ initiatives under either jurisdictional frameworks—based on the regulation of a jurisdiction (i.e. a states, provinces or departments)— or on a voluntary base, under the accreditation of companies with support from different companies and organizations.[73] Based on the recognized conservation movement that arose in the state due to the Rubber Tapper struggles for rights, led by Chico Mendes,[74] and later on aligned with progressive policies connected to the Brazilian Worker's Party governments that ruled the states from 1998 to 2014, Acre went through deep changes, especially regarding its conservation policies.[75] In the year of 2010 Acre created the SISA, a key instrument of the state's environmental management strategy, to integrate the payment of environmental services into and establish a regulatory and legal system that promoted sustainable development while reducing deforestation.[76]

SISA is an innovative model for subnational environmental governance and a key part of Acre's REDD+ strategy,[77] implemented under state law 2.308/10. It integrates seven programs, including *ISA Carbono*, focusing on valuing environmental services, promoting forest conservation, and incentivizing stakeholders like small farmers, rubber tappers, and IP.[78] Through SISA, Acre has established a legal framework for promoting policies that reward individuals and communities contributing to environmental conservation, becoming a pioneer in creating a comprehensive PES system linked to avoided deforestation.

It has in its structure instances that allow the participation of IPLC on the instrument governance such as the SISA's State Validation and Monitoring Commission (CEVA),[79] and the Thematic Chambers of Women and IP, to gather demands from their participants and propose changes in the work framework of the initiative. Its ability to bring different actors together is pointed out as key to face structural inequalities of PES mechanisms.[80] As pointed out by Greenleaf[81] the

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[73] ASSUNÇÃO *et al.* (2023); SILVEIRA & OLIVEIRA (2021).
[74] ALLEGRETTI (2008).
[75] NEVES (2025); DUCHELLE *et al.* (2014).
[76] DUCHELLE *et al.* (2014).
[77] DUCHELLE *et al.* (2014).
[78] The other programs of SISA are: Sociobiodiversity, Climate Regulation, Soil Conservation, Culture and Traditional Knowledge Valorization, Hydric Resources and Scenic Beauty. None of them currently count with financial support, being the ISA Carbono the only active one.
[79] CEVA (*Centro de Verificação de Atividades*) is a monitoring center within Acre's SISA (*Sistema de Incentivos a Serviços Ambientais*) program, responsible for verifying and assessing compliance with environmental and socioeconomic standards in sustainable land-use practices.
[80] DUCHELLE *et al.* (2014); MOUTINHO & GUERRA (2017).
[81] GREENLEAF (2024), p. 20.

benefits included subsidies for native rubber collection, bonuses for those that practiced sustainable agriculture, fishponds constructed on degraded farmlands, açaí seedlings distribution, among others.

The state government collaborated with international partners (e.g. Germany and the UK), leveraging financial resources through programs such as the REDD+ Early Movers (REM) initiative. As part of SISA, under the Program *ISA Carbono*, the REM-Acre program compensates the state for its early achievements in reducing deforestation between 2006 and 2010 on a donation basis.[82] As of 2023, the REM-Acre program has generated significant financial transfers to local communities and IP for their contributions to forest conservation, as it can be seen below.

- Phase I (2012–2018): R$125 million (€25 million)
- Phase II (2017–2023): R$150 million (around €30 million)

These payments were a direct result of the deforestation rates reduction by 67% between the baseline period of 1996 and 2005.[83] Additionally, the deforestation rates along the project were below the stipulated baseline (average between 2001-10), resulting in payments related to the reductions of emissions of 6,572 million tons of CO2 realized between 2011 and 2015.[84]

According to Duchelle *et al.*[85] and Silva,[86] SISA is one of the earliest examples of a jurisdictional-scale REDD+ program that has shown substantial success in reducing deforestation rates, while promoting social inclusion and participation in decision spheres. This pioneering approach has also influenced the development of Brazil's national REDD+ strategy. SISA and its REM-supported programs aim to address socio-environmental challenges by integrating IPLC perspectives into policy design (i.e. its governance) and trying to build benefit-sharing systems among stakeholders that balance different groups roles in the conservation of the forest, aligned with Acre's history of environmentalism rooted in the legacies of figures like Chico Mendes.[87]

REDD+ was initially designed to support carbon flux (future deforestation avoidance compared to a past baseline) but did not incentivize carbon stock in protected areas or Indigenous Territories. The *ISA Carbono* Benefit-sharing system introduces the Programmatic Stock-Flow (SF) approach, integrating deforestation reduction (flow) with standing forest conservation (stock). This promotes equity by rewarding long-term stewards, such as IPLC, with investment distribution, moving beyond the controversial compensation for past deforestation.[88] The SF approach, used in Acre's SISA program, enhances participatory governance and adaptability, offering a scalable model for jurisdiction-wide REDD+ initiatives. Resources are allocated among four subprograms: Indigenous Territories, Extractivism, Sustainable Production and Value Chains, and Sustainable Livestock.[89] However, challenges remain, as payments depend on deforestation reduction results and only accept donations, limiting investment potential. The

[82] INPE (2024); IMC & KFW (2017).
[83] REM ACRE (2024a).
[84] REM ACRE (2024a); REM ACRE (2024b).
[85] DUCHELLE *et al.* (2014).
[86] SILVA (2020).
[87] SILVA (2020); ACRE (2017).
[88] MOUTINHO & GUERRA (2017).
[89] MOUTINHO & GUERRA (2017).

system is aligning with new methodologies like ART/Trees and Acre's participation in the LEAF Coalition.[90]

ART/Trees provides a methodology for measuring and certifying emissions reductions in jurisdictions, trying to ensure that initiatives like Acre's *ISA Carbono* can credibly demonstrate their climate impact while considering global standards for equitable and sustainable climate finance. The LEAF Coalition's, on the other hand, is based on the first, and adopts ART/Trees as its criteria for investments. Allowing governments, to commercialize their credits globally. During the first semester of 2025, a series of fora were conducted in order to redefine *ISA Carbono's* benefit sharing system and align it structure with ART/Trees criteria. As this is still being done, exploring the impact of the new Benefit Sharing System and global financing systems in a year when Brazil prepares to receive COP30, is a contribution that will allow reflections on sustainable governance practices but also amplify their role in creating equitable and sustainable climate finance mechanisms.

In parallel, Indigenous Organizations, such as the Organization of Indigenous Teachers of Acre (OPIAC[91]) and the Association of the Movement of Indigenous Agroforestry Agents of Acre (AMAAIAC[92]), play a proactive role in shaping the governance of SISA. OPIAC's involvement at the CEVA and AMAAIAC's participations in the Indigenous Thematic Chamber highlights their voice on climate finance, aligning SISA more closely with Indigenous Values, land Rights, and Demands.[93] The specific policies that are supported by *ISA Carbono* directly for IP are: the payment for Agroforestry Agents, training to become Agroforestry Agents, implementation of Territorial and Environmental Management Plans for Indigenous Territories and direct support to differentiated intercultural training (indigenous Schools in their Territories).

VI. REGULARIZATION OF THE CARBON MARKET IN BRAZIL: DILEMMAS AND OPPORTUNITIES

Between 2024 and 2025, Brazil is discussing the regulation of its carbon market, recognizing investments from both jurisdictional and voluntary REDD+ schemes.[94] Bill 2.148/2015[95] sparked significant debate, leading to its approval as federal law 15.042/2024. This law creates a national framework for the Brazilian Greenhouse Gas Emissions Trading System (SBCE), a cap-and-trade program regulating emissions. Approved on November 19 during COP29 in Baku as Law 182/2024,[96] it covers markets for private companies, voluntary projects, and jurisdictional schemes like SISA in Acre. The law also regulates carbon trading from conservation efforts like

[90] The LEAF (Lowering Emissions by Accelerating Forest finance) Coalition is a public-private initiative launched in 2021 to mobilize large-scale funding for tropical forest protection by supporting jurisdictional REDD+ programs that align with the ART/TREES methodology and global carbon market standards.
[91] The Organization of Indigenous Teachers of Acre (OPIAC) represents the Indigenous Educational sector at the state level, advocating for their children rights for an education aligned with their values, among other initiatives.
[92] The Association of the Movement of Indigenous Agroforestry Agents of Acre (AMAAIAC) represents Indigenous Agrobusiness Agents across the state. It promotes sustainable agriculture while strengthening rights and enhancing food sovereignty.
[93] NEWTACTICS (2022).
[94] ALVES *et al.* (2024); VARGAS *et al.* (2021).
[95] BRAZIL (2015).
[96] BRAZIL (2024).

REDD+ and requires industries to reduce emissions, aligning Brazil with international carbon standards and integrating regional initiatives into a national strategy.

The establishment of the SBCE is seen as crucial in integrating Brazil into global carbon markets and boosting conservation investments. It aligns with international climate finance mechanisms like the Leaf Coalition. However, Law 15.042/2024 raises concerns about how it addresses climate crises within a neoliberal framework, particularly concerning jurisdictional instruments with benefit-sharing mechanisms like SISA. The SBCE may prioritize a centralized carbon market, potentially undermining the autonomy and competitiveness of jurisdictional REDD+ programs, and reducing their financial appeal.[97] Article 12 specifies that voluntary projects may be excluded from jurisdictional approaches, protecting private investments.

Law 15.042/2024's structure of carbon credits aligns with Bruno Latour's[98] view of the capitalist drive to "manage" the climate crises through market solutions instead of addressing root causes of environmental degradation. Recently, focus has shifted to climate change adaptation rather than tackling emissions.[99] Latour[100] argues that this capitalist approach treats ecological crises as externalities, leading to a depoliticized handling of environmental issues focused on control rather than transformative change. This model overlooks the complex relationships among humans, nature, and the climate system. Law 15.042/2024 risks reducing the vast ecological functions of the Amazon to tradable commodities, deepening commodification and allowing polluters to continue emitting carbon.

While it creates financial incentives to conserve forests, it often undermines Indigenous Knowledge systems and sustainable practices.[101] IP emphasize the Rights of Nature, which grants intrinsic value to natural entities, rather than treating them as mere resources.[102] It is argued that Law 15.042/2024 ignores the crucial relationship between people and the environment, risking disconnection that exacerbates the ecological crises.[103] According to APIB and other Indigenous Organizations, these proposals fail to protect Indigenous Rights, exposing communities to opaque carbon market projects. In Congressional discussions, Indigenous Leaders called for greater veto rights over projects affecting their territories, a request that was rejected, raising concerns about the erosion of Indigenous Autonomy in climate governance.[104]

This approach to nature creates uncertainties about the distribution of responsibilities. Jurisdictional REDD+ programs in Acre include oversight, governance, and community participation, including IP, as discussed. In contrast, voluntary REDD+ projects led by private actors may lack the same standards, directing funds to unreliable projects that may not deliver promised benefits.[105] This scenario risks undermining Brazil's credibility in global REDD+ efforts. If Brazil's carbon market prioritizes private, less-regulated REDD+ projects, it could weaken its role in global climate discussions. Brazil has been a key player in international climate governance through initiatives like the Amazon Fund and SISA in Acre, which emphasize transparency and stakeholder engagement.[106]

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[97] A PÚBLICA (2024).
[98] LATOUR (2017).
[99] ALKMIN (2023). MALM & CARTON (2024).
[100] LATOUR (2017).
[101] MARTINEZ-ALIER (2014). INSTITUTO SOCIOAMBIENTAL (2023).
[102] KOPENAWA & ALBERT (2013).
[103] INSTITUTO SOCIOAMBIENTAL (2023).
[104] INSTITUTO SOCIOAMBIENTAL (2023).
[105] GUIZAR-COUTIÑO *et al.* (2022).
[106] CORREA *et al.* (2019).

The new law requires prior and informed consultations with IPLC before carbon projects on their lands, but concerns about the adequacy of these consultations and violations of territorial rights remain. At least 5% of resources from the SBCE will go to these communities, but distribution methods are still undefined. The pressure on Indigenous Territories is heightened by the exclusion of agribusiness from emission reduction obligations, increasing risks of deforestation and land grabbing that directly impact community livelihoods.[107]

Additionally, the National Indigenous Foundation (FUNAI)[108] has seen a significant rise in requests related to carbon credit trading on Indigenous Territories since early 2022, raising concerns about the negative impact on Indigenous Rights and the need for proper consultation. FUNAI advises Indigenous Leaders to avoid negotiations until clear guidelines for integrating indigenous Territories into the voluntary carbon market are established. This will ensure that future projects consider safeguards, governance, and genuine Indigenous Participation.

Finally, Latour's critique of capitalist climate solutions highlights the need for alternative, non-capitalist sustainability approaches.[109] Indigenous Perspectives, which emphasize reciprocity with nature and ecosystem rights, provide alternatives to the capitalistic framework driving environmental degradation. By incorporating these views into Brazil's climate strategies, there is potential to move beyond commodification toward a more holistic and equitable approach to the climate crises. This would honour the cultural and spiritual significance of the Amazon and create a more just and sustainable model of environmental governance.

VII. INDIGENOUS RIGHTS WITHIN THE *ISA CARBONO* FRAMEWORK

As the *ISA Carbono* benefit-sharing system is revised, understanding Indigenous Rights is crucial for enhancing its effectiveness and equity, influencing decision-making and benefit-sharing mechanisms. According to Matuk *et al.*,[110] recognizing and integrating diverse Indigenous Knowledge Systems has been a key concern in SISA discussions, particularly for the Huni Kuin people, but improvements are needed. It's essential to address existing power imbalances, as seen in soil classification discussions, ensuring Indigenous Voices are respected in policy formulation. While Indigenous Knowledge Systems are vital, ongoing reflexive questioning—like evaluating land use decision criteria—is necessary to ensure that perspectives are honored and outcomes are ethically justifiable.[111] By incorporating Indigenous Perspectives, the *ISA Carbono* program can transcend market-driven solutions, paving the way for innovative approaches.

In May 2024, I participated in two public consultations focused on updating the benefit-sharing plan for SISA, one of which included over 250 representatives from Indigenous Communities. The discussions primarily centred on revising the methodology for calculating each social group's share of benefits. These revisions were developed in collaboration with the Earth Innovation Institute, which introduced an innovative approach that goes beyond the original SF model.[112] This new framework proposes a Deforestation Susceptibility Index[113] that evaluates the entire

[107] TABOSA (2025).
[108] FUNAI (2024).
[109] LATOUR (2017).
[110] MATUK *et al.* (2020).
[111] MATUK *et al.* (2020).
[112] MOUTINHO & GUERRA (2017).
[113] Details for the methodology were not available at the publication of this paper.

territory of Acre, assessing the vulnerability of various areas and subsequently adjusting the allocation of rights for each social group within the benefit-sharing scheme.

Following consultations in six regions of the state, a final forum held in Rio Branco culminated in a consensus on resource distribution: 22% for Indigenous Territories, 26% for Extractive Territories, 24% for agricultural producers, and 28% designated for state Government initiatives. The event featured representatives from diverse sectors who engaged in meaningful discussions and presented alternative perspectives, thus ensuring substantial social participation, despite the complexity. Reflecting on the earlier SF model, the Indigenous share in the benefit-sharing scheme was previously set at 12%. However, as noted by Moutinho and Guerra,[114] when only the Flux methodology is applied, this share is reduced to a mere 3%. This shows a clear difference in how Indigenous Territories are regarded, and also pristine forest for overall REDD+ schemes. It is also important to state that such revisions, held with social participation might help the state to apply for the ART/Tress certification for jurisdictional REDD+ schemes and, thus, to scale up investments.

On the other hand, the Law 15.042/2024 establishes new guidelines requiring prior and informed consultations with Indigenous and traditional communities before initiating carbon projects, under the voluntary projects. While this presents a significant opportunity for greater Indigenous involvement in decision-making, concerns about the adequacy of these consultations persist. The law mandates that at least 5% of resources from the Brazilian Emissions Trading System (SBCE) be allocated to Indigenous Communities; however, the mechanisms for distribution remain undefined. This uncertainty could affect the actual benefits that IP receive, emphasizing the need for transparent guidelines that ensure their rights are effectively protected and promoted under the *ISA Carbono* framework.

As it is, *ISA Carbono*, already supports Indigenous engagement through key policies, including payments for Agroforestry Agents as well as courses for their qualification, which recognize sustainable practices that enhance biodiversity; support for the implementation of PGTIs, integrating traditional ecological knowledge into governance, and the support for schools on Indigenous Territories. Thematic Chambers for women and IP are also presented to ensure equitable representation. Despite the positives points, Indigenous Communities in Acre still encounter several challenges related to the implementation of *ISA Carbono* and the broader carbon market. These challenges include inadequate consultations, where communities often lack meaningful engagement in decision-making processes about projects affecting their territories.

Analysis of voluntary REDD+ projects in Acre reveals that Indigenous Peoples face significant barriers to effective participation and transparency, leading to restrictive land agreements and fears of displacement.[115] Poor communication and accountability result in minimal economic benefits, further marginalizing these communities. Reports from the National Indigenous Foundation (FUNAI) raise concerns about potential violations of territorial rights and the negative impacts of carbon credit trading on Indigenous livelihoods. Power imbalances often marginalize Indigenous voices, exposing them to risks from opaque carbon projects.[116] The exclusion of agribusiness from emission reduction obligations in Law 15.042/2024 increases pressure on Indigenous Territories, raising the risk of deforestation and land grabbing.

[114] MOUTINHO & GUERRA (2017).
[115] SESSIN-DILASCIO *et al.* (2024).
[116] MATUK *et al.* (2020).

Continuous understanding of these challenges is vital for developing strategies that protect Indigenous Rights and enhance their role in climate governance.

VIII. CONCLUSION

From a global perspective several critiques are raised about REDD+ as a mechanism to face the climate crises, such as: 1) the oversimplification of complex systems, such as the Amazon, and the non-consideration of intricate socio-ecological relationships; 2) the non-addressing of the main sources of the climatic collapse such as the organization of society around consumption, rising social inequality, the increase in income concentration and, foremost, the continued use of fossil fuels; 3) its offsetting logic that allows polluters to keep their practices; 4) the prioritization of market-based solutions that have, to some extent the source of the problem it is trying to solve; among others that are more specific. Despite central concerns, jurisdictional REDD+ frameworks in Brazil are numerous and have been an important source of resources for conservation projects and programmes run by government bodies and civil society organisations.

Other key critiques debated on this paper refer to the non-consideration of carbon stock on the REDD+ original logic, making direct investments in pristine forests virtually not possible and the lack of social safeguards enforcement in order to ensure IPLC's rights. As REDD+ resources are also seen as vital inputs for the environmental governance in Acre, safeguarding social equity and Indigenous Rights becomes essential to ensure that the benefits of conservation initiatives are distributed fairly among all stakeholders. Thus, Acre's case presents important experience through the *ISA Carbono*, by demonstrating how subnational jurisdictional programs can integrate conservation and local IPLC participation, offering a pioneering model for other tropical regions, especially considering its stock-flow methodology and, further, the application of the Deforestation Susceptibility Index.

The adoption of these tools has created a benefit-sharing system that enhances civil society participation and redistributes resources into public policies designed by Indigenous Peoples and others. Despite limited donations to SISA, the framework generally positively impacts the state by fostering social cohesion and effective governance. Efforts are underway to align SISA with neoliberal trends, such as the LEAF Coalition, which could boost the state's fundraising capabilities and support environmental policies. However, this may also exacerbate green colonialism, allowing international organizations and countries to buy their right to pollute, shifting responsibility for climate change to the those on the periphery.

The Law 15.042/2024 offers both opportunities and risks for Brazil's environmental governance. While the bill presents a chance for Brazil to formalize its position regarding the jurisdictional and voluntary REDD+ discussions, it also bears key problems such as primarily not considering emissions originated in the agricultural sector and issues related to accountability, reliability, and equity in the distribution of climate finance and the focus on voluntary projects. The potential for funds to flow toward unregulated private projects could undermine Brazil's position as a strategical partner in climate action, particularly in jurisdictional REDD+ initiatives. To avoid these pitfalls, Brazil must carefully consider the balance between market-based solutions and the incorporation of indigenous Perspectives into conservation instruments, which emphasize the Rights of Nature and challenge the commodification of ecological systems.

Market-based approaches like PES provide essential financial resources but risk marginalizing Indigenous Perspectives that emphasize the intrinsic Rights of Nature. They can create structures aligned with the market, masking the true sources of climate crises through compensation.

Further research is needed to understand these sustainability practices in relation to local realities and their effectiveness in addressing climate crises. This research aims to foster a more inclusive climate governance model that not only includes IPLC but also reduces deforestation and promotes international cooperation, holding major contributors to climate change accountable. REDD+ has various shortcomings, failing to address the root causes of the crises—consumption, inequality, and fossil fuel use—and may exacerbate inequalities and colonialism in marginalized areas. However, initiatives in regions like Acre, which leverage methodological creativity to enhance SISA's benefit-sharing structure and engage Indigenous Peoples, show promise for more just instruments.

Acre's SISA program demonstrates how jurisdictional REDD+ approaches can respect social safeguards and include IPLC in decision-making. However, it often overlooks nature practices beyond the green capitalist paradigm, failing to address deeper issues. Acre's experience highlights the need for aligning territorial security, inclusive governance, and long-term Indigenous Policies. As the world seeks scalable climate solutions, Acre's lessons offer pathways to equitable and sustainable REDD+ mechanisms. While SISA may positively impact Acre, it operates within a framework that views forests primarily as economic resources, potentially reinforcing colonial relations. The question remains: will we continue this logic, or will we deepen policies that respect local participation and collaborative development? How can Brazil enhance its role in climate governance and promote diverse perspectives related to forests?

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