

# Payment for Environmental Services in Brazil: Recommendations for 2023

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**APD**

DIÁLOGO AGROPOLÍTICO BRASIL · ALEMANHA  
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## ABOUT THIS STUDY

This study was commissioned as a reference document by the **APD** | AGRICULTURAL POLICY DIALOGUE BRAZIL • GERMANY. The content of this study is the sole responsibility of the authors, and any opinions expressed herein are not necessarily representative or endorsed by APD.

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# Foreword

This document was written by the team at the Amazon Environmental Research Institute (IPAM) aiming at supporting discussions about the topic of Payment for Environmental Services (PES) for the Agricultural Policy Dialogue Brazil - Germany (APD).

This document presents proposals to regulate Law n° 14,119, enacted in 2021, establishing a National Policy of Payment for Environmental Services. These proposals are the outcome of joint efforts led by IPAM involving over 40 representative entities in the private sector, civil society organizations, the academia, and productive and financial sectors, which integrate the PES and Carbon Market Task Force under the Brazilian Coalition on Climate, Forests and Agriculture<sup>1</sup>. It is worth noting the effort to come up with proposals has been acknowledged by decisionmakers and representatives of the Federal Executive Government, among other key players, as critical to qualify discussions about the topic and strengthen the PES agenda in the country.

This document also describes the advancement of PES subnational initiatives and provides an overall view of the challenges expected in this important agenda in 2023.

IPAM hopes this publication contributes to strengthening the role played by the Agricultural Policy Dialogue Brazil - Germany, in supporting decision makers, experts and managers to key issues associated with agricultural and environmental policies in both countries.

*The Amazon Environmental Research Institute (IPAM) is a scientific, non-governmental, nonpartisan and non-profit Brazilian organization that has been working for the sustainable development of the Amazon since 1995. IPAM's purpose is to consolidate the model of tropical Amazonian development by 2035, through the production of knowledge, implementation of local initiatives and influence in public policies, in a way that impacts economic development, social equality and environmental preservation. Furthermore, its mission is to foster science, education and innovation for an environmentally sound, economically flourishing and socially fair Amazon.*

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<sup>1</sup> The Brazilian Coalition on Climate, Forests and Agriculture is a multi-sector movement formed by over 300 organizations, among agribusiness entities, legal entities, civil society organizations, the financial sector, and the academia, whose goal is to propose actions to foster the development of a low-carbon economy.

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# Introduction

After 14 years in Congress for consideration, the **National Policy of Payment for Environmental Services, the National Registry of Payment for Environmental Services, and the Federal Payment for Environmental Services Program (PFPEs)** (Law n° 14,119/2021<sup>2</sup>) were finally passed in 2021. According to the legislation, the payment for environmental services concerns a voluntary transaction in which an environmental service payer transfers to a provider of those services financial resources or other forms of compensation, as agreed, observing the applicable legal provisions and regulations.

The process that ultimately led to PNPSA approval relied on contributions from the organized civil society since the very first piece of legislation proposed (Bill n° 792) as of 2007<sup>3</sup>. Over that period, several subnational initiatives were implemented in the country, even though there was no legal framework at the federal level. The lessons learned from those initiatives supported the debate about the topic, both in the House of Representatives and in the Senate. All the experience served as a foundation for the discussions in the Brazilian Coalition on Climate, Forests and Agriculture, to build a proposition to regulate Law n° 14,119/2021.

In 2022, that process resulted in a Draft Decree<sup>4</sup> proposal to regulate the Brazilian National Policy, the National Registry, and the Federal Program of Payment for Environmental Services. The proposal was presented to many lawmakers in the House of Representatives<sup>5</sup> supported by the Environmentalist Parliamentary Front, as well as the Directorate of Forest Conservation and Environmental Services of the Ministry of the Environment (MMA), the Thematic Consultative Chamber on Partnerships for Recognition and Payment for Environmental Services formed by representatives of the Ministry of the Environment, Ministry of Finance, the Brazilian Forestry Service, National Water Agency, and the German Agency for International Cooperation (GIZ). The regulation proposal was also presented to the board of the Brazilian Forest Service and the Secretariat of Innovation, Rural Development and Irrigation at the

<sup>2</sup> Available at: [http://www.planalto.gov.br/ccivil\\_03/\\_ato2019-2022/2021/lei/L14119.htm](http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2021/lei/L14119.htm)

<sup>3</sup> Available at: <https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=348783>

<sup>4</sup> Available at: <https://www.coalizaobr.com.br/home/index.php/notas-extras/2472-coalizacao-brasil-apresenta-proposta-para-a-regulamentacao-da-politica-nacional-de-pagamentos-por-servicos-ambientais#:~:text=A%20Coaliz%C3%A3o%20Brasil%20Clima%2C%20Florestas,e%20o%20Programa%20Federal%20de>

<sup>5</sup> Available at: <https://www.youtube.com/watch?v=pFz3BVjvxJw&t=1651s>

Ministry of Agriculture, Livestock and Food Supply (MAPA), as well as to the National Confederation of Industry (CNI). These are fundamental arenas to discuss the regulation process and ultimately implement the legislation in the country.

Also, IPAM had the chance to present its proposal during a national seminar on the topic held by the National Confederation of Agricultural Workers (CONTAG), in October 2022. Historically, IPAM has played the role of qualifying the debate on the topic with grassroots social movements and organizations that work directly with family farming in the Amazon. As family farming is a priority in PES federal policy and program, it is critical to discuss the necessary aspects for its implementation with them. Thus, it is possible to guarantee their access to opportunities that may open due to regulation of the law in order to compensate efforts towards environmental conservation. In this sense, it is fundamental to integrate PES into other public policies targeted at strengthening family farming, traditional communities and indigenous peoples, to maximize their ability to address the challenges faced by those populations, balancing better living conditions with environmental benefits. Among those public policies, the noteworthy are:

- National Environmental Policy (Law nº 6,938/1981)
- National Program for Strengthening Family Farming (Decree nº 1,946/1996)
- National Water Resources Policy (Law nº 9,433/1997)
- National Environmental Education Policy (Law nº 9,795/1999)
- National Biodiversity Policy (Decree nº 4,339/2002)
- Minimum Guaranteed Price Policy for Sociobiodiversity Products (Law nº 11,775/2008)
- National Policy on Climate Change (Law nº 12,187/2009)
- National Plan for the Promotion of Sociobiodiversity Products (Interministerial Ordinance nº 239/2009)
- National Policy on Technical Assistance and Rural Extension Services (Law nº 12,188/2010)
- Program to Support Environmental Conservation and Program to Foster Rural Productive Activities (Law nº 12,512/2011)
- Native Vegetation Protection Law - Forest Code (Law nº 12,651/2012)
- National Policy for Territorial and Environmental Management of Indigenous Lands (Decree nº 7,747/2012)



- National Policy of Agroecology and Organic Production (Decree nº 7,794/2012)
- National Policy of Native Vegetation Restoration (Decree nº 8,972/2017)
- Brazil Bioeconomy Program (Decree nº 121/2019).

Additionally, it is important to integrate this agenda into the funding opportunities available in states and municipalities, such as Ecological Sales Tax (ICMS Ecológico), jurisdictional REDD+ initiatives, credit incentives subjected to environmental performance, and revenues from fees for the use of water resources, among others. Financial arrangements to promote PES programs can also be designed to contribute to the environmental regularization agenda, especially for more vulnerable rural populations, as established by PNPES guidelines.

This document aims to present the opportunity that the payment for environmental services agenda represents in the efforts needed to mitigate the climate crisis impacts and its effects on all industries. Thus, it is urgent to regulate the Law 14,119/2021, aiming at effectively implementing the National Policy of Payment for Environmental Services (PNPES). The necessary foundation to align that regulation process with the interests of society is presented below. The proposals presented here are not intended to be an exhaustive list of possibilities to advance the discussions about the topic, but rather encourage the determination of joint strategies capable of containing and reverting the setbacks found in the agro-environmental agenda in recent years.

Given its relevance, PES is included in the proposals for the domestic agro-environmental agenda elaborated by entities that form the Brazilian Coalition on Climate, Forests and Agriculture, aiming at guiding short-, mid- and long-term strategies for the government elected on October 30<sup>th</sup>, 2022. These proposals were handed to the Presidency transition team, to state governments and to decision makers who participated in the 27th Conference of Parties (COP-27) at the United Nations Framework Convention on Climate Change. Regulation of Law 14,119/2021 is expected to occur in the first 100 days of government, as a strategy to tackle climate change, reducing the impacts caused by loss of ecosystem services on food, water, energy and income security in the country.



## Proposals to Regulate the National Policy of Payment for Environmental Services

The proposal to regulate Law 14,119/2021, elaborated by the Payment for Environmental Services and Carbon Market Task Forces under the Brazil, Climate, Forests and Agriculture Coalition, aimed at ensuring:

- I. Law enforcement to foster the conservation of ecosystems, water resources, soil, biodiversity, genetic heritage, and associated traditional knowledge all over the country.
- II. Inclusive public policy focused on economic incentives aimed at valuing the efforts made by traditional communities, indigenous peoples, family farmers, and owners of Private Natural Heritage Reserves (Portuguese: Reserva Particular do Patrimônio Natural – RPPN).
- III. Minimum criteria for PES agreements in the country, guaranteeing social and environmental safeguards, consistent results, and alignment of the PES’s initiatives with the principles, guidelines and goals established by the legislation.
- IV. Critical aspects to attract the private sector to PES schemes in the country, i.e.; governance, transparency, social participation, and guidance on priority areas, among others.

The proposals presented to regulate Law n° 14,119/2021 can be divided into 10 topics, as shown in Figure 1.

I	NATIONAL REGISTRY OF PAYMENT FOR ENVIRONMENTAL SERVICES
II	TAX INCENTIVES
III	SOCIAL AND ENVIRONMENTAL SAFEGUARDS
IV	CATEGORIES OF PAYMENT FOR ENVIRONMENTAL SERVICES SCHEMES
V	MONITORING
VI	GOVERNANCE
VII	ELIGIBLE ACTIONS
VIII	PROVISIONS IN THE AGREEMENT
IX	FUNDING
X	PRIORITY IN RESOURCE ALLOCATION

**Figure 1.** The 10 topics in the recommendations presented by the Brazilian Coalition on Climate, Forests and Agriculture to regulate Law n° 14,119/2021.

Below, you will find further details about the proposal.

## **I. National Registry of Payment for Environmental Services**

It is recommended the registry is not limited only to PES Federal Program considering its function as a repository of PES programs and projects in Brazil, including the ones promoted at the federal, state, municipal and private levels. Additionally, the proposal lists the minimum information to be required in order to validate the project and programs agreements attached to the registry, through the issuance of a Registry Certificate. It is worth noting that such registry certificate shall not be used as evidence to prove regular agreement execution, assessment and compliance.

## **II. Tax Incentives**

According to Article 17 in the law, ‘the amount received as payment for environmental services, as defined in Paragraph IV, in the main section in Art. 2, shall not be used as a reference to calculate the Income Tax, Revenue of any Nature, Social Contribution on Net Income (CSLL), Contribution to the Programs for Social Integration and Formation of Public Servant Assets (PIS/Pasep), or Contribution for the Funding of Social Security (Cofins)’. The benefits listed above apply only to agreements entered into the National Registry of Payment for Environmental Services. Therefore, this proposal recommends acknowledging this incentive retroactively to the date the law was made effective.

## **III. Social and Environmental Safeguards**

The proposal recommends including social and environmental safeguards in PNPES’s guiding principles, to secure the rights and interests of indigenous peoples, family farmers and traditional communities, while reinforcing the importance of their participation in the initiatives. Among the safeguards are the respect to constitutional and legal rights and use linked to land tenure, the formal destination of occupied land, and the use of natural resources by indigenous peoples, family farmers and traditional communities. The definition of the safeguards included in the proposal was inspired by discussions on the topic held in the country under REDD+ National Strategy.

## **IV. Categories of Payment for Environmental Services Schemes**

The proposal suggests including the receivables related to the consideration due in PES among the payment categories provided for in Article 3 of Law 14,119/2021. The idea

is to allow the receivables to be given in pledge or fiduciary sale to secure funding, insurance contracts, issuance of bonds, among other.

## **V. Monitoring**

The proposal aims at ensuring the ability for Measurement, Quantification, Verification, Registration and Transparency (MQVRT) in PES public or private programs or initiatives, considering they should at least be able to:

- I. Evaluate, report and verify the environmental services provided.
- II. Assess and determine the rights and obligations of the stakeholders.
- III. Inform at least the data required in the National Registry on PES.
- IV. Enable external audits, whenever required.

MQVRT standards adopted in the initiatives should be clearly specified in the agreements.

## **VI. Governance**

The legislation establishes the formation of a board under PES Federal Program in order to ensure social participation in monitoring the initiatives and their alignment with PNPES goals and guidelines. The proposal suggests general rules for governance and procedures according to their competent jurisdiction. The board to be created, herein called PFPES National Commission, shall determine the criteria to ensure that MQVRT standards as established in the contracts are being allowed prove the outcomes of the environmental services provided.

## **VII. Eligible Actions**

Law 14,119/2021 allows the identification of eligible actions for the payment of environmental services other than the ones listed in Paragraph 1, Article 6. Thus, the proposal suggests a list of additional actions considered critical to promote that agenda in the country, such as:

- I. Activities that contribute to climate regulation.
- II. Valuation of traditional culture and knowledge, whenever associated with maintenance and provision of environmental services.
- III. Practices to preserve and enhance the soil, especially those under the National Low



Carbon Emission Agricultural Plan (ABC or Plano de Agricultura de Baixa Emissão de Carbono – Plano ABC, in portuguese), among others.

IV. Initiatives that improve energy efficiency and replacement with renewable energy sources, whenever implemented by vulnerable urban and rural populations, including cases of water vulnerability.

V. Actions to optimize and improve the quality of water supply, recover and treat gray water, and other forms of reusing water resources, restoring watersheds, and enhancing the flow in springs.

VI. Adoption of good practices to improve agricultural productivity.

VII. Implementation of new ways to manufacture products and provide services, fully replacing methods that release greenhouse gases with clean technologies, whenever implemented by vulnerable urban or rural populations, including cases of water vulnerability.

VIII. Actions to promote recreation, ecotourism, cultural identity and intellectual development, whenever associated with environmental and ecosystem services and implemented by vulnerable urban and rural populations, including cases of water vulnerability.

## **VIII. Provisions in the Agreement**

The proposal suggests that the agreements should include the following mandatory provisions:

I. Description of the area that is providing environmental services.

II. Definition of MQVRT criteria and standards that will be used to prove the results.

III. Duration of the agreement.

IV. Payment frequency.

V. Forms and practices of audit (if applicable).

VI. Authorization, permits, grants and licenses issued by public authorities associated with the preservation areas and/or property construction works.

Whenever the agreement refers to rural properties that use conservation easement, the duration should be at least the same.

## **IX. Funding**

In addition to the funding methods established under Art. 6, Paragraph 7, in Federal Law nº 14,119, the PES Federal Program may rely on other opportunities to raise funds, such as:

- I. Transactions of environmental intangible assets in regulated and voluntary markets.
- II. Funds from public, private or multilateral sources.
- III. Investment in endowment funds and the like.
- IV. Funds from payments for environmental compensation, as established under Art. 36 in Federal Law nº 9,985, as of July 18<sup>th</sup>, 2000.
- V. Funds from bilateral or multilateral agreements on climate and biodiversity, among others.

## **X. Priority in Resource Allocation**

The proposal to regulate the law suggests the following as priority areas to allocate the funds from PES Federal Program: i. areas to counter habitat fragmentation, ii. areas used to create corridors for biodiversity and conservation, and iii. areas used for provision and regulation of water resources. Also, it is recommend prioritizing initiatives whose environmental service providers are traditional communities, indigenous peoples, quilombolas communities, family farmers, rural family entrepreneurs, and owners of Private Natural Heritage Reserves, as well as those who establish partnerships with cooperatives, associations and other associative forms, so the actions gain scale.

The proposal, as detailed here, was launched in July 2022 at the House of Representatives, and has been used as a reference for discussions at the Ministry of the Environment, which is responsible for its regulation. Its great repercussion in the news has strengthened the debate about the topic. Acknowledging its relevance to the agro-environmental agenda in the country, over 300 entities that form the Brazil, Climate, Forests and Agriculture Coalition included the proposals in the recommendations presented to the Brazilian newly elected government during the 27th Conference of Parties (COP-27), in Egypt. The document entitled ‘Future Brazil’ (“O Brasil que Vem”)<sup>6</sup> lists regulation of Law nº 14,119/2021 among the recommendations for the first 100 days of the next administration. It is noteworthy that the PES comes up on different strategic fronts in the Future Brazil document, including:

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<sup>6</sup> Available at: <https://www.coalizaobr.com.br/home/index.php/notas-extras/2516-coalizao-lanca-documento-com-aco-es-prioritarias-aos-governos-eleitos>



- I. Promoting sustainable family farming.
- II. Reducing deforestation.
- III. Fostering public policies to promote bioeconomy.
- IV. Providing incentives to forestry of native species
- V. Restoring forests.
- III. Fostering public policies to promote bioeconomy.
- IV. Providing incentives to forestry of native species.
- V. Restoring forests.

### **Advancements in PES Subnational Agenda**

Research conducted by Castro *et al.* (2018) found 15 laws and decrees specifically about Payment for Environmental Services (PES) policies and programs at the state level by 2016. The Southern and Southeastern regions accounted for most of the pieces of legislation focused on the topic (9), whereas only 3 laws and 1 decree were found in the Northern region. In the state of Acre, Law n° 2,025/2008 created the State Program for Certification of Family Production, and Law n° 2,308/2010 established the State System of Incentives for Environmental Services – SISA, and the IProgram Incentives for Environmental Services – known as ISA Carbon. In the state of Amazon, Laws n° 3,135 and 3,184, both passed in 2007, established the State Policy of Climate Change, Environmental Conservation and Sustainable Development, whereas Decree n° 26,958 created the Bolsa Floresta Programme. The authors point out difficulties in funding as one of the major obstacles to consolidate those experiences.

From 2017 to 2021, some advancements, such as the ones listed below, occurred at the state level:

- I. Mato Grosso do Sul state administration passed Law n° 5,235/2018, which established the State Policy of Environmental Services Preservation, and the PES State Program. The Law was regulated by Decree 15,323, as of 2019.
- II. Rio Grande do Sul state administration passed Law n° 15,434/2020, which established the Environmental State Code, acknowledging the Payment for Environmental Services among the incentives for environmental protection and sustainable use of natural resources.

It is also worth highlighting that, in 2020, the Interstate Legal Amazon Consortium<sup>7</sup> launched the Legal Amazon Green Recovery Plan (Plano de Recuperação Verde da Amazônia Legal – PRV) to address different challenges faced in the region; i.e.; the need to create jobs and generate revenue; value the standing forest; develop scientific, technological and infrastructure with sustainable bases (Oliveira Alvares, 2021). Strategically, the Plan aims at strengthening REDD+ and Payment for Environmental Services programs to stop illegal deforesting<sup>8</sup>.

In 2022, some Brazilian states did advance on the Payment for Environmental Services agenda. You can see a summary of those most recent advancements in Table 1.

**Table 1.** Advancements in PES in the Brazilian states in 2022.

State	Advancements
<b>Rio Grande do Sul</b>	<p>It was approved the Decree nº 56,640/2022, which regulates Payments for Environmental Services, as established in Law no 15,434/2020, Article 21, compliant with the guidelines in the National Policy of PES (Law 14,119/2021), and creating the PES State Program.</p> <p><b>Goal:</b> Encourage and foster environmental protection, as established in the Environmental State Policy (Law nº 15,434/2020), having PES as an instrument to integrate the environmental policy with policies on climate change, environmental education, water resources and basic sanitation in the state.</p> <p><b>Safeguards:</b> not covered in the decree.</p> <p><b>Potential sources of funds:</b> I. Budget funds. II. Government, private or other funds. III. Environmental State Fund, and Investment Fund on Water Resources in Rio Grande do Sul. IV. Funds from state-owned and private organizations and companies. V. Loans and donations from multilateral organizations. VI. Voluntary contributions to offset Greenhouse Gas Emissions - GGE. VII. Investments from climate funds and impact funds; VIII. Conversion of administrative fines. IX. Donations and contributions from environmental service users. X. Funds from Terms of Environmental Offset Commitment, among others.</p>

<sup>7</sup> Independent interstate governmental agency in the public association modality with power to raise funds, promote investments and execute projects of common interest to the states in the consortium

<sup>8</sup> Source: <https://consorcioamazonialelegal.portal.ap.gov.br/planejamento-estrategico/programas-do-prv>



<b>Minas Gerais</b>	<p>They elaborated Bill nº 4,041/2022, which establishes the State Policy of Environmental Services, creates the State Program of Payment for Environmental Services, the Environmental Services Information Platform, and the State Registry of Payment for Environmental Services.</p> <p><b>Goal:</b> Foster the elaboration and execution of programs, projects and initiatives to implement environmental services in the state of Minas Gerais, and encourage the transaction of those services between individuals, aiming at ensuring biodiversity preservation, improving environmental quality, and ensuring sustainable development in the use of natural resources.</p> <p><b>Safeguards:</b> Among the guidelines listed in the bill, they included strengthening and acknowledging the role played by traditional peoples and communities, as well as family farmers, to maintain, conserve, preserve, make sustainable use of, and recover natural resources and traditional knowledge.</p> <p><b>Potential sources of funds:</b> I. Budget from the Fund of Protection, Recovery, and Development of Watersheds in the State of Minas Gerais. II. Financial on-lending, to comply with reforestation, from individuals and legal entities, according to Art. 79, Paragraph 1, in Law nº 20.922/2013. III. Revenue from fees for the use of water resources, as established by the National and State Policy of Water Resources, observing the resolutions made by the corresponding Watershed Committee, among others.</p>
<b>São Paulo</b>	<p>The state of São Paulo administration edited Decree nº 66,549/2022, which establishes the State Policy of Payment for Environmental Services, the State Program of Payment for Environmental Services, and the State Registry of Payment for Environmental Services Projects, compliant with the National Policy of Payment for Environmental Services (Law no 14,119/2021).</p> <p><b>Goal:</b> Foster actions that contribute to maintaining, recovering, or enhancing ecosystem services, particularly carbon capture, reduction in greenhouse gas emissions, and conservation of biodiversity, water resources and soil.</p> <p><b>Safeguards:</b> not covered in the decree.</p>



<p><b>São Paulo</b></p>	<p><b>Potential sources of funds:</b> I - Budget appropriation. II - State Fund for Pollution Prevention and Control, Fund for the Expansion of Agribusiness in the State of São Paulo, Water Resource State Fund allocated by the Watershed Committees. III. Funds from state-owned or private bodies and businesses. IV - Loans and donations from multilateral organizations. V - Voluntary contributions to offset Greenhouse Gas Emissions. VI. Conversion of administrative fines. VII - Funds from Terms of Environmental Offset Commitment, among others.</p>
<p><b>Pará</b></p>	<p>At the beginning of 2022, Pará state administration held the 1st Seminar on Payment for Environmental Services (PES) and Reducing Emissions from Deforestation and Forest Degradation (REDD+) in Pará and Carbon Market, organized by the Secretariat of Environment and Sustainability (Semas), in partnership with the Amazon Environmental Research Institute (IPAM). Additionally, Pará state administration and IPAM held the Climate Capabilities Exchange, REDD+ and Carbon Market, in Brasília. The event aimed at raising awareness about the topic among managers and technical executives working in the state of Pará administration and the state secretariats of Environment and Sustainability, Agriculture and Fishing Development, Finance, Economic Planning and Development, Mining, as well as representatives of Lands of Pará Institute, State Government's Attorney Office, Bank of Pará State, and the Rural Advisory Services and Agricultural Extension Company.</p> <p><b>Goal:</b> Support the elaboration of a State Policy of Payment for Environmental Services, a Jurisdictional REDD+ System, and a Bioeconomy Plan.</p>
<p><b>Maranhão</b></p>	<p>They passed Decree 37,969, which regulates State Law nº 11,578/2021, which established the Policy to Reduce Greenhouse Gas Emissions from Deforestation and Forest Degradation, Conserve Forest Carbon Stocks, Sustainably Manage Forests and Increase Forest Carbon Stocks (REDD+), Manage Environmental Assets and Payment for Environmental Services (PES) in the State of Maranhão, known as the Jurisdictional REDD+ System and PES.</p> <p><b>Goal:</b> Reduce deforestation and forest degradation, protect and conserve natural environments in the state of Maranhão, providing for the maintenance of ecosystem services, while promoting social and economic development, as well as the wellbeing of the population.</p> <p><b>Safeguards:</b> The decree seeks, among its goals and guidelines, to contribute to ensuring territorial and cultural rights to traditional peoples and</p>

<b>Maranhão</b>	<p>communities and indigenous peoples, as well as their sustainable development, by consolidating social and environmental safeguard principles and criteria, and fostering environmental products and services. Additionally, the decree aims to prioritize free, prior and informed consent of Traditional Peoples and Communities and Indigenous Peoples involved</p> <p><b>Potential sources of funds:</b> I. Budget funds. II. REDD+ and PES State Fund. III. Trade of certified credits from environmental services. IV. Green securities. V. Green Rural Product Note (Green CPR). VI. Payment for Environmental Services in formats legally provided for. VII. National and international, bilateral or multilateral agreements. VIII. Public-private partnerships and other associative formats. IX. Donations made by individuals or entities. X. Private investments. XI. Tax incentives and benefited credit lines. XII. Trade Models for Environmental Assets, Services and Credits; among others.</p>
<b>Roraima</b>	<p>They elaborated Bill nº 173 about the State Policy of Water Security, which uses instruments such as PES and charges for the use of water and water resources (published in the Congress Official Gazette on April 27th, 2022, p. 15).</p>
<b>Tocantins</b>	<p>They approved a Draft Bill establishing the State Policy of Payment for Environmental Services (PES) and authorizing the creation of the Company for the Development of Environmental Services and Climate Regulation in the State of Tocantins, in the form of a for-profit government-controlled (private) company.</p> <p><b>Goal:</b> Provide legal security and enable the Payment for Environmental Services (PES) in the state of Tocantins under Federal Law no 14,119/2021.</p> <p><b>Safeguards:</b> Among its principles are respect for social and informational participation, prevention, and shared responsibility.</p> <p><b>Potential sources of funds:</b> It establishes the creation of the Climate Fund linked to the Secretariat of the Environment and Water Resources. The sources of funds can be the following: I. Resources from private or public funds, and/or from the budget allocated to the Union, State, and Municipality. II. Funds from international cooperation. III. Legal voluntary contributions, from representatives of different industries. IV. A percentage of credit earnings from emission reduction; permission to buy and sell allocation quotas using applicable quantities. V. Funds from quasi-fiscal taxation (special taxes) targeted at the climate change agenda, among others.</p>

At the local administration level, over 20 municipalities currently have PES-specific legislation, according to WRI<sup>9</sup>. Those initiatives allow for paying farmers using municipal funds that mostly support actions targeted at enhancing water resources through forest restoration and conservation actions. One of the pioneer municipalities to adhere to this agenda was Extrema (in the state of Minas Gerais), when Municipal Law n° 2,100, as of 2005,<sup>10</sup> established the Water Conservation Project to preserve the quality of water springs and promote environmental adequacy in rural properties. The environmental services provided through that initiative are offset via the Municipal Fund on Payment for Environmental Services, according to the opportunity cost of the land<sup>11</sup>. This project counts on a partnership between the local administration (Extrema local government), non-governmental organizations (such as The Nature Conservancy - TNC), and universities, among others. Later, the initiative inspired a coalition formed in 2016 through the Mantiqueira Conservation Plan, spanning over 400 municipalities on Serra da Mantiqueira (region covering the states of São Paulo, Rio de Janeiro and Minas Gerais) aiming at restoring 1.5 million hectares of forests.

Other private and public-private initiatives are shown in Table 2.

**Table 2.** Some private and public-private initiatives implemented in Brazil, the region they were implemented, eligible actions and associated environmental services, methods of valuation adopted, and sources of funding.

NAME OF THE INITIATIVE AND LEADER INSTITUTION	REGION WHERE IT WAS IMPLEMENTED	ELIGIBLE ACTIONS AND ENVIRONMENTAL SERVICES PROVIDED	CRITERIA AND INDICATORS	VALUATION METHOD	SOURCE OF FUNDING
Avoided Deforestation Program, at the Society for Wildlife Research and Environmental Education (SPVS) <sup>12</sup>	States of Paraná and Santa Catarina	Maintenance of forest remnants (greenhouse emissions reduction).	The methodology follows GHG Protocol procedures for carbon emission inventories, as well as a broad study conducted by Embrapa and TNC to calculate carbon stocks	Costs to ensure the property preservation and financial return to the farmers.	Public and private agreements with key stakeholders, HSBC bank, and Boticário Group Foundation for Nature Protection, among others.

<sup>9</sup> Source: <https://www.wribrasil.org.br/noticias/como-funciona-o-pagamento-por-servicos-ambientais-quem-protge-e-restaura-florestas>

<sup>10</sup> Source: [http://produtordeagua.ana.gov.br/Portals/0/DocsDNN6/documentos/Lei%20Municipal%20n%C2%BA%202100%20-%20%20Conservador%20das%20C3%81guas\\_Extrema.pdf](http://produtordeagua.ana.gov.br/Portals/0/DocsDNN6/documentos/Lei%20Municipal%20n%C2%BA%202100%20-%20%20Conservador%20das%20C3%81guas_Extrema.pdf)

<sup>11</sup> Source: [https://www.extrema.mg.gov.br/conservadordasaguas/wp-content/uploads/2019/11/Conservador-da-C3%81guas\\_Livreto\\_12\\_ANOS\\_WEB.pdf](https://www.extrema.mg.gov.br/conservadordasaguas/wp-content/uploads/2019/11/Conservador-da-C3%81guas_Livreto_12_ANOS_WEB.pdf)

<sup>12</sup> <https://www.spvs.org.br/projetos/programa-desmatamento-evitado/>

Conserv project, at Amazon Environmental Research Institute (IPAM) and partners <sup>13</sup>	States of Mato Grosso and Pará	Maintenance of forest assets in mid and large rural properties (maintenance of carbon stocks).	The methodology establishes compensation only for native vegetation surplus that could still be legally deforested.	Value of land leasing, plus environmental attributes and index of priority for conservation.	In its first stage, the project is funded by donations from the governments of Norway and the Netherlands.
PES Program at the Amazon Sustainable Settlements Project, led by IPAM, in partnership with INCRA and FVPP <sup>14</sup>	Transamazonian Highway Region (State of Pará)	Avoided deforestation (maintenance of carbon stocks).	The methodology is based on deforestation reduction in small rural farms, using as a reference a 10-year historical baseline.	Waiver of gross income in exchange for keeping the standing forest.	Amazon Fund
Oasis Project, at Boticário Group Foundation and partners <sup>15</sup>	States of Minas Gerais, Paraná and São Paulo	Protection of forest remnants and springs, and environmental sanitation, among other actions (maintenance and enhancement in water quality, increase in carbon stocks, and soil conservation).	Forest conservation, water, financial and social metrics, as well as agricultural best practices. It is possible to include metrics about landowner 'satisfaction' regarding the changes resulted from the project.	Cost of opportunity, natural characteristics, and management of the entire farm.	People who benefit directly from the action are contacted and become potential buyers of those services. Revenue from the use water fees is also commonly used via Watershed Committees.

## Payment for Environmental Services as a way to conciliate the agricultural and environmental agendas: recommendations for 2023

Valuating efforts that result in the provision of environmental services is a critical strategy to integrate the productive and environmental sectors into a common agenda capable of addressing climate risks through sustainable management of forests and productive systems.

According to the World Bank report, the collapse of ecosystem services caused by the conversion of native vegetation areas into cropland, pastureland and forest plantation could result in the loss of USD 90-225 billion in global GDP by 2030 (Johnson *et al.*, 2021). Additionally, there are invaluable social and economic impacts associated with the loss of ecosystem services on a global scale, such as the loss of food security and cultural heritage.

<sup>13</sup> <https://conserv.org.br/>

<sup>14</sup> <https://ipam.org.br/projeto-pas-do-ipam-e-premiado-como-um-dos-mais-transformadores-pelas-nacoes-unidas/>

<sup>15</sup> <https://www.fundacaogrupoboticario.org.br/pt/solucoes-inovadoras/Paginas/Rede-Oasis.aspx>

In Brazil, climate emergency requires joint actions to mitigate the impacts that have been affecting different economic sectors and society. In the Amazon-Cerrado region, for instance, which accounts for half of the Brazilian agricultural production, 28% of the current agricultural lands are not in their 'climate optimum space' due to warmer and drier seasons (Rattis et al., 2021). By 2060, the authors estimate that 76% of the land in that region will no longer have the climate conditions required to ensure agricultural production.

Deforestation in Brazil has increased in recent years. This represents a serious impact on the agricultural sector. A study published recently estimates a loss of USD 180 billion in the beef production chain alone by 2050, considering a fragile governance scenario that will result in the loss of 56% of the forest cover in the Southern region of the Brazilian Amazon (Leite-Filho et al., 2021). In addition to that, researchers estimate a loss of USD 737 per hectare in ecosystem services due to deforestation in the Amazon forest (Jon Strand et al., 2018).

IPAM has recently published a technical note showing the dynamic of forest cover loss by land category in the Amazon (Alencar et al, 2022). In this context, it is worth pointing out some aspects of deforestation between 2019 and 2021, such as:

- I. Non-designated public forests accounted for almost a third of the total deforested area.
- II. The Amazonian states that showed the highest levels of deforestation in the biome during that period were Pará (43%), Amazonas (18%) and Mato Grosso (16%).
- III. Deforestation during this period was 56.6% higher than between 2016 and 2018.

The authors concluded that higher deforestation levels reflect setbacks in environmental policies and command-and-control actions. They also suggest investments in a positive agenda to foster good agricultural practices and reduce deforestation in private rural properties and rural settlements.

Many initiatives in Brazil proved to be successful in the recovery of degraded areas, reduction of pressure on the forest, and transition of land use patterns through payment for environmental services schemes. However, the lack of regulation in the National Policy of PES makes it more difficult to attract new funding opportunities to scale those initiatives.



Considering that economic incentives to stop deforestation and the loss of natural resources and associated environmental services, along with public policies targeted at sustainable rural development, are critical to the domestic agro environmental agenda, we recommend the following priority actions for 2023: It is worth highlighting



**Regulating Law 14,119/2021, and supporting the establishment of municipal and state-level PES policies and programs.**



**Enabling access of small farmers, traditional communities and indigenous peoples to market opportunities that value environmental assets beyond carbon, aligned with jurisdictional systems.**



**Fostering incentive programs for Private Natural Heritage Reserves (RPPNs), particularly those close to Conservation Units.**



**Aligning rural development public policies with PES initiatives to promote long term changes in the territory.**



**Strengthening partnerships with cooperatives, trade associations and other collective arrangements that enable scaling environmental service actions, according to the federal legislation.**



**Promoting the transition of agricultural supply chains to more efficient systems from the social and environmental perspectives.**



**Fostering the creation of Technical Assistance and Rural Extension networks trained to support PES initiatives in rural properties.**



**Supporting the strategies implementation of Consortium of Governors of the Legal Amazon.**

the importance of strengthening actions capable of promoting long term changes in a landscape scale, given the number of challenges faced in rural territories. Fundamental issues must be addressed for economic incentives to effectively play their role in this context. Thus, some authors advocate for the integrated landscape approach to attract investments in actions that can generate large-scale environmental services (Schmitt et al., 2019). Among the recommendations above, two of them are directly associated with this idea: supporting the implementation of the strategies determined by the Consortium of Governors of the Legal Amazon, and strengthening initiatives through cooperatives and other associative formats.

In the context of family farmers, there about 76,500 small farms (up to four tax modules) and 3,079 land reform settlements in the Legal Amazon (INCRA, 2021). In these rural territories, public policies for rural development should be aligned with PES initiatives to ensure long-term expected social, economic and environmental outcomes. Those areas, combined, account for 5.5 million hectares, but they lost 23.7 million of forest cover by 2020 (INPE, 2021). The agro-environmental agenda, in this context, must be able to address challenges related to the lack of: i. Land tenure regularization; ii. Environmental regularization; iii. Technical Assistance and Rural Extension services (ATER), iv. Infrastructure, v. Economic incentives, among others (Souza et al., 2022).

These challenges further exacerbate the vulnerability of this population to the impacts of climate change, compromising their sources of income and the food security of households and even consumers.

To illustrate the integration of strategies to address these challenges in the scope of a Payment for Environmental Services program, it is worth mentioning IPAM experience, which reconciled deforestation reduction with the improvement and diversification of productive systems and income generation (Pinto et al., 2020). The initiative was implemented between 2013 and 2017 in the Transamazonian Highway Region, state of Pará, with financial support from the Amazon Fund. The idea was to present ways to improve production and increase income without generating new deforestation that could inspire other rural territories. The project enabled the households to grow their average gross revenue by 177%, and reduce 75% of the deforestation in their properties. All this was made possible thanks to the following incentive strategies aligned with the PES Program:



- I. Elaboration of the Rural Environmental Registry of all properties engaged in the project.
- II. Training provided to farmers on different topics associated with the enhancement of productive systems.
- III. Fostering production improvement in already cleared areas.
- IV. Supporting producers through Technical Assistance and Rural Extension services.
- V. Forest restoration using agroforestry systems, and secondary forest enrichment.
- VI. Increased agricultural production value through processing and access to new market opportunities, among others.

In this context, the participation of producers in the PES program is voluntary. The payment for environmental services is based on the opportunity cost of the land and it is established through contracts with clear rules. Both environmental conservation and productive improvements efforts were compensated by the program. In addition to annual monitoring of the areas via satellite imagery, a group of local governance was created for social control. The group was formed by leaders of the rural communities covered by the program, grassroots organizations, local rural labor unions, and IPAM, among others.

In 2020, the initiative was acknowledged by the UN Economic Commission for Latin America and the Caribbean (ECLAC) as one of the most transforming experiences in Big Push towards Sustainability in Brazil, in the Social Biodiversity & Sustainable Territories category<sup>16</sup>.

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<sup>16</sup> Available at: <https://biblioguias.cepal.org/c.php?g=981128&cp=7143447>



# Conclusions

Regulating Law no 14,119/2021 is critical to attracting investments to the agro-environmental agenda, especially when it comes to initiatives in which the environmental service providers are low-income populations vulnerable to climate change impacts. No wonder those people are considered a priority both in the implementation of the PES National Policy and the Federal Program. Therefore, in this document, the authors bring other elements to this discussion to more assertively address the challenges faced in the territories where they live. Certainly, the PES agenda should also encourage efforts made by other stakeholders. Acknowledging RPPN owners, for instance, is aligned with this idea, since those private reserves are “voluntarily” established by them through an environmental agency, and recorded in character of perpetuity.

In any case, it is necessary to ensure that financial mechanisms aimed at the PES agenda are effectively focused on forest maintenance and restoration, biodiversity and other ecosystem services in order to mitigate the climate change impacts on economic sectors. The approach to achieving this goal must integrated existing public policies and, preferably, aligned them with jurisdictional systems, ensuring gains in scale and clarity about their contribution to national efforts. Monitoring systems must require minimum criteria to ensure the delivery of expected outcomes, using reliable measurement methods. However, it is necessary to define approaches and rules that do not allow the participation of those providers who cannot assume high transaction costs. Once again, integrating this agenda with other incentive policies in a landscape scale through jurisdictional systems can make the initiatives financially viable.

Regarding jurisdictional systems, Moutinho and Guerra (2017) state that the success of REDD+ and PES programs rely on the way the distribution of benefits will be established among stakeholders. Also, the authors draw attention to issues associated with land tenure rights, and the use of land and natural resources. According to them, those rights are not clearly determined in all countries located in tropical forests and this could, therefore, increase the vulnerability of indigenous and traditional populations to social exclusion and benefit sharing. Thus, a programmatic approach to collectively benefit social groups that have historically preserved forests, as well as the adoption of social and environmental safeguards like the ones listed in the proposal to regulate Law no 14,119/2021, can be an alternative to increase the likelihood of making those initiatives successful.



There is a multi-billion-dollar opportunity that can be channeled to the agro-environmental agenda through incentives to value environmental services. The private sector has proved to be an important player, as a growing number of businesses have aligned their commitments with the ESG agenda (Environmental, Social and corporate Governance). The next step is to lay out the necessary foundation to ensure a favorable financial business ecosystem for this agenda in 2023 and promote impactful results capable of putting Brazil back on with the path of sustainability.

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