



EXECUTIVE SUMMARY . 2021

# OPPORTUNITIES FOR BRAZIL IN CARBON MARKETS



# OPENING LETTER



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One of the main challenges of our time, climate change endangers the lives and livelihoods of billions of people. Extreme weather events, loss of biodiversity, changing water regimes, and increasingly frequent natural disasters also directly impact the economy, making prosperity in the 21st century unthinkable without acting on the risks of a global temperature 1.5° C above pre-industrial levels.

A recent report by the Intergovernmental Panel on Climate Change, linked to the United Nations Organization, made it clear that the climate emergency is the result of human action. And it is through human action that, in a coordinated way between the private sector, governments, and civil society, we will need to overcome this challenge.

Global cooperative efforts will be more essential than ever and must translate into policies that are aligned with the economy and that raise our ambition for strategies that result in positive and concrete climate impacts. COP26 in Glasgow will be a turning point in the global climate agenda: the success of the negotiations will dictate the pace at which regulatory frameworks - such as a regulated carbon market - fi-

nancial incentives and structural changes in the way production and consumption will allow effective decarbonization by 2050.

The private sector has a key role to play in this journey of transition to a low-carbon economy. It is inspiring to see that more and more companies are committing to targets to reduce their emissions in a fundamental exercise of rethinking how to do business.

More than that, the need to mitigate the risks and consequences of the climate crisis offers us an opportunity to reflect on the country we want and can be. We have the necessary elements and the conviction that it is possible to combine economic and social development with environmental conservation, creating opportunities and boosting a new economy for the country.

It is in this sense that the ICC Brazil developed, in partnership with WayCarbon consultancy, the present study that highlights the economic opportunities for Brazil in carbon markets from a multi-sectoral perspective. With a potential that reaches tens of billions of dollars, although this should not be the focus of

the solution to the climate crisis, it is evident a giant economic opportunity to reap the fruits of the immense environmental vocation that Brazil holds.

We hope that the main conclusions of this publication can provide input for negotiators, policymakers, the business community, and society at large in preparation for COP26 and other forums that will be critical to the success of the arduous mission of ensuring a future with production, balance, and quality of life.



ICC Brazil, one of the national chapters of the International Chamber of Commerce (ICC), was created in 2014 with the mission of bringing the private sector to the center of the international trade agenda and expanding the voice of the Brazilian business community with governments and international organizations, in the elaboration of projects focused on economic development, improvement of the business environment.

From a multi-sectoral approach, we produce knowledge through projects and advocacy initiatives, seeking to bring the private sector closer to government agencies and global debates in multilateral organizations, such as the UN, WTO, and G20, providing subsidies for the development of public policies that are beneficial to business and society.

We also disseminate locally the content developed by the global ICC in its 12 areas of operation, organize events on issues of relevance to the country's economy, give a voice to companies installed in Brazil globally, and transmit to the relevant

government authorities the ICC's positions on key issues for a healthy, fair and sustainable business environment.

ICC globally was founded in 1919 with the mission to promote more open, fair, and transparent international trade. Currently, the ICC represents the voice of companies at the highest levels of intergovernmental decision-making, whether in the World Trade Organization, the G20, or the United Nations, being the first private sector organization with observer status at the UN General Assembly. It is this ability to connect the public and private sectors that sets ICC apart as a unique institution, responding to the needs of all stakeholders involved in international trade and its surrounding issues, such as innovation and sustainability.

To learn more, visit [iccbrasil.org](http://iccbrasil.org)



Established in Brazil since 2006, WayCarbon is a technology-based company and the largest strategic consultancy exclusively focused on sustainability and climate change in Latin America. The company offers the market solutions that combine professional experience, innovation and technological development, aiming to transform sustainability into a competitive element for business.

WayCarbon is a reference in advising on global climate change, managing environmental assets and developing strategies and businesses aimed at eco-efficiency and a low-carbon economy. WayCarbon is a Certified B Corporation and is part of the main innovation hubs in the country.

WayCarbon understands that the carbon market agenda is strategic for the country and through its experience and market intelligence develops technical basis and financial innovation for the success of the implementation of opportunities in the country, clear motivation for partnership with ICC Brazil, and delivery of this work.

To learn more, visit [waycarbon.com](http://waycarbon.com)

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# SUMMARY

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## INTRODUCTION

The COVID-19 pandemic had impacts on public health and way of life in society and, in a devastating way, on the economy. However, the pandemic is not the only challenge of this decade, as record annual temperatures, rising natural disasters, and the decline of biodiversity show urgent warning signs for human longevity on Earth. Global warming, which unequivocally has human influence, will exceed 1.5°C before the middle of the century but can be minimized with immediate ambitious action to reduce emissions (IPCC, 2021).

Economic recovery packages, especially in advanced economies, have focused heavily on sustainable development and carbon neutrality. To ensure this achievement in a cost-effective manner governmental authorities, have been using regulatory mechanisms and carbon pricing instruments to unlock financial opportunities for countries' post-pandemic recovery plans and to accelerate sustainable economic growth (LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE; UNIVERSITY OF LEEDS, 2020).

In this context, this report explores opportunities for carbon markets in Brazil's productive sectors, especially regarding the concept of Article 6 of the Paris Agreement and voluntary carbon markets.

## ARTICLE 6 MARKET MECHANISMS OF THE PARIS AGREEMENT

The Kyoto Protocol, regulated in 2005, established an Emission Trading System (ETS) between Annex I countries and established two compensation mechanisms - the Clean Development Mechanism (CDM) and Joint Implementation (JI). Brazil was a relevant country in the provision of Certified Emission Reduction (CER) certificates to Annex I countries through the CDM, which generated US\$ 32 billion with about 340 projects (IPEA, 2018).

The trading environment of the United Nations Framework Convention on Climate Change (UNFCCC) has been in force with the Kyoto Protocol until 2020 and has been in transition to the Paris Agreement since 2015. Newmarket mechanisms are established in Article 6 of the Paris Agreement, with the potential to increase international cooperation in favor of emission mitigation and may pave the way for achieving the goals set in the NDCs (Nationally Determined Contributions) at lower global cost. They are:

- Internationally Transferred Mitigations (ITMOs) - mechanism for transfers of mitigation units between countries to be negotiated between countries, described in Article 6.2.
- Clean Development Mechanism (CDM) - that allows direct transfers between countries and the private sector, described in Article 6.4.

Among the impasses of Article 6 regulation, a group of 32 countries created their own market rules, adopting the "San José Principles for High Ambition and Integrity in International Carbon Markets (SJPs)" during COP25 in 2019. These principles aim to ensure the environmental integrity of the Paris Agreement by avoiding double-counting, using corresponding adjustments in NDCs, and prohibiting the use of Kyoto Protocol credits in the Paris Agreement (SEROA DA MOTTA, 2021).

These principles are adopted by countries historically buyers of carbon credit from Brazil under the Kyoto Protocol, and a national position divergent from the SJP carries risks to the demand for national carbon credit. It is expected that, after this impasse, the rules of the Article 6 mechanisms will finally be defined at COP 26 (26th Conference of the Parties of the UNFCCC) in November 2021.

## VOLUNTARY CARBON MARKET

Compared to the volume of the regulated markets, the voluntary market is still shy, but it has gained momentum with the recent commitments of large business groups towards carbon neutrality and the Task Force for Voluntary Carbon Markets, composed of more than 40 carbon market stakeholders and which aims to diagnose the challenges of this market to identify growth opportunities to be outlined.

Voluntary initiatives trade carbon credits between companies for voluntary compensation or limited

compliance with existing ETS targets. Voluntary markets, whose credit generation methodologies are established by standards such as Gold Standard and Verra, have existed since 2003 and 2005, respectively, and have reduced together more than 681.25 MtCO<sub>2</sub>e by 2021 (GOLD STANDARD, 2021; VERRA, 2021). Historically, Brazil is among the top four carbon credit generators of the world's voluntary carbon markets (DONOFRIO *et al.*, 2020).

## GLOBAL CARBON MARKETS SCENARIO

Both regulated markets and the voluntary market have increased carbon credit transactions in recent years:

- The total value of global carbon markets grew 34%, reaching €194 billion in 2019.
- There is accumulated registration of more than 14,500 carbon credit projects.
- There was the generation of almost 4 billion tCO<sub>2</sub> of carbon credits by 2020, with emphasis on the forest sector that issued more credit than the other sectors (42% in the last 5 years), with an increase in forest clearing transactions and the apparent preference for projects that generate co-benefits.
- More than half of all credits were issued from CDM projects, by 2018, when almost two-thirds of credits were issued by independent voluntary market mechanisms (MARKESTRAT *et al.*, 2020).

For future demand for carbon credits, it is considered the targets of the NDCs of the countries, the regulated carbon markets, and the demand from voluntary commitments, which tends to grow with the increase of zero net emission offset targets by private companies. However, it was possible to estimate only the global demand and that of voluntary commitments. For global demand, which can be understood as equivalent to the demand of

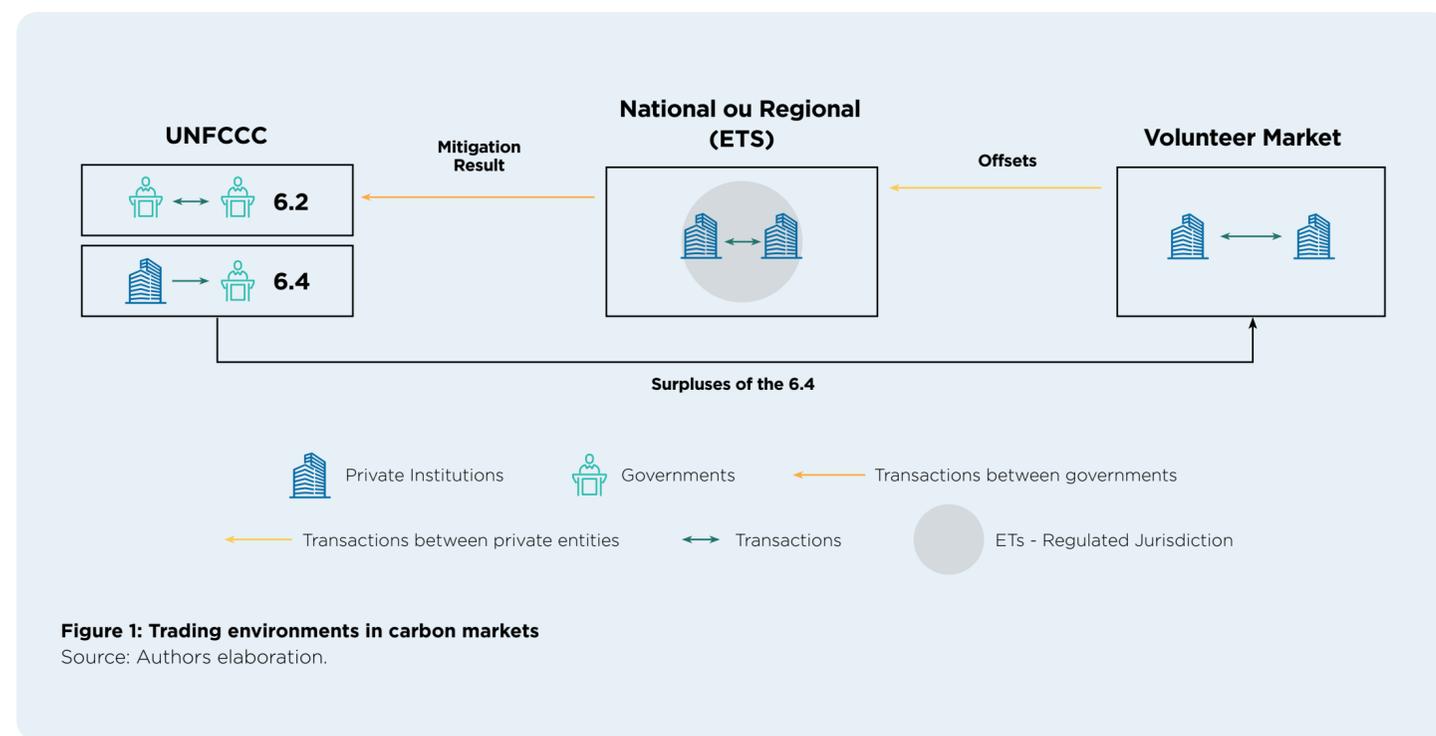
article 6 mechanisms, it is estimated up to 4,500 MtCO<sub>2</sub> per year (IETA, 2019). As for voluntary demand for carbon credits, it is estimated that 1,500 to 2,000 MtCO<sub>2</sub> in 2030 and 7,000 to 13,000 MtCO<sub>2</sub> in 2050, per year, depending on the price scenario (BLAUFELDER; LEVY; PINNER, 2021).

## OPPORTUNITIES FOR BRAZIL

There are national initiatives to reduce emissions using carbon markets as a tool such as:

- The PMR Brazil project that published a package of recommendations with pricing instruments for the Ministry of Economy in December 2020;
- The National Biofuels Policy (RenovaBio) with a focus on an instrument to encourage biofuels;
- The National Payment Policy for Environmental Services with the Forest+ and Forest+ Carbon programs;
- The Brazilian Market for Emission Reduction (MBRE), still in a proposal for a law with proposals for revision by business associations.

In addition to these projects, studies in Brazil such as "Mitigation Options of Greenhouse Gas (GHG) Emissions in Key Sectors in Brazil" and "A new economy for a new era: elements for building a more



efficient and resilient economy for Brazil” demonstrate a potential for cost-effective mitigation resulting in a unique opportunity to play a strategic geopolitical role in mitigating climate change in the new context of carbon markets. The potential and costs of abatement, opportunities for the production chain, and associated socio-environmental co-benefits for the Agricultural, Forest, Energy, Transport, and Industry sectors were analyzed. With this analysis, it was possible to associate the best opportunities to offer credit generation to the cost-effectiveness ratio realized between the potential and rebate costs of each sector. It is important to emphasize that the prominence of the Agricultural and Forest sectors demonstrates the relevance of nature-based solutions for Brazil. Thus, it was identified that these best opportunities are in three key sectors: Agriculture, Forest and Energy.



## AGRICULTURE SECTOR

**The estimated credit generation potential is between 10 and 90 MtCO<sub>2</sub>e with a high abatement potential, 2,419 MtCO<sub>2</sub>e, and a low abatement cost, between -1,978.00 and 1.99 US\$/tCO<sub>2</sub>e.**

### Activities:

- Strategies of integrated systems, with crop-livestock (ICL) and crop-livestock-forest (ICLF);
- Of low carbon agriculture that involves, mainly, biological nitrogen fixation (BNF) and no-till farming;
- Strategy of intensification of livestock, which includes the recovery of degraded pastures, the fertilization of extensive pastures and the confinement (BRASIL, 2017).

### Socio-environmental Co-benefits:

- Reduction of pressure on deforestation due to diversification of economic activities;
- The improvement of the quality of working conditions in the field;
- The contribution to the food security of families (IPÊ, 2021)

**For its production chain:** there are opportunities with new sources of income for rural producers in addition to increasing production efficiency, the recovery of productive potential in degraded areas, ensuring competitiveness among the main international agricultural suppliers, and strengthening small producers (CEBDS, 2017a).



## FOREST SECTOR

**The estimated credit generation potential is between 71 and 660 MtCO<sub>2</sub>e, with a high abatement potential, 2,565 MtCO<sub>2</sub>e, and a low abatement cost, between -0.38 and 9.22 US\$/tCO<sub>2</sub>e.**

### Activities:

- Reforestation;
- Sustainable forest management;
- Forest restoration (CEBDS, 2017b).

### Socio-environmental Co-benefits:

- Reduction of erosions;
- Maintenance in local biodiversity;
- Improvement of quality, availability of water;
- Positive effects on human health related to the reduction of deforestation and fires (WRI BRASIL; NEW CLIMATE ECONOMY, 2020).

### For its production chain:

- There are opportunities with the generation of approximately 7 million jobs in Brazil;
- Possible favoring of the flow of investments;
- The incentive of a forest-based economy;
- Development of local productive arrangements or the integration of forest activities to existing value chains;
- Valorization of Natural Capital;
- Environmental Services and economic use of the Legal Reserve (CNI, 2021; WRI BRASIL; NEW CLIMATE ECONOMY, 2020).



## ENERGY SECTOR

**The estimated credit generation potential is between 27 and 250 MtCO<sub>2</sub>e that contains technological innovation to be explored in Brazil and stands out for the great experience that the country has with CDM projects.**

### Activities:

- Hydrokinetic turbines;
- Repowering of hydroelectric plants;
- Offshore wind power plants;
- Floating solar power plants;
- Cogeneration;
- Second-generation ethanol;
- Green hydrogen (BNDES, 2016; FERREIRA, 2020; MACHADO, 2021).

### Socio-environmental Co-benefits:

- Energy security;
- Generation of jobs and income.

**For its production chain:** there are opportunities in the chains of biofuels and renewable sources of electricity generation with the generation of new jobs with almost 839,000 new jobs with the generation of biofuels, 166,000 with solar power generation since 2012, and 498,000 per year for wind power generation between 2011 and 2019 (IRENA, 2019; ABSOLAR, 2021; OLIVEIRA *et al.*, 2020).

It is considered that this potential should be only for the scope of Article 6 due to its non-eligibility for the voluntary market from 2020 if its regulation brings acceptance in its mechanism of project types related to technological innovation in this sector.

Considering these three key sectors, it was estimated that the potential to generate carbon credits for Brazil is between 107 and 1,000 MtCO<sub>2</sub>e for 2030, generating revenues between US\$ 493 million and US\$ 100 billion. This potential could be harnessed in three different scenarios of carbon markets<sup>1</sup>:

I. in the voluntary market, focusing on the Agricultural and Forest sectors, whose potential is estimated between 80 and 750 MtCO<sub>2</sub>e for 2030. Then, Brazil can supply 5% to 37.5% of the global demand in the voluntary market, associated with business commitments for 2030. The Energy sector is disregarded due to the non-eligibility of renewable energy projects in this market since 2020;

II. in the Mechanism of Article 6.4, focusing on the Agricultural, Forest and Energy sectors, whose potential is estimated between 107 and 1,000 MtCO<sub>2</sub>e for 2030, which includes the energy sector taking into account the premise that the types of projects accepted for this sector should be related to innovation in this sector. Then, Brazil can supply from 2% to 22% of global demand for this mechanism for 2030;

III. And the Article 6.2 mechanism, also focusing on the Agricultural, Forest and Energy sectors, which could serve as a means for the transaction of the results of emission reduction of projects related to the same sectors mentioned in the 6.4 mechanism, but also include results of implementation of robust public policies that have monitoring, reporting and verification (MRV) and incorporate projects of different

sizes that allow scaling results collectively. Thus, it is possible to say that the magnitude of its potential is greater than mechanism of 6.4's which is to supply up to 22% of global demand for 2030.

Other convergent projections on opportunities indicate that Brazil could reduce its emissions beyond its NDC target and benefit from revenue generation of the reduction surplus with a potential to sell emission reduction results of up to 1 GtCO<sub>2</sub> by 2030 and opportunities for Land Use (DE CLARA, 2021). Additional projections that also converge on opportunities indicate that the country could generate a positive net value of \$19 billion and, if it invests in achieving further short-term reductions, it could capture higher future carbon prices and generate additional net revenue of \$27 billion between 2020 and 2030 and \$40 billion between 2030 and 2035 (ENVIRONMENTAL DEFENSE FUND, 2016).

However, there are still several barriers related to market, economic and political issues for carbon markets in Brazil to be leveraged:

- The high costs related to the carbon credit certification process that requires a large volume of carbon credit that compensates for this additional investment to the project implementation costs;
- The scarcity of high-quality credits that can cause companies to lose confidence in the mitigation solutions offered those results in the reduction of the demand (WORLD BANK, 2021);

• As for nature-based solutions, the increasing complexity of carbon credit projects regarding environmental integrity concerns around permanence, additionality, baselines, and the lack of an international credit accounting system common to all programs (IETA, 2021);

• The impasses regarding the non-definition of the article 6 regulatory model regarding the corresponding adjustments and the transition of credits from the CDM to Article 6 may reflect globally in trade relations in this new context of the global carbon market. Brazil needs to establish a position aligned with its main buyers of carbon credits to guarantee demand;

• The concern with domestic emission mitigation capacity reduction due to the international transfer of results of mitigation of emissions from REDD+ offsets, regulated by Article 5, within the Brazilian NDC;

• The pressure of Green Deals and the border adjustments that impose the taxing of products imported from jurisdictions with more permissive climate policy and, consequently, can reduce the competitiveness of Brazilian products in a scenario without progress in the establishment of a carbon market.

1. The carbon market types of this study are conceptualized in the Contextualization chapter of the Complete Report.

## RECOMMENDATIONS

Given the opportunity to operate in the global carbon markets and the highlight for the agricultural, forest, and energy sectors, it is understood that there is a path to be followed by the Brazilian government and the private sector to unlock and leverage the generation of revenue, income, health and social welfare. That said and based on the information and discussions brought throughout this report, it is recommended to the Brazilian government:

- Covid-19's post-pandemic economic recovery packages should focus on sustainable development and climate neutrality using regulation mechanisms and carbon pricing instruments, as in developed countries.
- Brazil must deepen its knowledge about the prioritization of mitigation efforts required to meet the NDC to reduce emissions and achieve its targets as soon as possible, with the fight against deforestation as a basic premise, but taking into account that the fight against deforestation, broadly, is strategic in a context where there is a great opportunity for recovery of degraded areas and increased productivity.
- Organize, in partnership with the private sector, the set of actions and activities and/or projects that would form a robust and attractive Brazilian ITMO for potential partner countries.

- Note the potential that current policies and programs, such as the ABC+ Plan, have for Article 6.2 (ITMO) given NDC compliance and robustness in MRV.
- Brazil should strongly defend, during the COP 26 negotiations on Article 6.4, the inclusion of project types from the Agricultural, Forest, and Energy sectors.
- Review the national position and collaborate for an international consensus on the corresponding adjustments in the overall accounting of emission reductions under Article 6.
- Propose and position itself in favor of a transition of carbon credits from CDM projects on a temporary basis that minimizes the impacts on climate integrity of the Paris Agreement.
- Maintain an opinion in support of the equivalence of the Overall Mitigation of Global Emissions (OMGE) and the Share of Proceeds (SOP) in the instruments of Articles 6.2 and 6.4.
- The definition of a competent and responsible national authority for the accounting of transactions under Article 6 and to operationalize the corresponding adjustments with cross-cutting climate governance.
- Take advantage of the windows of opportunities with discussions on carbon markets under Article 6

for the creation of a regulated carbon market in Brazil, along the lines of the proposals of the PMR Brazil Project.

- Foster the potential for economic development, social equity and ecological balance generated by carbon markets. The carbon market model to be defended by Brazil must include among its major objectives: the protection of biodiversity, equitable access to sustainable development, poverty eradication and climate justice, in line with the Paris Agreement and the Climate Convention.
- Brazil also needs a series of institutional measures that will enable a good operation of carbon markets and that are independent of the regulation of Article 6 of the Paris Agreement:
  - The creation of a national emission reporting system that is easily accessible and integrated with other systems, which provides transparency in data and includes results from deforestation control systems and REDD+ (Reducing Emissions from Deforestation and forest Degradation) information;
  - The creation of monitoring and evaluation systems of carbon credit projects, aligned with internationally accepted scientific criteria, which allow the standardization of credits avoiding the scarcity of high quality credits;
  - The adoption of digital technology for MRV and certification processes;

- The prioritization of processes related to the legal fulfillment of sustainable projects so that their regulatory process does not become an obstacle to their realization;
- The incorporation of an intersectoral architecture that allows the monitoring of the mitigation result of all programs and public policies related to the NDC sectors.

For the private sector to support the development of this market and the advantages of its socio-economic benefits, this report brings the following recommendations:

- Commit to long-term carbon credit purchase contracts.
- Support the debureaucratization and simplification of transaction processes, as well as advocate the adoption of digital technology for MRV processes and carbon credit certification processes.
- Support the debureaucratization and simplification of transaction processes, as well as advocate the adoption of digital technology for MRV processes and carbon credit certification processes.
- Invest in credits from the Agricultural and Forest sectors that have been identified in this report as the sectors with the greatest potential. It is considered that investment in nature-based solutions should en-

sure maximum sustainability benefit and minimize social and environmental damage.

- As for the agricultural sector, projects should focus on the recovery of degraded pastures and integrated crop-livestock-forestry (ICLF) systems;
- As for the forest sector, projects should focus on reforestation, sustainable forest management and forest restoration.

- Include the participation of indigenous and traditional populations directly affected in discussions about projects in the Forest sector.

- Expand the effort to reduce and remove GHG emissions by investing in technological development and innovation and not only in compensation strategies.

- Establish partnerships that make innovative projects to reduce emissions and GHG removal from the atmosphere viable, as well as:

- Siemens Energy and Braskem, which together reduced Braskem's GHG emissions and water consumption, bringing greater efficiency in production;
- Natura, which, in partnership with the Cooperative of Economic Reforestation Consorciado and Adensado (in Portuguese, *Cooperativa de Reforestamento Econômico Consorciado e Adensado* - RECA), developed the first carbon offset project within its productive chain, called Circular Carbon (or carbon insetting), which seeks to contain de-

forestation in the Amazon and remunerates the environmental service provided by the family farmer in the conservation of the standing forest. The project is the result of the Natura Carbono Neutro program launched in 2007 to account for, reduce and neutralize Natura's GHG emissions;

- Based on cutting-edge science and technology, Bayer, in partnership with Embrapa and a team of experts, launched the PRO Carbono program. The initiative encourages and supports producers in adopting even more sustainable management so that they can increase their productivity and increase carbon sequestration in the soil. Participating farmers are part of a benefits ecosystem that goes beyond the agricultural chain, being rewarded not only for what and how much they produce, but also for how they produce;

- Schneider and Walmart, which created the Gigaton PPA (GPPA) program to educate the company's supply chain on renewable energy purchases through aggregate energy purchase contracts to avoid emissions of 1 GtCO<sub>2</sub> by 2030;

- Suzano's partnership with Procter & Gamble and the WWF are together developing restoration plans for various degraded forests in the Atlantic Forest biome, including monitoring methodology, impact evaluation, social engagement, and agroecological transition to rehabilitate the productive portions of the properties of local small farmers.

In a scenario in which rules and regulations are still to be defined, it is understood that this study has this

point as a limiting factor. However, the placing of efforts to create a broad, functional, and modern regulatory framework will allow the full development of opportunities and mitigation of exposed risks. Thus, it is recommended the development of studies in carbon markets in Brazil after the regulation of this article, to reference the potentials/estimates presented by this study in light of the parameters to be established such as the types of projects and methodologies that will be accepted in each of the markets.



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