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The Carbon Market and its Regulation in Brazil

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THE CARBON MARKET AND ITS REGULATION IN BRAZIL

By Gabriel Wedy, Weber Amaral and

Cacia Pimentel

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1. INTRODUCTION

At present, the global geopolitical scenario is based on an economy undergoing a post-pandemic recovery, with inflation unleashed in various developed countries and a war conflict in Europe, which entails an overall increase in energy prices, food insecurity and a breakdown of supply chains. Under such circumstances, the outlook is one of enormous pressure on the mitigation and adaptation plans of the United Nations, which seeks to revert climate warming caused by human actions in the post-industrial revolution era. The watchword is decarbonizing the global economy by reducing greenhouse gas (GHG) emissions and changing carbon-intensive production regimes. Indeed, countries, companies, and organizations need to increase energy efficiency, reduce or eliminate the use of fossil fuels and increase rates of carbon sequestration and long-term carbon storage. While there is consensus that decarbonization is imperative for human survival, post-pandemic realities and international conflicts have created energy and food insecurity that obstruct the path to a low-carbon or even zero-carbon economy.

In the world, the economic sectors with the greatest emissions are the Fossil Industry, Agriculture and Transportation.¹ Changes in the production cycle in order to include new technologies that can mitigate emissions do not occur fast enough to reap

¹ The Net-Zero Industry Tracker, July, 2022. Available at <https://www.weforum.org/reports/the-net-zero-industry-tracker/digest>. See also, o Relatório Energy Transition 2022, *World Economic Forum, Accenture, Fostering Effective Energy Transition 2022*; and, especially, o *Emissions Profile Analysis*, available at <https://www.breakthroughenergy.org/go-deeper/emission-profile-analysis>. Accessed on August 08, 2022.

their benefits, especially because of the economic costs involved in these changes. With a focus on the agricultural sector, this chapter will demonstrate how the carbon market is an effective and economically fundamental way to enable the implementation of protocols, public policies and legal strategies—taking into account the constitutional principles and the most progressive and sustainable precedents laid down by two Brazilian Superior Courts (i.e., the Supreme Federal Court and the Superior Court of Justice, which recognize a balanced environment as a third generation fundamental right or as one of a very new dimension—that will reduce emissions from the agricultural sector while minimizing the costs of these changes, ultimately giving shape to a virtuous economic and environmental circle.

Agriculture encompasses human activities for the production of food and fiber that are essential to sustain life on Earth. Because of its capacity to simultaneously emit and sequester carbon, it is necessary to choose appropriate legal strategies and agricultural technologies that encourage and provide neutral or negative emissions. However, there is a cost associated with such changes in these complex production cycles. Data made available by the Intergovernmental Panel on Climate Change (IPCC) show that global population growth and changes in per capita consumption after the Second World War, especially for food, feed, fiber, wood and energy, caused an unprecedented increase in water and land use, with a major expansion of agriculture over forested areas and the loss of ecosystems.

On the one hand, there is illegal deforestation within the context of land use, technically defined by the IPCC² as the unsuitable management practices of Agriculture, Forestry and Other Land Use (AFOLU) causing erosive and predatory degradation and responsible in themselves for approximately 13 percent of total carbon dioxide and 44 percent of methane (CH₄) emissions in the period 2007-2016, i.e., an average of roughly 24 percent of total emissions.³ On the other hand, sustainable agricultural activities make up an important GHG sink, assuming a central role in decarbonizing the economy. And, in this regard, Brazil can contribute more quickly to carbon sequestration through strict measures against deforestation and the adoption of increasingly advanced and sustainable techniques to replace more carbon-intensive farming practices.

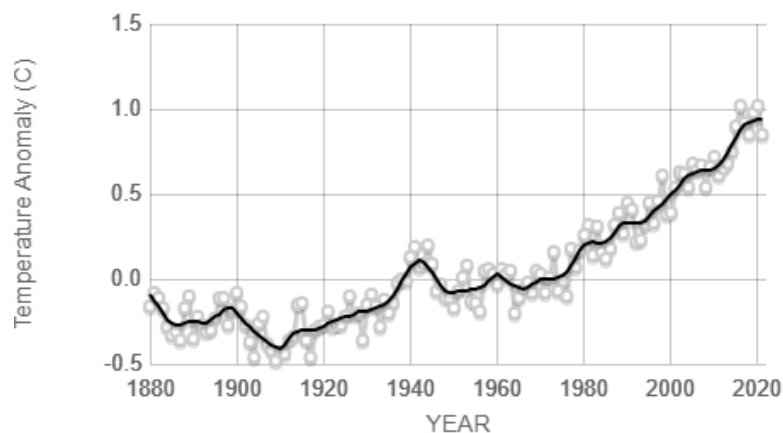
As we will see below, a correct regulatory framework can help agriculture put into force new production processes adapted to a low carbon reality and, furthermore, it can also assign a compensatory monetary value for new practices that will generate social and environmental benefits due to emissions mitigation. This new mechanism is called the carbon market.

² IPCC 2000, Special Report, Land Use, Land-Use Change, and Forestry. Summary for Policymakers, Chapter 3. Available at https://archive.ipcc.ch/ipccreports/sres/land_use/index.php?idp=124. Accessed on August 09, 2022.

³ IPCC Special Report, Summary for Policymakers on Climate Change and Land, 2020, p. 10.

2. THE RELATIONSHIP BETWEEN CLIMATE CHANGE AND THE PATHWAYS TO DECARBONIZATION

The impacts of anthropic actions on the climate can be observed and quantified since the invention of the Keeling Curve,⁴ which shows the effect of human activities on the chemical composition of the earth's atmosphere, demonstrating the increase in the global carbon cycle as an effect of continuous fossil fuel burning and increased deforestation. Other studies and methodologies⁵ also accurately demonstrate the impact of human activities and allow for the separation of natural and seasonal emissions from those in the spectrum of human activities.



Source: climate.nasa.gov

Source: NASA, Global Temperature Index, Goddard Institute for Space Studies, 2020⁶.

⁴ See also, Charles David Keeling in Historical Overview of Climate Change Science, Chapter 1, p. 100. Available at <https://www.ipcc.ch/site/assets/uploads/2018/03/ar4-wg1-chapter1.pdf>

⁵ Gerrard, Michael. Global Climate Change and U.S. Law, Second Ed. American Bar Association Publ. Chapter 1.

⁶ Since 1958. For further information on historical temperature readings, see also <https://climate.nasa.gov/vital-signs/global-temperature/>.

These contributions have made it possible to coin the term “climate change” to understand the change in the state of the climate, which can be identified by statistical tests, persisting for decades or longer. Some of the main definitions present in the normative framework on the subject are presented in order to exclude other notions of climate change that refer to seasonal and natural changes in climate.

Based on the understanding that Brazilian legislation is in line with the IPCC definition, climate change refers to significant changes in the results of climate measurements, lasting over a long period of time, that show variations in temperature, precipitation, or wind patterns, and which cause can be attributed to human action.

Created in 1988, the IPCC assists signatory nations in the formation of global and domestic climate policies by compiling the most accurate scientific studies on climate change, as well as tested and untested best practices for their implementation in the 196 member states of the United Nations. In 1992, the creation of the United Nations Framework Convention on Climate Change (UNFCCC) established the cornerstone for the recognition of anthropogenic activities as the cause of global warming. Since then, countries meet annually in Conferences of the Parties (COP) and have been developing mechanisms to help in the decarbonization of the economy.

These annual conferences provide nations with an arena to develop mechanisms and technologies for reducing emissions and lessening the impact of the deleterious effects of climate change through adaptation practices or mitigation methods. As the IPCC understands it, adaptation is any process of adjustment related to the actual or expected

climate and its effects in order to moderate damage or explore beneficial opportunities through human intervention that can facilitate this adjustment. By mitigation, the IPCC states that it is every human intervention aimed at reducing emissions or increasing GHG sinkholes, i.e., places that serve as storage for these gases, such as forests. Based on these concepts of a global order, Law 12,114/2009 establishes that adaptation consists of the “initiatives and measures to reduce the vulnerability of natural and human systems to current and expected effects of climate change” (Article 11, §2, paragraph “g”). Furthermore, under Law 12,187/2009, Article 2, VII, climate change is that which “can be directly or indirectly attributed to human activity” and that “alters the composition of the Earth’s atmosphere and is in addition to any changes caused by natural climate variability observed over comparable periods of time”. As for its adverse effects, Article 2 restricts them to those that change the physical environment or biota and that have significant deleterious effects on “the composition, resilience or productivity of natural and managed ecosystems, on the functioning of socioeconomic systems, or on human health and well-being. These adverse effects are not restricted to the geographic boundaries of any one country, but rather extend across all nations (transboundary pollution principle).

Under Law 12,114/2009, mitigation is a “reduction of greenhouse gas emissions and an increase in the capacity of carbon removal by GHG sinkholes” (Article 11, §2, paragraph “g”). Decree No. 9,578/2018, in turn, points out that mitigation refers to “technological changes and substitutions that reduce the use of resources and emissions per unit of production, in addition to the implementation of measures that reduce

greenhouse gas emissions and increase GHG sinkholes” (Article 4, paragraph II). It is within this framework of climate change mitigation policies that the global market for trading carbon credits unfolds.

In this regard, the mitigation mechanisms with the greatest impact were provided under the Kyoto Protocol, which came into force in 2005, and subsequently in the 2015 Paris Agreement. The Kyoto Protocol is based on common albeit differentiated responsibilities, i.e., with quantified carbon emission limits (the *carbon budget*) and a flexible methodology with the aim of encouraging developed countries to cooperate. It established the so-called Clean Development Mechanism (CDM), a certification program that allows the generation of credits through GHG emission reduction projects. Under this Protocol, emission reduction projects generated by least developed countries (LDCs) as well as developing countries can be traded to developed countries through Certified Emission Reductions (CERs). To obtain their validation, these projects need to be effective in reducing emissions, demonstrating real and measurable gains for the environment. Under this methodology, a ton of CO₂ is equivalent to one carbon credit. In summary, the CDM allows each ton of CO₂ not emitted or removed from the atmosphere by any one country to be traded under varied prices at the global market level through CERs.

The Paris Agreement established that the 192 signatories must submit their climate mitigation targets, known as the Nationally Determined Contribution (NDC), in order to keep average global temperature warming below 2 degrees Centigrade above pre-industrial levels. In short, the Paris Agreement updates the global regime to combat

anthropogenic climate change by creating NDCs, developing Sustainable Development Mechanisms (SDMs) and establishing the Carbon Market mechanism, as provided under Article 6, to foster mitigation results.

The United Nations Environment Program (UNEP) Emissions Gap Report 2021 noted a 66 percent probability that the NDCs as already submitted by countries had not led to the result of containing temperature increase within desirable levels. To attain these levels, stronger regulatory measures would be required, including even stronger legal incentives for countries to make the multitude of necessary changes in their economic activities.

3. DECARBONIZATION ROUTES AND COMPLIANCE FOR AGRIBUSINESS

For an effective decarbonization process, economic agents need to take into account the peculiarities of Brazil's economic structure, the main causes behind environmental degradation and the context of finite availability of natural resources.

According to the Institute for Applied Economic Research (IPEA, in Portuguese), the global crisis in 2020 entailed increasing uncertainties for the decarbonization process in the coming years.⁷ In fact, in the process of economic recovery, some countries have gone against the green transition path. For example, Norway, while having one of the most

⁷ LOSEKANN, Luciano; TAVARES, Amanda. *Transição energética e potencial de cooperação nos BRICS em energias renováveis e gás natural. Texto para Discussão*, Brasília Editora: Instituto de Pesquisa Econômica Aplicada (Ipea), p. 6, 2020.

robust renewable energy programs in the world, is the third largest exporter of natural gas. Indeed, natural gas exports were equivalent to 36 percent of Norway's total exports in 2019.⁸ Moreover, the nation increased its oil exports by 15 percent in 2020 compared to 2019.⁹

Brazil's agribusiness, which contributes a solid 21 percent of the GDP, presents particular challenges, such as the criminal advance over areas of native forests, illegal deforestation, forest fires and bushfires, coupled with the need to reconcile the production of food, biofuels and bioenergy for the country's energy matrix. In Brazil, there is a solid integration of agriculture with the national biofuel program, especially through the use of biomass, although recent global innovations related to batteries and the autonomy of electric vehicles most likely indicate that in just a few decades automakers may altogether stop producing combustion vehicles.

Beyond these considerations, after more than a century of a growing economy based on fossil and polluting industries, it is still possible to perceive the onset of a process of decarbonization of the economy, supported by scientific evidence that requires multidimensional efforts to reduce GHG emissions. Public and private sector agents converge and diverge on the adoption of new decarbonization routes, credit pricing, tax

⁸ NORSK PETROLEUM. Oil and Gas Exports. Norsk Petroleum, 2021. Available at <https://www.norskpetroleum.no/en/production-and-exports/exports-of-oil-and-gas/> e NORSK PETROLEUM. The Government's Revenues. Norsk Petroleum, 2020. Available at <https://www.norskpetroleum.no/en/economy/governments-revenues/>. Accessed on August 05, 2022.

⁹ OILNOW. Norway to Ramp Up Oil Production by 19%. **Oilnow**, 2021. Available at <https://oilnow.gy/featured/norway-set-to-ramp-up-oil-production-by-19/>. Accessed on August 05, 2022.

reform, and the adoption of new energy technologies. The main route to decarbonization is energy transition, i.e., the migration from a matrix heavily dependent on fossil sources to adopting other sources of origin and producing with low carbon impact.

Nevertheless, the consensus is that the energy transition alone will not fully decarbonize Brazil's economy. Decarbonizing the economy requires behavioral and legal changes, all of which entail disruptive movements that can generate unemployment in traditional sectors, the appearance of new jobs and work skills, as well as technological and educational advances in new sectors. Thus, to become viable, decarbonization requires paving the way for several concomitant and interdependent pathways—among them, the end of deforestation and the implementation of the carbon market.

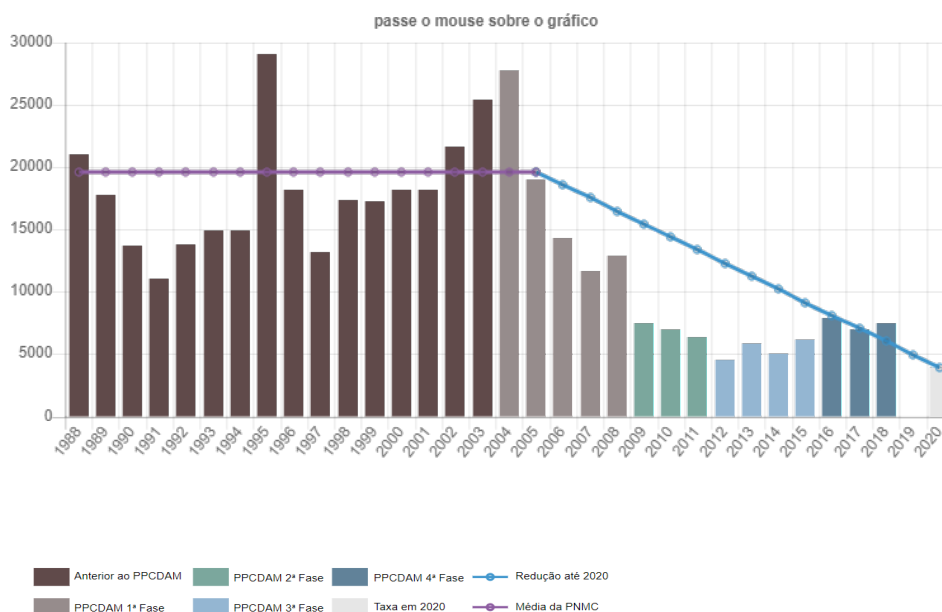
A reduction in deforestation is supported by robust Brazilian legislation that ensures a legal framework with the necessary strength to protect plant life, Permanent Preservation areas and legal reserve areas, as safeguarded under Law 12,651/2012. Known as the Forest Code, the law provides for the protection of the biomass against predatory forest exploitation, the supply of forest raw materials, controls on the origin of forest products, and the control and prevention of forest fires. Any attempt to explore native forests and successive formations, within the public or private domain, must be approved by the National Environmental System (SISNAMA, in Portuguese), through prior certification of the Sustainable Forest Management Plan (PMFS, in Portuguese), which must explain the techniques of forestry management, exploration, forest replacement and handling that are compatible with the particular ecosystem. Other examples of regulations

that can encourage low carbon production and discourage deforestation are Decree No. 9,578/2018, which revoked Decree No. 7,390/2010 that originally had regulated Brazil's National Policy on Climate Change, as well as Decree No. 7,830/2012, which instituted the Environmental Regularization Program to be adhered to by entrepreneurs under a special agreement. The latter sought to maintain, recover or restore Permanent Preservation areas, legal reserve areas, and restricted-use areas located in rural properties, in addition to compensating for areas of legal reserve.

After the PMFS, established by the National Council on the Environment (CONAMA, in Portuguese) under Resolution No. 406/2009, Brazil launched the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM, in Portuguese), established by revoked Decree No. 7,390/2010, which aimed (now reinstated by Decree No. 9578/2018) to reduce deforestation in the Legal Amazon region along three main axes: territorial and farmland planning; environmental monitoring and control; and the promotion of sustainable productive activities. The most recent Floresta+ Program¹⁰ is a specific action plan by the Ministry of the Environment (MMA, in Portuguese) establishing an environmental services market and encouraging monetary and nonmonetary retribution for the preservation of the Brazilian biomass, under a Nature-Based Solutions (NBS) method, with explicit payment for environmental services.

¹⁰ Available at <https://www.gov.br/mma/pt-br/assuntos/servicosambientais/florestamais/ProgramaFloresta.pdf>. Accessed on August 05, 2022.

These resources, which come from international cooperation agencies and the private sector, have a resounding impact on the carbon trading market.



Source: Goals for the Reduction of Deforestation in the Legal Amazon, 2020 (MMA)¹¹

The Sector Plan for Climate Change Adaptation and Low Carbon Emission in Agriculture Toward Sustainable Development (the ABC+ Plan 2020-2030) was established by Decree No. 10,606/2021 and introduces methodologies for the sustainable management of agribusiness, combining mitigation strategies, technological diffusion, and market instruments. The ABC+ Plan 2020-2030 does not have as yet the necessary regulations for its effective implementation and, in addition, it makes no mention of connecting these

¹¹ Available at <http://combateadodesmatamento.mma.gov.br/>. Accessed on August 05, 2022.

methodologies to the carbon market. However, this standard does foresee the creation of an integrated data management system (the ABC+ Plan Information System or SINABC, in Portuguese), which is to be responsible for the systematization and consolidation of the actions performed and results obtained in its execution. It should incorporate data from the ABC+ Plan's Governance System (SIGABC, in Portuguese), the Rural Credit and Proagro Operations System (Sicor, in Portuguese) and the Multi-institutional Platform for Monitoring GHG Reductions in Agriculture (the ABC+ Platform). All such information, when consolidated, may be of great value in the formation of a database for trading in emission credits, through the evaluation of the effectiveness and the economics resulting from changes in the production process of Brazil's agriculture sector that may ultimately entail climate benefits.

Finally, noteworthy is the REDD+ decarbonization mechanism developed by the United Nations with the main purpose of reducing deforestation, preserving water courses, and mitigating environmental degradation, in alliance with the conservation of forest carbon stocks. REDD+ generates various socio-environmental benefits by allowing the promotion of forestry and agro-forestry production chains. The *Ecosystem Marketplace Insights 2021 Report*¹² estimated that by August 2021 the voluntary market had operated in more than USD 540 million worth of REDD+ transactions.

¹² Available at <https://www.ipcc.ch/report/ar6/wg2/>. Accessed on August 01, 2022.

The biggest obstacle to overcome from the point of view of legal governance is to achieve the enforcement of these regulations. Nevertheless, especially with regard to agribusiness, changes in the production cycle require strategies at the governmental, corporate and farming levels to obtain tax compensations from the implemented changes, especially regarding the adoption of new technologies or production modes that have an economic impact on the production cycle. It is in this scenario that the carbon market emerges as a possible catalyst for promoting cooperation among the various economic agents, both public and private, to attain greater synergy for green financing, technology sharing and other initiatives of cooperation.

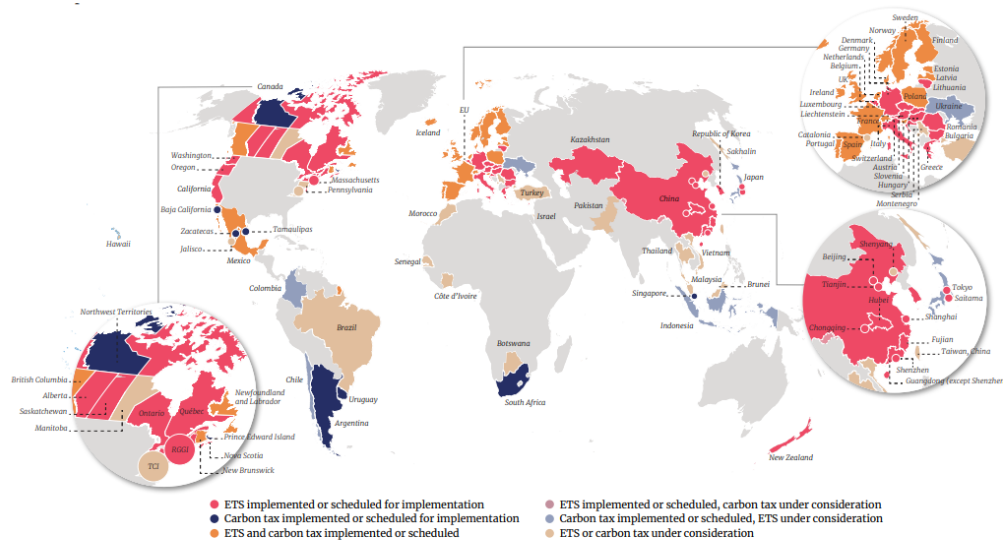
4. HOW THE CARBON MARKET WORKS

The carbon market can be defined as a mechanism for mitigating the harmful effects of anthropogenic changes, developed by experts from various nations within the United Nations. A carbon credit is a certificate that attests to the amount of GHGs that have not been emitted in a certain production cycle or in biodiversity conservation activities. The carbon market may be classified into two major structures: the voluntary market and the regulated market.

The market is called voluntary because it is operated by independent entities, where companies organize themselves to buy and sell their emissions or offset them in other ways, for example by supporting or switching to renewable technologies. The distinctive note in this process is the need for a company to audit and validate the offset process.

These transactions, however, do not count towards achieving a country's targets (NDCs). In this market, credits that are audited and validated by an independent entity can be freely traded by way of Verified Emission Reduction units (VERs or other internationally recognized standard). Prices will vary depending on the type of credit in the voluntary market, the actual demand, and the perceived integrity of the verification and carbon tracking process being negotiated.

The regulated market, on the other hand, is the environment in which governments allow a predefined amount of GHG emissions by certain economic sectors (the ETS or Emissions Trading System). It is considered a closed market because only those who have permission to operate can buy and trade credits. It is based on the already mentioned CDM created by the Kyoto Protocol and enhanced by other international standards that have been discussed in the scope of the COPs. In general, the ETS adopts a cap-and-trade system, i.e., the government establishes a cap, a maximum volume of GHGs that a company or sector can emit and, if exceeded, it will generate a liability. If the emissions fall short of what is allowed, the company or sector can transform the carbon savings into credit to be traded. It is also called carbon allowance because the law gives a license to emit polluting gases. Thus, it is clear that the regulated market has this name because it depends on a normative framework that brings legal certainty to this market.

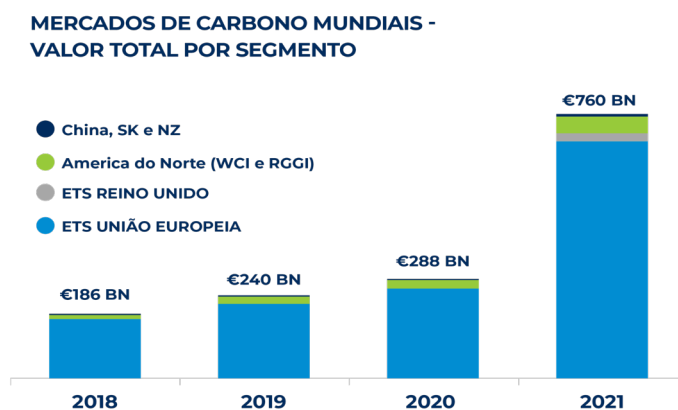


Source: *State and Trends of Carbon Pricing*, World Bank, 2022¹³

Article 6 of the Paris Agreement paves the way for structuring the carbon market as a whole, especially for clearer procedures to offset credits, with common, more harmonized and standardized rules that can qualify the credit and help scale the market. These rules are being further developed every year within the COP. It is expected that, with more legal certainty, there will be an increasing demand for credits and a greater flow of climate financing, especially so that the market in developing countries can make changes in the production process related to the neutralization of emissions. Some forecasts predict that the voluntary market itself, currently estimated at more than USD 1 billion per year, may continue to double in size in the coming years. The global regulated market, with a massive predominance of the European market (EU ETS), also experienced

¹³ Available at https://openknowledge.worldbank.org/bitstream/handle/10986/37455/9781464818950_Executive_Summary.pdf?sequence=11&isAllowed=y. Accessed on August 01, 2022.

colossal growth between 2020 and 2021, and it should continue to grow in the coming years due to the internal regulatory structuring of countries. According to the Refinitiv database, cited in the Credit Suisse report *Carbon Markets: The Beginning of the Big Carbon Age*,¹⁴ the total volume traded (both regulated and voluntary markets) in 2021 may have reached USD 851 billion, accounting for a 164-percent increase over the previous year.



Source: Total Carbon Markets. World Bank, 2021.

The dynamics of structuring carbon markets, especially in the diffuse environment in which the voluntary markets occur, require the development of a set of standardizing principles known as Core Carbon Principles (CCPs) and Assessment Framework (AF). The

¹⁴ Available at <https://www.credit-suisse.com/media/assets/sustainability/treeprint-carbon-markets.pdf>. Accessed on August 06, 2022.

work is spearheaded by The Integrity Council¹⁵ with the aim of providing a set of credible, standardizable principles for identifying carbon credits characterized by their high quality and socio-environmental integrity in the voluntary market. Indeed, the implementation of a quality standard will have an impact on credit pricing, keeping away adventurous certifications that may negatively influence the values negotiated in the voluntary market. Thus, the carbon market, in addition to its function of inducing behavioral changes in the relationship with the environment, needs to meet quality metrics that will make it possible to keep the pricing of environmental assets economically desirable.

The carbon market is directly linked to a good system of market compliance and governance of the parties involved. In addition to multilateral organizations, the main actors to enable decarbonization are governments (at the federal, state and municipal levels), the market and civil society. In a multilevel governance context, these are the main actors that should, under central leadership, coordinate behavioral changes and the adoption of technologies, policies and methodologies that have been developed and recommended, such as, for example, energy efficiency and clean energy, bioelectrification, carbon capture technologies, negative emissions techniques (such as reforestation) and crop-livestock-forest integration, besides pricing and trading of sequestered carbon.

¹⁵ Available at <https://icvcm.org/the-core-carbon-principles/e>
<https://standardsdevelopment.bsigroup.com/projects/9022-07391#/section>. Accessed on August 06, 2022.

In fact, the compliance system in itself is a complex pillar structuring governance and it requires the adoption of standards of integrity for conducts that will generate value, with the aim of safeguarding equity, transparency and accountability. In agribusiness,¹⁶ the main tenets of compliance should also encompass caring for the land and water, safeguarding traditional communities, adopting an appropriate energy use of the biomass and residues in general, carrying out environmentally friendly mineral and timber exploitation, making use of biochemical technologies, using biological techniques for pest control, recovering pastures and caring for forest areas, and all other necessary measures to attain good socio-environmental management.

Not only is Law 12,846/2013 (Article 7, paragraph VIII) an example of the centrality of mechanisms and internal procedures necessary to achieve integrity, perform auditing, and espouse codes of ethics within a legal entity (i.e., companies), but the Central Bank itself, in line with the dictates of multilateral banks, has also been guiding public and private banks to effectively verify the policies of integrity that corporations may have in

¹⁶ See for example, the Code on Best Practices for Corporate Governance, Código das Melhores Práticas de Governança Corporativa do Instituto Brasileiro de Governança Corporativa - IBGC. 5. ed. São Paulo: IBGC, 2015. p. 20. Available at <http://conhecimento.ibgc.org.br/Paginas/Publicacao.aspx?PubId=21138>. Accessed on August 06, 2022; and BRITO, Adam Luiz Claudino de; BARBOSA, Erivaldo Moreira. A gestão ambiental das terras indígenas e de seus recursos naturais: fundamentos jurídicos, limites e desafios. *Veredas do Direito: Direito Ambiental e Desenvolvimento Sustentável*, Belo Horizonte, v. 12, No. 24, p. 99. 2016. Available at <http://dx.doi.org/10.18623/rvd.v12i24.544>. Accessed on August 06, 2022.

place when granting financing, including the existence of sustainability criteria such as environmental, social and governance protocols (ESG Standards).¹⁷

5. REGULATIONS AND THE CHALLENGES OF THE CARBON MARKET IN BRAZIL

It should be noted that Brazil has yet to have a fully functioning regulated carbon market in place. But there have been some advances. The pressure exercised by Brazilian society, on the one hand, and the Supreme Court, on the other, for prohibiting contingencies in the National Fund on Climate Change (FNMC, in Portuguese) has broadened the debate and certainly resulted in regulations aimed at adopting mitigation measures, such as the structuring of the carbon market. Indeed, the FNMC was originally created by Law No. 12,114/2009 and regulated by Decree No. 9,578/2018 with the aim of defining the application of its resources, including activities of GHG emissions reduction projects, and forms of technology dissemination.

In the midst of a meager legal framework, Law No. 12,187/2009 and Decree No. 11,075/22 stand out, which inaugurated the Brazilian Emissions Reduction Market (MBRE, in Portuguese), although its regulation is pending to date. The MBRE, when operational, will allow certified credits to be registered in the National System for the Reduction of

¹⁷ See, Aprimoramento da Regulação sobre riscos socioambientais Consulta Pública n. 85/2021; Resolução BCB No. 112/2021; Portaria BCB No. 104.238/2019; Portaria CGU No. 1.089/2019; Portaria CGU No. 57/2019. The Agenda BCB guidelines are available at <https://www.bcb.gov.br/acessoinformacao/bchashtag>. Accessed on August 02, 2022.

GHG Emissions (SINARE, in Portuguese), a platform for registering data and consolidating the trading and transferring of carbon credits. The Brazilian regulated market, according to Article 9 of Decree 11,075/2022, should be operated in commodities and futures exchanges, stock exchanges and organized over-the-counter entities, authorized by the Brazilian Securities Commission (CVM, in Portuguese), whereby trading of securities accounting for avoided GHG emissions that can be effectively certified will take place.

Nonetheless, the rules for operating the new system have yet to be issued. Article 3 of Decree 11,075/2022 sets forth the competence of the MMA, the Ministry of Economy and other related ministries for the preparation of Sectorial Plans for the Mitigation of Climate Change. Likewise, the joint Act referred to in Article 8, paragraph 1, which will make available the rules on registration, certification standards, management and operation of the SINARE, as well as the forms of accreditation of certifiers and custody centers, and that will include compatibility criteria and guidelines for digital registration of credits, is still awaited. There is no reference in Brazilian law about the forms of public and private funding for the structuring of this new market, taking into account the global geopolitical configuration.

It is possible to predict that Brazilian legislation will adopt the cap-and-trade system, defining the maximum volume of GHG that may be emitted by the sectors listed in the regulation. This provision may bring legal certainty to the regulated market, while simultaneously adhering to the principle of Enhanced Transparency Framework (ETF) for

compensation, in compliance with the commitments made under the United Nations. It is expected that the Brazilian regulated market will be governed by a solid and environmentally sustainable regulatory framework as soon as possible. The success of the regulated market will depend on good political governance that will effectively coordinate the objectives of these climate commitments with Brazil's own macroeconomic policies that need to absorb the negative externalities of pollution.

Finally, and in view of these considerations, it is natural to conclude that the voluntary market is already operating and needs to grow, so that the environmental opportunities of agribusiness are not wasted. According to estimates, investments in NBS should triple by 2030 and quadruple by 2050. NBS, where the most carbon retention and sequestration-intensive activities are located, certainly hold a promise of higher value added to credit traded in and more prosperous financial returns for agribusiness.

The key point is that Brazilian emissions are more tied to illegal deforestation and farming with no carbon neutral commitment. Thus, it is suggested that the State should adopt strategic planning that is both integrated and unbureaucratic, characterized by the design of public policies based on the best scientific diagnoses, with the aim of developing three legal and regulatory pathways that are urgent for attaining sustainable economic growth: the use, during the production process, of carbon fixation techniques in the soil, based on the adoption of new practices and technological innovations; the development of the carbon market, both regulated and voluntary, with the condition for the latter to develop with little or no intervention; and, finally, the use of NBS as a tool for economic

activities that will help reduce emissions and generate more wealth and prosperity while upholding social equity, for producers *and* for the traditional communities involved.