

# Reforestation Allied to APP's Areas and Certification to Maximize Profits in Rural Properties

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**Keywords—** *Environmental management. Carbon credit. Viability. Sustainability.*

**Abstract—** *The reduction in the emission of gases that cause the greenhouse effect and the promotion of sustainable development brought an investment opportunity, since companies, currently, must have commitments and targets for reducing the emission of gases according to international agreements. Based on this principle, a large market niche for Brazilian agribusiness is found here, since developed countries have large productive chains, through their industries, which are pillars of the market and world economic development, the need arises to combine productivity, gain and environmental responsibility, which often fail to maintain a perfect balance. The objective of the work is to disseminate the certification for the emission of carbon credits, through reforestation and preservation of APP's areas as a new way to increase profits in the Brazilian agribusiness rural sector. The proposed methodology was based on a theoretical and documentary review, to deepen the idea and provide a better understanding of the subject. Dissertations and theses were read to understand how carbon credit certification works. At the end of the study, the economic viability of investments in reforestation was verified, together with the areas of APP's to expand the income of the rural producer.*

## I. INTRODUCTION

As a result of the global mobilization on reducing the emission of gases causing the greenhouse effect and promoting sustainable development, there is an investment opportunity, since companies, currently, must have commitments and targets for emission of gases according to international agreements.

From this principle, there is a large market niche for Brazilian agribusiness, as developed countries have large production chains, through their industries, which are pillars of the world market and economic development, there is a need to combine productivity, environmental gain and responsibility, which often fail to maintain a perfect balance.

At this moment, underdeveloped countries such as Brazil, holders of large territorial areas, where it has great potential for the production of carbon credits, can take advantage using the certification process.

When analyzing the main economic activity in Brazil, which is agribusiness, which has a fundamental role in terms of our trade balance, as it brings balance and also great development potential, we find a market that is little explored and unmotivated, due to Brazilian producer.

It is known that every rural property has its productive area, which largely supports the business. However, it has within its total area APP's (Permanent Preservation Area), which are seen, often, with bad eyes by producers, because it is a preservation area and seems unproductive.

By analyzing the APP's areas and preservation on a rural property, these areas can be turned into productive and extremely profitable business, by combining rural production, whatever it may be, with certification for the emission of CO<sub>2</sub> credits (dioxide of carbon) in part of its property and APP's.

The carbon credit market has a lot of space to be worked on in rural properties, since, by investing in the necessary certifications, it becomes a new source of income for the producer, allied to a market that is constantly increasing. Due to the development of large global economies, even economically efficient, they are unable to meet their CO<sub>2</sub> emission targets, as it generates growing demand in the market. Thus, due to the great appreciation of these assets, it has even been traded on capital markets (stock exchanges).

From the above, the principle of demand and supply is observed, thus, Brazil and its rural producers have a large market that still needs to be explored further. It is believed that this fact is linked to the lack of information, which led us to carry out this work to try to understand and show that the use of APP's areas with reforestation of part of the property, when added together, can bring environmental return, through certification for carbon credit. Therefore, data was collected to respond to the inconveniences:

- ✓ What are the difficulties encountered by agricultural producers to take advantage of APP's areas?
- ✓ How relevant is it to understand the processes of certification and negotiation of carbon credits?
- ✓ How important is it to set aside a percentage of your rural property for reforestation?

## II. JUSTIFICATION

The work is justified on the basis of environmental preservation combined with the profitability generated through carbon credits. Considering that the object of research is the areas of APP's and reforestation, the proposed approach can help agribusiness managers to use natural resources to maximize environmental profits through APP's and reforestation.

The general objective of the work was to spread the certification for the emission of carbon credits, through the reforestation and preservation of APP's areas as a new way to increase the environmental profits in the rural producers sector of the Brazilian agribusiness.

For the study, it was specifically necessary to: analyze how the carbon market works for agricultural producers; propose the implementation of reforestation and

certification for the issuance of carbon credits; show possible paths for certification, and negotiation of credits generated by APP's and reforestation areas of the property.

## III. BRIEF BACKGROUND ON ENVIRONMENTALLY FRIENDLY MOVEMENTS

Early in the 19th century, environmental movements began as a response to industrialization. In the 20th century, from the 1960s onwards, the discussion began to receive greater prominence, due to the following factors, such as: the increase in polluting gas emissions, the greater use of agricultural pesticides and the strengthening of nuclear energy. With this, several scientists highlight the need to respect the ecosystem we live in to protect human health and the environment.

In this way, new visions gain strength on the subject and begin to be put into practice. Below we see the main movements brought by the authors João Carlos Moreira and Eustáquio de Sene (2019):

✓ Year 1972-

1st United Nations Conference on the Human Environment – Stockholm (Sweden)

✓ Year 1983

World Commission on Environment and Development

✓ Year 1985

Vienna Convention for the Protection of the Ozone Layer.

✓ Year 1986

Brundtland Report on “Sustainable Development” (Our Common Future); current development that allows the use of natural resources without harming the rights of future generations

✓ Year 1987

Signed the Montreal Protocol with the objective of eradicating substances harmful to the ozone layer, such as CFCs. The goal of this protocol was fulfilled, as between 1987 and 2008 there was a reduction of 99.7% of these gases.

✓ Year 1992

Rio-92, Eco-92 or Earth Summit. – Participation: more than 170 countries present, brought together more than 100 heads of state; 2400 representatives of NGOs (Non-Governmental Organizations); more than 17,000 people attended the NGO Forum (an event parallel to the United Nations Conference). – Main Theme: Sustainable Development – Final Documents: Agenda 21 (a document that established the importance of each country to commit to reflect, globally and locally, how all sectors of society

could cooperate in the study of solutions to socio-environmental problems); Rio Declaration on Environment and Development; Declaration of Principles relating to Forests; Convention on Climate Change; United Nations Convention on Biodiversity. – The main objectives of these initiatives are:

I. Promote development without destroying nature;

II. Create a fund to help developing countries to protect the environment;

III Seek a solution to the relationship between excessive consumption in developed countries and the destruction of the environment in 3rd World countries, pressured by external debts.

✓ Year1997

Created in 1997, the Protocol entered into force on February 16, 2005, during the first period (between 2008 – 2012) developed countries commit to reduce greenhouse gas (GHG) emissions by at least 5% relative to 1990 levels. In the second commitment period, Parties committed to reduce GHG emissions by at least 18% below 1990 levels over the eight-year period 2013-2020. Each country negotiated its own emission reduction target based on its vision of the capacity to achieve it in the period considered. Brazil ratified the document in 2002, but developing countries such as Brazil and China do not have reduction targets. Among the main emitters of greenhouse gases, only the United States has not ratified the Protocol. However, they continued with responsibilities and obligations defined by the Convention.

✓ Year2002

Known as Rio + 10 or World Summit on Sustainable Development) – Main objective: to discuss solutions already proposed in the primordial Agenda 21 (Rio 92), so that they could be applied in a coherent way not only by the government, but also by the citizens. It was decided to reassess goals and prioritize issues related to Global Warming.

✓ Year2009

Copenhagen, was the 15th conference held by the UNFCCC (United Nations Conference on Climate Change). – Main objective: establish a climate agreement to replace the Kyoto Protocol. – Participation: 192 nations were represented at the conference, making it the largest UN conference on climate change.

✓ Year2012

Known as Rio + 20: – Gathered 193 member countries, but frustrated the expectation of what awaited targets or agendas of commitments. One of the main reasons for the expectation was the success of the conference held in 1992, the Conference on the Environment and Development, the Eco 92, or Rio 92, which was one of the most productive in the history of the United Nations.

✓ Year 2015

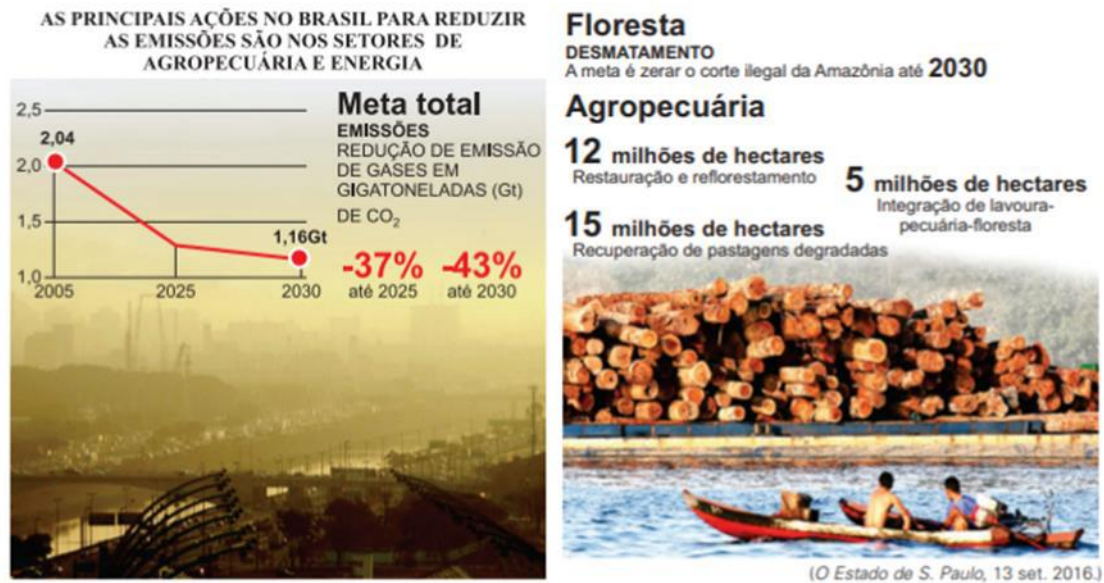
Paris Agreement: for the first time in history a universal agreement, defined measures to reduce carbon emissions and contain the effects of global warming and which was approved by almost all countries (195 countries). The agreement enters into force from the year 2020, being essential to limit global warming below 2°C by 2100, compared to before the industrial age.

Source: Moreira; Sene (2019). Organized by the authors.

In this last agreement, Brazil undertakes to reduce its greenhouse gas emissions by 37% by 2025 and 43% by 2030 compared to 2005 values. Thus, the commitments assumed by Brazil are:

- End illegal deforestation;
- Restore more than 10 million hectares of forest;
- Integrate 5 million hectares of crop-livestock-forests;
- Guarantee 45% of renewable sources in the total energy matrix;
- Expand other renewable energy sources;
- Increase the share of ethanol to 16%.

It is noted that Brazil is committed in the agricultural area to restore 12 million hectares in restoration and reforestation, 5 million hectares in crop-livestock-flo integration



Source: JornalO Estado de São Paulo, 2016

### 3.1 Carbon market

The carbon market arose from the need for effective measures to reduce the emission of gases that cause the greenhouse effect, with this the world scenario brought several protocols as measures to reduce and preserve our planet. Today, the way the carbon credit is measured, each ton of carbon dioxide (CO<sub>2</sub>) is sequestered, corresponds to a carbon credit that is most often issued by developing countries to developed countries. In the Brazilian domestic market, we already find a good demand for credits by companies that have emission/reduction targets and are unable to meet them, where, in turn, they resort to purchasing credits to suit their needs.

According to Martins et al. (2012, p. 2), "Carbon credits arose from the concern of society in general with the future of the planet". As shown in Table 1, it is interesting to implement project activities in developing countries to reduce GHG gases.

| A emissão de 1 tonelada de: | Nome:              | Equipara-se à emissão de: |
|-----------------------------|--------------------|---------------------------|
| CO <sub>2</sub>             | Dióxido de Carbono | 1 tCO <sub>2</sub> e      |
| CH <sub>4</sub>             | Metano             | 21 tCO <sub>2</sub> e     |
| N <sub>2</sub> O            | Óxido Nitroso      | 310 tCO <sub>2</sub> e    |

Fonte: Adaptado de Limiro (2012).

In Brazil, there are no rules that regulate the trade of credits, however there are projects for flexibilization mechanisms (CDM - clean energy mechanism). Although there is no regulation, Brazil applies to integrate the carbon market. Of the 3,219 projects that were in some phase of the CDM, 280, that is, 9%, were from Brazil. This number

of projects gave Brazil the 3rd position in number of projects (LIMIRO, 2012). At the international level, in 2003, there were some credit classification focuses.

The International Accounting Standards Board (IASB) issued, through its International Financial Report Interpretations Committee (Ifric), the Ifric Draft Interpretation D1 Emission Rights, on July 14, 2003, a first draft for interpretations relating to the issues accounting of emission rights (permissions). The draft treated permits as an intangible asset, to be recorded at fair value upon receipt of permit, at the beginning of each year. For companies that complied with the reduction, the impact on the result would be zero; for those who did beyond the permits, it would be positive. In addition, the company would obtain credits for the following year or would sell them to those who did not meet the target defined in the permissions received (PELEIAS et al., 2007, p. 84).

With regard to credit rating, in Brazil, opinions diverge. Many companies classify carbon credits in the way that best suits them, given the lack of accounting standards. Peleias et al. (2007) carried out a study to find out how companies that participated in the CDM project process in Brazil accounted for carbon credits. As a result, the companies demonstrated that they are hardly dealing with the matter in the accounting sphere, as there are



disagreements about the accounting treatment applicable to carbon credits.

#### IV. METHODOLOGY

This work was based on exploratory research, in order to better understand how APP's areas work, reforestation of rural properties and certifications for carbon credits (C0<sub>2</sub>). Because it is a relevant topic.

Legal documents and oriented to carbon credits were selected. Also, from these documents, a bibliographic review of articles by researchers with extensive knowledge of the subject in question was carried out. According to Severino (2002):

Once the theme of the work has been established and mastered and the problems and hypothesis formulated, the next step is the survey with existing documentation on the subject. Already a heuristic, science, technique and art phase of document search. A series of procedures is triggered for the methodical search and location of documents that may be of interest to the topic discussed. (p.76)

After the selection and studies carried out in the area, through monographs, scientific articles, dissertations, theses and books, we sought to highlight the aspects that guaranteed and guided the implementation of the APP's areas. In this theoretical analysis process, the understanding of how to carry out the implementation of APP's and reforestation in agricultural properties was used, emphasizing the profits and benefits for the environment. Thus, it was understood that:

[...] the main advantage of bibliographic research lies in the fact that it allows the investigator to cover a much broader range of phenomena than what he could research directly. This advantage becomes particularly important when the research problem requires data that is widely dispersed across space. For example, it would be impossible for a researcher to travel across the entire Brazilian territory in search of data on population or per capita income; however, if you have an adequate bibliography at your disposal, you have no major obstacles to having the required information. Bibliographic research is also indispensable in historical studies.

In many situations, there is no other way to know past facts than based on bibliographic data. (GIL, 2002, p. 3).

#### 4.1 Results analysis

The main basis of the Carbon Credits market was the Kyoto Protocol, and from these many movements were initiated so that a market related to GHG emissions could actually take place.

This market has a particularity, as for its functioning, sellers trade the lack of production, that is, the absence of production of the gas in question.

This dynamics of the carbon market shows an organized structure, highlighting the main elements: buyers interested in buying carbon credits; the sellers; and, the intermediary agents who are responsible for the negotiation process between buyers and sellers. As Manfrinato (2005) points out, intermediary agents are companies specialized in specific stages of the carbon credit trading chain.

It was found that in Brazil, there are no rules that regulate the trade of credits, however, there are projects for flexibilization mechanisms (CDM - clean energy mechanism). Although there is no regulation, Brazil applies to integrate the carbon market. Of the 3,219 projects that were in some phase of the CDM, 280, that is, 9% were from Brazil.

Also, the bureaucratic process is questioned, which for Valente (2012), bureaucracy is important when it comes to GHG reduction. For him, the credibility of the processes is paramount, as this is the only way for the Carbon Market to be global and consolidated. However, many points can and should be improved, especially when the process goes through certifiers registered by the UN (United Nations Organizations).

In the view of Freitas (2012), global warming forecasts are a little exaggerated. He claims that it is proven that there are natural cycles of the planet's heating and cooling, however, he has no doubt that man has the power to accelerate these processes.

The fact that there is a certain sensationalism in the media helps to make people reflect, but habits will only be changed when it is not just for the environmental cause, but for bringing some benefit to them. He prefers to be optimistic and believes that in the future it will be possible to find a balance with the environment again. Thus, it is common in the opinions of scholars that many problems must be resolved for the financial viability to be real.

#### V. FINAL CONSIDERATIONS

It is noteworthy that the main objective of the Carbon Credit Market is to negotiate the non-production of a product, as this is an intangible asset, which makes it different from normal commodities. As it is a new market and presents a different scenario, this brings a lot of uncertainty for investors.

Despite this, both organizations and some countries that are concerned with environmental and social issues will also have a greater financial return regardless of the Carbon Market. Companies will have a competitive advantage if they produce products with low carbon emissions, as this attitude will probably bring many opportunities in the future.

To conclude, it can be said that this work achieved the proposed objectives, which had as its main goal to demonstrate how the trade in Carbon Credits works and to identify people's vision.

It can be said that this market is still uncertain, but with great chances of evolution with positive results for the various organizations and countries that operate in them. Another important point to emphasize is that the imposed bureaucracy brings credibility to its functioning. Although this commodity is not easy to obtain, some speculators can take advantage of gaps in the operating structure of this market to obtain only financial advantages.

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