

Tax Treatment of Carbon Credit Operations in Brazilian Companies with CDM Projects

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Abstract

The aim in this study is to identify the tax treatment applied to carbon credit operations in Brazilian companies that are developing projects in the context of the Clean Development Mechanism (CDM). Therefore, an exploratory research with a qualitative approach was developed. Data were collected with the help of questionnaire, forwarded to all Brazilian companies with CDM projects that received approval from the Inter-Ministerial Commission on Global Climate Change (CIMGC) without safeguards, according to the list of the Brazilian Ministry of Science and Technology. Out of 117 companies listed, only five answered the research instrument, which represents an accessibility sample. The results show that, as for the tax treatment applied in the companies under analysis, IRPJ and CSLL should be charged on carbon credit operations. Regarding PIS, COFINS, ISS, some companies considered that these taxes are due and others that they are not. There is a consensus, though, about the fact that ICMS and IOF should not be charged. In conclusion, no uniform understanding exists as of yet about due taxes in the research sample, as no specific fiscal legislation exists yet on carbon credits in Brazil.

Keywords: Carbon credits; Tax treatment; Clean Development Mechanism.

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1. INTRODUCTION

In recent years, scientists and the media have alerted society due to environmental problems, particularly the global warming human actions cause. News on planetary issues is catastrophic and frightening and tries to mobilize society to revert this situation. Illustrations of its effects include the increased number of hurricanes, melting of icecaps, floods in some regions and drought in others, extinction of species, among others. If the situation continues at this pace, it has been alerted that the future of humanity is in jeopardy.

In that sense, in 1997, the Kyoto Protocol was issued, ratified by different developed and developing countries, including Brazil. The Protocol gained force in 2005 and set actions to contain the emission of greenhouse gases (GG) into the atmosphere, the main of which is carbon dioxide (CO₂). Proposed mechanisms include the selling of carbon credits, established in the Kyoto Protocol, through the Clean Development Mechanism (CDM). Brazilian companies are developing projects that reduce or avoid the emission of GG into the atmosphere and sell this reduced and/or avoided quantity to developed countries, which are officially obliged to bring down their anthropic emissions.

Hence, a new market is emerging in the economic context, the carbon market, in which Brazil already has different approved projects. Various issues related to this market still need to be discussed and regulated on though. For the sake of this research, the tax treatment applied to these negotiations is highlighted. No laws exist yet in Brazil which establish the tax treatment applicable in companies whose carbon credit projects are traded, nor an official position on the legal nature of these operations.

In that sense, the research question is: “What taxation form is applied to carbon credit operations in Brazil in companies that are developing projects in the context of the Clean Development Mechanism (CDM)?” Therefore, the study aims to identify the tax treatment applied to carbon credit operations in Brazilian companies that are developing projects in the context of the Clean Development Mechanism (CDM).

What justifies the research is the fact that the fiscal issue is an important element in the investment analysis of a project in the context of the CDM. This kind of project is expected to contribute to the country’s sustainable development and the related amounts are very expressive, to the extent that they can compromise the project entrepreneur’s financial and equity situation. Therefore, these issues should be defined even before the set-up and development of the project. Depending on the taxes charged on carbon credit sales, developing the project may not be profitable for an organization from the economic perspective.

The study is organized in five sections, starting with this introduction. Next comes the literature review, focusing on the emergence of carbon credits, the Clean Development Mechanism (CDM) and the fiscal aspects of carbon credits. Then, the research method is presented, followed by the description and analysis of the data, characterizing the research companies and addressing the fiscal aspects of carbon credits. Finally, the conclusions of the research are highlighted.

2. EMERGENCE OF CARBON CREDITS

Concerned with climate changes and their impacts on humanity, in June 1992, 175 countries signed a treaty that became known as the United Nations Framework Convention on Climate Change (UNFCCC). The treaty established the need for actions and target to bring down the emission of pollutant gases into the atmosphere (MCT, 1999). The convention also determined that, as developed countries have better resources and conditions and pollute more, they should take the initiative in the fight against climate change and its effects. Thus, countries were divided in two large groups: Annex I countries (considered industrialized and great carbon dioxide producers, generally developed) and nations not included in Annex I, considered developing countries (MCT, 1999).

The Framework Convention gained force on March 21st 1994 and, after its signature, different meetings were held among the countries participating in the Convention. The meetings held among the participants were called the Conference of the Parties – COP and, after February 2005, the Meeting of the Parties – MOPs) (SISTER, 2007, p. 7; RIBEIRO, 2005, p. 14).

According to Ribeiro (2005, p. 15), “the best known among the COPs was the Kyoto Conference, held in Japan in 1997, when concrete and strict measures were presented and discussed to contain the emission of greenhouse gases and the removal of their effect”. The COP-3, held in Japan, was the most important because it established the means and mechanisms to mitigate anthropic emissions of greenhouse gases into the atmosphere. At that Conference, the official document was elaborated that became known as the Kyoto Protocol.

The Kyoto Protocol is an international agreement some countries have ratified, aimed at establishing mechanisms to contain GG emissions into the atmosphere and impose guidelines to reach its objective. The program established distinguished pollutant reduction targets for developed and/or industrialized countries, listed in Annex I, setting quotas according to these countries’ degree of industrialization and GG emission. On average, countries committed to reduce GG emissions by 5.2% below the levels observed in 1990, to be reached between 2008 and 2012, known as the first period of the Protocol (PEREZ et al., 2008).

The effect of the Protocol depended on ratification by 55 countries, independently of whether they are developed or developing. In addition, Annex I countries that adhered should be responsible for at least 55% of these emissions in 1990. The Protocol only gained force in February 2005, 90 days after Russia had adhered, when this requirement was complied with. Since then, countries with emission reduction targets that adhered to the Protocol have represented 61.6% of global GG emission (BITO, 2006).

The Kyoto Protocol sets three modes to help Annex I countries to reach their reduction targets at the lowest cost: Emission Trade, Joint Implementation and Clean Development Mechanism (CDM). The document also establishes that Annex I countries should put in practice and develop measures and programs within their territories to contain GG emission, contributing to sustainable development (BITO, 2006).

The Clean Development Mechanism is the only mode that involves developing countries, including Brazil. This mechanism involves the creation and implementation of projects to reduce or eliminate GGs in developing countries, which can be funded by developed countries in exchange for credits to be used in their reduction targets. It is highlighted that the CDM was conceived to encourage industrialized countries to export the best clean technology (BARBIERI; RIBEIRO, 2007).

3. CLEAN DEVELOPMENT MECHANISM (CDM)

The CDM is mentioned under Art. 12 of the Kyoto Protocol and its procedures were established during the seventh Conference of the Parties, COP-7, held in Marrakesh, Morocco in 2001 (LOPES, 2002). The basic conception is that the CDM is an instrument to enhance sustainable development in developing countries, through the implementation of projects that contribute to the reduction of GG emissions. It also helps the developed countries listed in Annex I that adhered to the Kyoto Protocol to comply with their quantified reduction commitments (BITO, 2006).

The same mechanism also permits Annex I countries to comply with their targets, both direct, through carbon credit purchases, and indirectly, involving investments in developing countries that generate credits through projects approved by the CDM executive board, capable of contributing to the ultimate goal of mitigating GGs. This should take form based on investments in more efficient technologies, increased efficiency and energy conservation, replacement of renewable fossil energy source, rationalization of energy use, forestation and reforestation, etc. (BITO, 2006; PEREZ et al., 2008).

For this entire process to take place, a range of requirements needs to be complied with, going through some phases to produce the certified emission reductions (CERs). These CERs represent a declaration that a certain country avoided, reduced or removed a certain quantity of carbon dioxide from the atmosphere. The CERs are certificated obtained with guarantees from the Brazilian Ministry of Science and Technology and the UN, ascertaining compliance with CDM standards, which means that the emission reduction or carbon sequestering took place as previously planned by the party that presented it (SISTER, 2007; PEREZ et al., 2008).

After having received this declaration, developing countries can sell these CERs to Annex I countries, with a view to their compliance with reduction targets. Some companies, however, are already selling CERs, even before obtaining them. In some cases, the buyer himself funds the CDM project to guarantee a lower price for the CERs, despite the risk that the project developer will not obtain the reduction certificates.

Companies wanting to submit CDM projects for validation and approval should follow a number of phases: elaboration of a modalities of communication statement (MOC) by project participants; validation by the Designated Operational Entity (DOE); and approval by the Designated National Authority (DNA); registry by the Executive Board; monitoring by project participants; verification/certification by DOE; and issuing of certified emission reductions (CERs) by the CDM Executive Board (LOPES, 2002).

In all of these phases, there are requirements and procedures to be followed. The MOC the project participant elaborates should contain the information needed for the following project phases, such as: description of project activity, participants' names, forms of measuring the quantity of carbon avoided, called baseline method, mention of environmental impacts the implementation of the project produces, activity monitoring plan. After the elaboration of the MOC, the project should be approved by the DNA. In Brazil, that is the Interministerial Global Climate Change Commission (CIMGC). Its role is to ascertain that the project is voluntary and contributes to the country's sustainable development.

Then, the DOE needs to validate the CDM project activity. It needs to check whether all criteria in the MOC were mentioned and considered. The DOE should have excellent technical skills, competency, independence and accreditation by the CDM executive board, after which it is designated by the COPs/MOPs (RIBEIRO, 2005). After having validated the CDM project, the DOE has to forward a report for registry by the executive board. Based on the DOE report, the executive board will formally choose whether to accept the validation of a CDM activity project or not. The executive board is an entity of the UNFCCC. It comprises the countries that signed the Kyoto Protocol and is represented by the UN.

Next comes the monitoring phase. The stakeholders are expected to inspect whether the established results are actually happening, that is, whether GG emissions actually decreased. The monitoring plan needs to be accomplished in accordance with the previously approved method and its results will be evidenced in reports, submitted to the DOE for verification (PEREIRA; NOSSA, 2005). The verification is an independent and periodical project review by the DOE, and monitoring follows the GG reductions and/or carbon sequestering occurred during the certification period. The DOE will check whether the GG emissions reductions monitored took place as a result of the CDM project activity (PEREIRA; NOSSA, 2005).

If the emission reductions actually took place, the DOE issues a declaration, informing that, during a specified time period, a project activity achieved the anthropic GG emission reductions. This certification is forwarded to the executive board and will be considered definitive 15 days after its receipt by that entity (LOPES, 2002).

After guaranteeing that all phases have been complied with and verifying that the GG emission reductions actually took place as a result of a CDM project's activities, the executive board issues the CERs referring to the reduced and/or sequestered quantity. Each CER unit is equivalent to a metric ton of carbon dioxide. The executive board issues the CERs and deposits them on behalf of the entity that presented the CDM project into a bookkeeping account the executive board itself maintains (LOPES, 2002).

All of these phases entail spending for companies that are developing CDM projects, with the possibility of future revenues. They may receive these amounts in advance, with the obligation to deliver the CERs to the buyer in the future as a counterpart, generating a liability for these entities. Hence, this kind of project produces investments, obligations, revenues and expenses, which accounting should disclose. Companies need to know the economic and financial impacts of this investment, which accounting should demonstrate, including the tax treatment applied to income from CER sales.

4. TAX ASPECTS OF CARBON CREDITS

First, the legal nature of CERs is addressed, followed by a discussion about the fiscal aspects of carbon credit operations.

4.1 Legal nature of CERs

Regarding the legal nature of the CERs, authors disagree. Some consider them intangible goods, while others see them as securities or derivatives. Rocha (2003) presented the discussion about the recognition of CERs as commodities, specifically environmental commodities, suggesting that they could be traded on stock exchanges, associating them with agricultural commodities. The author himself opposes this treatment though, as the CERs the projects produce display quite distinct characteristics, which makes it impossible to standardize the product and/or service, like in the case of agricultural commodities. Rocha (2003) also mentions that carbon credits are being traded individually, and not in the stock market context.

Sister (2007) also considers it is unacceptable to treat CERs as commodities, inferring that they cannot be considered fungible goods. The author mentions that the CERs derive from an individual and unique approval process, in which the interested party submits a specific project to the approval of a qualified entity for the sake of analysis. The CERs are not dissociated from the project that generated them at any time, as opposed to what happens with commodities, which represent goods that can be replaced by other identical ones.

Regarding the legal nature of carbon credits as intangible, immaterial goods, Almeida (2005) affirms that, in accordance with Private Law, goods are material or immaterial values, which can be the object of a legal relation. The word, with a broad meaning, covers both bodily and bodiless things, material or immaterial things, facts and human abstentions.

According to Coelho (2003), bodily goods exist physically, refer to objects that are material, have a body, occupy space and are alienated through a purchase and sale contract. Bodiless goods, on the other hand, have no tangible existence, are merely conceptual, refer to ideal objects; are alienated through a usage assignment contract; and are of interest to the legal world because of their economic value for human beings. Equity rights are bodiless goods, like the author's right on literary or scientific works of art or the creditor's right to credits.

Almeida (2005) and Costa (2005) classify carbon credits as bodiless, immaterial or intangible goods, because they do not exist physically, but are acknowledged by the legal order (Kyoto Protocol) and economically valuable to man, as they can be traded through usage assignment. It is highlighted that the Kyoto Protocol gained legal force in Brazil as from the approval of Legislative Decree No. 144 in 2002. The authors also argue against the classification as derivatives, alleging that the nature and value of CERs do not derive from any other asset they are linked with. Bill No. 3.552 by deputy Eduardo Paes, issued in 2004, considered the legal nature of CERs as securities and indicated the Securities and Exchange Commission (CVM) as responsible for regulation, supervision and sanctioning (CEBDS, 2004). The project was filed in the Chamber of Deputies though (CÂMARA, 2011). Another Bill is No. 493, issued in 2007, by deputy Eduardo Gomes, which determines on the organization and regulation of the carbon market on the Rio de Janeiro Stock Exchange through the production of CERs in CDM projects (CÂMARA, 2007). This project is awaiting an opinion from the Finance and Taxation Committee (CFT) (CÂMARA, 2007).

The Futures & Commodities Exchange (BM&F) and the Ministry of Development, Industry and Foreign Trade (MDICE), on December 6th 2004, launched a campaign for the creation of a Brazilian Emission Reduction Market (MBRE). The aim is to develop an efficient environmental certificate trading system, in line with the underlying principles of the Kyoto Protocol (SISTER, 2007). According to Sister (2007, p. 32), "the intent of this project is to create, on Brazilian territory, CER market asset bases that turn into a reference for participants all over the world".

To facilitate the development of the MBRE, the BM&F created a Project Bank, which registers projects previously validated by the DNA that involve the intent to sell CERs, besides a registry of investors

interested in purchasing these securities (BVRJ, 2009). Online consultation on the BM&FBovespa website of the carbon credit project database in September 2011 showed that, until date, the development of this system is but starting, as only four projects have been registered with intentions to sell credits, and six entities interested in purchasing.

On the opposite, according to the most recent compilation on the UNFCCC website, on June 30th 2011, in total, there were 499 projects in Brazil that had been and/or were being approved in the context of the CDM. The DNA had already approved 264, while the CDM Executive Board had already registered 193 (MCT, 2011). This shows that most of the negotiations happen bilaterally, without involving the stock exchange system. CERs are already being traded, however, between stock exchanges in Europe and the United States. In case this trend gains force and the mentioned bills receive approval, the CERs will be characterized as actual derivatives.

Ribeiro (2007) considers that anticipated carbon credit trading fits into the derivatives category. The author argues that they guarantee future CER buyers the current price, with risk on both sides: for the executor of the CDM project, who may face higher costs than expected, besides the fact that securities may not be valued as expected. Ribeiro (2007) agrees with the fact that CERs are not associated with any assets. She highlights, however, that the financial market targets expected reduction, traded in advance, which will become concrete and be traded in the future.

Sister (2007) contests the consideration of carbon credits as derivatives, alleging that CVM has already acknowledge in Art. 1^o of CVM Instruction No. 270, issued in 1998, that only publicly-traded companies can issue securities on collective investment contracts for public distribution. Carbon credits are issues by the CDM Executive Board, an entity located beyond Brazilian territorial and legislative limits, making it inconsistent to classify CERs as derivatives.

The authors agree with Souza and Miller (2003), who highlight the controversial nature of operations involving CERs. Two distinct forms of understanding exist, seeing CERs as derivatives or purely as assets. The authors classify them as derivatives, arguing that the hedge is present as, when buying the certificates for the sake of compliance with imposed targets, the agent will hedge himself against the possibly higher costs deriving from the adoption of new technology, if he decided to elaborate a project activity eligible for the CDM. Souza and Miller (2003) remind the argument that CVM only authorizes publicly-traded companies to issue securities for public distribution, while CERs are issued by a UN entity. Thus, they consider that formalizing CER transactions demands a CVM pronouncement through a regulatory act.

Marques, Magellan and Parente (2010) alert that, through an opinion issued in an administrative trial (CVM No. RJ 2009/6346), CVM considered that carbon credits are not securities and, hence, are not subject to specific legislation in this market. It is inferred that, until regulatory entities define the legal nature of CERs as securities or derivatives, they should be considered intangible goods. As the CERs represent metric tons of carbon dioxide equivalent, this grants their holder the right to issue a metric ton of GG into the atmosphere. They cannot be considered tangible goods. Although they are represented by a paper declaration, their essence should be verified. In other words, the body of GG does not materially exist; they are not susceptible to touch, which characterizes them as an intangible good; they are not considered as derivatives, as no standardization exists in the project contracts that generate carbon credits. Each has its particularities, with mutually distinct characteristics. The CERs represent a right for their holder, and Brazilian companies can even reserve them for the second commitment period of the Kyoto Protocol, which has not been defined yet.

Souza (2008) highlights that, while CERs are traded bilaterally, their legal nature can be considered intangible. As soon as they are traded on stock exchanges, however, they would acquire characteristics of securities. It is highlighted that the CERs' legal nature interferes in the tax treatment applied to carbon credit operations.

In their analysis about the legal nature and tax treatment of carbon credits, Marques, Magellan and Parente (2010) conclude that different possibilities exist for the legal classification of CERs, highlighting the understanding that CERs represent immaterial goods, intangible assets or securities. Each case leads to a specific treatment, to be applied in accordance with Brazilian fiscal legislation.

4.2 Fiscal aspects of carbon credits

Nothing specific is mentioned in law about the tax treatment to be applied to certified emission reductions. In its Circular Letter No. 3.291, issued in 2005, the Brazilian Central Bank has classified carbon credit operations as revenues from service exportation. This document served as a means to include revenues from CER sales (MCT, 2005).

Consultation to the Brazilian Internal Revenue Service No. 59, issued in 2008, also offers a solution. This document presents the understanding that revenues from carbon credit-related rights transferred abroad (Kyoto Protocol) are subject to 32% to determine the IRPJ calculation base according to the assumed profit system, and exempt from PIS and Cofins, whose payment represents the entry of monetary resources (RECEITA FEDERAL, 2008a). This solution, however, is only valid for the company that formulated the inquiry, but nevertheless represents an advance, as it is the Internal Revenue Service's first position on carbon credits.

According to Marques, Magellan and Parente (2010), a trend exists for the Brazilian IRS to consider income from CER transfers as deriving from exportation and, hence, exempt from PIS and COFINS. They would be subject, in turn, to CSLL and IRPJ. The authors also mention that the lack of a definitive position as to the legal nature of the CERs and the corresponding tax treatment demonstrate the urgent need for a specific standard on the theme. They comment that about 20 bills are going through the National Congress, with different approaches. Some projects grant tax benefits to private persons and legal entities investing in CDM projects and exempt CER income from IRPJ, CSSL and PIS/ Cofins charges.

Marques, Magellan and Parente (2010) highlight Bill No. 4.425, issued in 2004, which exempted private persons and legal entities that accomplished CDM projects from IRPJ, CSLL, PIS and Cofins charges. They mention that, although this bill was filed, its determinations were reflected in Bills No. 494/2007 and 1657/2007. Those projects still have a long legislative course to go before resulting in a legal standard.

Next, the main taxes are discussed related to which some doubts may arise about whether they are due on CER sales or the resulting income. These are: Income Tax for Legal Entities (IRPJ), Social Contribution on Profits (CSLL), Contribution to the Social Integration Program (PIS/Pasep), Social Contribution on Gross Sale (Cofins), Tax on Credit Operations, Currency Exchange and Insurance, or related to Securities (IOF), Tax on Services of Any Kind (ISS) and Tax on the Circulation of Goods and Transportation and Communication Services (ICMS).

4.2.1 IRPJ and CSLL

Almeida (2005) and Carleto, Silva and Brito (2007) consider that IRPJ and CSLL should be charged on carbon credit sales operations. The calculation base for companies working under the taxable income regime is that of accounting income plus additions minus exclusions. Regarding carbon credit sales, the income is the sales value and the expenses correspond to all spending necessary to set up the project until the CERs are obtained.

In accordance with the authors, IRPJ and CSLL are due on CER sales. These taxes are due to the extent that revenues, gains and profits are verified, in line with the 1999 Income Tax Regulations (RIR). The calculation base for taxable income companies is the accounting income, as registered on an accrual basis, plus additions determined by law and minus exclusions.

The unconstitutionality of CSLL charges on these revenues is a source of discussion though, due to the fact that they derive from exportation, in view of the exemption granted in Art. 149, paragraph 2º of the Brazilian Federal Constitution, in addition to Constitutional Amendment No. 33/2001 (ALMEIDA, 2005).

Higuchi, Higuchi and Higuchi (2006, p. 42) explain the calculation base of IRPJ when companies work under the assumed profit regime, as follows:

The calculation base for income taxes in companies taxed according to the assumed profit, in each term, will be determined through the application of percentages set in art.15 of Law No. 9.249/95, according to the legal entity's activity, on the gross revenues verified within that term, in addition to other income, revenues and capital gains in the form of art. 25 of Law No. 9.430/96.

The calculation base of income taxes under the assumed profit regime is determined using a percentage defined by law, according to each entity's activity. In case of transfers of any kind of rights, the percentage due is 32%. This percentage is applied to these revenues and other income is added, like income from financial applications for example. Fifteen percent is applied to this result to calculate the IR, plus an additional percentage if this is the case (more than R\$ 60,000 per term) and 9% for the CSLL.

As for carbon credits, the revenues represent a transfer of rights. It is considered that the 32% are only due when the CER sales activity is the legal entity's activity, i.e. when it is the company's corporate object. If not, they are classified as other revenues, and their total amount is directly added to the calculation base, without applying the 32%, considering 100% of revenues as the base to calculate the assumed profit.

Almeida (2005) suggests applying the 32% to the carbon credit sales value and, after this result, applying the 15% IR rate, plus an additional 10% if appropriate, besides 9% of CSLL. To avoid any doubt, however, companies choosing the assumed profit regime should include the CER sales activity in their corporate object. It is highlighted that this procedure should be analyzed thoroughly, mainly the cost/benefit aspect.

4.2.2 PIS and Cofins

Monthly billing serves as the taxable event for PIS/Pasep and Cofins, considering the total revenues verified by the legal entity, independently of their denomination and accounting classification. Some values can be excluded from the database, like the sale of permanent assets (Law No. 9.718, issued in 1998, Art. 3º, § 1º, § 2º, altered by MP 2.158-35/2001; IN SRF n.º 247, issued in 2002, Art. 23). According to Art. 149, § 2º, I of the Brazilian Federal Constitution, no PIS/Pasep and Cofins are due on revenues from exportation (RECEITA FEDERAL DO BRASIL, 2008b).

As carbon credit operations occur between a Brazilian and a foreign company, they are exempt from these contributions, according to the abovementioned Art., also confirmed in Art. 5º, clause I of Law No. 10.637, issued in 2002 (Law of non-cumulative PIS) and Art. 6º, clause I of Law No. 10.833, issued in 2003 (Law of non-cumulative Cofins). Hence, no PIS and Cofins are due on carbon credit transactions when they are considered as income from exportations.

In this case, income from exportations refers to the transfer of rights. Plaza, Santos and Farias (2008) explain that tangible goods are alienated based on purchase and sales contracts. Bodiless things, on the opposite, can also be traded in the form of transfers. In that sense, the legal nature of CERs is intangible, and they are traded between the parties (buyer and seller) through a transfer of rights.

Carleto, Silva and Brito (2007, p. 7) affirm that carbon credit "is part of gross operating income when the sale is closed with the buyer in the country but, in most cases, no PIS/Pasep is charged, as Brazilian companies close the sales with companies abroad".

Regarding Cofins, the authors comment that "no charge of Cofins is due on carbon sales, as sales are closed abroad, exempt from taxation". According to the Brazilian Internal Revenue Service's Solution to Consultation No. 59, issued in 2008:

Revenues related to the transfer abroad of rights related to carbon credit (Kyoto Protocol), whose payment represents an entry of monetary resources, are exempt from Cofins. Revenues related to the transfer abroad of rights related to carbon credit (Kyoto Protocol), whose payment represents an entry of monetary resources, are exempt from PIS/Pasep (RECEITA FEDERAL DO BRASIL, 2008c).

This shows a trend towards the non-taxation of these contributions related to revenues from carbon credits abroad. Even Bill No. 4.425, issued in 2004, exempted these contributions on CER sales.

4.2.3 IOF

If carbon credits are legally considered derivatives or securities, IOF should be charged on operations. According to art. 2º of Decree No. 6.306, issued in 2007, IOF is due in the following operations: [...] II – exchange operations [...] IV – operations related to bonds or securities [...].

According to Decree No. 6.306/2007, IOF is due on operations involving credit; exchange; insurances; bonds and securities; gold, financial assets or exchange instruments. Concerning credit operations, there may be doubts as to its incidence in exchange and bond or security operations. The following is mentioned on exchange operation in Decree No. 6.306, issued in 2007:

Art. 11. The taxable event for the IOF is the delivery of national or foreign currency, or any document representing it, or its availability to an interested party, at an amount equivalent to the foreign or national currency delivered or made available by that party (Law No. 5.172, issued in 1966, Art. 63, clause II).

Single paragraph. The taxable event takes place and IOF is due when the exchange operation is settled.

Art. 12. Buyers or sellers of foreign currency are IOF contributors in operations related to financial transfers to or from foreign countries, respectively (Law No. 8.894, issued in 1994, Art. 6º).

Single paragraph. Financial transfers comprise payments and receipts in foreign currency, independently of the delivery form and nature of the operations.

Thus, in case of receipt by a buyer of CERs established in an Annex I country, IOF will be due on the amount in Brazilian currency, received, delivered or made available, corresponding to the amount of the exchange operation in foreign currency. The tax is due in the exchange operation at a rate of 25%. In § 1º of Art. 15 in Decree No. 6.306/2007, however, cases of rate reductions to different percentages are mentioned, in which carbon credits can fit into the following cases: “V – in exchange operations related to the entry of revenues from the exportation of goods and services into the country: zero; XVIII – in other exchange operations: 0.38%”.

The abovementioned decree does not specify whether exportation only comprises material goods or not. In case revenues from carbon credits can be considered revenues from exportation (even if involving immaterial goods) through the transfer of rights, no IOF will be charged on exchange operations, as the rate is reduced to zero. The maximum that can be charged is the 0.38% rate (reduction applicable to other exchange operations not mentioned in Art. 15).

As for bond and security operations, the calculation base for the IOF is the purchase, rescue, transfer or repricing of the bond or security, at a maximum rate of 1.5% per day. Its charge and collection should take place on the financial settlement date of the operation (BRASIL, 2007).

Sister (2007, p. 106) comments: “different current hypotheses exist regarding the reduction of the tax rate to zero. Hence, depending on the treatment due for CERs when they are denominated securities, reduced rates can be charged on operations with these instruments”. It is inferred that regulation is due regarding the legal nature of the CERs, so as to determine whether IOF is due on operations involving carbon credits.

4.2.4 ISS

According to Art. 1º of Complementary Law (LC) No. 116, issued in 2003, the taxable event for the service tax, charged in cities and the Federal District, is the delivery of services included in the list attached to the same law, even if these do not represent the service provider’s preponderant activity. In

other words, ISS is only due in case of services included in the list attached to LC No. 116/2003. That list does not mention the transfer of CERs resulting from the reduction or removal of carbon dioxide from the atmosphere as established in the Kyoto Protocol.

As to the charge of ISS on CER trading operations, Almeida (2005) mentions that this tax is not charged, as the transfer of rights should not be mixed up with service delivery. The author highlights that, although the economic doctrine persistently classifies some transfers of rights as service delivery, it cannot invade the legal sphere of the Science of Law. Plaza, Santos and Farias (2008, p. 2276) explain that:

Regarding the incidence of the ISS (Service Tax) on credit (immaterial goods) trade, various economic experts equal the transfer of intangible goods to service delivery. In legal terms, the definition of service delivery means any human effort made on behalf of a third party. Hence, according to the theory of obligations, a difference exists between purchase and sale (obligations to do) and obligations to give, the latter including the transfer of carbon credits.

Relating the theme with carbon credit transfers, Almeida (2005, p. 10) mentions that, in this case, “no human effort is made on behalf of a third party, no obligation exists to do something to the benefit of who purchases the credits. An obligation does exist to give a good (even if immaterial), of which a certain right-holder has the property, to another party”.

Sister (2007, p. 94) reinforces this understanding, affirming that “thus, as opposed to service delivery, in which the predominant obligation refers to doing something for somebody, what happens with CER issues and transfers is the mere obligation of one party to give something to another party”.

Hence, it is inferred that ISS is not due on CER sales, as this has not been legally determined in a complementary law and as these do not characterize service delivery from a legal perspective. Plaza, Santos and Farias (2008) emphatically affirm that, in case of carbon credit transfers, no human effort is made on behalf of a third party, no obligation exists to do something on behalf of who purchases the credits, so that ISS cannot be charged.

4.2.5 ICMS

To analyze whether ICMS is due on carbon credit operations, the taxable event of this tax should be discovered. ICMS is charged on the circulation of goods, interstate and intercity transportation services and communication services, among others. The taxable event of the ICMS is established in each state’s regulation on this tax, as well as in the federal constitution. Each state has its particularities, but no distinction exists in the taxable event.

This tax is mainly due on the circulation of goods, i.e. the circulation of tangible, and not intangible and/or immaterial goods, like in the case of CERs. As ICMS is due on goods, this tax should not be charged on carbon credit trading, as these are immaterial goods, while products are material, tangible goods. Sister (2007) and Almeida (2005) present the same understanding.

Finally, the tax treatment of carbon credit operations needs further regulation in Brazil. Marques, Magellan and Parente (2010) defend tax exemption, as this act would stimulate the low-carbon economy through an increased number of CDM projects. In addition, the authors mention that this proposal adheres to the polluter-payer principle, which in turn is coherent with the intention of the Kyoto Protocol, which is to protect the environment.

5. RESEARCH METHOD AND TECHNIQUES

The research methodology comprises the method and techniques the researcher uses to develop the research. As for the procedures, this is an exploratory research. According to Cervo and Berivan (1996), exploratory studies are responsible for observing, registering, analyzing and correlating

facts or phenomena without manipulating them. The study was considered exploratory due to the fact that the theme is recent, has been hardly explored in literature and because no hypothesis is being tested.

Concerning the procedures, the study is characterized as a survey. Gil (2002, p. 50) comments that, in this type of research “information is requested from a significant group of people about the research problem, so as to [...] obtain the conclusions corresponding to the collected data”.

Regarding the approach of the problem, a qualitative approach was adopted. In line with Richardson (1999), qualitative research describes the complexity of a certain problem, analyzes the interaction among certain variables, understands and classifies dynamic processes social groups experience. The author highlights that this approach can contribute in a certain group’s change process and permits a deeper understanding of particularities in individuals’ behavior.

In this study, the fiscal aspects of carbon credit operations in Brazilian companies were analyzed, whose data were collected through a survey, in which a questionnaire was applied in a given universe. The research universe comprised Brazilian companies whose CDM projects have received CIMGC approval without safeguards, taken from the list of approved CDM projects on the website of the Brazilian Ministry of Science and Technology. This list mentioned 174 approved projects on January 23rd 2008, related to 117 companies.

A questionnaire was forwarded to these companies by electronic mail, including open and closed questions on the tax treatment applied to carbon credit operations. Gil (2002) comments that questionnaires include more or less questions people receive in writing, aimed at discovering their opinions, beliefs, feelings, interests, expectations and situations experienced.

Only five companies answered the questionnaire though, which characterized an accessibility sample. Nevertheless, 13 companies returned the questionnaire. Seven companies considered they could not answer the questionnaire for the following reasons: no case of sale occurred; undefined taxation issues; the questionnaire contained questions they considered secret; the CDM project had stopped; the accounting sector was unfamiliar with the project and the project was not in the trading phase. Another company alleged that information was not available to the market and the general public yet, as it had not been fully consolidated. Another company also returned the questionnaire, but without answering questions about the taxation issues of carbon credits.

Data were analyzed through content analysis. According to Bardin (1977), content analysis is the set of communication analysis techniques aimed at obtaining, through systematic and objective message content description procedures, indicators (whether quantitative or not) that permit inferring knowledge about the conditions in which these messages were produced/received (inferred variables).

The research comes with some limitations, the main of which is the small number of companies that answered the questionnaire, which limits the possibility of inferences regarding other companies in the research population. Another limitation derives from the way in which the questionnaire was applied in the companies, which limited possibilities of further exploring the answers, which would be possible in case of interviews with the respondents.

6. DATA DESCRIPTION AND ANALYSIS

The description and analysis of the data start with the characterization of the research companies, followed by the fiscal aspects these organizations practice.

6.1 Characterization of the research companies

Initially, the researchers aimed to characterize the Brazilian companies with CDM projects approved by the Inter-Ministerial Commission on Global Climate Change, checking the activity branch; products offered to the market; market in which they are active; number of employees and annual billing.

Questions	Company A	Company B	Company C	Company D	Company E
Activity branch	Co-production of energy	Did not answer	Electrical energy production	Electrical energy generation	Pulp, paper and packaging
Products offered to the market	Electrical energy	Did not answer	Electrical energy	Electrical energy	Paper and packaging
Activity areas in internal market	Southeast	Did not answer	South and Southeast	South, Southeast and Central West	South, Southeast, Central West and Northeast
Activity areas in external market	Not active	Did not answer	Not active	Not active	All continents
Number of employees	30 employees	Did not answer	30 employees	3 employees	1,800 employees
Annual billing	Approximately R\$ 30 million	Did not answer	Projection of R\$ 15 million	Between R\$ 5 and R\$ 10 million	Approximately R\$ 440 million

Figure 1: Characterization of Brazilian companies with CDM projects

Source: research data.

Three of the companies that answered the research questionnaire are active in electrical energy, and another in paper, pulp and packaging. These activities are included in Annex 2 of the Kyoto Protocol as sectors/categories with higher incidence levels of greenhouse gases. The electrical energy sector is highlighted in Annex 2 of the Kyoto Protocol, while the paper, pulp and packaging sector can be included under industrial processes/other production.

The products the research companies offer are: electrical energy (three) and paper and packaging (one). Four of them are active in the Southeast; three also offer their products to the South; two to the Central-West; and only one to the Northeast, which is the only company that is also active in the external market. One of the companies did not answer these questions. The researchers believe this is due to the fact that the company's accounting department asked the consultants to the CDM project to answer the questionnaire.

The number of employees is the same in only two companies (30 employees); another has only three; and company E has 1,800 employees. As for company billing, three of them are quite close (R\$ 30 million, between R\$ 5 and R\$ 10 million and a projected R\$ 15 million). Another company's annual billing is much higher, with around R\$ 440 million. This result demonstrates that companies with distinguished billing levels are able to set up and develop a CDM project.

6.2 Fiscal aspects of carbon credits

As for the fiscal aspects of carbon credits, it was verified what taxes are due on the sale and what calculation bases and rates apply. Answers to these questions are displayed in Figures 2 to 4.

Questions	Company A	Company B	Company C	Company D	Company E
Taxation form of IR	Annual taxable profit	Did not answer	Annual taxable profit	Assumed profit	Annual taxable profit
What tax treatment do you tend to apply to carbon credit sales?	Other Operating Income	PIS, COFINS, CSLL and IRPJ	To be analyzed	Normal company income	To be included in the company's taxable income
Carbon credit sales are:	Other Operating Income	Sale of Company Assets	Income from Service Provision	Non-Operating Income	Other Operating Income

Questions	Company A	Company B	Company C	Company D	Company E
If Income originates in Service Delivery, should ISS be charged? What calculation base and rate?	Does not consider Income from Service Provision	Does not consider Income from Service Provision	Yes. 100% calculation base. 3% rate	Does not consider Income from Service Provision	Does not consider Income from Service Provision
If Income originates in Product Sales, is ICMS charged? What calculation base are rate?	Does not consider Income from Product Sales	Does not consider Income from Product Sales	Does not consider Income from Product Sales	Does not consider Income from Product Sales	Does not consider Income from Product Sales

Figure 2: Tax aspects of carbon credits

Source: research data.

Three of the research companies calculate IR based on annual taxable profit, one on assumed profit and the other did not answer the question (according to some of its characteristics, however, the taxable profit base is used). All companies do not consider carbon credit sales as goods sales, which is considered correct. In line with the literature review, the sale of goods refers to tangible and tradable products, which is not equivalent to certified emission reductions.

Also, only one company considers the sale of carbon credits as income from service delivery, subject to ISS at a rate of 3%. One of the companies alleges that these operations are not characterized as service delivery, due to the fact that they are not mentioned in Complementary Law No. 116, issued in 2003, and due to the fact that service delivery only takes place when accomplished on behalf of a third party, and not to one's own benefit, which is the case of CDM projects.

The researchers agree with the latter company's arguments. In addition, the legal concept of service delivery represents the obligation to do something, while the purchase and sale of goods refer to actual obligations to give. Regarding CERs, no obligation whatsoever exists to do something on behalf of the credit buyer. Instead, the obligation to give a good exists, even if it is intangible. In CERs, the CDM project entrepreneur transfers the property of the bonds to another party. Hence, CER sales cannot be considered service delivery and, consequently, no ISS can be charged.

These operations represent a transfer of rights between buyers and sellers, which does not characterize service delivery as published in fiscal publications, including Almeida (2005), Sister (2007) and Plaza, Santos and Farias (2008). Finally, Lopes, Portugal and Cardoso (2009) emphatically affirm that no ISS should be charged on revenues deriving from carbon credit trading as, differently from the economic doctrine, transfer of rights should not be mixed up with service delivery.

Two companies consider carbon credit sales as other operating income; another as company asset sales; and another as non-operating income. It is emphasized that carbon credit sales are normal and recurring over a certain time period and often derive from the entity's own production process. To give an example, the CERs can result from the reuse of sugar cane bagasse for electrical energy production. In other words, they are related with the organization's production process, characterizing operating income.

Questions	Company A	Company B	Company C	Company D	Company E
Taxes charged on carbon credit sales	IRPJ, CSLL	IRPJ, CSLL, PIS and COFINS	IRPJ, CSLL, PIS, COFINS and ISS.	IRPJ and CSLL	IRPJ and CSLL
Has the company already received any amount as income from carbon credits? What taxes were charged on this sale?	Yes. IRPJ and CSLL	Not received	Not received	Yes. IRPJ and CSLL	Yes. CPMF when it existed
If yes, what taxes were not charged and what was the reason for this decision?	Considered a transfer of rights abroad without tax charges. No taxable event exists for IOF, ISS and ICMS.	The answer was no.	The answer was no.	PIS, COFINS, ISS, IOF and ICMS due to the lack of specific regulation by law	Only CPMF was charged.

Figure 3: Tax treatment of CERs

Source: Research data.

As for the taxes due on carbon credit sales, three companies affirmed that only IRPJ and CSLL should be charged. In addition, two companies mentioned that PIS and COFINS are due. For one of them, ISS should also be charged.

According to the companies that received some amount as a result of carbon credits, totaling three, only IRPJ and CSLL were charged. In line with these companies, the other taxes should not be charged because no specific law exists that sets rules for the tax treatment of carbon credits and these operations represent a transfer of rights abroad without tax charges. Company A also alleged that IOF should not be charged because no financial operation exists, so that there is not taxable event for this tax.

Questions	Company A	Company B	Company C	Company D	Company E
Should ISS be charged on CER operations, as BACEN considers carbon credit as a form of service provision?	No	No, due to lack of legal determination, not included in LC 116/2003. Service provision is only characterized when accomplished to another entity's benefit and not to one's own benefit	Yes. No transfer of goods takes place	No. We do not consider a service. We believe it is an incentive not to pollute	No. Because this is not a form of service provision
Should PIS and COFINS be charged on CER sales? What calculation base? And what rate?	No charge	Yes. Billing	Yes. 100% calculation base, 3.65% rate	No charge	No charge
Should IRPJ and CSLL be charged on CER sales? What calculation base? And what rate?	Yes. In the determination of taxable income. 15% and additional 10%	Yes. Profit/Income	Yes. 100% calculation base, 24% rate.	Should not be charged	Yes. Part of real income. Same rates as real income

Figure 4: Opinion on tax charges on CERs

Source: research data.

As to whether PIS and Cofins are due, three companies mentioned that this is not the case, while two others believe these taxes are due, with billing (100% of revenues) as the calculation base. In accordance with the theoretical foundations, authors consider that these taxes should not be charged, as CER sales take place between a Brazilian and a foreign company, characterizing revenues from exportations, which are exempt from PIS and Cofins. A trend exists not to charge these taxes, as the Brazilian Internal Revenue Service has already manifested itself through a solution for a company's consultation, informing that PIS and Cofins are not due on CER sales.

As for the incidence of IRPJ and CSLL, four companies mentioned that these taxes are due on carbon credit sales. Its base is the company's taxable profit, applying 15% of IRPJ plus an additional 10% if that is the case, and 9% of CSLL. One company mentioned that these taxes are not due, however, displaying a contradiction with previous answers, in which the company mentions that only those taxes should be charged on this kind of revenues. In general, there is no doubt that IRPJ and CSLL are due on carbon credit sales. Also, only one company considers that ISS is due on CER sales.

7. FINAL CONSIDERATIONS

The aim of this research was to identify the tax treatment applied to carbon credit operations in Brazilian companies that are developing projects in the context of the Clean Development Mechanism (CDM). Therefore, an exploratory research with a qualitative approach was accomplished through the application of a questionnaire to all Brazilian companies whose CDM projects have received CIMGC approval without safeguards, according to a list of the Ministry of Science and Technology. Out of 117 listed companies, replies were obtained from five, representing an accessibility sample.

In the literature review, distinct opinions are found as to the legal nature of carbon credits. While regulatory entities do not define the legal nature of CERs as securities or derivatives, however, it should be considered an intangible good. They are not considered derivatives, as no standardization exists in the contracts of projects that generate carbon credits. Each project has its particularities; there are mutually distinct characteristics and most Brazilian trade occurs outside the stock exchanges. Also, there is the fact that the Brazilian Securities Commission only authorizes publicly traded companies to issue bonds for public distribution, while CERs are issued by a UN entity. Thus, CERs are intangible goods, representing the holder's right to issue metric tons of carbon dioxide into the atmosphere.

As for the fiscal aspects, IRPJ and CSLL are due, given the lack of approved laws granting exemption. As for PIS and Cofins charges, these are not due when CER sales are considered as income from exportation.

Also, it was verified that regulation is due on the legal nature of CERs, with a view to determining whether IOF is due on carbon credit operations. It was ascertained that no ISS is due in CER sales, as no legal determination exists in a complementary law and as these do not characterize service delivery from a legal focus. Concerning ICMS, this tax is not due on carbon credit operations due to the lack of a taxable event established by law. This tax is mainly due on the circulation of products, i.e. on the circulation of tangible goods, and not on intangible and/or immaterial goods, like in the case of CERs.

As to the tax treatment applied in the research companies, it was verified that IRPJ and CSLL are due. Concerning the incidence of PIS, Cofins, ISS, some companies consider that these taxes are due, while others believe that they are not. A consensus was found, though, regarding the non-incidence of ICMS and IOF.

The characteristics of the research companies showed that they are involved in sectors/categories responsible for most GG emissions, included in Annex A of the Kyoto Protocol. Their activities relate to energy, industries in general, activities involving solvents and other products, the agricultural sector and waste treatment. These companies show different staff numbers, billing and market activities.

In conclusion, based on the research, no consensus exists yet about the tax treatment in these companies, which is justified as no specific tax legislation has been issued yet with regard to carbon credits.

The research results indicate that the theme needs to be widely discussed. Conclui-se com base na pesquisa que ainda não há uniformidade de entendimento sobre a tributação nessas empresas, o que se justifica por ainda não haver legislações tributárias específicas sobre créditos de carbono. Os resultados da pesquisa indicam que o assunto precisa ser amplamente discutido, visto que há opiniões e práticas distintas por parte das empresas em relação ao tratamento tributário nas operações com créditos de carbono e que estes tratamentos devem ser regulamentados pelo governo. Consideradas as limitações desta pesquisa, em especial o tamanho da amostra, recomenda-se realizar um estudo em outras empresas do país e de outros países em desenvolvimento para averiguar seus aspectos tributários e comparar os resultados.

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