The challenge of addressing environmental, social and economic objectives through a local Payment for Environmental Services scheme in eastern Antioquia, Colombia

A Research Paper presented by:

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in partial fulfilment of the requirements for obtaining the degree of
MASTER OF ARTS IN DEVELOPMENT STUDIES

Major:

Governance and Development Policy
(GDP)

Specialization:

Public Policy and Management
(PPM)

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The Hague, The Netherlands
December 2020

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This document represents part of the author's study programme while at the International Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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List of Acronyms

ANLA	Colombian National Environmental Licensing Agency
CDM	Clean Development Mechanism
CIF	Forest Incentive Certificate
CIFOR	Centre for International Forestry Research
CIPAV	Center for Research on Sustainable Agricultural Production Systems
CONPES	Colombian National Economic and Social Policy Council
Cornare	Rionegro-Nare Regional Autonomous Corporation
DNP	Colombian National Planning Department
EICDGB	Colombian Integrated Strategy Control to Deforestation and Forest Management
ES	Environmental Services
FARC	Revolutionary Armed Forces of Colombia
GEF	Global Environmental Facility
GHG	Greenhouse Gases
IDEAM	Institute of Hydrology, Meteorology and Environmental Studies of Colombia
ISS	Institute of Social Studies
LULUCF	Mitigation Actions in the Land Use, Land Use Change and Forestry
MADS	Colombian Ministry of Environment and Sustainable Development
Masbosques	Corporation for the Sustainable Management of Forests
MBI	Market-based Instrument
PES	Payments for Environmental/Ecosystem Services
PNN	Special Administrative Unit of Natural National Parks of Colombia
REDD+	Reducing Emissions from Deforestation and Forest Degradation Strategy
SIAC	Colombian Environmental Information System
SINA	Colombian National Environmental System
SINAP	Colombian National System of Protected Areas
SMBYC	Colombian National Forest and Carbon Monitoring System
UNFCCC	United Nations Framework Convention on Climate Change
UPRA	Agricultural Rural Planning Unit
VCM	Voluntary Carbon Market

Abstract

This paper will analyse the different stages of $BanCO_2$ Plus scheme, a Payments for Environmental Services local initiative in the eastern Antioquia region of Colombia. To this end, the context of the national policy that emerged in 2017 will be taken as a starting point, in order to make a detailed exploration of the scheme, with the aim of determining the ways in which the environmental, social and economic objectives inherent of Latin American programmes are considered in its implementation, monitoring and evaluation. An attempt will be made to illustrate the contradictions involved in the economic and financial approach of the project financed by the transactions carried out in the Voluntary Carbon Market, and the promotion of activities that go beyond the reduction of Greenhouse Gas emissions, which are directly related to the social purposes aimed at the participants of $BanCO_2$ Plus. At the end, recommendations will be proposed from a theoretical and practical point of view.

Relevance to Development Studies

Several studies have been conducted on the effectiveness of Payments for Environmental Services in reducing deforestation and some have focused on the possibility of achieving not only environmental but also social and economic objectives, however, no research has been conducted that aims to carry out an analysis of this Colombian local scheme that promotes governance based on the Voluntary Carbon Market in the framework of a national regulation that emerged a relatively short time ago in relation to other Latin American countries, nor one that associates environmental, social and economic aspects as variables to be considered in the implementation, monitoring and evaluation of a particular project. Much research has been done on the poverty alleviation objectives that can be tackled with these schemes, but not on the general social purposes characteristic of these initiatives implemented in developing countries like Colombia.

Keywords

Payment for Environmental Services, Voluntary Carbon Market, National Policy, Case Study, Colombia

Chapter 1
Introduction

1.1 Problem statement

The experience with Payments for Environmental/Ecosystem Services (PES) in Latin America is quite diverse, from its conceptualization to its implementation. Among other differentiating aspects, Colombia only issued its first national regulation on the subject in 2017, while in Mexico, one of the countries taken as a reference for such legislation, the national budget for the national program began to be reduced in 2018. Similarly, in some countries there are centralized national programmes, while in others, such as Colombia, they are decentralized (Moros et al., 2020 2: 4). Nevertheless, despite the differences, there is one common factor that characterizes PES schemes in Latin American countries, the simultaneous pursuit of environmental, social and economic objectives. Regarding the PES programmes that have been implemented in the Global South, especially in Latin America, these are characterized by the overlap between the strategic ecosystems where the Environmental Services (ES) are provided and the vulnerable[1] communities, which happens because in parallel to the growing environmental degradation, there are high levels of poverty and inequity (Moros et al. 2, 2020: 3-4).

Since vulnerable rural populations are usually the owners, possessors or occupants of the lands where ES are provided in Colombia, PES programmes will always include environmental, social and economic objectives in their formulation and implementation. However, it is not enough that public policy recognizes that these populations are in a special condition, that they must be protected and assisted through economic incentives, because the schemes always depend on different sources of financing that are variable and/or limited in time. Given that the flow of funding might stop or decrease unexpectedly just like happened in Mexico, where institutional priorities shifted and public resources aimed at the environmental sector became more limited (Gómez Durán, 2020), or the scheme can come to an end, participants could go back to their former practices in they do not receive the incentive (Etchard et al., 2020).

In Colombia, given the historical legacy of deforestation, there is a tendency for the rural population to expand the agricultural and pastoral frontier (Castro and Andrade, 2019), hence there is a possibility of their return to deforestation practices if economic incentives are absent. Despite national and local initiatives address environmental and socio-economic objectives within the framework of the national public policy that regulates them, in addition to monitoring and evaluating the short and long-term environmental effects that result from their implementation, they must also monitor and evaluate the social and economic objectives with respect to ES providers.

These objectives should go beyond providing monetary assistance, they should involve complementary conservation mechanisms like trainings and promotion of sustainable production processes in order to encourage environmental awareness among the ES providers, and spread the recognition of the fragility of the resources and forests located on their lands, as a natural heritage that must be protected, conserved, sustained and managed. Therefore, changes in the behaviour of individuals in relation to natural resources could be promoted in the long term, contributing to the formation of "environmental subjects"[2] through institutions to engage them in good practices (Agrawal, 2005).

Considering that according to the official government data, by 2019 there were 15 PES initiatives in process of implementation in Colombia, which covered a total of 181.039 hectares of territory and a considerable number of beneficiaries of the incentive (Moros et al., 2020: 171), the aforementioned problem of simultaneously addressing social, economic and environmental objectives through PES programmes will be addressed through a case study, the local project $BanCO_2$ Plus, a Carbon capture and storage scheme that is financed by the transactions of Carbon credits made in the Voluntary Carbon Market (VCM), which promotes forest conservation as its main goal. This, with the aim of determine if the local initiative is considering the three types of purposes inherent to Latin American context in all its stages, and draw some recommendations at the theoretical and practical level to try to achieve them.

Taking as a starting point the stages of the local project, the different types of objectives immersed in the national PES policy in Colombia will be analysed with respect to activities -inputs-, their results -outputs-, purposes and the main goal of $BanCO_2$ Plus scheme during its implementation, monitoring and evaluation.

1.2 Objective and Research Question

Since PES schemes in Colombia are framed in a complex socio-economic scenario where the owners or occupiers of the lands where ES are provided are usually in condition of vulnerability, this research will be carried out to analyse the challenge to accomplish environmental, social and economic purposes through $BanCO_2$ Plus, a local initiative based on the VCM, in order to try to illustrate the contradictions which entail formulating and attempting to accomplish multiple objectives. To achieve this objective, efforts will be made to answer the following questions:

1.3.1 Main question

In what ways does the implementation, monitoring and evaluation of the local PES $BanCO_2$ Plus scheme consider the environmental, social and economic objectives inherent to Latin American programmes?

1.3.2 Sub-questions

a. Which are the stakeholders and factors that shape environmental, social and economic objectives in PES national policy?

b. What are the activities carried out at $BanCO_2$ Plus -inputs- during the implementation of the project?

c. In what ways do the activities implemented through $BanCO_2$ Plus scheme -inputs- relate to environmental, social and economic purposes?

d. What are the possible aspects to improve $BanCO_2$ Plus scheme with respect to the environmental, social and economic objectives of PES?

1.4 Data Collection and Methodology

In order to conduct my research, I used a single intrinsic case study method where a single PES scheme is going to be analysed and described in a comprehensive manner starting from the study of the national context and regulation of these policy economic instruments and the VCM, to be able to perform an in-depth exploration of $BanCO_2$ Plus since it has an intrinsic value for its uniqueness and to understand particularities related to the specific context of this local initiative (O'Leary, 2017).

In the first stage, a literature review has been conducted to understand the different notions of PES, I also reviewed academic research literature and institutional documentation of the Colombian government identifying the characteristics of the national scenario. As the scheme chosen for my research is based on the VCM, I also reviewed literature and regulatory frameworks to understand how it works, since it is a market that is largely unregulated and corresponds to further development of pilot tests implemented in certain regions.

This in order to analyse the national regulation issued in 2017 and 2018, as well as its original context, emphasizing the norms issued, to understand which are the factors and actors that shape environmental, social and economic objectives in PES national policy. To this end, through an institutional and stakeholder analysis (Polski and Ostrom, 1999), I will identify the ways how actors involved and current social factors have shaped the different types of objectives, complementing with a critical and legal analysis of the national context to provide a broader and holistic view of the context of PES in Colombia, focusing in the emergence and formulation of the national policy.

To complement the above information, I conducted semi-structured online interviews with experts: Jaime Andrés García, Executive Director of the Corporation for the Sustainable Management of Forests (Masbosques) operator of $BanCO_2$ programme, Jenifer Arbeláez, Coordinator of $BanCO_2$ Plus scheme in the same organisation, and Albeiro de Jesús Lopera,

Coordinator of $BanCO_2$ national programme in the environmental authority with jurisdiction on the territory where the local initiative is being implemented, the Rionegro-Nare Regional Autonomous Corporation (Cornare). I used Microsoft Teams and started with a defined questioning plan, but then I shifted with the aim to get more data (O'Leary: 2017) to acquire a more practical and real vision of the scheme.

The second stage is aimed at understanding the particularities of the $BanCO_2$ Plus local initiative, considering the following stages of the project cycle: implementation, monitoring and evaluation. For this purpose, I will use a bottom-up approach (Fischer et al., 2007: 53), explaining each step of the stages of the project and showing how the operator has shaped the project outcomes in an effort to cope with national PES policy and with demands related to market dynamics from the VCM.

Since I was not able to carry out a field trip, I was in permanent virtual contact with representatives of Masbosques. I requested them and Cornare, all the necessary information to have details about its execution, I had access to 17 documents with different information about this PES, the Project Design Document of the current project, list of beneficiaries throughout the life of the scheme, strategic ecosystem zones where the lands providing ES are located, audit reports, methodologies and instructive to execute it, conservation agreements, management reports, Carbon credit emissions certificates, a 2019 audit report and other institutional documentation that allowed me to understand the way the local initiative has been executed, especially in relation to the ES providers.

I also conducted semi-structured interviews to Masbosques developers (Field Officers), Jenifer Arbeláez, Coordinator of $BanCO_2$ Plus project and Juan Manuel Fernández, who informed about the process of linking the rural population to the program, their field visits and monitoring process.

Due to the impossibility of traveling to Colombia because of the COVID-19 pandemic, Masbosques representatives gave me access to the $BanCO_2$ Plus user platform, where I was able to see the participants characterization formats, land plots documentation, tracking formats and georeferenced maps of the areas where each of the ES providers had or occupied lands. Due to the need to have the perspective of the participants, I requested permission to use their cell phone numbers to contact them through the Skype application and conducted short structured interviews. I had the chance to communicate with some of the users, but given the time limitations of the Masbosques team and logistics, it was difficult to reach enough participants to make a deeper analysis, for this reason, I just took their answers to have an idea about their perception of the scheme.

In parallel, I analysed secondary data from databases and maps available in the Colombian Environmental Information System (SIAC), Cornare's website and $BanCO_2$ programme platform to get details about the way the local initiative is being developed.

In a third stage, I will use the tools and conceptual frameworks provided by the Logical Framework Policy Analysis (Coleman, 1987), taking into account the documents collected and the conducted interviews, in order to identify the possible aspects to improve in the scheme through an analysis of the connections between the activities developed by the operator of the local initiative and different types of purposes.

At the end, I will draw conclusions and propose measures or recommendations to improve implementation, monitoring and evaluation of $BanCO_2$ Plus at the theoretical and practical level, with respect to the environmental, social and economic purposes of PES.

1.5 Structure of the paper

This paper is divided into six Chapters, including the introduction and conclusion. In this Chapter, reference is made to the research approach, the data collection process, the methodology implemented, as well as the main research question and sub-questions. The second Chapter presents the theoretical background, through the literature review about different notions and positions regarding PES and VCM as the mechanisms implemented by $BanCO_2$ Plus to achieve its purposes. The third part explores the Colombian national context and the emergence of national policy in 2017 considering stakeholders and real conditions. Then, Chapter four focuses on explaining the case study, $BanCO_2$ Plus, how it started and how it works, trying to draw contradictions and challenges faced by a local scheme that has to accomplish environmental, social and economic purposes, and has to subsist through the VCM. Chapter five will consist in a disaggregation of the local scheme based on a 'Log frame' analysis (Coleman, 1987) identifying the links between activities, results, purposes and goal, and possible aspects to improve. Finally, Chapter six will set out the conclusions of the research and propose recommendations to the local project operator.

Chapter 2
Literature Review

In this part of the paper, different definitions and academic positions will be presented regarding PES and VCM as mechanisms selected by BanCO_2 Plus to promote the conservation of strategic ecosystems, accomplish reduction of GHG emissions and to contribute decreasing deforestation. The aim is to provide a theoretical framework for understanding the way in which the environmental, social and economic aspects integrating the purposes of PES in Colombia and Latin America, coexist and are pursued in a local scheme with a clear economic approach.

2.1 Defining and understanding Payments for Environmental Services (PES)

Governments around the world have implemented different mechanisms in response to environmental problems, especially deforestation and climate change. The most widely used are policy instruments which are neutral in principle, but whose essence depends on the objectives set at the time of designing the programmes. These instruments are classified into 4 categories:

a. Direct regulatory instruments where standards are proposed and a coercive mechanism is established.

b. Administrative instruments that contemplate the different forms of acquiring the right to use natural resources, such as environmental permits.

c. Economic instruments in which the markets are used as the main promoters of the fulfilment of environmental goals.

d. Education, investigation, technical assistance and environmental information.

e. Participatory initiatives where civil society is involved.

(Rodríguez-Becerra and Espinoza, 2002: 176; Rincón Ruiz et al., 2018: 107).

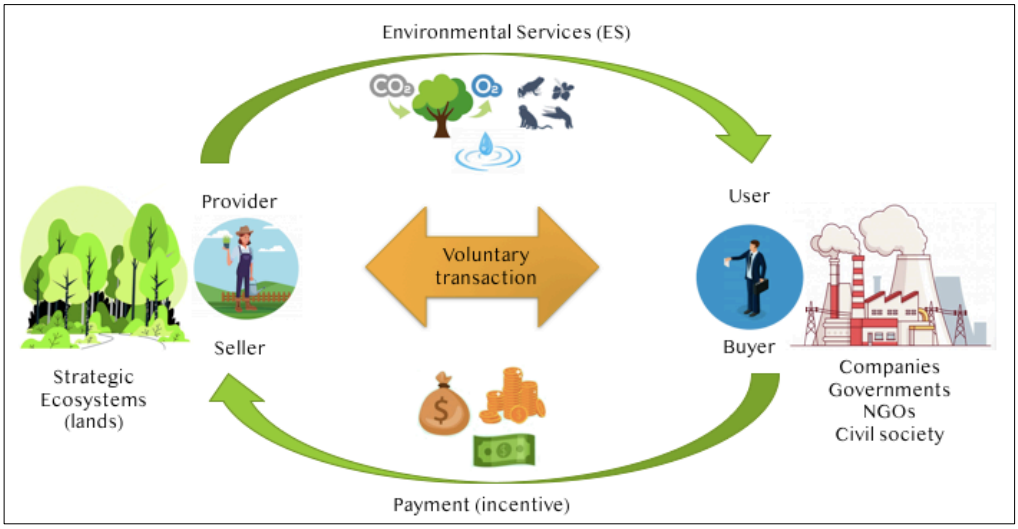
In accordance with this categorization, regardless of the notion adopted, PES are economic instruments that can eventually use the other categories to meet the main goal and purposes formulated in each programme, and are dependent on the environmental and socio-economic context of the territories where they are implemented. They are not a new topic in the international sphere and among other definitions, they are conceived by some experts as policy tools where landowners are incentivized to maintain, restore or enhance ES (Moros et al., 2020: 169). These services "refer to qualitative functions of natural non-

produced assets of land, water and air (including related ecosystem) and their biota" (UN: 1997). They may consist of Carbon sequestration, watershed services, biodiversity maintenance, landscape beauty, cultural and spiritual services (Wunder, 2005: 2; Alston et al. 2013: 2; CONPES, 2017; Literal b) Article 7 Decree Law 870 of 2017).

There are a lot of PES definitions among the scholars, which are important in order to understand which was or were used to frame the national Colombian policy and the programmes and projects that are designed, implemented, monitored and evaluated in different regions of the country, especially the case study of this paper, BanCO_2 Plus scheme in eastern Antioquia.

A widely quoted definition of a PES considers them as "1. a voluntary transaction where 2. a well-defined ecosystem service (or a land use likely to secure that service) 3. is 'bought' by a (minimum of one) ecosystem service buyer 4. from a (minimum of one) ecosystem service provider; if and only if 5. the service provider secures ecosystem service provision (conditionality)" (Wunder, 2005: 3; Fripp, 2014: 2).

Figure 2.1
Payments for Environmental Services (PES)



Own elaboration based on definitions reviewed and referenced.

Besides referencing this notion of PES, the 'Practical guide to assessing the feasibility of PES projects' published by the Centre for International Forestry Research (CIFOR), identifies their general requirements: "the buyer must be identified, the market conditions understood (including any conditionalities) and the service provider legally and institutionally recognized" (Fripp, 2014: 2).

For some authors, they are considered as new Market-Based Instruments (MBI) which have emerged in the context of the relationship between the biodiversity conservation and the markets (Blanchard et al., 2016), one of the instruments used by some countries to reduce

deforestation, discouraging the use of forest areas to develop agricultural and commercial activities. This marked-based approach translates into conservation financing where the beneficiaries of those services (users) can pay the ones who contribute to their generation (providers) (Alston et al., 2013; Pagiola, 2011).

Other scholars acknowledge the widespread notion of MBI, but propose a framework to examine PES programmes considering processes and dynamic interactions between the structure of the economic instrument, the development pathways and the stakeholders agency in each of the territories where they are implemented, challenging the logic of some assumptions and allowing the schemes to become hybrid and adapted to the particular conditions of each country, region or municipality (Hendrickson and Corbera, 2015; McElwee et al., 2014; Milne and Adams, 2012; Osborne and Shapiro-Garza, 2018; Shapiro-Garza, 2013b; Van Hecken et al., 2015; von Hedemann and Osborne, 2016 referenced by Shapiro-Garza et al., 2020: 4).

In parallel, there are studies that reveal sceptical positions about using the markets to conservation ends. According to them, governments, all kind of organizations and local communities have been promoting MBIs to conserve and manage nature due to a neoliberal turn where markets have been expanding to broad areas of society, the pro-market perspectives have influenced decision makers and conservation organizations' staffs (Sandel, cited in Blanchard et al., 2016).

Several social scientists question PES for the neoliberal tendency to commodify nature because it can eventually lead to socio-economic issues. "Commodification entails the creation of an economic good through the application of mechanisms intended to appropriate and standardize a class of goods or services, enabling these goods or services to be sold at a price determined through market exchange" (Bakker, 2005: 544).

Under this perspective, while there are 'hybrid' governance mechanisms involving companies, NGOs and communities, the ideologies that permeate the networks that promote PES implementation in poor regions affect rural communities, who help conserving biodiversity and ecosystems that the governments are unable to protect effectively. Neo-liberalism applied to nature conservation instruments, opens up the possibility of benefiting or damaging the environment, as well as represents opportunities or liabilities for local communities, hence, it is important to understand the specific conditions to benefit both, the environment and the local populations (Igoe and Brockington, 2007; Blanchard et al., 2016).

Regarding the goals to be formulated when designing PES programmes, some consider that the main priority should be to reduce deforestation, while others advocate the incorporation of objectives related to poverty alleviation. In this respect, it is argued that the effectiveness of conservation programs can be affected if poverty is targeted, but it is also recognized that it can promote sustainable livelihoods and legitimize conservation programs by incorporating these types of goals. There is not enough evidence about the effects of PES

programmes on poverty, although there are some initiatives that have reported effects on human well-being, such as those in China and Mozambique (Samii et al., 2014).

While Pagiola (2011) considers PES as a mechanism for improving efficiency in natural resource management but not for reducing poverty, Greiner and Stanley (2013) recognize that these schemes can generate overall gains in human welfare and that they are accompanied by social co-benefits in developing countries, such as poverty alleviation, transition to more profitable and resilient land-use systems, among others, which have led to discussions about whether they should be recognized in the design and implementation of PES programmes, including statements about achieving social objectives at the expense of environmental outcomes (Engel et al., 2008: 670), therefore, possible compensations should be taken into account in the design of these initiatives.

On the other hand, Pattanayak et al. (2010: 268) express concern about the current state of the PES in relation to the way their policies have been designed and implemented since monitoring and sanctions guaranteeing conditionality are practically non-existent, and additionality[3] has not been sufficiently assessed. In this way is very difficult to determine the environmental, social and economic benefits, and the cost-effectiveness of the programmes. In the end, as long as they operate, service provision will depend on compliance and continued funding of particular schemes.

Considering both sides of the discussions around PES aims, Zilberman et al. (2008) recognize that seeking to achieve environmental and social purposes, specifically poverty reduction, with the same policy instrument is challenging. Although there is a possibility of achieving both types of objectives, this is due to a scenario of balance between environmental and distribution goals.

A dialogue is promoted between doctrinarians and those who implement PES programmes in order to reconcile theoretical and practical views based on alternative notions available. Emphasis is also placed on the need to develop local and regional institutional frameworks, as well as policy instruments to protect nature. It is important to recognize that these initiatives can have multiple objectives, which requires a focus on decision-making processes and ES providers trade-offs (Zilberman et al., 2008, Muradian et al. 2010).

In an attempt to summarize the critical positions on PES, Quijano Arias (2018: 9-10) recounts the main criticisms that have been made and which should inspire the operators in the design and implementation through the existing and new schemes:

a. High implementation costs: They require biophysical and socio-economic assessment studies for their formulation (FAO 2003, referenced in Quijano Arias, 2018: 10).

b. Continuity of payment: Sources of funding must be clear to ensure incentives payment, their interruption may lead to changes in land use (Blas et al., referenced in Quijano Arias, 2018: 10).

c. Rentier system: These mechanisms are mainly aimed at landowners with high environmental value, privileging them and increasing existing rural social gaps (*Ibid*).

b. Loss of conservation values: The payment of a sum of money does not promote environmental awareness, it requires complementary mechanisms like education.

c. Economic approach: Its design depends exclusively on economic aspects and does not take into account the particularities of the ecosystems.

Having clear notions and main academic positions on PES provides a framework for understanding the Colombian national context, BanCO_2 Plus scheme and the problematic underlying this research that will be further analysed.

2.2 Voluntary Carbon Markets (VCM)

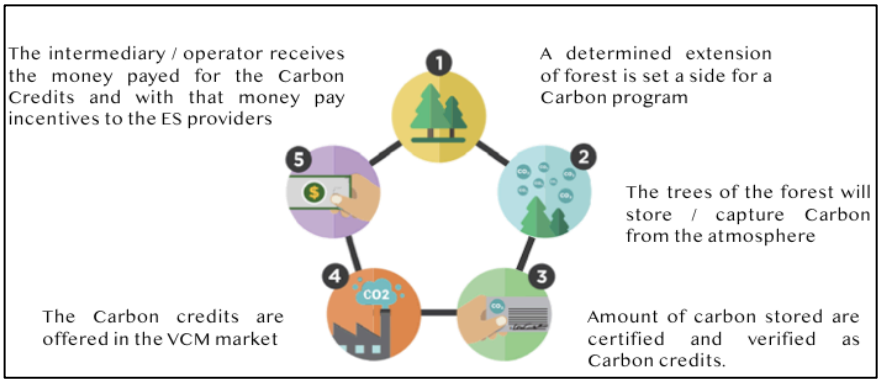
Since the VCM is the source of financing of the PES scheme that was selected as a case study to analyse, it is important to describe how these markets work and what the authors have stated about them, in order to have a holistic understanding of the source of funding of this local initiative in eastern Antioquia.

With the aim of mitigating the effects and impacts of climate change, industrialised countries formally initiated a series of actions to reduce greenhouse gases (GHG) emissions through the Kyoto Protocol in 2005. They made a commitment to achieve domestic reduction targets but also involved developing countries in taking further action to meet their commitments. Therefore, different market mechanisms emerged, and through the World Bank and the European Union Trading Scheme, a regulated Carbon market was created for the trading of Carbon credits (Barros Asenjo and Ipinza Carmona, 2011).

The Carbon market is the trading system through which governments, companies or/and individuals can sell or buy GHG emission reduction units (*Ibid*). The assets traded on this market are Carbon credits, which are represented in tonnes of non-emitted Carbon Dioxide measured in units expressed in tonnes of CO_2 equivalent (tCO_2e). It is based on offsetting or compensation as a mechanism in which a company or individual substitutes, in whole or in part, an equivalent amount of Carbon credits by purchasing them from a third party (Pouillard, 2008). It will be regulated or voluntary market, depending on whether they are subject to a clearly defined international regulatory framework or not (Sabogal Aguilar et al., 2009: 10-11).

Not all Carbon credits are traded on the regulated market, since there are companies or individuals who have an interest in counteracting global warming by offsetting or neutralising their own emissions without being subject to a legal obligation or strict regulatory framework. For this reason, for environmental or social responsibility purposes, they use the VCM, a parallel market to the one created by the Kyoto Protocol (Barros Asenjo and Ipinza Carmona, 2011).

Figure 2.2
Voluntary Carbon Market (VCM)



Own elaboration based on definitions reviewed and referenced.

In the VCM, the buyers of the credits are companies and individuals not subject to Carbon regulations who for various reasons want to offset their GHG emissions. Operations are carried out independently under standards that follow a project cycle relatively analogous to the Clean Development Mechanism (CDM) of the regulated market established by the United Nations Framework Convention on Climate Change (UNFCCC), which has unified and systematized rules and procedures established internationally (Giraldo Quintero, 2017: 11).

Intermediaries/operators play a crucial role because, while connecting ES providers and users, have the power to interpret the rules applicable to the programmes they implement, which may lead to negative results, but may also somehow avoid bureaucratic control by the government (Benessaiah, 2012), which also results in lower bureaucratic and transaction costs of VCMs that makes them more versatile and facilitates the implementation of projects based on these markets in small communities (Sabogal Aguilar et al., 2009).

Their flexibility allows the development of different types of projects, which besides reducing transaction costs, allows innovation and bottom-up approaches to be explored through the design and application of varied methodologies that can later enter the regulated Carbon market (Benessaiah, 2012: 2, Gillenwater et al., 2007). They have been implemented as mechanisms to reduce GHG emissions, while the regulated schemes are executed by governments, so they also promote innovation and play an important role in mitigating the effects of climate change (Gillenwater et al., 2017).

Benessaiah (2012), referencing Pagiola et al. (2005) and Wunder (2008), recognizes that Carbon payments not only help increase financial capital, they also improve ES provision and diversify conservation activities such as ecotourism, contributing to human capital by providing communities with opportunities for better organization, training, employment and income sources. According to the same author, high transaction costs characterize schemes that involve multiple actors in all stages of project development and initial stages are especially expensive.

Nevertheless, in the pursuit of social and environmental justice objectives, it is important to consider the social dynamics to give legitimacy to projects based on the Carbon market, to avoid conflict, lack of permanence, leakages[4] and to prevent the root causes of Carbon emissions from persisting. Therefore, schemes must be designed in harmony with social and ecological dynamic systems through a broad and systemic understanding of the Carbon supply chain to identify the losers and the winners. There is also a need for scientists to help determine the relationships between ES and how these together affect people's well-being, as well as the possibility of strengthening non-economic trade-offs such as changing production and consumption patterns to improve the bundled ES and the livelihood conditions of those who provide them (Benessaiah, 2012).

Contrary to the above, Muradian et al. (2010) identify different constraints such as the lack of well-functioning markets, as well as the lack of social embeddedness of such PES schemes and the trade-offs between equity and efficiency goals, which may make it more difficult to achieve objectives in projects that go hand in hand with sustainable development and suggest that it may be better to focus on only one type of objective (Bulte et al., 2018; Kinzig et al., 2011; Wunder, 2008 referenced in Benessaiah, 2012).

Finally, Martineau and Lafontaine (2019) state that Carbon markets have an inherent commodification process which in turn contributes to the instrumentalization of the relationship between individuals and nature and reduces it to a commercial exchange, the integration of markets into nature encourages people to maintain an instrumental relationship with it, leaving aside the emotional or affective part and focusing on economic calculations and measurements.

Having an explanation of the dynamics that allow VCMs to function and the criticisms that have been made of them, provides an interesting theoretical framework for analysing $BanCO_2$ Plus scheme, whose main objective is to promote the conservation of natural forests and the restoration of strategic ecosystems through PES, by capturing Carbon emissions into the atmosphere, reducing GHG emissions (Masbosques 2, 2019). To this end, the national context will be analysed first, and then the details of the local initiative will be examined.

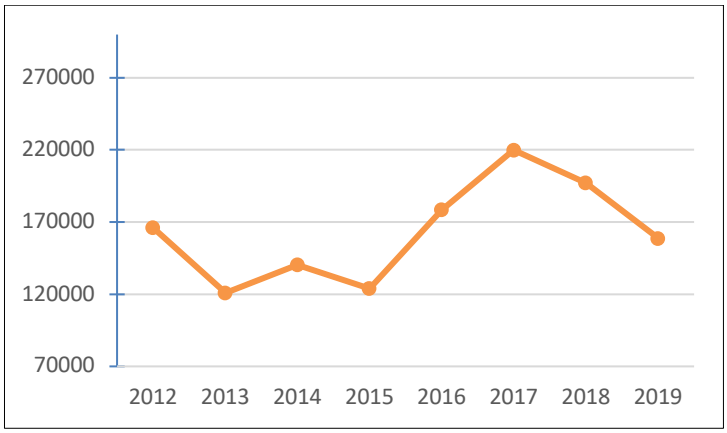
Chapter 3
Colombian National PES Scenario

Anthropogenic activities such as deforestation and land alternative uses contribute in a very significant way to the climate change, air and water pollution, soil erosion and loss of biodiversity, specifically in Colombia, where by 2018 the area covered by natural forest was 60.024.712 hectares, corresponding to 52% of the national territory (SMBYC, 2019).

Deforestation in Colombia has increased mainly because of the expansion of the agricultural frontier to develop extensive cattle ranching, illegal crops, illegal logging for timber, mining, construction of infrastructure projects, the pressure caused by population growth and forest fires of anthropic origin (García Romero, n.d.). These causes are framed by the historical deforestation heritage of the majority of the Colombian population that does not understand the true importance of forests (Castro and Andrade, 2019). Despite a decrease in the number of hectares deforested during 2018 and 2019, the numbers remain high and measures to maintain and increase the country's forest cover must be strengthened.

Figure 3.3

National Deforestation (hectares per year)



Own elaboration. Source: SMByC. Change in the area covered by natural forest (National) http://smbyc.ideam.gov.co/MonitoreoBC-WEB/reg/indexLogOn.jsp The 2019 figure was reported in IDEAM press conferences and published media (La Vanguardia: 2020).

The national socio-economic context makes difficult to implement measures to counteract deforestation. On the one side, the presence of the armed conflict for more than half a century, which originated in the unequal distribution of land, as well as the absence of spaces to participate in politics. A conflict which involves numerous actors like the state, the guerrilla and the paramilitary groups, and the notorious influence of drug trafficking, that conform the basis of the social and political dynamics in the Colombian territory (Moreira et al., 2015), and frames almost all the existing public policies implemented in the rural areas of the country.

On the other side, since 1990 the political agenda of the Colombian government has focused on strengthening the mining and energy sector to achieve growth based on extractive activities. The significant reduction in the percentage of agricultural products to be exported and an increase in products of extractive origin, have marked the dynamics of national economy. Internal and external factors have contributed to the consolidation of this model and the consequent imposition of structural policy reforms to encourage and promote these activities. While all National Development Plans[5] have promoted foreign investment in energy-mining projects to establish them as the basis for economic growth, the environmental conservation activities have been financially weakened, not to mention the numerous unjustified environmental damages caused by the development of the extractive industry (Sarmiento-Castillo and Pérez-Rincón, 2015).

Colombia is a particularly complex scenario that imposes a real challenge with regard to the formulation of norms and programmes to protect the environment, nevertheless, the government has recognized deforestation as a problem that has to be minimized. Some measures have been adopted, like the conformation of the National System of Protected Areas (SINAP), that includes territories of special protection, social actors and strategies to contribute to natural conservation objectives (PNN, 2009). Even when society has taken an important role to reduce it, as the case community-based ecotourism, implemented for more than a decade in order to find a balance between the conservation of natural attractions and the social component of ecotourism activity (MADS 2, n.d.), deforested areas are still increasing and the mechanisms applied seem insufficient.

The current National Development Plan of the Colombian government for the period 2018-2022 has set as a main goal reducing deforestation by 30% with respect to the current scenario, objective that the government supposedly intends to achieve through "*Bosques Territorios de Vida*" (Forests Territories of Life), an integrated strategy control to deforestation and forest management (EICDGB), a trans-sectoral national policy that involves different sectors of the Colombian state and other stakeholders, with the aim of reduce deforestation and forest degradation (MADS, n.d.).

According to the government represented in the Ministry of Environment and Sustainable Development (MADS), this national policy is conceived as a comprehensive long-term forest governance measure to achieve sustainable rural development by contributing to the improvement of the quality of life of rural communities and the reduction of GHG emissions. It was designed in line with international agreements that have been ratified and other national policies, especially the National Strategy for Reducing Emissions from Deforestation and Forest Degradation (REDD+), which began with support from various international cooperation agencies in 2010 (*Ibid*).

Although economic instruments have been recognized by the government as mechanisms to encourage the control of deforestation and the sustainable management of forests,

according to EICDGB, not enough attention has been paid to institutional incentive mechanisms such as forest funds, forest concessions, land banks, among others, nor to financial instruments such as green forest bonds, forest rent securitization, or fiscal incentives (*Ibid*). Therefore, a mechanism promoting an economic incentive aimed at the rural population of Colombia will be analysed.

Armed conflict in Colombia has affected all social classes in different ways, but the rural population has been the most affected because their territories are the scenarios where confrontations and war are concentrated. Subordination and exclusion of the rural sector in development processes, high concentration of land ownership, greater dispersion of the population, geographical, social and economic isolation from the main cities, make their lands ideal places for transit, supply, refuge and settlement for armed groups. In addition, the rural areas are characterized by having an actual and potential economic value, because of the mining and natural resources or the infrastructure projects that are usually performed there (Edilma Osorio, 2001: 57).

One of the economic mechanisms that have been implemented to promote the conservation of ecosystems through the participation of rural population are the PES, a policy instrument that has been used and regulated by the government of Colombia, which, according to the EICDGB, is part of the actions to be executed for: i) implementing conservation and restoration systems in ethnic groups' territories; ii) technically develop the agricultural frontier areas; iii) as one of the specific instruments for the rural frontiers stabilization, and iv) as one of the economic instruments to provide a source of financing for the other activities of national strategy for deforestation and forest management (MADS, n.d.), which shows an economic approach in conceiving these mechanisms.

3.1 Institutional and Stakeholder Analysis

In order to understand the situations that took place in the process of formulating the national PES policy in Colombia and the ways stakeholders shaped its environmental, social and economic purposes, an Institutional Analysis and Development framework will be used, to describe the "(…) behavior in the action arena, which includes the action situation, and individuals and groups who are routinely involved in the situation (actors)" (Polski and Ostrom,1999: 6).

As a policy instrument, PES in Colombia will be analysed considering the role of institutions in political-economic behaviour, understanding them as the system of rules, norms or standard operating practices that adjust the conduct of groups of individuals, and also taking into account organisations that may be formally or informally established (Polski and Ostrom, 1999: 4). Under this framework, national policy will be approached as a multi-stakeholder process to regulate the actions of existing and future PES schemes across the national territory.

As it was explained, this regulation emerged in a country with an extraction policy at the top of the national agenda and in a socio-economic context marked by more than half a century of armed conflict, both, physical and material conditions (Polski and Ostrom 1999: 6) that may difficult the achievement of environmental, social and economic purposes, but need to be considered despite the challenges that PES operators have to face when it comes to achieve them.

To provide a simplified view of the actors involved in the PES arena in Colombia, a stakeholder analysis will be made, including the general vision of the role of each one in the development of the national policy according to the national laws and socio-economic context. The stakeholders were also linked to the wider category they belong: global, state, private or public sector and civil society.

Table 3.1

Stakeholder analysis PES Colombian arena

	STAKEHOLDER	OVERVIEW
GLOBAL	International Organisations and other governments	They promote and finance PES programmes in order to meet their objectives, as well as those pursued by the national government. Provide support to countries in sustainable development of forests and offer incentives to developing countries with the aim of reducing GHG emissions and reduce deforestation.
STATE	Presidential cabinet	Defines the political will and priorities for each electoral period.
	Ministry of Environment and Sustainable Development of Colombia (MADS)	Head of environmental management and renewable natural resources, in charge of structuring, implementing and monitoring the PES national policy with the environmental regional authorities support.
	Ministry of Agriculture and Rural Development	Provides technical support to structure and implement agricultural productive projects related to PES or other conservation incentives.
	National Planning Department (DNP)	Supports the MADS in structuring and executing budget, and in monitoring system of actions and investments in PES programmes through institutional articulation.
	Regional Environmental Corporations[6]	Coordinate with MADS to provide technical support to formulate, structure, select, implement, evaluate, accompany, monitor and control the PES programmes. Provide information to the systems and registers.
	Territorial Entities[7]	Participate in the administrative and financial management and co-finance to structure and implement PES. They have to include them in their Development Plans and other planning instruments.
	Special Administrative Unit of Natural National Parks of Colombia (PNN)	In charge of the administration and management of the National Natural Parks System and the coordination of the National System of Protected Areas -SINAP- (Decree 3572/2011) where generally strategic ecosystems are located.
	Institute of Hydrology, Meteorology and Environmental Studies (IDEAM)	Provides information and knowledge about renewable natural resources, also monitors them (IDEAM, 2014).

	STAKEHOLDER	OVERVIEW
	Research institutes	Generate information about ES provided by strategic ecosystems and offer technical and scientific support to implement PES schemes.
PUBLIC / PRIVATE	Operators	Public or private organizations who design and/or implement PES programmes.
	ES users/buyers	Individuals, public, private or hybrid companies, that recognize the economic incentive voluntarily or within the framework of compliance with environmental authorizations obligations.
	ES Providers/Sellers	Owners, possessors or bona fide occupants of lands located in strategic ecosystems, which receive the incentive conditioned on compliance with the preservation and/or restoration actions signed through a voluntary agreement. They also include indigenous and ethnical communities located in those ecosystems.
	Forest and farm producer organisations	Represent the interests of productive sectors such as wood, palm and livestock.
CIVIL SOCIETY	Rural population	Have a historic tradition of deforestation (Castro and Andrade, 2019), but also participate in monitoring structuration, advances and results of PES programmes. Most affected by the armed conflict (Edilma Osorio, 2001) and usually strategic ecosystems are located in their lands.
	Guerrilla and Paramilitary groups	Main actors in the armed conflict that generate environmental and social pressures through the use of violence and the development of illicit activities such as illegal mining, drug crops and trafficking (Guhl Nannetti and Leyva, 2015).

Own elaboration regarding the national regulation (Decree Law 870 of 2017; Decree 1007 of 2018) and references.

As can be observed, the public sector is present in almost all interest groups, which can be explained by the existence of the National Environmental System (SINA), the set of guidelines, regulations, activities, programmes and institutions in charge of the management and conservation of the environment and renewable natural resources, led by the MADS and integrated at the central level by the National Environmental Licensing Agency (ANLA), PNN, several research institutes comprising IDEAM, and at the regional level by 33 Regional Autonomous Corporations and the territorial entities (MADS, 2015).

The government comprises the presidential cabinet, which has the power to determine the national agenda of priorities, and together with MADS issued the national regulation of PES in 2017 in accordance with its legal faculties, taking as a guide the document elaborated by the National Economic and Social Policy Council (CONPES), the government's advisory body on aspects related to the socio-economic development of the country, integrated by the President of the Republic, the Vice President, all ministers, the director of the DNP, which also acts as the technical secretariat of the Council, and other officials of the executive branch (DNP, 2016).

The presence of the public sector extends to organisations performing scientific, technical and administrative support functions, who, despite having extensive knowledge of strategic ecosystems, are just consulted to regulate many aspects but have no decision-making power. In addition, public organisations are also legally authorized to act as operators or intermediaries in the projects, as well as users and providers of ES (Decree Law 870 of 2017 and Decree 1007 of 2018), which shows a majority state participation in the national panorama of PES.

Regarding the Colombian state's interest in the environment, it is very much associated with the global interest that is reduced to the interests and actions of the main agents of the economic model that dominates: the governments of developed countries and multinational companies, which makes them the most powerful stakeholder. The issues that occupy government's agenda, such as security, terrorism and unlimited consumerism ignoring sustainability, and the utilitarian and short-term vision of maximising economic returns immediately (Guhl and Leyva, 2015: 37), are not only present in the global and state spheres, but have been replicated in the other sectors to which the above-mentioned stakeholders belong, as is the case with associations representing large forest and farm industries promoting activities that generally cause deforestation and have been supported by the government.

In Colombia the formulation of public policies associated with the environmental sector is influenced by the global vision of the environment and by the management that occurs in the framework of international agreements signed, but is also marked by the internal situation of the country in terms of socio-economic variables and the effects of the armed conflict (Guhl Nannetti and Leyva, 2015). Consequently, international theories and standards frame the understanding of PES in Colombia, but the presence of guerrilla and paramilitary groups in rural areas, plus ES providers tending to deforest, has also determined the ways this economic instrument has been designed, regulated and implemented.

It is a context in which, the globalization or internationalization of the economy predominates, the absence of state capacities to control the territory in the most isolated regions is a constant, the economic policy based on the development of the mining and energy sector is way more important than the conservation of the environment, there are several risks environmental and social leaders have to deal with, and where there is a lack of coordination of public and private entities to provide environmental education (Guhl Nannetti and Leyva, 2015). Factors that difficult developing instruments to protect the environment and hinder the promotion of awareness about the importance of forests to society.

The presence of multiple stakeholders offers a perception of governance where responsibilities are supposed to be distributed among the different actors and political power is dispersed. However, the participation of local communities, in this case ES providers, ends up being subordinated to the decisions of the actors with the greatest decision-making power (Rincón Ruiz et al., 2018), international entities, governments, productive sector companies and users or buyers of ES on whom the majority of economic incentives recognized for conserving strategic ecosystems depend, leaving the most vulnerable ES providers at the lowest level of power, whose participation in the national policy making process is little or non-existent.

Summarising, both, the government's priorities based on an extractive and consumerist model promoted by globalisation, as well as the situations derived from the armed conflict that afflicts the country, frame the actions of all stakeholders in the policy arena, and therefore unavoidably have a direct effect on the presence of environmental, social and economic purposes in the national PES policy.

3.2 The first local initiatives

The particularity of the Colombian PES scenario is that different programmes have been gradually adopted in local territories long time before the issuance of the national policy. They were first implemented in 1987, through multiple water user associations in order to raise funds to invest in the conservation of the watersheds that supply the Valle del Cauca department. This programme is still in force with others that were implemented after.

Later, between 1995 and 2008, with the support of the Villa de Leyva municipal government, the environmental authority of the protected area and the technical and scientific support of the Alexander von Humboldt Colombian Research Institute and the Centre for International Forestry Research (CIFOR), an initiative was developed for the conservation of the Chaina micro-basin in Boyacá, with the participation of 13 rural families of scarce resources as ES providers and 5 rural water management boards as users (Borda et al., 2010).

In 1994, with the Forest Incentive Certificate (CIF), payments for environmental conservation began to be recognized by the government, forming one of the primary regulatory antecedents of PES in Colombia. In the following years, very particular agreements and norms continued to be issued in which programmes were included as financing strategies for natural conservation, but there was no national regulation or policy that expressly regulated them, which happened until 2017 (Rodríguez and Ávila, 2014: 138-140).

Then, the project with integrated silvopastoral approaches for ecosystem management between 2001 and 2006 in La Vieja river basin in Quindío department, under an agreement with Global Environmental Facility (GEF), the World Bank and the Centre for Research on Sustainable Agricultural Production Systems (CIPAV), led to a national sustainable livestock project in several regions of the country (*Ibid*: 140).

Since most of PES programmes in Colombia started to be implemented before the issuing of the national law of 2017 and there is not a national program in charge of a unique public institution (Moros et al, 2020), the execution of the schemes is different from the cases of Costa Rica and Mexico, taken as models to issue the national policy, because it has occurred in the local sphere, which have allowed for a closer relationship between ES providers and end users or beneficiaries, which are mostly private sector companies and NGOs (Rodríguez and Ávila, 2014: 139).

Although in 1993 some sources of financing for PES programmes in Colombia (Law 99) were regulated in an incipient manner, and later more possibilities opened up for technical, operational and financial contributions to consolidate and develop more local schemes in the governments' National Development Plans from 2010 to 2018, it was very difficult to coordinate the government, the private sector, civil society and international bodies to expand these initiatives in the national territory (CONPES, 2017).

Over time, more PES initiatives were created and developed in different regions of the country, some financed by public resources, others by private contributions, in some cases by foreign governments and organizations, and others from hybrid financial sources. By 2016, there were already 15 projects being implemented in different regions, operated by public and private agencies or by NGOs, and covering a total of 58.808 hectares (CONPES, 2017: 89).

Outstanding among these initiatives, is BanCO_2 national programme operated by Masbosques and by the environmental authority of the region where the first Carbon market pilot projects began, Cornare, since 2012, which by the time national regulations were issued was covering an area of 20.000 hectares and had signed 1.000 conservation agreements with ES providers (*Ibid*) and whose methodology was used as a reference for issuing general regulations in 2017 and 2018 (García 2020 and López 2020, virtual interviews).

With the initiative of the Colombian government, institutional efforts began to join forces in order to issue the necessary national regulation to improve coordination and motivate stakeholders to design and develop more PES programmes in the different regions of the country.

3.3 Emergence of the National Regulation and PES Characterization

Given the limited and very particular reference to PES programmes in Colombian law before 2017, and the increasingly widespread introduction of this type of initiatives in the country, some of the organisations that operated these schemes, in conjunction with the environmental authorities of the places where the projects were implemented, began to work together to include them in the National Development Plan of former president Juan Manuel Santos' government and in a CONPES project. With this, the national policy issuance began and "the possibility of obtaining resources was opened up a lot because the payment for environmental services schemes work with resources, they do not work by word or intention" (García 2020, virtual interview 1).

When national policy began to be formulated in 2016, the Peace Agreement between the government and the Revolutionary Armed Forces of Colombia (FARC) was being signed, a historic event that came after more than half a century of armed confrontations that left millions of victims and required a series of guidelines to try to contribute to building peace in the country. For this reason, CONPES, the highest national planning authority and advisory body to the national government on issues of socio-economic development, through documents 3850 of November 2015 and 3867 of September 2016, recognised the PES as a strategy for peacebuilding, an alternative for the socio-economic development of the populations affected by the armed conflict (CONPES, 2017), who usually occupy the lands where the strategic ecosystems are located.

The same Council issued the document 3886 of 2017, establishing the guidelines for the national PES policy for peace-building, exposed two situations overlapping with each other: i) the effect of anthropic pressures such as deforestation, pollution and over-exploitation of resources as the cause of the loss of the benefits generated by ES and affectation the quality of life of the population; and ii) the need to promote innovative, inclusive and equitable strategies to solve problems associated with the armed conflict and enable sustainable development (CONPES, 2017).

Cornare as the environmental authority of the territory where the BanCO_2 national PES programme emerged, was able to work together with the Ministry of Environment and Sustainable Development (MADS) and with some Congress members of Antioquia region who were interested in regulating PES in Colombia. They had numerous conversations, consultations, interviews and revisions of the regulation projects of 2017 and 2018, and had an influence on the national policy that was finally issued (Lopera 2020, virtual interview 2).

The policy guideline also recognizes PES as mechanisms able to achieve a triple purpose: i) to conserve and protect the environment, ii) to generate local development opportunities and iii) to reduce poverty (Muradian et al., 2010 referenced in CONPES, 2017: 18), which confirms the Latin American tendency of targeting more than one type of objective, considering the socio-economic situation of the ES providers, but making the task of operators much more challenging.

Besides stimulating the conservation, preservation and restoration of ecosystems, the CONPES document also promotes the development of sustainable production processes with agroforestry systems, silvopastoral and good agricultural practices. They are presented as an economic alternative for vulnerable populations and foster the articulation of resources to face the dynamics of transformation of ecosystems and the occupation of territory. Aim accordant with Greiner and Stanley's (2013) statement, because this vision opens the possibility of improving human welfare and contributes to the transition to more profitable and resilient land-use processes.

Considering that the case study is financed by the transactions carried out in the VCM, it should be noted that in the modality for the conservation of Carbon sequestration areas, these markets are promoted by the CONPES, but a transition from such programmes to the regulated market is also encouraged. This means that although many of the projects that are implemented locally are not under Kyoto's Protocol regulation, it is intended that in the future they will start trading de Carbon credits in the regulated market and they have to accomplish with more strict standards in order to do it.

Within the framework of these guidelines, Decree Law 870 of 2017 was issued by the government, a national regulation of PES and one of the ways to supposedly implement various 2016 Peace agreement's points related with: i) the closure of the agricultural frontier and reservation areas protection, ii) development of direct interlocutory mechanisms with

communities in National Natural Parks (PNN) to build agreements to eradicate illicit crops, and iii) consideration of ethnic focus, recognition of ancient territorial practices, uses and traditions of ethnic peoples. This norm defines the PES, the different types of schemes, its basic elements, the stakeholders involved and the different funding sources they can use.

Given that Wunder's (2005) notion of PES was taken as a reference in the policy guidance document, 2017 regulation emphasizes its understanding as an economic instrument, a MBI, conceiving it as an incentive in money or in kind that is recognised to ES providers by the interested parties (users) that takes place in the framework of a voluntary agreement between them, which is consistent with the concept of the national policy against deforestation (EICDGB) that considers these initiatives as a source of funding for other activities that are promoted to reduce it (MADS, n.d.).

In line with the above, in an effort to try to ensure of the continuity of the payment, at least in some schemes, the national regulation identified the different sources of funding of the projects, which can be: i) Fees for the use of water, ii) transfers from the energy sector, iii) compensations for biodiversity loss in the framework of environmental licenses and the Forest Conservation Incentive Certificates (CIF), iv) no less than 1% of the current incomes of departments and municipalities, v) voluntary contributions from individuals and companies, and vi) special funds created by government. In addition, decentralization of the schemes is promoted by giving autonomy to territorial entities to stablish the management mechanisms and destination of resources to finance and co-finance PES programmes.

Even though these aspects are important for the development of the programmes, financial sustainability should not be the basis for implementing PES in Colombia because everything eventually revolves around the continued dependence on financial resources, and reinforces the criticism associated with the economic approach that does not consider the particularities of the ecosystems, also encouraging a loss of conservation values since environmental awareness is not promoted (Quijano Arias, 2018: 9-10).

One of the positive aspects in the national policy to highlight, is the notable effort to standardise voluntary conservation agreements by establishing a minimum content: i) Term of duration, recommending 5 years with the possibility of extension, ii) description and extension of the area and property, covered and not covered by the payment, iii) agreed use of the land and iv) management and custody actions of beneficiaries. Offering the ES providers more clarity in the conditions of the documents they sign to participate in particular schemes.

A great advance in relation to ES providers which considers the problem associated with land tenure in Colombia and provides a possible solution to the rentier system criticism (Blas et al., referenced in Quijano Arias, 2018: 10), consists in not limiting the access of vulnerable populations to owners, but also allow the participation to individuals whose relationship with the land is not defined, allowing possessors and *bona fide* occupants[8] to apply to the

programmes and receive the economic incentive if their land is located in strategic areas or ecosystems.

Another aspect that national regulation addresses and which could counteract the criticism related to the loss of conservation values (Quijano Arias, 2018: 9-10) is the provision that establishes that communities have the power to monitor and control the structure, progress and results of PES projects, for which they should receive training and receive environmental education to complement and make the economic incentive sustainable through their participation (Article 21 of Decree Law 870 of 2017). For this purpose, citizen oversight organizations can be constituted as one of the democratic mechanisms of representation, allowing communities to supervise activities developed by public, private, national or international NGOs, responsible for the execution of the programmes or projects (Law 850 of 2003).

Then, in 2018 the Decree 1007 was issued to regulate the PES incentive and harmonising all the rules in force. It provides details about the role of the environmental authorities in regard to the schemes, the payment recognized to the ES providers, criteria to determine the prevalent strategic ecosystems and areas, methodology to make the value estimation of the payments and some of the obligations in charge of the operators of the programmes.

With the 2017 and 2018 regulations, PES programmes can operate with a much clearer panorama of action that compels them to formulate environmental, social and economic purposes, given the inevitable overlap between the owners or occupiers of land with strategic ecosystems and the condition of vulnerability of rural populations (Moros et al. 2, 2020: 3-4) caused in greater part by exposure to the risks associated with the armed conflict and the poverty levels of rural areas. These norms focused attention on several important aspects that were already being developed in the programmes implemented in different regions of the country, such as the possibility of individuals and public or private companies to participate as users or buyers of ES.

The social focus directed at using the schemes as mechanisms for building peace was the principal motivation of the policy guidelines from CONPES as it was mentioned, however, this was relegated by the 2017 regulation to particular prioritization criteria regarding populations and territories affected by the armed conflict and to 'other conservation incentives' which can be granted by public or private companies. As a result, the aim of contributing to the construction of peace, ended up being non-binding recommendations that leave the objective associated with the conflict in a second place.

It was also noted that the national policy is not sufficiently detailed in relation to control and monitoring measures for the programmes, which, in addition to the absence of state presence in some areas, especially those with high environmental value, is one of the criticisms that have not been overcome in relation to PES in Colombia (Quijano Arias, 2018:

37), and which is reflected much more strongly in relation to the social objectives of the project under study, as will be shown in the next chapters of this paper.

Taking every aspect of the PES national policy into consideration, there is a clear tendency to focus attention in economic and financial factors, nevertheless, the conservation and protection of the environment is also promoted in parallel to new and increasing local development opportunities through sustainable production processes to improve the quality of life of ES providers, which reflects the promotion of multi-purpose schemes. Although the economic approach is predominant, the socio-economic reality of the national territory cannot be ignored.

Chapter 4
BanCO$_2$ Plus PES scheme

Although national policy has an economic focus on the PES and this is consistent with the way this mechanism is implemented by Masbosques in the BanCO$_2$ Plus scheme, this is due to the operator's discretion to design and execute the project where the marketing of carbon credits in the VCM is used as a financing mechanism that was not expressly contemplated in the 2017 regulation. This, in conjunction with the way economic incentives are financed through the VCM, results in market-based economic understanding of the conservation policy tool. However, it is an initiative where environmental and social aspects are also considered in its implementation, reflected especially in complementary conservation mechanisms and restoration of strategic ecosystems. Therefore, it represents an adequate case study to address the research problem formulated.

4.1 Origin of the BanCO$_2$ programme

In eastern Antioquia, the region where the national BanCO$_2$ programme originated, although it is a geostrategic area for local and national development due to industrial, agricultural and energy production, there is a differentiated rural distribution where capital is concentrated in some sub-regions more than others, depending on the development of industrial, highways and hydroelectric projects. Additionally, it is a region affected by the armed conflict that has caused forced displacement and disturbed the rural population, characterized by a smallholder economy and high levels of poverty (Torrejón Cardona and Mesa Restrepo, 2017: 197-201).

The rural population's vulnerability to poverty and armed conflict forced the communities of this region to engage in deforestation activities such as coca cultivation, extractive activities and illegal logging, in order to generate income in the short term. In addition, the extension of the agricultural and cattle herding frontier for the development of livestock areas, contributed to the pressure on strategic ecosystems. All these situations motivated the design and implementation of a PES programme in the region (López 2020, virtual interview 1).

Therefore, in 2013 with the initiative of Cornare, the environmental authority with jurisdiction over eastern Antioquia, PES programme BanCO$_2$ emerged with the aim of stimulating the conservation, preservation and restoration of strategic ecosystems by rural communities through the compensation/offsetting from companies, local authorities, environmental authorities and individuals (García 2020, virtual interview 1; López Gómez, 2015: 26; Masbosques 3, 2019).

It has become the national PES programme that covers the largest number of hectares of the national territory as it is present in several regions of the country and operates through

the collaboration of the private sector, the government and rural communities ($BanCO_2$, n.d., Moros et al., 2020: 169). Over time, it began to open different schemes according to the provided ES and the source of funding:

Table 4.2

$BanCO_2$ national programme schemes

	$BanCO_2$ Bio	**$BanCO_2$ Plus**	**$BanCO_2$ *Agua***
Start Year	2013	2014	2017
Provided ES	Biodiversity maintenance	Carbon sequestration	Watershed services
Funding	Voluntary contributions and mandatory compensation received by the environmental authorities	Carbon credit transactions of the VCM	1% of the current income of the territorial entities of Colombia

Own elaboration. Source: ($BanCO_2$, 2020; ICONTEC, 2020; MADS 3, n.d.)

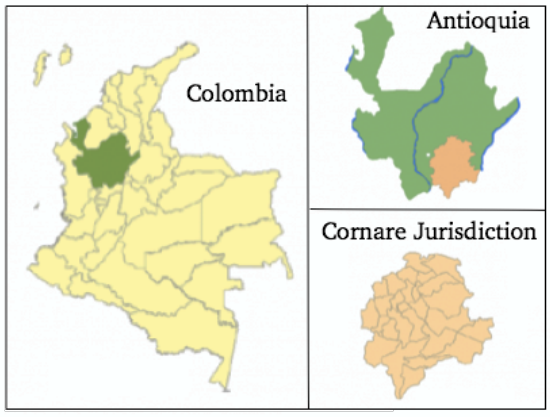
The $BanCO_2$ national programme is complemented by alternative conservation mechanisms different from PES, such as 'other conservation incentives' established in Decree Law 870 of 2017, which have been implemented in other regions of Colombia; it also supports sustainable productive processes such as $BanCO_2$ *Miel* (honey) where some of $BanCO_2$ Plus ES providers participate; and the encourages the development of service projects such as *Paisajero*, which promotes ecotourism (Masbosques, 2019). These mechanisms, reflect the complementary nature of this type of policy instrument, given that it is not intended to be the only solution to environmental problems, but goes hand in hand with other initiatives that also involve rural communities, which is in line with the principle of complementarity established in the 2017 regulation, where PES are considered as part of the state's environmental management instruments (Decree Law 870).

4.2 $BanCO_2$ Plus local scheme

This initiative emerged as a strategy of PES in 2014 with a pilot project in Sonsón area of Antioquia, where 614 hectares of moorland were protected and GHG emissions reduction was certified in 2017. Later in 2018, a second project started to take place in more eastern Antioquia zones, protecting more hectares of strategic ecosystems, extending the scope to eight municipalities and more ES providers ($BanCO_2$, 2020).

Map 4.1

Eastern Antioquia Region – Cornare Jurisdiction



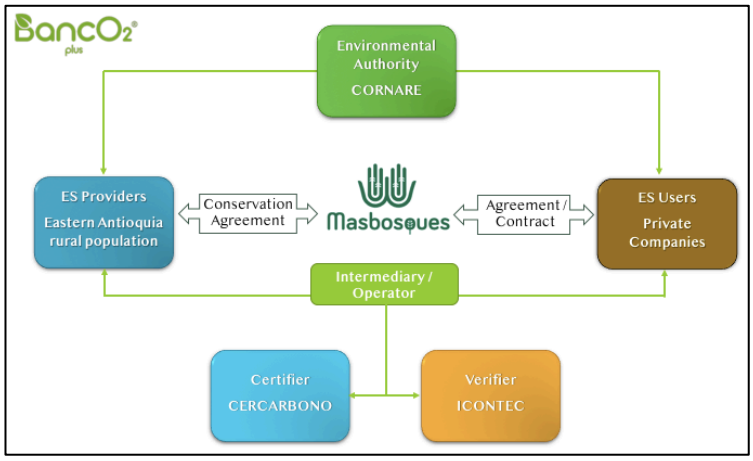
Source: https://www.cornare.gov.co/localizacion-regional/

As has been mentioned, it is a PES scheme that is financed with transactions carried out in the VCM by private companies interested in reducing their carbon footprint, including cement, paint, food production companies, and an agroforestry operator. Some of them contribute from voluntary offsets to meet socio-environmental objectives, and others do it within the framework of the non-Carbon tax to obtain tributary benefits (Masbosques, 2020: 38).

It is being implemented with the intervention of actors from different spheres including the government represented in Cornare, the environmental authority with jurisdiction in the area of implementation; the private sector represented by companies that want to compensate their Carbon footprint, buying the credits and financing the conservation economic incentives; the civil society which in this case are the ES providers inhabiting the rural areas where the strategic ecosystems are located and who sign a conservation agreement and receive the incentive if they keep the forests; and the operator of the national programme $BanCO_2$, Masbosques, a public-private organisation that intermediates and implements the project activities with the assistance of other actors such as the Carbon certifier (Cercarbono) and the verifier, Colombian Institute of Technical Standards and Certification (ICONTEC), whose functions will be described below.

Figure 4.4

$BanCO_2$ Plus scheme stakeholders



Own elaboration using information collected during the research

4.2.1 $BanCO_2$ Plus scheme, between promises and contradictions

Given the express and tacit presence of environmental, social and economic purposes in the $BanCO_2$ Plus scheme and the discretion the operator has had in developing the initiative, a bottom-up approach (Fischer et al., 2007: 53) will be used to show the agency of Masbosques to implement the national policy, and to explain the ways in which these objectives are addressed in the different stages of the project, as well as the challenges faced by the operator, that must take into account imminent and recognised social factors in national policy, as well as the demands of the dynamics of the VCM.

While national policy established a series of obligations and a framework for implementing programmes, operators are given a wide margin of discretion in selecting funding mechanisms and conservation activities. Thus, in the case study, an implementation organisation has shaped the policy outcomes in order to accomplish multiple purposes related to environmental, social and economic factors and the main goal of promoting the conservation of strategic ecosystems and biodiversity.

This approach was selected since scholars are interested in the whole policy or project cycle and not only in one stage (Fischer et al., 2007: 94). Hence, the problematic of targeting more than one type of purpose through a PES local initiative will be explained in the different stages of the scheme: i) implementation, ii) monitoring, which implies collecting and interpreting information to keep an updated version of the project implementation progress in relation to specific objectives (OECD, 2008: 7), and iii) evaluation, where an objective and systematic assessment of the project is made, determining the relevance and fulfilment of objectives, development efficiency, impact and sustainability (DAC, 2002).

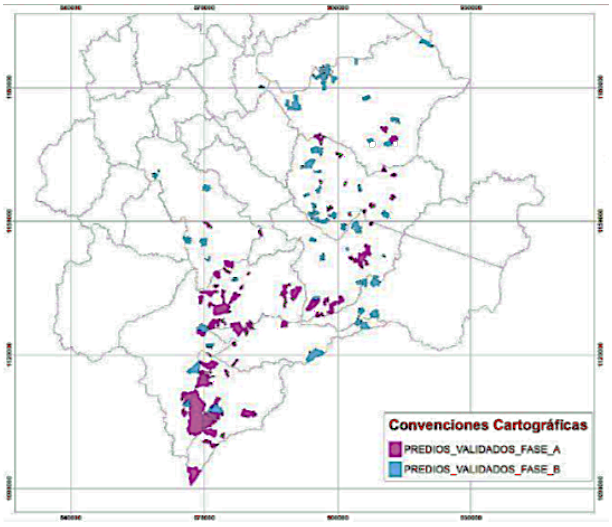
4.2.1.1 Implementation

This stage involves a process in which public and private actors participate in a series of steps defined in the operating guide for the $BanCO_2$ Plus line (Masbosques 2, 2019), complemented by information provided by the Coordinator and the Developer of the project (Arbeláez 2020, virtual interview 1, Fernández 2020, virtual interview).

a. Pre-feasibility study and project formulation.

b. Selection of the area of the project: It is located in the Samaná North and South watersheds, Río Claro Cocorná Sur and Arma, in 8 municipalities in the jurisdiction of Cornare: Sonsón, San Francisco, Nariño, El Carmen, Argelia, San Carlos, San Luis and Abejorral, corresponding to an area of 18.265,18 hectares of forest (Masbosques, 2020).

Map 4.2
Location of $BanCO_2$ Plus lands



Source: (Masbosques, 2020: 12) Purple: Phase A. Blue: Phase B.

c. Characterisation of ES providers: First a preparation is made by reviewing the strategic areas and verifying that potential providers meet the requirements of the scheme.

Then a field visit is conducted, and in a meeting with the potential participant, a questionnaire type characterization format is filled out, asking about the personal identification, their land and access routes, family information, housing conditions, social, community and economic profile, health situation, education, alimentation and environmental information associated with water supply sources, sources of water contamination, type of ecosystems, flora, fauna and use of wood.

d. ES provider's selection: Those who comply with the requirements and whose lands are located in strategic ecosystems, sign the conservation agreement, where general information of the project is provided, a series of commitments are agreed upon by the participant, including authorising the commercialisation of tCO_2e from their plot of land to be marketed in the VCM, protecting and conserving the forest, reporting any active behaviour that degrades it to the environmental authority, and allowing follow-up activities and monitoring of the project.

In turn, Masbosques assumes various commitments as an operator, among which are calculating GHG removals, assuming GHG compensation programs and marketing them, transfer the monthly incentive payments, advising and accompanying the participant in the process, as well as monitor and follow up the defined ecosystems. In addition to indicating the causes for termination, sanctions for non-compliance are explained and the basic aspects required by national law, except that the term of the agreement is one year, with the possibility of automatic extension conditioned on compliance by the ES provider (Masbosques, n.d.), which also shows the discretion the operator has with respect to the conservation agreement.

This agreement is conditioned to certain requirements on behalf of the potential ES providers and that are different from the ones from $BanCO_2$ Bio and $BanCO_2$ *Agua* (Masbosques 2, 2019), consequence of the dynamics of the VCM that promote a proportional relationship between the number of hectares conserved and the number of Carbon credits issued, offered and negotiated. Hence, to access to the scheme a certain number of hectares is required.

Although when the project started there were no limitations to access in relation to the extension of the lands owned or occupied by the potential participants, after the process of verification in 2018, it was necessary to modify the conditions for people to access the scheme because small plots of land with less than 20 eligible hectares, made project implementation unviable because they generated technical difficulties and were unsustainable over time, since it was difficult to control sustainable land use, given that small areas had less land for agricultural use and there was a greater tendency to deforest in order to generate more income (Masbosques, 2020).

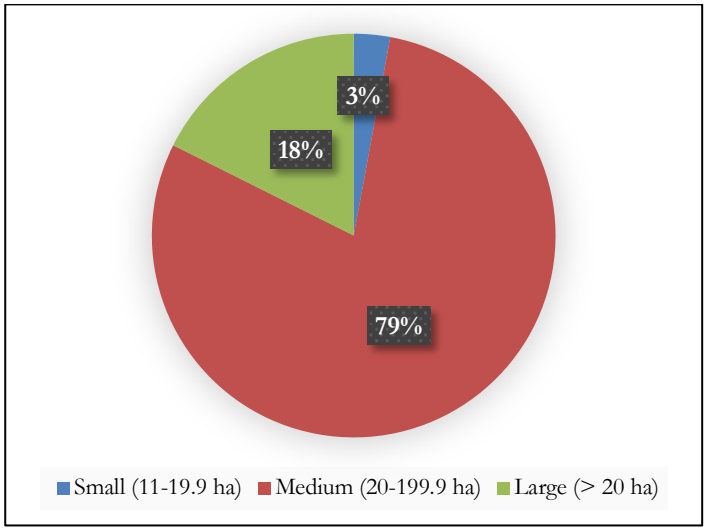
As a result, 53 partners were excluded from the scheme, some of them linked to the other two lines of BanCO$_2$'s national programme and then 53 new ES providers (Phase B) were linked to the project and are part of the current participants (Masbosques, 2020: 10-11). The new admission conditions contemplated in the BanCO$_2$ Plus Guide consist of having a minimum area of 50 hectares in conservation located in natural forest at the start of the project and existing from at least 10 years ago, within the framework of the technical requirements of eligible plots of land (Masbosques 2, 2019: 5). The latter demonstrates the flexibility of this type of project where the operator plays a fundamental role given the capacity to interpret the rules and adapt them to a specific context (Benessaiah, 2012), in this case, the source of funding based on the commercialization of Carbon credits.

After reviewing the documentation and information reported, the ES providers are selected. However, because of the logistical difficulties involved, the agreement is signed at the same time as the visit of characterisation, due to the distance between strategic ecosystems located in the lands they own or occupy and urban centres.

Currently there are 136 participants divided on 2 phases (A and B) depending on the time they signed the conservation agreements with Masbosques. The size of the lands registered per provider ranges from 11,7 to 590,1 hectares, but there is a plot of land under the ownership of the municipality of Sonsón of 2.521,80 hectares. Of the 136 participants, 24 have large properties of more than 200 hectares (17,6%), 108 have medium properties between 20 and 199,9 hectares (79,4%) and 4 have small properties between 11 and 19,9 hectares (2.9%).

Figure 4.5

Size of the BanCO$_2$ Plus land plots (hectares)



Own elaboration. Source: (ICONTEC, 2020). The classification of the plots of land corresponds to the Distribution of Private Rural Property according the Agricultural Rural Planning Unit (UPRA, 2012).

d. Calculation of estimated Carbon equivalent removals: According to the parameters of the National Technical Standard 6208.

e. Final elaboration of the Project Design Document.

f. Project validation and certification by accredited organisations: First the certification of net GHG reductions in tCO_2e units is made by the private company Cercarbono, under the name of Masbosques. After, ICONTEC verifies reductions through an objective assessment and allows the issuance of Carbon credits.

g. Marketing of Carbon Credits in the VCM: Masbosques and Cercarbono trade them on a platform and offer them to companies in need of offsetting the emissions.

h. Signature of the donation agreement, purchase or service contract by the private companies: With the aim of obtaining tax benefits and/or recognition of environmental and social responsibility.

i. Inclusion of the ES provider in $BanCO_2$ web platform https://www.banco2.com/familias

j. Payment of the economic incentive: Once a month in the ES provider's savings account, calculated by taking into account the amount of money collected from compensation from ES user companies and an equitable distribution of the money by range over a period of one year:

Table 4.3

Relationship range of areas and monthly payment by ES provider

Range of area (ha)	Monthly Payment (COP)	Monthly Payment (€)
< 10	$ 150.000	€ 33,25
10<=X<30	$ 152.300	€ 33,76
30<=X<50	$ 155.000	€ 34,36
50<=X<100	$ 160.000	€ 35,47
100<=X<300	$ 222.300	€ 49,27
>=300	$ 400.000	€ 88,66

Source: (Masbosques, 2020:40)

Activities associated with aspects that go beyond the reduction of GHG emissions and the payment of the economic incentive, such as the promotion of participatory monitoring of communities linked to the scheme, and integration with complementary conservation mechanisms, make part of the efforts Masbosques is doing to promote environment conservation. Nevertheless, the number of ES providers from $BanCO_2$ Plus participating in these mechanisms is very low and insignificant.

Table 1.4

$Banco_2$ Plus complementary conservation mechanisms

Mechanism	# ES providers
Silvopastoral systems	1
Agroforestry systems	1
Meliponiculture (rearing of wild bees without stinging)	3
BanCO2 Miel (honey production and commercialisation)	2
Higuerilla plant (oil production)	2
Participatory inventories (biodiversity documentation)	2

Mechanism	# ES providers
Efficient stoves and woodland gardens (*Huellas*)	4
Active forest restoration	No record
CERCA	No record

Own elaboration. Source: (Masbosques, 2020).

This is evidence that $BanCO_2$ Plus scheme is concerned with incorporating social purposes in its implementation, however, beyond creating multiple activities, the operator should generate sufficient capacity in order to generate long-term local processes to encourage good practices, protection of communities' traditional knowledge and promote better use of natural resources in accordance with Colombian Technical Standard 6208 and foster ES providers to participate in the complementary conservation mechanisms.

In this way, by the time the project is completed or ends for any reason, there are more possibilities of having participants sufficiently aware of the importance of forests to society, who will not return to their deforestation practices and will continue to protect, conserve, sustain and adequately manage strategic ecosystems (Rincón Ruiz et al., 2018; Agrawal, 2005).

4.2.1.2 Monitoring

According to the Guide of implementation of $BanCO_2$ Plus (Masbosques 2, 2019), a monitoring visit is planned once a year to verify that there is no alteration or reduction of the forest area of conservation established in the agreement. Another questionnaire type characterisation format is filled out with personal, familiar, land, housing, socio-economic and environmental information, to end with a qualification on the perception and/or degree of satisfaction with the scheme. If the participant has complied with the agreement and wants to continue participating, a new conservation agreement will be signed, but non-compliance leads to removal of the ES provider from the project.

Regarding the practicalities of this stage of the project, high implementation costs (FAO 2003, referenced in Quijano Arias, 2018: 10) lead to budget limitations that affect annual monitoring visits, since the money obtained from transactions in the VCM is only enough to recognize the economic incentive to ES providers and to finance the project's certification process (Arbeláez 2020, virtual interview 2), so it is not easy to schedule field visits and even more when the conditions of access to the plots of land affiliated to the scheme are complex.

Nevertheless, Masbosques encourages participatory monitoring (García 2020, virtual interview 2) according with article 21 of Decree Law 870 of 2017, and with the strategy of empowered communities in environmentally conserved regions (CERCA), promotes quality of life, provides a permanent support of the environmental authority Cornare through environmental leaders who stimulate the conservation of natural resources, fauna, flora, among other good practices, as well as encourage the sense of belonging of rural communities in regard to their territories (Masbosques, 2020: 79-80; Cornare, 2020). Both can counteract the budget limitations and provide support to the organisations' monitoring process, as they can help to validate the conservation of the areas in a shorter periodicity, but is necessary to involve the participants of $BanCO_2$ Plus scheme.

4.2.1.3 Evaluation

Considering the different functions that project evaluation has, it is important to highlight this stage as it can provide tools to determine whether the implementation of the scheme worked, whether it should continue or be terminated and whether the expected results were obtained. It is equally important if the strengths and weaknesses of the project can be identified, as well as progress in terms of results and participants' perceptions, to increase knowledge applicable to possible future projects and to improve their effectiveness on the basis of lessons learned (Patton, 1997).

The use of qualitative and quantitative methods applied to the means of verification (Coleman, 1987) provides the necessary information to measure the results based on a set time horizon. As will be explained in the next section, the operator created indicators that focus on measuring the amount of forest areas conserved and the number of participants using the economic incentive received for certain purposes, but does not have indicators for the rest of the aspects monitored, especially those associated with identifiable variables other than the reduction of GHG emissions and the money received monthly by the ES providers.

Given the current project's implementation within the framework of VCM, it was formulated under the methodology of Colombian Technical Standard 6208 of 2016, which establishes the regulation of Mitigation Actions in the Land Use, Land Use Change and Forestry (LULUCF) Sector at rural level, incorporating social and biodiversity considerations. This standard state expressly that in addition to monitoring and evaluating the environmental objectives, the promoters of mitigation programs, in this case Masbosques, have to monitor and evaluate the co-benefits, defined as the "positive effects that a policy or measure aimed at one objective could have on other objectives, regardless of the net effect on general social welfare" (Article 3. 4, Colombian Technical Standard 6208 of 2016).

These are related to biodiversity, ES and social benefits associated with improving the quality of life of local populations, within the framework of national policies related to climate change. Therefore, although Masbosques may exercise discretion in the development of its forest conservation project, the guidelines established must be taken into account to ensure the certification of the project and eventually contribute to the fulfilment of the contribution determined at the national level, whose requirements are much stricter (Colombian Technical Standard 6208 of 2016).

According to the findings and analyses conducted, the PES mechanism is understood in the Colombian context and in the local BanCO_2 Plus scheme as a MBI, therefore, the activities developed by the operator are focused in the economic incentive as a policy instrument that motivates ES providers to conserve the forests located in the plots of land they own or occupy. This is reflected in the general objective of the project, in the activities developed by the operator, in the monitoring of results and in the evaluations that have been carried out so far.

At the same time, the dynamics of the VCM as a financing mechanism for the scheme and payments to ES providers, strongly influence its operation, since they managed to change the conditions of access of $BanCO_2$ Plus, thus it is an initiative that establishes an additional limitation on access requirements to make the project viable and to ensure that sufficient resources are available for its operation.

Nevertheless, having the strategic ecosystems providing ES located in remote rural areas of Colombia, inevitably leads to the recognition of economic incentives to local populations situated in areas where there are high levels of poverty and inequity (Moros et al. 2, 2020: 3-4) and who have usually been victims of the armed conflict at some point in their lives (Moreira et al, 2015; Edilma Osorio, 2001; Guhl Nannetti and Leyva, 2015; CONPES, 2017; Torrejón Cardona and Mesa Restrepo, 2017; López 2020, virtual interview 1; ES providers 2020, individual phone interviews). Therefore, social and economic purposes aimed at improving the living conditions of ES providers should also play an important role in schemes such as $BanCO_2$ Plus.

Additionally, the temporary nature of the scheme should motivate the Masbosques operator to take a more active position regarding the need to clearly identify the social objectives of the project, in order to avoid further reinforcement of the commodification of nature which, although is inherent to PES initiatives and VCM, should not permeate the logic of the whole project as its implementation covers many more activities besides the monthly transfer of economic resources to ensure compliance with the conservation agreement.

In order to have a complete understanding of the structure of the scheme and identify the possible aspects to improve, the current project will be explained using the tools and conceptual frameworks provided by the Logical Framework Policy Analysis (Coleman, 1987).

Chapter 5
Logical Framework Analysis of $BanCO_2$ Plus

The idea is to reconstruct $BanCO_2$ Plus scheme identifying the links between the purposes, outcomes and outputs or activities in order to understand the logic behind the project, in Coleman's words "specify the components of their activities [project planners and evaluators] and identify the logical linkages between a set of means and a set of ends" (187: 252). A matrix will be developed to distinguish the activities carried out by the project -inputs-, specific results of these activities -outputs-, the motivation or what the project is expected to achieve -purposes- and the ultimate objective of the project -goal-.

5.1 Vertical Logic

First, the means that contribute to the achievement of the objectives of the scheme will be analysed through a vertical logic based on the relationship of causality between the means and the ends, starting from the activities implemented -inputs-, which must be necessary and sufficient to achieve the results -outputs-, that must also be necessary and sufficient to accomplish the purpose, which will be required but not sufficient to reach the goal, since this entails other purposes to be fulfilled (Coleman, 1987: 252). This logic provides tools to understand the presence of different types of purposes in the PES selected as a study case.

It should be noted that the environmental objective related to nature conservation is expressly identified in the implementation guide of the initiative (Masbosques 2, 2019), nevertheless, the socio-economic objective is implicit and associated with the positive effects generated by the implementation of the scheme, nearly associated with co-benefits that depend on various factors and go beyond the reduction of GHG emissions (Article 5.6, Colombian Technical Standard 6208 of 2016).

Table 5.5

Vertical logic $BanCO_2$ Plus

	ENVIRONMENTAL	SOCIO-ECONOMIC
GOAL	Promote strategic ecosystems conservation, environmental and cultural goods and services offered, as well as biodiversity conservation	
PURPOSE	Reduce GHG emissions	Improve quality of life of rural population
OUTPUTS	No forest coverage affected	▪ Implementation of sustainable productive projects ▪ Active forest restoration ▪ Economic situation improvement
INPUTS	Incentive monthly payments	▪ Trainings ▪ Information provision ▪ Incentive monthly payments

Own elaboration based on Coleman's model (1987), information from the Project Design Document (Masbosques, 2020) and Guide document of $BanCO_2$ Plus scheme (Masbosques 2, 2019).

From a bottom-up analysis, a series of hypotheses show the causal linkages between the means and the ends of the local initiative, hence, it is clear that Masbosques as operator must carry out the activities -inputs- to achieve specific results, thus, if the payment is transferred to the ES providers, then the forest cover will not be affected; if they are trained, then they will implement sustainable productive projects and participate in active forest restoration; if the forest cover is not affected, then GHG emissions will be reduced; if sustainable productive projects are implemented and active forest restoration takes place, then the quality of life of the rural population can be improved. Finally, if both environmental and socio-economic objectives are met, then the conservation of strategic ecosystems, goods, services and biodiversity will be promoted, which is not only the main objective of the $BanCO_2$ Plus scheme, but also of the national $BanCO_2$ programme (Masbosques 2, 2019; Masbosques 3, 2019).

5.2 Horizontal Logic

The next step is to verify the achievement of objectives through the horizontal logic, specifying in the results to be obtained at each of the 4 levels of the vertical logic through 2 components: objectively verifiable indicators and means of verification (Coleman, 1987: 256). Although some of the indicators created by the operator do not meet the requirements established by Coleman (1987: 255), they will be related, as well as the so-called monitoring and verification tasks, because they determine aspects associated with the purposes and show figures, especially with regard to the reduction of GHG emissions:

Table 5.6
Horizontal logic $BanCO_2$ Plus

	ENVIRONMENTAL INDICATORS	**SOCIO-ECONOMIC INDICATORS**
GOAL	Conserved area (hectares): - That provides ES for biodiversity conservation - In protected areas SINAP - By national ecosystem - In Strategic Ecosystems of the REAA - In forest reserve areas - By hydrographic subzone - By municipality - By Environmental Authority	Non-existent
PURPOSE	Monitoring and verification of Carbon stock	# of ES providers who invest the incentive: - In education - In food security - In health - In agricultural or livestock production systems - In legalization of the property - In loan and mortgage payments - In properties - In furniture and household items - In transport - In housing improvement - In property infrastructure improvement - Expansion of conservation areas

	ENVIRONMENTAL INDICATORS	SOCIO-ECONOMIC INDICATORS
OUTPUTS	Monitoring and verification of: - Land use - Forest coverage	Monitoring and verification of: - # of providers who are implementing sustainable productive projects - # of providers who are participating in active restoration of forests - # of providers who are part of participatory biodiversity inventories - # of providers who changed their cooking method and have woodland gardens (*Huellas*) - Improvement of socio-economic condition (survey) - Wood use by providers (survey)
INPUTS	Monitoring of incentive monthly payments # of companies linked through voluntary compensation	Monitoring of incentive monthly payments

Own elaboration with information from the Project Design Document (Masbosques, 2020).

Reviewing this map and the documentation provided by Masbosques, there is a process of monitoring, follow-up and evaluation of the environmental objectives of the scheme, but the same has not been done for the socio-economic objectives which are directly related with the co-benefits of the initiative. Not having indicators or monitoring activities regarding the socio-economic aspect related to the main goal, shows a flaw in relation with the measuring of factors that go beyond the environmental purposes. During the interview, the Executive Director of the operator of the program informed that they are working on finding a better way of monitoring and evaluating the co-benefits of $BanCO_2$ Plus scheme (García 2020, virtual interview 2).

The indicators that were created by Masbosques and are in the process of being implemented to monitor the co-benefits, only consider the different ways in which the ES providers spend the money received as an incentive, so more importance is being given to the monthly payment as an incentive rather than to the social objectives of the scheme, reinforcing the economic approach, one of the criticisms regarding PES (Quijano Arias, 2018: 10).

Regarding the monitoring activities, as it was mentioned above, Masbosques promotes participatory monitoring (García 2020, virtual interview 2) and with the strategy of empowered communities in environmentally conserved regions (CERCA) promotes quality of life (Masbosques, 2020: 79-80; Cornare, 2020). Nevertheless, there is no follow-up or indicator regarding the training that has been conducted or mechanism to know the perception of the ES providers in relation to trainings provided. Therefore, even if the purpose of the $BanCO_2$ Plus scheme is to reduce GHG emissions, within the framework of the Technical Standard 6208 certifying the project, it must also assess the co-benefits associated with biodiversity and the social aspect as it was mentioned above.

5.3 Means of verification and important assumptions

In relation of the created indicators, Masbosques had identified the necessary data and sources of information in their Project Design Document (Masbosques, 2020: 52-55), but they are also based on the survey type formats they use in their annual field visits (characterisation and monitoring), so in addition to statistics and methodologies for quantifying environmental aspects, they use participatory mechanisms that directly involve the ES providers to monitor the socio-economic objectives. These constitutes the means of verification to ensure that indicators can be effectively measured (Coleman, 1987: 258), but must be optimised according to the recommendations that will be given in the last chapter of this paper.

There are also assumptions about conditions that eventually could affect the project and the operator cannot control, given the circumstance that the project takes place in a natural environment (Coleman, 1987: 253). In this regard, the Project Design Document expressly mentions leakages, the displacement of GHG emissions from one place to another due to the implementation of the scheme. On the other hand, reference is made to the permanence of the ES providers in the scheme, because it takes place within the framework of a voluntary decision, so that the operator is also exposed to the possibility of their withdrawal from the project at any time. In both cases, technical responses to reduce the risk and ensure the viability of the project are considered. (Masbosques, 2020: 61).

5.4 Logical Framework Matrix

After identifying the factors needed to conform the 'Log frame' matrix of the $BanCO_2$ Plus scheme, all the elements that have been mentioned throughout this last section will be shown below in order to synthesize the structure of the project from the beginning to the end, considering the inputs, activities that are managed to achieve results related to environmental and socio-economic aspects -outputs-, which are measured through indicators that are calculated on the basis of different sources of information or means of verification, and must consider those factors not dependent on the will of the operator or assumptions that can also be identified as risks, that must always be considered at the time of setting purposes and the main goal.

The aspects related to the environment, as well as those linked to the socio-economic aspect will be related in order to offer a structural perspective of the issues that are being implemented and those that must be improved by the operator Masbosques, in order to pursue multiple objectives that also consider social factors beyond the economic, through the $BanCO_2$ Plus scheme.

Table 5.7

Logical Framework Analysis BanCO_2 Plus

	Narrative Summary	Potential objectively verifiable indicators	Means of verification	Important assumptions
Environmental	**GOAL:** Promote strategic ecosystems conservation, environmental and cultural goods and services offered, as well as biodiversity conservation	Conserved area (hectares): - That provides ES for biodiversity conservation - In protected areas National System of Protected Areas (SINAP) - By national ecosystem - In Strategic Ecosystems of the Register of Ecosystems and Environmental Areas (REAA) - In forest reserve areas - By hydrographic subzone - By municipality - By Environmental Authority	Geographic Information Systems (SIG) Colombian Environmental Information System (SIAC) Conservation agreements National Unified Register of Protected Areas (RUNAP) Cornare Data bases	Macroeconomic factors (political, legal or institutional): Promote agricultural and livestock activities that affect forests Social factors: poverty and land tenure Cultural factors: use of wood as an energy source and agricultural incineration practices Demographic factors: high population density, migration
Socio-economic		No information		
Environmental	**PURPOSE:** Reduce GHG emissions	Monitoring and verification of Carbon stock	IDEAM data base Intergovernmental Panel on Climate Change (IPCC) data base	Presence of negative leakages
Socio-economic	**PURPOSE:** Improve quality of life of rural population	# of ES providers who invest the incentive: - In education - In food security - In health - In agricultural or livestock production systems - In legalization of the property - In loan and mortgage payments - In properties - In furniture and household items - In transport - In housing improvement - In property infrastructure improvement - In expansion of conservation area	Field visits to ES providers Characterisation and monitoring forms Masbosques data bases	No information
Environmental	**OUTPUTS:** No forest coverage affected	Monitoring and verification of: - Land use - Forest coverage	Field visits to strategic ecosystems	Non-compliance by ES providers

	Narrative Summary	Potential objectively verifiable indicators	Means of verification	Important assumptions
Socio-economic	**OUTPUTS** ▪ Implementation of sustainable productive projects ▪ Active forest restoration ▪ Improvement of cooking methods (sustainable practices) ▪ Economic situation improvement	Monitoring and verification of: - # of providers who are implementing sustainable productive projects - # of providers who are participating in active restoration of forests - # of providers who are part of participatory biodiversity inventories - # of providers who changed their cooking method and have woodland gardens (*Huellas*) - Improvement of socioeconomic condition (survey) - Wood use by providers (survey)	Field visits to ES providers Characterisation and monitoring forms Masbosques data bases	No information
Environmental	**INPUTS:** Incentive monthly payments to ES providers	Monitoring of incentive monthly payments # of companies linked through voluntary compensation	Financial software and ES providers' payment reports (Masbosques accounting system - *Contai)* No information about trainings and information provided	Non-permanence of ES providers in the scheme
Socio-economic	**INPUTS:** ▪ Trainings ▪ Information provision ▪ Incentive monthly payments	Monitoring of incentive monthly payments		

Own elaboration with information of the Project Design Document (Masbosques, 2020)

As can be observed, in the $BanCO_2$ Plus scheme, no distinction is made between social and economic aspects, which, although they are always related, are not the same, since the recognition of a sum of money cannot automatically improve people's quality of life, especially when the monthly payment is between 33 and 88 euros (Masbosques 2, 2020), and barely covers some of the maintenance costs of the families of ES providers.

Even when Masbosques Field Officers conduct surveys through the follow-up formats when they make field visits to monitor the lands and meet with the ES providers after minimum a year of signing the conservation agreement, asking about information that could lead to know if they have improved the conditions they live in, those questions and answers will not be useful if there is not a way of measuring the data collected through objectively verifiable indicators in order to evaluate the co-benefits in the way the Technical Standard 6208 recommends.

Questioning through the formats about the perception or level of satisfaction with regard to the $BanCO_2$ Plus scheme provides an idea of how things are working with the participants, even the possibility of making comments or observations allows the operator to improve different aspects. Nevertheless, for a more updated perception, I conducted some short-structured interviews to know more details about their experience with the program and I managed to speak with 7 random participants, who were visited by Masbosques representatives I was in touch with, since before calling them to ask questions, collaboration from the field visitors was required to generate more trust between the ES providers and me as an interviewer.

The interviewed had lands between 38,1 and 242,8 hectares (IDEAM, 2020), all of them were affected by the armed conflict around 20 years ago when the armed groups took power of the rural territory where their lands were located, forcing them to leave their houses and move to towns or cities, but after they managed the way to return when the situation improved. They had a positive perception of the scheme and most of them appreciate the monthly income they receive because is really useful for buying food, home expenses and/or improve their productive activities. They also relate the scheme to "the mountain", where their lands with forests and watersheds are located, and through the PSA they have learned to "take care of it" and "leave it still" (ES providers 2020, individual phone interviews). Despite not representing sufficient information to make a characterization of the ES providers of the $BanCO_2$ Plus scheme, they did offer a direct and more humane view of the scheme and highlighted some of the particularities of the population living in eastern Antioquia.

The Logical Framework Analysis shows that the $BanCO_2$ Plus scheme has a focus on environmental and economic purposes. The weaknesses in the links between the means implemented by Masbosques to fulfil social and economic purposes demonstrate that these factors are not part of the project's priorities, and that these are reduced to ensuring that the forest cover is not affected in the areas included in the project while the conservation agreements are in force, which is also due to the quantitative nature of the VCM as a source of funding, since the more hectares covered, the more tCO_2e are captured and therefore the more Carbon credits can be issued.

However, during the implementation of $BanCO_2$ Plus there are several activities related to socio-economic aspects that seek to improve the quality of life of rural populations providing ES, complementary conservation mechanisms related in Chapter 4 and that have been used by Masbosques and the environmental authority Cornare as result of the recognition of the special conditions of the rural population in the local scheme and in the formulation of national policy.

To summarize, within the framework of the project stages, there are shortcomings in the design of the social purpose, since although it is immersed in the activities implemented by the project, it does not have a logical connection with what is to be achieved in relation to the improvement of life conditions of ES providers. Nor is there a clear traceability of how co-benefits should be monitored and evaluated, which is difficult given the absence of

elements to determine risks and the lack of indicators to measure the effectiveness of training, or at least ways to verify the perception of ES providers in relation to good practices, traditional knowledge and better use of natural resources, which in the long term could lead to the improvement of the quality of life of the rural communities participating in the local project and prevent changes in land use on behalf of participants who in some point will no longer receive the economic incentive.

Chapter 6
Conclusions and Recommendations

According to the analyses carried out during the research, although there are conditions at a national level in Colombia that make environmental conservation work difficult, like the promotion of an extractive and consumerist economy that is derived from global interests, and the situations associated with the armed conflict that particularly affect the rural communities that occupy the areas where strategic ecosystems are located, mechanisms as PES have been developed in several regions of the country since the late 1980s and promoted the emergence of several local schemes, that later led to the issuance of a series of regulations, which today constitute the national policy whose emergence dates back to 2017.

This regulation offers clear parameters for developing PES schemes in the country, gathering experiences implemented previously, but at the same time leaving a margin of discretion to those who operate the local initiatives, who have the power to choose the financing mechanisms, as well as the activities they can carry out during the implementation of the programmes. This is how BanCO_2 Plus promotes the conservation of strategic ecosystems through the recognition of an economic incentive to the ES Carbon capture providers, which is financed by the commercialization of Carbon credits in the VCM, so the ES user companies can voluntarily compensate their GHG emissions or receive tax benefits.

It is a scheme that has a clear environmental objective aimed at reducing GHG emissions, for which Masbosques has developed a set of measures for conserving forest cover, monitoring compliance of the conservation agreement and quantifying the amount of Carbon captured in order to continue certifying the project, which is reflected in the definition of activities -inputs-, in the production of results -outputs-, in the established purpose and in its contribution to the achievement of the final goal. From the moment the agreement is signed, there is a complete implementation, comprehensive monitoring and evaluation through indicators that measure the number of hectares conserved at different territorial and institutional levels that could be improved.

Within the framework of this objective, there has been very strict compliance with regard to the payment of economic incentives to ES providers, which is evident in the meticulous monitoring of these transfers and even the creation of indicators that aim to measure the number of participants who spend the money received on certain aspects such as education, basic needs, improvements to their premises, among others.

Nevertheless, the same does not apply to the social objectives associated with the programme's co-benefits, as these are related to the effects produced on the participants in the BanCO_2 Plus scheme, which are not its primary purpose, but cannot be ignored because of the condition of those who usually provide ES, defined by a socio-economic reality marked by inequality and armed conflict. In addition, these purposes have been expressly and tacitly

recognised both by national policy and in the development of local initiatives, as is the case with the programmes that have been implemented in the rest of Latin America.

Therefore, the social purposes materialized in the improvement of the quality of life of local communities are pursued through different activities that are part of complementary conservation mechanisms developed in collaboration with the environmental authority Cornare, however, there is no clear traceability on the ways in which such activities that contribute promoting good environmental practices, protecting traditional knowledge and improving the use of natural resources by ES providers, should be monitored and evaluated, as activities that allow the fulfilment of social objectives in accordance with the provisions of National Technical Standard 6208.

The above is intended to promote changes in the behaviour of individuals in relation to the use of natural resources and in the development of their long-term productive practices, and to avoid the return of deforestation practices derived from the historical legacy of the rural population (Castro and Andrade, 2019), which may occur when ES providers no longer receive economic incentives given the temporary nature of PES and the loss of conservation values (Quintero Arias, 2018). To this end, it is necessary to strengthen complementary conservation mechanisms at all stages of the project, through the recommendations that will be proposed to improve the achievement of multiple purposes in the BanCO2 Plus scheme.

6.1 Recommendations

The identification of factors which hinder the simultaneous formulation and fulfilment of environmental, social and economic objectives by PES schemes allows for comprehensive analyses in order to seek opportunities for improvement and to address the challenges that local initiatives may face to continue to be implemented. However, as has been stressed, the goal should not be reduced to strictly economic ends, but should be aimed at meeting the real objective set by $BanCO_2$ Plus, which is to promote the conservation of natural forests by reducing GHG emissions. This promotion should consider environmental, social and economic aspects which remain interrelated, but which require concrete activities during implementation, follow-up and monitoring of results, and evaluation.

Reviewing the activities implemented by the operator, there is no clear structure linking them to the purposes (Table 1.7), although they are taking actions to achieve environmental, social and economic results, as discussed in Chapter 4, it is recommended that these activities are organised by category to facilitate their implementation and strengthen their relationship to the purposes and the final goal, as proposed in the 'Log frame' analysis performed in this research paper. Masbosques should take advantage of the collaboration and good relationship with the environmental authority Cornare, to involve $BanCO_2$ Plus participants in the different activities that go beyond Carbon storage for commercialisation purposes.

It is recommended to provide training to ES providers from the moment of the signature of the conservation agreement in order to implement good environmental practices

through the application of traditional knowledge and encourage the better use of natural resources, through the mechanisms that the operator Masbosques has available, such as the CERCA strategy, with which the environmental leaders of the area can disseminate these trainings and strengthen the feeling of belonging to the territories, as well as the awareness of the importance of strategic ecosystems for society.

To increase the number of people involved in restoration activities, sustainable production processes and better environmental practices, it is recommended to promote among the ES providers the participation in the different complementary conservation mechanisms mentioned in the previous chapter in order to stimulate the transition to more profitable and resilient land-use systems to generate overall gains in human welfare (Greiner and Stanley, 2013). Taking advantage of existing activities that harmonize with environmental-friendly practices and avoid reinforcing the commodification of nature, considering the processes and dynamic interactions between the MBI, development objectives and stakeholder agency to continue adapting the scheme to the particular conditions of eastern Antioquia (Hendrickson and Corbera, 2015; McElwee et al, 2014; Milne and Adams, 2012; Osborne and Shapiro-Garza, 2018; Shapiro-Garza, 2013b; Van Hecken et al., 2015; von Hedemann and Osborne, 2016 referenced by Shapiro-Garza et al., 2020).

Masbosques should also promote 'hybrid' governance that involves not only private companies interested in offsetting their emissions and reducing their Carbon footprint, but also communities to contribute to the benefit of the environment in parallel with their own well-being (Igoe and Brockington, 2007; Blanchard et. Al., 2016). Which is better enforced with participatory monitoring, the stage following the implementation of the $BanCO_2$ Plus scheme, because in addition to the training given to participants with CERCA strategy for empowering communities, they are involved in the ongoing process of monitoring.

Regarding this stage of the project, the $BanCO_2$ Plus line guide recommends a field visit once a year, where it is verified that there is no alteration or reduction of the forest conservation area identified in the conservation agreement. The field visit is complemented by the use of applications and drones to facilitate the work, especially in large areas (Fernández 2020, virtual interview), showing that there is adequate monitoring of the forest cover which is directly related to the environmental conservation objective.

To monitor other aspects, Masbosques field officers fill out a survey type format through which they collect environmental, personal and family information, as well as data associated with the socio-economic, housing and land conservation areas (Masbosques 2, 2019; Arbeláez 2020, virtual interview 1; Fernández 2020, virtual interview). However, when the database was consulted, it was found that not all the participants had the formats completely filled out, so it is recommended to reinforce this work in order to have complete information that would allow real monitoring, which would be a verification mechanism for the objectively verifiable indicators that should be designed by the operator (Coleman, 1987). On the other hand, the participants in Phase B have not been visited, so while it is possible to change the periodicity of the visits depending on the available budget, this can also be

modified by a specific interest in generating impact indicators as will be recommended below (Masbosques 2, 2019: 15).

Although Masbosques created a set of indicators to measure aspects associated with the primary goal of promoting the conservation of strategic ecosystems, the services offered and biodiversity, and to determine the number of participants that invest the money received as an incentive in different aspects, this does not represent a real measurement of the impact and performance of the project, especially in relation to social objectives not associated with the economic aspect, under the definition of evaluation as an assessment of these factors (OECD, 2008).

In the same way, those monitoring and verification activities included in the project's 'Log frame' matrix (Table 1.7), should have objectively verifiable indicators, this is, criteria that indicate in concrete terms that the expected results have been achieved or not, in other words, if what was intended to be achieved with the development of specific activities has been accomplished or not, for which it is necessary to establish periodic targets that will be used as a reference to determine whether the project is successful or not, if the activity fulfilled its purpose or not (Coleman, 1987: 256).

Consequently, it is recommended to have at least one indicator to measure each stage of the project: the activities -inputs-, the results -outputs-, the purposes and the goal. To this end, the criteria established by Coleman (1987) on objectively verifiable indicators can be considered:

a. Criteria: Indicating which is the criterion for the project to be successful.
b. Importance: Determining what is important for the purposes of the project.
c. Plausibility: Indicators should be clearly related to the objective they are associated with.
d. Sufficient number: They must be specific enough for an adequate measurement of the achievement of the objectives.
e. Independence: Each indicator should be independent and should not be aimed at meeting more than one level of objectives or repeat data from another indicator in other ways.
f. Objective verification: They should be communicated clearly to all, and may be both quantitative and qualitative, as long as judgement is made on the same basis by all.
g. Precise definition: They must be defined in terms of the targets they intend to achieve, identifying quantity, quality and time for the objective to be fulfilled.

Eventually, indirect indicators can be formulated, as in the case of income measurement, which consider factors similar to those that Masbosques surveys use in their characterization formats, such as the construction material of participant's houses or the forms of access to

drinking water. This last example shows that the operator has sufficient sources of information to calculate the indicators that can be designed, the so-called means of verification. All of which must be designed taking into account the risk factors, or conditions that could eventually affect the project and which are not under the control of Masbosques, and should contemplate all levels of horizontal logic identified in Table 1.4 (Coleman, 1987).

The different analyses performed during this research allow a deeper understanding of the positive and negative aspects of BanCO_2 Plus, a PES implemented in a country where social factors converge and must be considered. While it might be easier to pursue purely environmental objectives through these instruments, they are interrelated with the social and economic objectives inherent to Latin American schemes and to their socio-economic context, consequently it is better to explore ways of finding a balance between the different types of purposes expressly and tacitly recognised by the operator Masbosques in the framework of a national policy that emerged late, but which gives operators sufficient discretion to adapt to the conditions of the projects they implement.

Appendices

Appendix 1.1

Participants of the research

Stakeholder	Interviewee	Date of interview	App
Government Cornare	Albeiro de Jesús Lopera	1. September 4th, 2020 2. October 13th, 2020	Microsoft Teams video call
Operator Masbosques	Jaime Andrés García	1. September 3rd, 2020 2. October 7th, 2020	
	Jenifer Arbeláez	1. September 18th, 2020 2. October 9th, 2020	
	Juan Manuel Fernández	September 18th, 2020	
ES Providers	Respondent 1	September 25th, 2020	Skype call to personal cell phone numbers
	Respondent 2		
	Respondent 3		
	Respondent 4		
	Respondent 5	October 17th, 2020	
	Respondent 6		
	Respondent 7		

Appendix 1.2

Guide questions Albeiro de Jesús Lopera Interview 1

Coordinator of the $BanCO_2$ programme at the environmental authority Cornare

- What is the main cause of deforestation in eastern Antioquia, the area of Jurisdiction of Cornare?
- What motivated Cornare to implement PES schemes in its jurisdiction?
- Does Cornare have any plans or inter-institutional agreements with other authorities, regional autonomous corporations or associations to manage PES?
- If yes, how does the inter-institutional collaboration process for managing PES schemes in the Cornare Jurisdiction area work?
- How is the process of selecting properties to be eligible for PES schemes carried out?
- Is $BanCO_2$ the only PES scheme that has been implemented in the Cornare Jurisdiction?
- What are Cornare's functions with respect to the $BanCO_2$ programme?
- How is the $BanCO_2$ programme disseminated to potential participants? What are the main challenges?
- Is there a farmers' association with which you have worked or are working to promote the scheme?
- What was the main modification to the $BanCO_2$ programme after the issue of Decree Law 870 of 2017 and its regulation in 2018?
- After reviewing the $BanCO_2$ Conservation Agreement formats, I noticed that at the beginning of the implementation of the Cornare scheme, it had several commitments, however these were later transferred to Masbosques and Cornare was no longer mentioned in the Agreement. Could you explain why this happened?
- Regarding BanCO2 Plus line, why did you decide to choose and implement one scheme based on the VCM and not another?
- Do you have a plan aimed at the most vulnerable smallholder communities?

Appendix 1.3

Guide questions Albeiro de Jesús Lopera Interview 2

Coordinator of the $BanCO_2$ programme at the environmental authority Cornare

- What was Cornare's role in the national PES regulation process in Colombia?
- Were the participants or potential participants of PES schemes involved in the national PES regulation process in Colombia?
- What activities are being developed in Cornare to contribute to the fulfilment of the objectives of BanCO2 Plus?
- Does Cornare participate in any way in the implementation, monitoring and evaluation of co-benefits in BanCO2 Plus?
- What is the relationship between the BanCO2 Plus scheme and the CERCA or Cercanos strategy?
- What is Cornare's role in this strategy?

Appendix 1.4

Guide questions Jaime Andrés García Interview 1

CEO of $BanCO_2$ Masbosques programme

- How is BanCO2 programme disseminated to potential participants? What are the main challenges?
- What happened to $BanCO_2$ programme after the issue of Decree Law 870 of 2017 and its regulation in 2018?
- Within these regulations, reference is made to other conservation incentives for the construction of peace. Have these types of incentives been recognised in the department of Antioquia?
- What are the main reasons why Antioquia ES providers who apply are not chosen to participate in $BanCO_2$ programme?
- Once the Conservation Agreement is signed by the ES provider, how does the selection of the programme line work?
- Regarding $BanCO_2$ Plus line, why it was decided to choose and implement a scheme based on the VCM?
- What does the division of participants of the eastern Antioquia local project into Phase A and Phase B refer to?
- In relation to information obtained in the 2019 audit report, what were the reasons for the withdrawal of the 53 users of the $BanCO_2$ Plus scheme in order of importance? To which other lines of the programme were they transferred? Do you have information if there were users who decided not to participate in the $BanCO_2$ programme anymore?
- Is there a plan to extend the programme to other jurisdictions? In the case of Corpouraba, will the exact same line be implemented in eastern Antioquia or another one?

Appendix 1.5

Guide questions Jaime Andrés García Interview 2

CEO of $BanCO_2$ Masbosques programme

- What is the legal status of Masbosques?
- What are the specific objectives of $BanCO_2$ Plus?
- What activities are being developed to meet the objectives of $BanCO_2$ Plus?
- What activities are being developed to evaluate the objectives of $BanCO_2$ Plus?
- How is the monitoring and evaluation of co-benefits being managed in $BanCO_2$ Plus?
- What is the relationship between the $BanCO_2$ Plus scheme and CERCAS or Cercanos strategy?
- What is Masbosques' role in this strategy?

Appendix 1.6

Guide questions Jenifer Arbeláez (Masbosques) Interview 1

$BanCO_2$ Plus scheme coordinator and project developer (Masbosques)

- Can you describe your role in the implementation process of the $BanCO_2$ Plus line?
- I have knowledge about the methodology for the implementation of the $BanCO_2$ scheme, can you describe the characterization visit step by step?
- What are the difficulties that may arise during the characterisation visits?
- Can you describe the follow-up visit to the partners of the $BanCO_2$ Plus programme?
- What are the difficulties that may arise during the characterisation visits?
- Is there any contact with the participants between the visits? How often are they contacted? What do you ask them?

Appendix 1.7

Guide questions Jenifer Arbeláez Interview 2

$BanCO_2$ Plus scheme coordinator and project developer (Masbosques)

- How is the $BanCO_2$ Plus scheme financed?
- Can you describe the process that Masbosques manages to finance the $BanCO_2$ Plus scheme?
- How does the VCM work, on the basis of which the $BanCO_2$ Plus scheme is financed?
- What are the ways of linking private companies that wish to offset their emissions through $BanCO_2$ Plus?
- What is the donation agreement?

Appendix 1.8

Guide questions Juan Manuel Fernández

Project Developer $BanCO_2$ Plus (Masbosques)

- Can you describe your role in the implementation process of the BanCO2 Plus line?
- I have knowledge about the methodology for the implementation of the BanCO2 scheme, can you describe the characterization visit step by step?
- Is there any difference between the characterisation visit to the potential participants in the BanCO2 Plus line and the others?
- What are the difficulties that may arise during the characterisation visits?
- What is your point of view as the developer of the BanCO2 Plus project on the requirements for prioritising potential participants in the national policy in relation to the level of vulnerability?
- Can you describe to me the resource investment plan contemplated in the implementation process?
- When talking about the inclusion of families in the platform, the web platform www.banco2plus is mentioned. There you can find all the participants who are currently receiving economic incentives through BanCO2 Plus?
- Can you describe the follow-up and monitoring visit to BanCO2 Plus programme participants?
- What are the difficulties that may arise during the characterisation visits?
- Is there any contact with the participants between the visits? How often are they contacted? What do you ask them?

Appendix 1.9

Guide questions ES providers BanCO2 Plus

- What do you do for a living?
- Have you been affected by the armed conflict?
- How did you hear about BanCO2 Plus?
- How are you doing with BanCO2 Plus? What do you think about it?
- What changes have you experienced after joining BanCO2 Plus?
- After joining BanCO2 Plus have you changed your relationship with forests, mountains and nature?
- Would you describe BanCO2 Plus as a positive or negative experience?
- Would you like to continue participating in BanCO2 Plus scheme?

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Notes

[1] "The use of the term 'vulnerability' has expanded to involve a wide range of elements and situations. It has been described as insecurity, exposure to risks, hazards, shocks and stress, difficulty in coping with contingencies, and linked to net assets" (Longhurst, 1994: 18). In the specific case of Colombia, the armed conflict and common and organized crime are considered by the national government to be a destabilizing phenomenon (DNP, 2015).

[2] "Those who thus care about the environment. More precisely, the environment constitutes for them a conceptual category organizing some of their thinking; it is also a domain in conscious relation to which they perform some of their actions." (Agrawal, 2005: 248)

[3] "A credit is considered additional if the emissions reduction that underpins the credit would not have occurred in the absence of the activity that generates the credit." (PMR, 2016: 3).

[4] Leakages are "the result of interventions made to reduce emissions in a geographical area (subnational or non-national) that cause an increase in emissions in another area outside the project boundaries, but which can be measured and attributed to the project" (Masbosques, 2020:61).

[5] Plan with the government's guidelines of the elected president for a four-year period.

[6] The Regional Autonomous Corporations and of Sustainable Development, are public corporate entities, in charge of managing, within the area of their jurisdiction, the environment and the renewable natural resources and to promote their sustainable development, in accordance with the national norms (MADS 4, n.d.).

[7] According to the Political Constitution of Colombia, the territorial entities are the departments, districts, municipalities and indigenous territories.

[8] The owner is the person who acts as a title holder, maintaining and preserving the property, exploiting it economically for his or her own benefit, and paying taxes and duties; and the occupant is the one who remains on the property because he or she has been entrusted with it or because he or she may eventually have some relationship with the owner.