PAYMENT FOR ENVIRONMENTAL SERVICES:
CHALLENGES TO STIMULATE PRIVATE SECTOR DEMAND

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PAYMENT FOR ENVIRONMENTAL SERVICES: CHALLENGES TO STIMULATE PRIVATE SECTOR DEMAND

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PRESENTATION

As a continuation of the research on the topic, Payments for Environmental Services (PES) within the project Sector Dialogues EU - Brazil on Environmental Dimension of Sustainable Development, this publication consolidates the work produced during the second stage of actions on this theme, held from October 2012 through June 2013. This action continues the 4th Call of the "Project Sector Dialogues Support EU – Brazil," which dealt with aspects of the use of instruments of PES in environmental public policies and reports on the completion of a new call, which increases modes of public-private financing for PES.

The initiative was coordinated by the Ministry of Environment of Brazil and by the General Directorate Environment of the European Commission and involved several national and international partners from the private sector. The aim was to facilitate and to encourage, through the identification of challenges and capabilities of the private sector, the demand for environmental services in shared process with the European Union.

Seeking to meet a latent necessity for qualified information, sharing visions and training for PES, this initiative mapped out private actors, the usual plaintiffs for environmental services and engaged them in virtual discussions, in the way of thematic webinars. For that purpose it was produced instructional content that served as the basis for this report.

The conceptual and technical content produced and the results of learning events were shared in a seminar in Brasilia on May 28, 2013, with approximately 100 technical experts and leaders of national and international institutions, 15 of them speakers or panelists.

We emphasize that this document is the result of the dedication of the two authors - Marcos Rugnitz Tito and Ramon Arigoni Ortiz - and the valuable contributions of many experts and technicians, who have contributed with thoughts and recommendations in virtual and in-person seminars. We appreciate the enthusiasm and cooperation of everyone who took part in this initiative.

DEPARTMENT OF POLICIES TO COMBAT DEFORESTATION
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PAYMENT FOR ENVIRONMENTAL SERVICES: CHALLENGES TO STIMULATE PRIVATE SECTOR DEMAND

INTRODUCTION

The concept of payment for environmental services (PES)[1] figures as an important instrument in the context of a green economy, focused on environmental sustainability and the enhancement of forest peoples. Even policies well known for their work with command and control have pointed towards the necessity of arrangements that guarantee the sustainability of the results already achieved and the achievement of new goals. This is not possible without the private sector and the organized civil society while providers as well as users of environmental services.

In Brazil and in countries of the European community, there was a profusion of PES Initiatives in recent years, shown by Santos and the Vivan (2012) in the publication related to the 4th Call for Proposals of the EU- Brazil Sector Dialogues - on the topic: only in the four major biomes in Brazil - Namely: Amazon, Cerrado, Caatinga and Atlantic Forest, were mapped 220 experiments focused on storage services and carbon sequestration, conservation of water resources and certification of forest products and agricultural products.

Most of these projects (47%) do not have a well-defined source of funding, while 42% of these projects are funded through the voluntary carbon market; other significant sources of funding are the Clean Development Mechanism - CDM (10% of projects) and federal funds (4% of projects). So, there is still a long way to go for most initiatives involving forest carbon in the Atlantic Forest to be adequately funded and able to operate within the established systems of markets for environmental services.

The issue of financing PES is important both for Brazil and for the EU, given the challenge of obtaining the resources necessary to conserve and restore environmental services involving high sums. For this reason, the use of different mechanisms to incentivize private sector investors, in addition to the monetary payment itself to the environmental services providers, are desirable to give scale and complement public resources.

1 The term payment for environmental services (PSA) will be used as a synonym for payment for ecosystem services (PES) for the purposes of this publication. Broadly PSA refers to those payments to human actions with positive impact to the environment, whereas PES represent payments for ecosystem processes that sustain human life with human beings in condition as solely to ensure the conditions for these processes. Although there are conceptual differences in the literature, the two terms are commonly used to designate a voluntary transaction in which an ecosystem service (or environmental) clearly defined or a form of land use that can ensure this service, is purchased by at least one buyer from at least one provider, on condition that the provider ensures the provision of this service. In the European Union, the term payment for ecosystem services is most commonly used, while in Brazil and in Latin America it is used more often payment for environmental services.

This round of dialogue sought to interact with private actors and to promote the exchange of knowledge between them and the public actors, also among themselves. Considering that the level of knowledge of private actors on PES is variable and that a diversity of understanding of the conceptual foundations of the subject have been identified, we attempted to provide a forum for training and exchange of experiences between representatives of companies, that have PES projects in their action portfolios and actors not yet involved in initiatives of this type and that could benefit from information on the topic.

In order to qualify for this interaction, was developed a conceptual content on the topic, focusing on PES schemes related to carbon and water. This document presents the relevant technical definitions in Chapter 1, seeking to contribute to the reduction of information asymmetries between the private sectors and the qualification of the ongoing debates.

Chapter 2 presents a summary of the main points of the current Brazilian legislation on issues related to PES water and carbon during the debate focused on virtual seminars.

Chapter 3 deals with national experiences and opportunities for the development of PES schemes in Brazil, from the perspective of financing, while Chapter 4 reports the experience of interaction with representatives of the private sector through virtual seminars.

As it can be perceived, there is a large interest from the private sector on the pertinent legal issues. Although the conditions of the relationship between user and provider are primarily defined by the parties themselves, there is already a set of rules and assumptions recorded in legal and regulatory instruments, mainly for schemes involving the conservation of water resources.

The main conclusion pointed out in this report is that from the standpoint of the private sector, the legal framework on PES needs to be expanded and improved in the country. There are state and local initiatives that have been operating for some years with success, but when considering the national scene, the private sector shows regulatory gaps that serve as obstacles for the PES, so to be seen as a business opportunity.

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CHAPTER 01

CONCEPTS NEEDED TO UNDERSTAND PES

Marcos Rugnitz Tito

1.1. Introduction

This first chapter seeks to create the base - and among those who already have knowledge about the subject, seeks to harmonize the concepts - for a more detailed discussion on the role of the private sector in developing and driving initiatives and PES mechanisms. Following are the conceptual issues to be addressed:

1. Serviços Ambientais ou ecossistêmicos?
2. Pagamentos por serviços ambientais ou ecossistêmicos?
3. Types of environmental services: a brief overview (i) biodiversity conservation, (ii) scenic beauty (iii) protection of soil quality, (iv) maintenance of the hydrological cycle, (iv), sequestration and carbon storage.
4. PES features: (i) financial incentives, (ii) voluntary, (iii) conditional, (iv) self-coercion opportunity cost.
5. Payment or compensation for environmental services?

1.2 Environmental or ecosystem services?

There are many definitions of “environment” and “ecosystem” available in the literature. For

some people, they have equivalent meanings. For others, the word ecosystem has a more specific meaning referring to a natural system. For these same people, the environment concept is broader, referring to spaces or areas which may exist in both "artificial" (for example, a living room or an office environment) and natural environments. The different meanings of these words are used by some authors in the use (and differentiation) of the concepts of payments for environmental services (PES) and ecosystem (PES), treated in the following topic.

Trying not to contribute to the disagreement on the issue, for purposes of this publication will be used the word environment (also referring the ecosystem).

Regardless of the semantics differences in structure, composition, and intra-and interspecific interactions (with the local environment) between different types of natural areas (forests and systems) make these services provide different amounts and types of environmental benefits to living beings, such as:

• Sequestration and carbon storage: through photosynthesis, vegetation absorbs carbon from the atmosphere through the growth and production of their components (stems, leaves, fruits, etc...).The forests and productive systems with the presence of trees, (as in the agroforestry systems), have an important role as "carbon stores".

• Protection of soil quality: the vegetation has an important role in the protection of soils and nutrient cycling. The protection of soils assists carbon and other greenhouse gases, present in this reservoir, do not return to the atmosphere.

• Biodiversity conservation: provides services such as pollination and ensures the resilience of agricultural systems. Also, it is the key to bio prospection for new chemical compounds and drugs, contributes to soil formation and nutrient cycling, elements of extreme importance to ecosystems. Finally, also offers recreational, spiritual and cultural benefits which are fundamental to human health.

• Maintenance of the hydrological cycle and climate regulation: forests and production systems influence the regulation of water flows and water quality maintenance. Preserved forests on river banks, hillsides and hilltops and mountains reduce the risk of landslides and flooding by extreme weather events. They protect the soil from erosion and prevent the rain water, laden with sediment, to run off directly into rivers in addition to slow up the rapid loss of water in times of drought. These areas also have a strong influence on cloud formation. The overthrow of forests due to replacement by other systems (i.e. pastures) decreases evapotranspiration and emission of volatile organic compounds causing the change in the behavior of rainfall in the region where there has been deforestation and in nearby regions.

• Maintenance of scenic beauty: natural areas provide sense of satisfaction, peace, among other pleasures. Hence, these places are sought after for tourism and recreation.

The conversion of forests to other land uses, by virtue of the expansion of activities such as agriculture and ranching, and also from distinct forms of human settlements (rural and urban), has transformed the landscape resulting in biodiversity loss and consequently, reducing the ability to provide services, by the different ecosystems affected. This causes changes in the dynamics between the species that make up these systems, especially by their isolation into small fragments inserted in a low permeability matrix.

It is also highlighted that the importance of natural areas for the people who live in it goes far beyond its beauty and the products they offer. Several populations have strong cultural and spiritual connection with the landscapes they inhabit.

1.3. Payments for environmental or ecosystem services?

As determined in the previous section, this report will use the word environment also used to refer to the ecosystem. Nevertheless, it is noteworthy that some authors make a distinction between Payment for Environmental Services (PES) and Payment for Ecosystem Service (PES). According to these authors PES refers to the payment for (protection and/or recovery) service that man renders for the benefit of nature (environment) directly and indirectly, it also brings benefits to humanity itself. For example, according to the World Trade Organization (Doha Round), environmental services are the "human activities with positive impacts to the environment."

In the second case, the PES refers to the service that the nature (or ecosystem) provides to humans (for example, improved water quality, maintaining rainfall, climate regulation, etc...). For Daily ET. al. (1997), ecosystem services are "the conditions and processes through which ecosystems sustain human life." In other words, definitions that outline processes that can be understood as opposites, but they inevitably are complementary.

The Draft Law (PL) 792, which seeks to establish the National PES System, utilizes the concept of ecosystem service for conceptualizing the PES. That draft Law defines PES as a "contractual transaction whereby a beneficiary or user of ecosystem services transfers funds to a provider of such services or otherwise as compensation under the conditions agreed upon and complied with the legal and regulatory provisions." Under this definition nothing prevents private entities to negotiate directly with providers of environmental services and financing programs that will ensure the provision of environmental services of direct or indirect interest.

This document will only use the term PES, considering the complementary use of the definitions given above in which are recognized, valued and remunerated the protection service and/or recovery that man provides for the benefit of nature and the number of services that nature provides, for the benefit of humans and other forms of life.

1.4 Characteristics of a PES scheme

According to Wunder (2006) the PES scheme is a "voluntary transaction in which a well-defined environmental service or land use, that can ensure this service, is purchased by at least one buyer, from at least one provider, on a condition that the provider ensures the provision of this service (conditionally)". In this sense, a PES scheme works as a purchase of a product on the market. Still using the definition proposed by Wunder, in order to establish such a mechanism, at least four conditions must occur:

1. Defined environmental service: There should be a well-defined environmental service in which the maintenance and/or supply is of interest to someone. This is the "product" to be marketed.

2.Payer/Buyer: Someone (person, company, government, etc...) must be willing to pay for this "product" in this case, for the conservation and/or recovery of the environmental service.

3. Provider: Someone (one or more people, communities, businesses, governments, etc...) who receives a financial resource and in turn must commit to maintain and/or restore this ecosystem service.

4. Voluntariness: The transaction should be voluntary, that is, those involved in the transaction must participate because they want to and not out of obligation.

For clarity, in the case of a scheme of PES-carbon, a company (buyer) that decides to mitigate their GHG emissions in a particular project or program (agro) forestry, will be paying for the amount of environmental services provided by nature (and/or production systems with the presence of trees) sequestration and maintenance of carbon stored in biomass, vegetation and soil. The providers will be farmers, indigenous communities or businesses providing the service (activity) of forest conservation and/or reforestation.

Thus, issues related to the right to participate, who pays and how the payment is made, should be considered and discussed during the process of creating a program/project of payment for environmental services.

PES schemes may occur in several ways. It may be a private scheme, where there is no government involvement (for example, where the company negotiates and paid directly to producers who conserve and recover the forests along the rivers). There are also public schemes where the government (local, state or national) participates in the process either as buyer or intermediary in the receipt and distribution of resources, or mixed schemes in which companies, communities and governments are involved.

In terms of public policy, PES schemes have received an increasing attention in recent years because it works as an incentive for the sustainable management of natural resources and the improvement of living standards of the people who inhabit them. This positive incentive constitutes a new way to promote the conservation and restoration of forests and ever more, the use of arboreal components in production systems (agro-forestry systems), complementing and supporting the existing policies of command and control.

1.5. Payments or compensation for environmental services? Why differentiate?

Once submitted to the definition of "payment" for environmental services, it is necessary to clarify the different ways in which the term "compensation" for environmental services is used. In the context of environmental economics, usually, the word compensation is used in three ways (mainly): (i) when third parties must "compensate" (rebuild or enabling decomposition) environmental damage in a particular area (or atmosphere) and/or; (ii) when an individual or a group must be "compensated" (reimbursed) by spending on labor and materials made to develop conservation activities or recovery of a particular area (or atmosphere) and/or; (ii) when an individual or a group must be "compensated" (reimbursed) by the "opportunity costs" (see next section) for not taking advantage of a better economic alternative product (that produces less environmental service) within their property.

The conservation and restoration of the natural resource and environmental services represent important benefits for humanity, especially for the population (or companies) who live and depend directly on these areas. It is crucial to recognize the activities ("services") that these companies

provide for the benefit of the environment (protection and restoration) and human beings, especially because maintaining natural areas and producing in a sustainable way, is not a simple task and, in most cases, represents a high cost (transaction, implementation or opportunity) for these actors. Thus, the deployment and development of PES initiatives (projects and programs) is yet another way (but not the only one) to recognize and compensate for this part of the population.

CHAPTER 02

CURRENT LAW RELATING TO PAYMENT FOR ENVIRONMENTAL SERVICES IN BRAZIL

Ramon Arigoni Ortiz e Marcos Rugnitz Tito

2.1. Introduction

According to the Legislative Agenda of Industry (CNI, 2010), payment for environmental services (PES) is considered an important practice for the private sector in the pursuit of reconciliation between economic development and environmental conservation. However, according to the same source, it is necessary that this policy also reaches the productive sector (industries or large agricultural production), as it is the segment that has the greatest potential, to contribute to conservation on the economical scale, in the provision of environmental services.

Industry representatives attest that it is necessary to expand the legal framework for the operation of PES schemes in Brazil as leverage for such initiatives. In this regard, a survey conducted by IMAZON and FGV, in 2012, recorded 28 legislative initiatives related to the theme PES in Brazil up to that year. Among these initatives are the Draft Law No. 792/2007, which establishes the National Policy for PES, the PES Federal Program, the Federal Fund and PES and the National Register of PES - described later in this chapter.

This chapter aims to present a summary of the main points of the legislation during the debate focused on virtual seminars, as well as offering the bibliography that was the starting point for discussions.

2.2. Legal framework for water resources management and PES for water

Contextualizaton

PES in the context of the modality water

According to the National Water Agency (2008), payments for environmental services are “financial transfers from the beneficiaries of environmental services for those who, because of nature conservancies’ practices, provide these environmental services.” This system takes place when those who benefit from environmental services, generated by a certain area, perform payments to the owner or manager of that specific area. In other words, the beneficiary makes a counterpart aimed at continuous flow and improvement of the service required. The beneficiaries are all actors, private or public, which are favored by the environmental services coming from nature conservancy practices including managing agencies as Watershed Committees. In the group of service

providers stand out from areas where the land use by owners, mostly farmers, weakens the generation of services, but where a change of current practices can strengthen the provision of environmental services (ANA, 2008).

According to Seroa da Motta and Ortiz (2012), the range of a PES program depends on (i) its ability to focus, that is, the benefit reaches the social agent that needs it; (ii) its compatibility - that the amount and frequency of payment actually encourage behavior change of the agents; and (iii) the scope – the program reaches the largest possible number of environmental service providers.

Legal provisions for water resources management in Brazil exist since 1934, when the Water Code already provided the user-pays principle. According to WWF-Brazil (2012), the Brazilian institutional legal framework, on the issue of charging for water use, only moved forward with the promulgation of the 1988 Constitution, which considered water as a public good and instituted the National Management Water Resources (SINGREH). However, the consolidation of these measures only occurred with the approval of the Federal Law 9.433/974, which established the National Water Resources Policy and created the SINGREH, described later in this report.

Currently, there are different charges in Brazil that directly or indirectly are related to water resources: (i) charges for water supply and sewage treatment; (ii) the granting of water use resources;(iii) charges for water use in the Watershed; and (iv) financial compensation for the use of water resources (Almeida, 2012). Table 1 summarizes the legal basis, the basis for calculating the amount to be charged and the legal nature of charges for each type of collection levied on the use of water in Brazil.

Table 1. Types of Charges on Water Resources.

Name	Foundation	Calculation Basis	Legal Nature
Water supply and sewage treatment	Sanitation services provided by public service concessionaires of water treatment and supply and capture and treatment of sewage	Volume of treated water and sewage volume captured and destined	Tariff (public price)
Granting use of water resources	Police power of the waters for deployment in any enterprise in which the use of water will change the system, quantity or quality of the waters of rivers, creeks, streams and lakes (More commonly used in State Plans for Water Resources)	Value calculated by the exercise of police power and procedure for granting authorization (the Basin Committees may create different bases of calculation)	Fee
Charging for water use in the Watershed	• Water is a public good of economic value; • Encourage the rational and sustainable use of water; • Obtain financial resources for the funding of programs and interventions included in plans for water and sanitation; • Distribute the socio-environmental cost by degrading and indiscriminate use of water; • Instrument for planning, integrated and decentralized management of water use and its conflicts	Volume of collected water	Public price
Financial compensation for use of water resources	Recognition of economic value owned by the Union for the hydroelectric potential.	value of the energy produced	Originating patrimony revenue

Source: Adapted from Almeida (2012).

Water and sanitation charges cover the costs that society has with the provision of services to supply drinking water and sanitation, and not the raw water used by the population. What is charged to consumers is the price (public)[2] finance of the water treatment services (collection, treatment and distribution of treated water) and sewage (collection, transportation and disposal of waste)[3].

The grant is an authorization granted by public authorities to public or private users for the use

2 Public prices are the revenue collected by State considering the interest of private sectors in the activity undertaken by the government and in the existence of a general and collective public interest on the performed activity (Almeida, 2012)

3 See Seroa da Motta and Ortiz (2012) for a discussion of the criteria for generating economical prices oriented to reduce negative externalities in the use of an environmental resource. The price of induction is determined to achieve a certain level of aggregate resource usage and the price of funding is associated with a predetermined budget level to be obtained with the payments.

of water resources for a specified period under the terms and conditions expressed in the grant. Through the grant, the environmental agency performs qualitative and quantitative management of water use. The following uses are subject to the grant: (i) derivation or abstraction of water, and water extraction from underground aquifer, both for final consumption or production input; (ii) the protection in bodies of water, from sewage and solid waste or gases; (iii) utilization of potential hydropower and (iv) other uses that alter the system, the quantity or quality of water. For the granted they are charged a fee, to reward the services of control and supervision provided by the government (Almeida, 2012)[4].

According to Almeida (2012), the water user can pay a fee to the regulator (State) on the grant date. However in water bodies under federal jurisdiction the ANA does not make this charge. Thus, the collection is a public price, fixed by mutual agreement between the members of the Watershed Committee, which induces users to the rational use of water and the aggregate reduction in its use. In this sense, the criterion of price formation is the price of induction (Seroa da Motta and Ortiz, 2012). Are chargeable for water use granted the users whose uses of water resources entail a change in the regime, the quality or quantity of water from a water body, including the underground aquifer, except for the uses considered insignificant by the management committee of the basin.

At the federal level (rivers under union), charging fees for the water use have been deployed in the basin of the rivers Paraíba do Sul since March 2003 and in the basin of the rivers Piracicaba, Capivari and Jundiaí since January 2006. At the state level, the charge for the use of water resources is provided in all the approved state laws (see section 2.5), but is in fact effected only in Rio de Janeiro and São Paulo (WWF-Brazil, 2012).

The financial compensation for the use of water resources, (CFURH) by power plants, is a payment for the use of the resource, for the development of an economic activity and is intended to compensate states and counties for the negative externalities, caused by the installation of a hydroelectric power plant. (WWF-Brazil 2012). CFURH is for water resources, just as the royalties are for oil, or the financial compensation for the exploitation of mineral resources is for ore. It is the charge for Union participation in the economic sectors that exploit their assets (Almeida, 2012).

National Plan for Water Resources (PNRH)

Law No. 9,433, of January 8, 1997 established the National Policy of Water Resources (PNRH) and created the National System for Water Resources Management (SNGRH).This law provides as instruments of water resources management, among other things, the granting of rights of use of water resources, charging for the use of water resources and the Water Resources Plans, Master plans that are aimed at support and guide the deployment of the National Policy of Water Resources and management of water resources.

The law establishes a charge for the use of water as a tool for water resources management, with the aim of introducing economic value to a scarce resource, and delegates to the basin committees to legislate adequate use of resources also the establishment of pricing (public) charges to granted users.

PNRH, another management tool provided by Law 9.433/1997, aims to “establish a national

4 According to Almeida (2012), the water user can pay a fee to the regulator (State) on the grant date. However, in water bodies under federal jurisdiction ANA does not make this charge.

pact for setting guidelines and policies aimed at improving the supply of water, in quantity and quality, managing the demands and considering that water, is a structuring element, for the implementation of sectorial policies, from the perspective of sustainable development and social inclusion"[5].. In both cases, the tools for managing water resources, do not deal with payments for environmental services for water, but create the institutional conditions, for the development of programs of PES for water, such as the Water Producer Program described in section 3.1.

The Water Resources Plans are long-term plans, with a planning horizon compatible with the period of implementation of its programs and projects, with the following minimum content: (i) diagnosis of the current situation of water resources, (ii) analysis of alternative population growth, the evolution of productive activities and changes in patterns of land occupation; (iii) the balance between cash and future demands of water resources, in quantity and quality, identifying potential conflicts, (iv) targets for rational use, increasing the quantity and improving the quality of available water resources; (v) measures to be taken; programs to be developed and projects to be implemented to meet the goals set (vi) priorities for granting rights of use of water resources, (vii) guidelines and criteria for charging for the use of water resources, and (viii) proposals for the creation of areas subject to the restriction, aiming at the protection of water resources (ANA, 2008).

The PNRH, which was approved by the National Water Resources (CNRH) on January 30, 2006, consists of the following key documents: Executive Summary, Overview and Status of Water Resources in Brazil (volume 1), Water for the Future - A Vision for 2020 (Volume 2); Guidelines (Volume 3); National Programs and Goals (volume 4). After the preparation and approval of PNRH, began the implementation phase of the PNRH, and the core activity is the development of the document entitled Implementation Strategy of the National Water Resources Plan, aimed to define how to materialize what was proposed in PNRH[6]

Articles 47 and 48 of Law of the National System of Conservation Units (Law No. 9.985/2000)

Art 47: The body or company, public or private, responsible for water supply or to make use of water resources, beneficiary of the protection provided by a protected area, should **contribute financially to the protection and implementation of the unit**, according to the provisions of specific regulations (Regulation);

Article 48: The body or company, public or private, responsible for the generation and distribution and the electric power beneficiary of the protection, offered by a conservation unit, should **contribute financially to the protection and implementation of the unit**, in accordance with the provisions of specific regulation (Regulation). (MMA, 2011)

The legal basis for Articles 47 and 48 of the law of SNUC, according to Almeida (2012), was introduced in the Brazilian legal system by CONAMA Resolution No. 10/1987, which defined the environmental compensation required to ventures that could damage forests and other ecosystems[7]. CONAMA Resolution No. 2/1996 replaced the earlier resolution and expanded the object of environmental compensation, allowing the resources collected, to be applied in other public conservation units of full protection, that were originally envisaged in the previous resolution. Finally, SNUC Law, article 36 disciplined the compensation institute in legal terms, and is regulated by Decree 4,340 of August 22, 2002 and by CONAMA Resolution No. 371.

However, also according to Almeida (2012), there is no consensus on the legal nature of environmental recovery, although it has been deemed constitutional by the Supreme Court, which allows them to observe a scenario of charges for environmental services consistent with the principles of polluter-pays, user-pays and conservative-receiver. Indeed, the Supreme Court[8], recognizes that environmental compensation is a counterpart, financial or otherwise, for the impact on environmental assets arising from a business or economic activity, fulfilling the role of compensating the other holders of the diffuse rights to the environment balanced by the externalities caused by economic activity (Case 2650/2009 - Plenary. 021.971/2007-0 Process).

The financial contribution provided for in Articles 47 and 48 of the SNUC Law, is not about charging for the use of water, but charging for the benefit earned by the protection provided by the conservation units to water bodies, an authentic payment for environmental services in obedience to the principles established by the Supreme Court on the issue of environmental compensation – polluter-pays, user-pays and conservative-receiver. The charge for the use of water for collection and release of effluents is a regulatory tool used to transform user behavior (principle of the user/ polluter pays), while the charges provided for in Articles 47 and 48 of SNUC Law which links payments for areas that protect water resources (principle protector-receives). That's why the SNUC Law refers to this collection as a contribution and not a mere collection of water use (Almeida, 2012).

From a purely economic point of view, the collection of the contribution mentioned in Articles 47 and 48 of Law SNUC differs conceptually from that Act enacted in 9443 (PNRH) since the costs of provision of a conservation unit, which should be covered by the users water resources protected by this, are independent of level of resource scarcity, therefore, differs from the level of prices charged for water use (price-inducing behavior). In this sense the dominant criterion for price formation for charging provided for in Articles 47 and 48 shall be according to Seroa da Motta and Ortiz (2012), the recovery of costs of implementation and maintenance - price or financing.

Articles 47 and 48 of SNUC Law bring, unequivocally, the theory of payments for ecosystem services, in its content as a force for those who benefit from a specific service (water protection) to pay for those who offer such a service, in this case the conservation units. Yet Brazil lacks specific legislation regulating such payments. The absence of specific federal law does not mitigate the existence and legality of the institute. Almeida (2012) concludes that there is sufficient legal support in the Brazilian system, for the practical application of economic incentives, for environmental conservation and the responsible use of natural resources. Finally, Almeida (2012) discusses the institutional arrangement the Conservation Units required for the institution of the collection under Articles 47 and 48. Table 2 resumes suggest ed arrangement.

Table 2. Suggested Institutional Arrangement

Management tool/ institutional arrangement	SNGRH	SNUC
Management unit of HR	watershed	Conservation Unit
Deliberative entity	Basin Committee	Management Council
Executive Entity	Basin Agency	Protection Agency/IBAMA
Mnagement Tools	Charging for water use	Financial contribution

Note: SNGRH - the National Water Resources Management; SNUG - National System of Conservation of Nature. Source: Almeida (2012).

5 Font: http://www.cnrh.gov.br/preconferencia/apres/PNRH2025_versao25-03-2010.pdf.

6 Fonte: http://www2.ana.gov.br/Paginas/servicos/planejamento/planoderecursos/pnrh.aspx.

7 Although the environmental compensation is different from the charges provided for in Articles 47 and 48 of the Law of SNUC, the innovative application of principles of environmental law in both cases allows analysis.by Almeida (2012).

8 Supreme Court judgment in the ADI DF 3378-6 filed by CNI in order to see declared the unconstitutionality of Article 36 of Law SNUC on environmental compensation.

A recurring theme in the discussion refers to considering charging for the use of water in a Conservation Unit as a case of double taxation (by SNUG and the SNGRH). Almeida (2012) argues that it may be allowed to charge for water use based on Law No. 9.433/97 (water bodies under federal jurisdiction) or the respective state laws (water bodies in the state domain) in the basins where the conservation unit are inserted. In the absence of legislation prohibiting this practice, the collection will focus on all users located in the basin, including those located within the geographic boundaries of a Conservation Unit. As double taxation is prohibited by law, double charging should be avoided anyway and thus the regulation of the financial contribution shall provide for the non-implementation of charging for water use to direct use favored of the protection offered by the Conservation Units.

In this way charging for water use in Conservation Unit can only be on the indirect use of water[9]. What can be done about the direct use is that the basins, according to their institutional arrangements, pass on to the conservation units the portion of the proceeds obtained by charging for the use of water when they are in the same territory. The proposed regulation proposed should avoid double charging and allow the application of the concept protector-receiver determined by SNUC Law, the proposal must be compatible charging for water use pursuant to the Law of Waters and the financial contribution provided for in Articles 47 and 48, unless they are exactly on the same grounds and purposes "(Almeida, 2012).

In this way, Almeida (2012) suggests that there are two possibilities for charging for use of water for the benefit of the Conservation Units: (i) by the rules of Articles 47 and 48 of the SNUG Law, or (ii) through the allocation of the net proceeds of the charges made by watershed for conservation units, as set out in the Water Act, through the Committees and Agencies basins, Water Resources Plans and state laws.

Other Laws and State and Local Programs

Becker and Seehusen (2011) summarized the legal framework for the implementation of programs of payments for environmental services, including those aimed at preserving water resources. Table 3 summarizes these initiatives.

9 Direct users are those whose use occurs within the geographic boundaries of the Conservation Units, capturing water, diluting effluent or doing other uses that require grant. Thus, the indirect users are those whose uses occur outside the geographical boundaries of the conservation units, however, the use occurs in water bodies that, being located in the same basin of the Conservation Units, in some way, benefit from the protection offered by the basins found in the conservation units and even the protection inherent in these Units (Almeida, 2012).

Table 3. Legal Instruments for State and Municipal PES

State and County	Legal Instrument
ES	State policy of Water Resources and FUNDAGUA (Law 8.960/2008)
MG	BolsaVerde Program (17.727/2008 Law, Decree 45.113/2009
PE	State Policy for Confronting Climate Change of Pernambuco (PL 1.527/2010)
PR	Environmental Service Provider (Law 16.436/2010)
RJ	Policy and State Program PES, State Water Resources Policy (Law 3.239/99 and Law, 4.247/03: charging for water use) and the respective Fund (FUNDRHI), Law No. 5234 of 05/08 (Article 2, Item VII)
RS	State policy for Environmental Services (PL 449/2007)
SC	Policy and State Program PES (PEPSA) and the respective Fund (Fepsa) (Law 15.133/2010)
SP	State policy of Climate Change (PEMC) (Law 13.798/2009); Mina D'Água Project (Dec. 55.947/2010), State policy of PES (PL 271/10)
Extrema – MG	Project of Water conservation (Law 2.100/2005)
Montes Claros – MG	Ecocrédito Policy (Law 3.545/2006)
Itabira – MG	Ecocrédito Policy (Law 4.069/2007)
Campo Grande – MS	Program PES (Dec.11.303/2010): Manancial Vivo Program
Apucarana – PR	Oasis Project (Law 58/2009, 241/2009, Decree 107/2009)
Londrina – PR	Municipal Fund for the Environment (Law 9.760/2005)
Camboriú – SC	Project for Water Producers (Law 3.026/2009)
Joinville – SC	Municipal Policy on Environment (Law 5.712/2006)
São Paulo – SP	Climate Change Law (Law 14.933/2009)

Source: Adapted from Becker and Seehusen (2012).

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2.3. Legislation related to PES Carbon schemes in Brazil

As mentioned earlier, the survey entitled "Regulatory Framework for Environmental Services in Brazil", conducted by the Institute of Man and Environment of Amazon (Imazon) and Fundação Getúlio Vargas (FGV) in 2012, recorded 28 bills related to the theme PES in Brazil. Eight proceeded through the federal level (2 laws, 2 decrees and 4 bills) and 20, at the state level (14 laws and 6 decrees). The states covered by these legislative initiatives (Table 4) are: Acre, Amazonas, Espírito Santo, Minas Gerais, São Paulo, Rio de Janeiro, Santa Catarina and Paraná.

Table 4. Legal Instruments for State PES

Estado State	Instrumento Legal Legal Instrument
AC	Law 2.308/2010 - System of Incentives for Environmental Services of Acre state.
AM	Law 3.135/2007 - State Policy on Climate Change, Environmental Conservation and Sustainable Development of Amazonas. Law 3.184/2007 - Changes to State Law 3.135/2007 and other measures. Decree 26.958/2007 - Bolsa Floresta of Amazon State Government
ES	Law 8.995/2008 - Payment for Environmental Services program Decree 2168-R / 2008 - Payment for Environmental Services program (Regulation). Law 9.607/2010 - Amendments and additions provisions in the Law 8.995/2008.
MG	Law 17.727/2008 - Grant of financial incentives to landowners and rural squatters (Bolsa Verde) and amends Laws 13.199/1999 (State policy of Water Resources) and 14.309/2002. Decree 45.113/2009 - Standards for the award of Green areas.
PE	PL 1.527/2010 - State Policy for Confronting Climate Change of Pernambuco.
PR	Decree 4.381/2012 - Program BIOCLIMA Paraná for the conservation and restoration of biodiversity, mitigation and climate change adaptation in the state of Paraná and makes other provisions. Law 17.134/2012 - Payment for Environmental Services (especially those provided by the Biodiversity Conservation) that integrate the Program BIOCLIMA Paraná, as well as features on the Biocrédito.
RJ	Policy and State Program PES, State Water Resources Policy (Law 3.239/99, and Law 4.247/03 charging for water use) and the respective Fund (FUNDRHI), Law No. 5234 of 05/08 (Article 2, Item VII). Decree 42.029/2011 - State Program for the Conservation and Revitalization of Water Resources (Prohidro) establishing the State Program of Payment for Environmental Services (PES-PRO), with provisions for forests.
RS	PL 449/2007 - State policy of Environmental Services.
SC	Policy and State Program PES (PEPSA) and the respective Fund (Fepsa) (Law 15.133/2010).
SP	State policy of Climate Change (PEMC) (Law 13.798/2009); Mina D'Água Project (Dec. 55.947/2010), State policy of PES (PL 271/10).

Source: Adapted from Santos et al. (2012) and Becker and Seehusen (2012).

Santos et al. (2012) found that there is a diversity of approaches to the topic where some of these laws are found on specific PES, others are actually laws on climate change, but establishing programs of PES. For the same authors, in general, there is a predominance of public institutional arrangements with the exception of Amazonas and Acre, which predict the participation of private institutions, for management and fundraising for PES programs. In many cases there is a shared management between different public institutions through committees, which may or may not rely on civil society participation. Draft Law No. 792/2007

2.4. Draft Law No. 792/2007

The Draft Law (PL) 792[10] was presented by Congressman Anselmo de Jesus on April 19, 2007. After a period of stagnation, mainly due to debates on the Forest Code it has been taken over by Congressman Arnaldo Jardim, speaker for the PL.

This proposal defines the environmental services and provisions for the transfer of resources, monetary or otherwise, to agents that help to produce or preserve these services through the adoption of practices, techniques and systems that benefit all. The substitute 3 of the Commission of Agriculture, Livestock, and Supply and Development (CAPADR) of May 26, 2010, (i) lays down concepts, objectives and guidelines of the National Payment for Environmental Services (PNPSA), (ii) establishes the National Policy on Payment for Environmental Services (CNPSA)[11]; (iii) creates the Federal Program of Payment for Environmental Services (ProPSA) and Article 11 (iv) creates the Federal Fund of Payment for Environmental Services (FunPSA).

Such PL defines environmental services and provisions for the transfer of monetary resources, monetary or otherwise, to agents that help to produce or preserve these services through the adoption of practices, techniques and systems that benefit all:

"Article 1 Are considered environmental services those services that present themselves with flows of matter, energy and information from natural capital stock, which if combined with capital services built and human capital produce benefits to humans, such as:

I - Goods produced and provided by ecosystems, including food, water, fuel, fiber, genetic resources, natural medicines;

II - services obtained from the regulation of ecosystem processes, such as air quality, climate regulation, water regulation, water purification, erosion control, regulation of human diseases, biological control and mitigate risks;

III - non-material benefits that enrich the quality of life, such as cultural diversity, spiritual and religious values, knowledge - traditional and formal -, inspiration, aesthetic values, social relations, sense of place, cultural heritage value, recreation and ecotourism;

10 http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=348783

11 The CNPSA is a collegiate body composed of representatives of various ministries (Agriculture, Livestock and Supply, Cities, Agrarian Development, Environment, Energy and Mines, Fisheries and Aquaculture; Planning, Budget and Management), National Water Agency, BNDES, EMBRAPA, FUNAI, ICMBio and seven members of civil society organizations representing rural extension, state and local environmental agencies, NGOs and federations of agriculture, livestock and workers in these areas. The CNPSA is tasked to deploy PNPSA, manage the ProPSA and monitor and supervise the operations of FunPSA. Is incumbent to CNPSA (i) prepare the eligibility criteria for receiving compensation, (ii) establish technical and scientific parameters for the assessment and monitoring of environmental services, (iii) determine the amounts to be paid to the beneficiaries, and (iv) keep the National Register of Payments for Environmental Services operations data containing payments and receipts made.

IV - services required to produce all other services, including primary production, soil formation, oxygen production, soil retention, pollination, provision of habitat and nutrient recycling.

Article 2. All those who voluntarily employ efforts to apply or develop benefits set in Art 1 of this law shall be entitled to payment or compensation as established by regulation.

Article 3. The Executive Branch shall regulate this law within 180 (one hundred and eighty) days of its validity. Article 4. This law shall enter into force on the date of its publication. Source: www.camara.gov.br

The substitute 3 of the Commission of Agriculture, Livestock, Supply and Development (CAPADR) of May 26, 2010, (i) lays down concepts, objectives and guidelines of the National Payment for Environmental Services (PNPES); (ii) establishes the National Policy on Payment for Environmental Services (CNPSA); (iii) creates the Federal Program Payment for Environmental Services (ProPSA) and in Article 11, (iv) creates the Federal Fund of Payment for Environmental Services (FunPSA).

The CNPSA is a collegiate body formed by representatives of various ministries (Agriculture, Livestock and Supply, Cities, Agrarian Development, Environment, Energy and Mines, Fisheries and Aquaculture; Planning, Budget and Management), the National Water Agency (ANA) , BNDES, EMBRAPA, FUNAI, ICMBio and seven members of civil society organizations representing rural extension, state and local environmental agencies, NGOs and state federations of agriculture, livestock and workers in these areas. The CNPSA is tasked to deploy PNPSA, manage the ProPSA and monitor and supervise the operations of FunPSA. It is incumbent to CNPSA (i) to prepare the eligibility criteria for receiving compensation, (ii) establish technical and scientific parameters for the assessment and monitoring of environmental services, (iii) determine the amounts to be paid to the beneficiaries and (iv) maintain the National Register of payments for Environmental Services operations data containing payments and receipts made.

Regarding the funding of payments for environmental services, the PL 792/2007 and its substitutive expect that the FunPSA, which has an accounting nature, to have the purpose of financing the actions of ProPSA, which will be the financial agent for BNDES. The sources of funds provided in the PL are:

I - up to 40% (forty percent) of the funds referred to in Part II of § 2 of art. 50 of Law No. 9478 of August 6, 1997 (Law of oil royalties - pre-salt);

II - amounts allocated in the Annual Budget Law of Union and its additional credits;

III - resources under agreements, adjustments, contracts and agreements entered into with entities of the federal public administration, state, Federal District or municipalities

IV - donations made by national and international entities, public or private;

V - loans from national or international financial institutions;

VI - reversal of the annual balances not applied.

As one can see, the text of PL 792/2007 considers that the PES program will, at least initially, be financed through government funds and donations from national and international bodies, public or private. Thus, the participation

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of the private sector in programs of PES would be through donations to FunPSA and allocation of these resources would be subject to the control of the National Policy on Payment for Environmental Services (CNPSA), which is composed mainly of representatives of various ministries and government agencies.

On the other hand, the text of PL 792/2007 defines payment for environmental services as a "contractual transaction whereby a beneficiary or user of ecosystem services transfers' funds to a provider of such services, or other form of remuneration, under the conditions agreed upon, complied with the legal and regulatory provisions." Under this definition, nothing prevents private entities to negotiate directly with providers of environmental services and financing programs to ensure the provision of environmental services of direct or indirect interest, as is the case of the provision and quality of water for certain industries.

Currently, the bill is awaiting the opinion of the Committee on Finance and Taxation of the Chamber of Deputies having passed through the committees on Agriculture, Livestock, Rural Development and Food Supply (CAPADR) and the Environment and Sustainable Development (CMADS) always approved favorably after changes and adjustments in its text.

CHAPTER 03

BRAZILIAN EXPERIENCES AND OPPORTUNITIES IN PES

Marcos Rugnitz Tito and Ramon Arigoni Ortiz

3.1 Introduction

As discussed in Chapter 1, the PES can be characterized as voluntary transaction between at least one provider and at least one plaintiff of particular environmental service. Although, in principle, the conditions of this relationship are defined by the parties themselves, there is a set of rules and assumptions recorded in legal instruments. This is especially true for the modality PES Water as the initiatives of PES carbon are still being developed and financed by funds, the usual source of funds for projects and programs of environmental conservation.

However, the scenario for conservation actions focusing on carbon in forested areas tend to change, given the context brought by the Forest Code (Law No. 12.651/2012). New instruments seek to maximize the recovery of forest area in Brazil, and its regulation may give different scale initiatives of this modality. Moreover, legal frameworks for environmental services have been created in recent years at the state level, which provides expectation on the legislation of this theme on the federal sphere.

Thus, this chapter is the result of a survey work on existing experience for projects and programs of PES in the modalities of water and carbon. Also discusses the different opportunities that arise, especially when analyzing the compilation of environmental funds and the imminent operation of the instrument of Environmental Reserve Quotas (CRA).

3.2 Environmental Funds as part of PES financing mechanisms schemes

Since it started to be established in the early 90s, mainly from the creation of the Global Environment Facility (GEF - Global Environment Facility), the Environmental Funds have been providing resources to programs and projects for the preservation, conservation and promotion of sustainable development, which benefit the environment. Such funds usually receive donations from governments, companies, cooperation agencies and NGOs. However, current environmental funds are understood as complex institutions of environmental management functions that go beyond the channeling of funds.

Chapter 2 brought information about the variety of state laws on PES. Some of them are on a broader issue such as climate change, while others specifically deal with PES and the institution of policies and programs and their respective funding. The following topics bring a roundup of some of these funds and their environmental applications.

Types of Environmental Funds

Lambert (2000) distinguishes the environment funds into three groups. National funds, which enable the implementation of environmental policies, such as the National Fund for the Environment; specific funds directed to a particular location or theme, seeking the protection of a species or ecosystem in particular, even, funds that make donations to other funds such as the case of the National Biodiversity Fund (FUNBIO). The same author highlights three types of backgrounds shown in Table 5.

Table 5. Table comparing different forms of funds.

Fund	Period	Disbursement	Main aspects
Cash Fund	Short and long term	Based on donated money	When exhausted the fund may be re-provisioned or simply terminated
Endowment Fund or Trust Fund	Long term	Based on interest generated from investments	The fund has a lower availability of resource disbursement compared to cash fund
Revolving Fund	Long term	loans	Size feature disbursed depends on the riskiness of projects funded

Font: Adapted from Lambert (2000).

National Environmental Funds

National Environment Fund (FNMA) [12]

Created in 1989 (Law No. 7797) with the aim of contributing as the financing agent for implementing the National Environmental Policy (NEP) through participation of civil society. The resources used to support the projects come from the National Treasury, through ordinary sources, partnerships (SPRN/GTZ/KfW), through loans (IDB), the laws of environmental crimes (10% of fines for crimes and environmental offenses levied by IBAMA), CIDE fuels and other sources such as donations of technical cooperation Brazil/Netherlands. This feature has an estimated investment of R$ 200 million.

Brazilian Fund for Biodiversity (FUNBIO) [13]

It was created in 1995 with funds from the Global Environment Facility Fund (GEF), with an approximate value of US$ 20 million through a contract with the World Bank, which has as a condition the establishment of a transparent and efficient promoting mechanism capable of attracting the private sector as a partner to achieve its goals. The allocation of resources of the GEF has been supplemented by fundraising through partnerships with other institutions. The total resources contributed by partners through 2006 totaled US$ 6.3 million. Add to this US$ 3.7 million due to accumulated income in Brazil and abroad. Up to this period, the FUNBIO supported, monitored and evaluated 62 projects, transferring about US$ 10.7 million for cooperatives, community associations, universities, companies and non-governmental organizations.

In 2006 FUNBIO created the Portfolio Fauna Brazil facing wildlife conservation projects and fishery resources, promoting the capture of permanent resources to fund such projects. For doing so it was created by IBAMA, Federal Public Ministry and FUNBIO the "Fund Fauna Brasil" with an initial contribution of R$ 2,7 million. This fund will receive resources originating from fines and penalties for crimes against wildlife. It is estimated that in the last five years, the IBAMA filed an annual average of R$ 110 million in fines, but only 14% is collected (FUNBIO, 2006). The resources will be used in the recovery of endangered species and wildlife protection.

The ARPA (Amazon Region Protected Areas Program) intends to establish a trust fund whose proceeds will be applied in the management of protected areas in the Amazon. The financial resources of the ARPA Program are administered by FUNBIO facilitating the application of these resources in the management the Conservation Units (Borges et al, 2007).

Amazon Fund, created in 2008, aims to raise donations for non-reimbursable investments in prevention, monitoring and combating deforestation and promoting conservation and sustainable use of the rainforests in the Amazon biome. The Fund is administered by the National Bank for Economic and Social Development (BNDES), which will also deal with fundraising, contracting and monitoring of projects and actions supported. So far, the Brazilian government has chosen the Norwegian government subsidies ($ 134 million) and Germany (KFW, 21 million euros).

National Fund on Climate Change (Climate Fund)

This fund was established by Law No. 12.114/2009[14], is an instrument of the National Policy on Climate Change (PNMC) [15] for the purpose of financing projects, studies and endeavors aimed at mitigating climate change and adapting to its effects. This fund was established by Law No. 12.114/2009, is an instrument of the National Policy on Climate Change (NPCC) for the purpose of financing projects, studies and endeavors aimed at mitigating climate change and adapting to its effects. The Fund is linked to the Ministry of Environment and makes resources available in two modes:-refundable and non-refundable. The reimbursable resources are administered by the National Bank for Economic and Social Development (BNDES). The non-reimbursable funds are operated by MMA. The sources of funds of the Climate Fund are:

- Up to 60% of the special participation is up to the Ministry of Environment in the proceeds of oil[16] production;
- Appropriations contained in the Annual Budget Law (LOA) of the Union;
- Donations from national and international, public or private;
- Other arrangements laid down in the law of creation.

The Fund is managed by a Management Committee chaired by the Executive Secretary of the MMA. The Climate Fund Program has six subprograms:

- Efficient Modal Transport: Designed to projects that contribute to reducing the emission of greenhouse gases and local pollutants in collective urban transport of passengers and to improve urban mobility in metropolitan areas.
- Machinery and Equipment Efficient: Aimed to finance the acquisition and production of machines and equipment with higher energy

12 http://www.mma.gov.br/port/fnma/

13 http://www.funbio.org.br/publique/web/cgi/cgilua.exe/sys/start.htm?tpl=home

14 Regulated by Decree 7.343/2010

15 Established by Law No. 12.187/2009

16 As item II § 2 of art. 50 of Law No. 9478 of August 6, 1997

efficiency or contributing to the reduction of emissions of greenhouse gases.

• Renewable Energy: Support for investments in generation and local distribution of renewable energy from biomass use, except cane sugar, the capture of solar radiation, ocean and wind energy in the case of isolated systems;

• Waste with Energy Use: Support for projects to rationalize the urban cleaning and waste disposal to use for power generation located in one of the priority municipalities identified by the Ministry of Environment.

• Vegetal Coal: Intended for investments to improve the efficiency and sustainability of production of Vegetal Coal.

• Desertification Combat: Support to combat desertification through biomes restoration projects and sustainable productive activities in the municipalities susceptible to desertification identified in the Atlas of the Environment Ministry.

The Climate Fund Program has a budget of R$560 million, ensuring a minimum budget of R$ 20 million for the subprogram of Efficient Machinery and Equipment.

3.3. Market Opportunities of Environmental Reserve Quota (CRA)

The implementation of actions by projects is a usual way to facilitate environmental conservation, raising funds through funds, private initiative, among other sources. However, the new context brought by the Forest Code (Law No. 12.651/2012) highlights new way to promote the conservation and recovery of native forest areas without the need for changing the rules for access to funds.

Brazilian law requires the maintenance of Legal Reserve area in percentages ranging from 20% to 80% of the property, according to the biome and region in which the property is located. Those who do not have a minimum area of legal reserve, required by law, can be accommodated through reforestation or regeneration areas within the rural property itself. Alternatively, forest legislation provides that the obligation of legal reserve is met by means of “Quotas of Environmental Reserve” (CRAs): instruments created by the Brazilian Forest Code to allow compensation for a compulsory legal reserve in rural properties (Moura Costa 2013)[17]. CRAs can be created in areas of native vegetation or recovery processes (unless the regeneration or restoration of the area are unlikely or infeasible).

According to Moura Costa (2013), such shares will be created in areas that exceed the obligations of the Legal Reserve and Permanent Protection Areas (APPs) for each property, being that one of the prerequisites for the creation of CRAs, is that the rural property is enrolled in the rural Environmental Registry (CAR)[18] . According to the same author, these quotas can be used to compensate for the absence of legal reserve of another rural property, if it meets certain legal conditions. A first condition refers to the date of loss of the forest coverage that can only benefit from the use of CRAs properties that have been deforested by 22 July 2008. There is also the requirement that the compensation must be made with shares of the same biome in the same state, unless they are in areas considered priorities by the Union, or by the states.

To facilitate the use of the instrument of CRAs, the BVRio created a market development contract for delivery of these quotas at a future

17 http://www.agrolink.com.br/culturas/soja/coluna/o-que-e-o-mercado-de-cotas-de-reserva-ambiental_4535.html

18 Registry digital georeferenced and linked to satellite images, which enables the best location and monitoring of land use in rural properties

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time - the market Contract Development and Sale of Environmental Reserve Quotas (CRAFs). The CRAFs establish obligations between those who have surplus Legal reserve (sellers) and those who want to buy CRAs, to suit the requirements of the Forest Code (Moura Costa 2013). By means of the CRAF, the seller commits to create the quotas and deliver them to the buyer upon payment, to be made upon delivery of the CRAs, of a price previously agreed between the parties. Thus, landowners with surplus of Legal reserve can offer in BVRio quotas that will be created in their property. The platform BVTrade (http://www.bvrio.org) allows the seller to inform the characteristics of the property and when the process of creating the CRAs will be for example

• Biome and state; State land;

• If the RL is in CU public RPPN or priority area;

• Declaration stating that there are no confrontational territorial disputes;

• Property description memorandum;

• Existence or not of Rural Environmental Registry (CAR);

• Existence or not of Legal Reserve endorsed.

According to Moura Costa (2013), this list of points reflects the type of property and the stage of the creation process of CRAs and provides elements for the buyer to assess the time required for the issuance of CRAs, as well as the level of risk inherent to the contract. The more elements completed the lower the risk and the time between contracting and delivery of CRAs.

Sellers can inform the expected value of the quotas (R$/ha) and the duration they want to give the sold quotas (5, 10, 20, 30 years or perpetual). Or leave these variables open and wait for offers to purchase. Buyers make offers for CRAFs in the platform BVTrade indicating the desired lot size, duration and amount they are willing to pay. The platform does not disclose the identities of the seller and the buyer until negotiations are completed.

After completing the operation, the Contract of Development and Sale of Quotas of Environmental Reserve (CRAF) comes into force. From this moment on, the seller commits to develop the CRAs in his property and transfer it to the Purchaser immediately upon its issuance (Moura Costa 2013). When the CRAs are issued the BVRio will assist the parties in their physical and financial settlement. The BVRio will receive the buyer payment in a fiduciary account and will only send the payment to the seller, after the transfer of CRAs for the control of the buyer. At this time, the contract will be completed.

After the transfer of CRAs, the seller will continue with the obligation to keep such areas as legal reserve during the period stipulated in the contract of CRAs. By the deadline of CRAs, the contract may be renewed or the seller has the right to bid again their CRAs for sale through the BVRio. The BVRio also enables that CRAs are transacted from the secondary sale of CRAFs. Buyers who have obtained rights to CRAs for future delivery, traded from CRAFs in BVRio, may offer it on the platform and enter into new contracts. The BVRio will keep a record of all contracts to ensure that the offers made on the platform are related to valid contracts.

3.4 Brazilian Experiences with PES Water from the perspective of Funding

Water Producer Program (ANA) [19]

The National Water Agency (ANA) develops the Water Producer Program, which aims to encourage financial compensation to farmers who demonstrably contribute to the protection and restoration of watersheds, generating benefits for the basin and its population. The program has voluntary membership for the control of diffuse rural pollution directed primarily at rural watersheds of strategic importance for the country. Focuses on reducing erosion, improvement water quality and increase of river flows using mechanical and vegetative practices of conservation of the soil and water, readjustment of local roads and construction of septic tanks on farms

The Watershed Committee identifies and ranks the priority sub-watersheds for implementation of the program under its jurisdiction. Watersheds eligible at the Water Producer Program are those that (i) already have the management tools provided by Law 9.443/1997 mentioned in the section 2.1; (ii) Water Resources Plan identifies problems of rural diffuse pollution, erosion and vegetation coverage deficit, in areas of permanent protection (APPs) and proposes mitigation of those impacts; (iii) the basin is a source of water supply for urban and industrial use, (iv) the basin has a minimum number of farmers interested in the program, which may enable its application.

According to ANA (2008), the financial resources of the Water Producer Program must come from the following sources: (i) revenue from charges for use of water resources, (ii) sanitation companies, power generation and users, (iii) State Water Resources Funds; of (iv) National Fund for the Environment (v) of the Federal Budget, (vi) States, municipalities and Water Boards Budgets (vii) financial compensation from users benefit, (viii) Clean Development Mechanism (CDM)/ Kyoto Protocol, (ix) international organizations (NGOs, GEF, World Bank, etc..), (x) behavior adjustment terms (TAC).

Indeed, despite the various sources of financing mentioned, the operating manual of the Water Producer Program is very clear in identifying, among the steps for program implementation (i) "the identification of environmental service providers and recipients of services - if there is no one interested (identifiable) with willingness to pay for the benefits, there is no way to implement the program, (ii) organize meetings" approximating the providers and beneficiaries with a view to establishing a market for environmental services "(ANA, 2008).

To the effective implementation of the Water Producer Program, when the PES program is funded with billing for water use, it is up to the Basin Committee and their respective Agency for Waters (i) allocate the resources from the collection of water use for the execution of approved projects under the program (ii) open bidding processes for selection of projects of reforestation and conservation of water and soil, that allocates benefits to the program objectives; iii) enter into contracts with farmers setting goals, check times and benefit payments, (iv) follow along with the Water Agency and the state management agency compliance with the goals of the program, (v) certify the criteria for deploying the program. Eligible actions include building terraces and mini dams, protection of springs; recovery of riparian vegetation and hilltops. Certification of effective abatement of erosion on the property is a prerequisite for the Water Producer Program payments.

19 This section is based on the National Water Agency, 2008.

It is up to the farmer beneficiary of the program: (i) to prepare the draft abatement of erosion and improvement of vegetation coverage, indicating the current condition of the property, the intended goals, parameters of abatement and deployment budget, (ii) to be responsible for the construction, operation and maintenance of the works and/or practices, in the terms established in the contract; (iii) inform the contractor (Basin Committee) on the progress of implementation of the project, (iv) communicate to the contracting party at the start of operation of the project and request assessment visits, aimed at releasing payments; (v) require to the certifying entity release of funds for the payment of diffuse pollution abatement; (vi) cooperating with the Basin Committee, the ANA and other entities involved in the project, access to the property and the necessary information to prove compliance with the contract terms.

Other agents with specific rights and obligations for the implementation of the Water Producer Program including ANA and the States, the Municipalities, the financial agent participant, who may be the water agency, a bank officer or a selected agent on lending, the certifying entity accredited to receive the generated environmental benefits.

Projects of Water Producer Program in progress[20]:

- Conservative Waters - Extrema - SP and MG
- Water Producer at PCJ - Joanópolis and Nazare Paulista – SP
- Water Producer in Pipiripau - Brasília – DF
- Water Producer in– Espírito Santo
- Water Producer in Camboriu - Balneario de Camboriu - SC
- Water Producer in João Leite - Goiania – GO
- Water Producer in Guandu - Rio de Janeiro – RJ
- Water Producer in the Apa Guariroba - Campo Grande – MS
- Water Producer of Nova Friburgo - Nova Friburgo – RJ
- Project Apucarana - Apucarana – PR
- Water Producer at Córrego Feio – Patrocínio – MG
- Water Producer in Ribeirão Guaratinguetá - Guaratinguetá – SP
- Water Producer in Rio Rola - Rio Branco – AC
- Water Producer in Taquarussu - Palmas – TO
- Water Producer Santa Cruz do Sul – RS
- Water Producer in Pratigi APA (Sub-basins and Mina Nova Vargido) Igrapiúna-BA
- Water Producer Rio Verde (Marimbondo and Pumpkin) Rio Verde - GO
- Producer Water Basins of the San Francisco and Doce - Committees.

20 We are thankful to Devanir Garcia dos Santos (ANA) for sharing this data.

Projects in the Atlantic Forest[21]

According to Becker and Seehusan (2011), until February 2010 there were approximately 40 PES projects PES geared towards water resources in the region of the Atlantic Forest, working in the conservation areas of forest remnants, forest restoration and regeneration assistance in watersheds. Of these 40 projects, 8 were in the implementation phase, 20 in the development phase and 12 in the articulation phase.

The projects under implementation involved 345 landowners and a potential area to be restored/conserved of 13 thousand hectares. The environmental services related to the quantity and quality of water were receiving between R$10,00 and R$ 577,00 per hectare/ month. The costs of these projects ranged from R$ 200 thousand to R$2.5 million. Among eight projects under implementation, there were two cases in which the resources for payments had their origin in charging for water use, three cases in which the resources for the PES came from municipal sources (e.g., ICMS revenue and one reinforced with partnerships with water and sanitation companies), two projects (for the same program) from state sources (FUNDAGUA), and one case where the funding source for the PES was coming from the private sector, but of philanthropic sources.

In summary, according to the authors, in general these projects have as a source of funds for payments the public budgets and the resources of the Watershed Committees arising from charges for water use and water and sanitation companies. The private sector participation in arranging funding of PES in the Atlantic Forest is still very small.

21 This section is based on Becker and Seehusan (2011) - Initiatives of PSA Conservation of Water Resources in the Atlantic Forest, Fernando Veiga and Marina Gavaldão; Vivan et al. (2012) and Santos et al. (2012a, 2012B).

Funds for State and Municipal Financing Program PES[22]

Becker and Seehusen (2011), in its Annex I, described the state, regional and municipal provisions created for potential funding programs of PES in Brazil, as well as its sources of revenue:

- FHIDRO - Recovery Fund, Protection and Sustainable Development of the Hydrographic Basins of the State of Minas Gerais, which has as a source of resources the revenue from the financial compensation of the hydropower sector of the state.

- FEHIDRO – State Fund of Water Resources of São Paulo and FECOP - State Fund for Prevention and Control of Pollution SP

- FUNDÁGUA – State Fund of Water Resources of Espírito Santo. The FUNDAGUA main sources of funding are the financial compensation recorded in the state (3% of oil royalties and 100% of the compensation paid by the hydropower sector).

- FEPSA - State Fund Payments for Environmental Services (Santa Catarina) which counts on resources of the state budget, a minimum of 30% of financial compensation for hydropower generation, resources from the Special Fund of Petroleum and from the partial quota of the financial compensation of mineral resources.

- FUNDRHI – State Fund of Water Resources of the State of Rio de Janeiro

- FUNBOAS - Fund for Social and Environmental Good Practices in Microbasins - RJ

- FUNDEMA - Municipal Fund of the Environmental Municipal Foundation of Joinville. The source of funds is made up of 2% of the monthly billing from the Municipal Water System; 2% from the granting of operating the industrial landfill of Joinville; 35% of resources under the concession contract due to the utilization of biogas generated by Municipal Sanitary Landfill; resources transferred to Fundema through the agreement DNPM/CEFEM; revenue arising from lawsuits, Terms of Adjustment of Conduct and other revenues

- FEMA - Special Fund for the Environment and Sustainable Development of the municipality of São Paulo

22 This section is based on Seehusan and Becker (2011).

Environmental Services Agency (ASA) of Simplicio, MG / RJ

An innovative financing mechanism for payments for environmental services is being proposed by the Environmental Services Agency (ASA) Simplicio, in the Vale do Paraíba do Sul. The ASA, a non-profit association of civil society, aims to provide financial incentives to landowners in the region, based on the sale of ecosystem services, and improve the water flows in the catchment area of dams for hydropower generation (Furnas). That is, it is intended to create a program of payments for environmental services designed to encourage and assist measures of conservation and restoration of the forest cover in the region.

It is a system of governance supported by various organizations (e.g. IETS, UFRRJ, and BVRio) that gets the landowners, who voluntarily join the PES program, the right of generation and trading the financial assets, linked to the ecosystem services generated by the forest area included in the PES program.

For example, quotas of environmental reserve (CRAs), which correspond to areas of forest, preserved above the legal reserve area that an owner should keep on his property, can be traded with other owners who are unable or unwilling to reforest on their properties to comply with the Forest Code in relation to the legal reserve areas. Thus, the PES program funding takes place through assets linked to environmental services generated by forest areas preserved and / or restored. Other examples of environmental assets to be created within the PES program are credits from forestry replacement and carbon sequestration.

Although the proposed PES program is opened to all local landowners, the criteria for joining the program and eligible activities are defined by the ASA and involve (i) the obligation to implement forestry activities defined in the term of membership; (ii) maintain the forest cover in the property; (iii) be in compliance with tax, labor and social security obligations and (iv) have not performed illegal deforestation on the property since July 2008. Farmers who voluntarily join the program receive, in turn, technical and legal assistance for enrollment in the Rural Environmental Registry for creation of Legal Reserve and Environmental Reserve Quotas, as well as training and productive requalification, seeds, fertilizers and seedling nursery. Payments from the sale of assets linked to environmental services will be made by the ASA to farmers annually. Also, each year, producers will produce reports of implementation and maintenance of agreed activities.

The PES program proposed by the ASA Simplicio and funded by the sale of assets and environmental services should, in the medium term, be financially self-sufficient. However, in its initial phase, some pre-operational capital is needed and the ASA investigates the possibility of financial contribution by Furnas, the main beneficiary of one of the environmental services generated by the program which is the quality and quantity of water used in the generation of hydropower.

CHAPTER 04

VIRTUAL SEMINARS ON PES

Marcos Rugnitz Tito and Ramon Arigoni Ortiz

4.1. Introduction

The universe of initiatives for the payment or provision of various kinds of incentives for environmental services has expanded in recent years to keep up with the importance of environmental conservation as a means of mitigating climate change. The evidence of this are the various initiatives implemented by the PES, the development of state laws on climate change in the PES, also the number of funds for financing activities of this type. Nevertheless, one cannot say that the business sector - key as potential plaintiff of environmental services - is currently tuned to this concept, often considered as “one more bill to pay.”

One possible explanation is that the knowledge of private sector representatives, in the PES is quite diffuse and dependent upon stimulus, both internal to the business environment and to the relationship with decision makers in the public sphere and providers in the social sphere. There are companies with successful initiatives underway, there are those with basics about environmental services, but still without considering it as an opportunity and there are those who know little or nothing about the subject.

After discussions with representatives of the National Confederation of Industry - CNI, it was identified the need for learning about the PES, that fulfilled the function of informing private representatives, with an intermediate level of understanding of the subject, by reviewing basic content and legislation, as well as initiating a more qualified debate, taking advantage of the presence of participants already started on the topic.

Thus, the scope of the webinar on PES promoted under the 5th Call of Sector Dialogues EU - Brazil on PES was set to ensure that this event, not only allowed the formation of those attending it, but also the exchange of experience between them.

4.2. Planning

Mapping of companies

In order to reach the target audience (private sector) it was conducted a mapping of companies throughout Brazil. As a strategy it aimed to first consider the member companies and associations of initiatives led by organizations such as Akatu, Business Climate, WBCSD/CEBDS, MEBB, Sustainable Amazon Forum, FGV and ETHOS.

The second step was to systematize the contacts of the sustainability or environment sector of each company. In the case of PES Carbon, the organizers of the event contacted such organizations to obtain their support in publicizing the activity, either indicating directly to the contact people in the company, or sending the same invitation through the webinar, to these contacts. As for PES Water, preparation for the webinar occurred through contact by email with several agents identified as of interest to the debate: representatives from water utilities, hydroelectric companies, other large consumers of water in their productive processes; representatives of river basin committees and NGOs

Disclosure

Communication via email was the main source of communication in the virtual seminar on Water PES. To the interested parties it was sent the address to access the page and the respective invitation to participate.

The webinar PES Carbon featured a structured disclosure. With contacts confirmed, the preliminary invitations were sent, with the explanation about the activity, requesting that those interested in participating replied confirming their interest.

With the response of interest in signing up in the activity, it was obtained a second list to which they sent all the details on how to participate (instructions and tutorial videos) program, reference material (see below) and contacts of the spokesperson and communications consultancy of the event. All this information was made available on a web page made especially for the webinar and will be available indefinitely at the following address: http://enlacesconsultoria.wix.com/dialogossetoriaispsa.

The presentation slides have been made available on the day before the event. Videos from the recording of the webinar have been made available on the same page, to allow content access to those who were unable to attend.

4.3 Virtual seminars

The webinars were scheduled for March 18th 2013. Section PES Carbon took place between 9am and 12pm and Water PES between 14pm and 17pm. Participants in both virtual seminars had access to reference material, the same on which it was based in the previous chapters of this report. The presence of participants differed greatly between the two sections, 48 were interested in the topic carbon, while only 7 participants attended the event on water.

In both, the dynamics was based on presentation by the consultant in charge and the interventions were made by text message during presentations. The featured event PES Carbon had its own moderation, which represented great differential in its conduction and systematization of information. The Water PES event was held in the same tool CiscoWebex but had a less efficient moderation (MMA server) and was interrupted due to problems of internet connection. The obstacles made it impossible to continue, but the participants agreed on the presentation of the same section a few days later.

Despite some technical limitations, the Webex proved valuable for remote meetings and debates: the quality of the results ended up reflecting more, as a result of the effort of planning and conducting the meeting than the knowledge about the tool. This stands as a positive experience of interaction and can be applied as an additional option in the actions of public policies - even resulting in cost reduction and time savings, which can be reflected directly in the adhesion of interlocutors to the debates.

Below are listed some interactions recorded in the webinar on the PES Carbon, between the consultant (identified by his initials: MRT, Marcos Rugnitz Tito) and representatives of the private sector (identified by the name of the company or organization they are affiliated).

Questions and answers

BASIC CONCEPTS NECESSARY TO UNDERSTAND THE PES

Felipe Fleury (V&M BRAZIL): How can carbon sequestration be paid for, like the ones that promote it? Like Carbon Mechanisms?

Mark Rugnitz Tito (MRT): There are two ways to pay, the first by conservation projects that people are calling by the acronym REDD (Reducing Emissions through Deforestation and Degradation) and also some people tend to use the concept of avoided deforestation, when avoiding deforestation or degradation of a given area, and thus people tend to get paid for the conservation activities. Another way is through forestry CDM projects initiatives which are plantation projects, where there is a carbon sequestration through the growth of biomass in forest species. What I mean is that these methodologies and procedures, are constantly evolving in the sense that a few years ago, we could only speak of CDM mechanisms for forest carbon, but over the years we progressed into other processes, that combine forest conservation with the recovery of these forests themselves, that is with the plantation or enrichment of these areas.

Rodrigo Ferreira (Carbon Plant): In the context of exclusivity and competitiveness, is carbon sequestration considered a public good or private benefit?

MRT: Carbon sequestration is actually a service, a public service. Carbon sequestration is not something to be excluded, nor competed, as I explained in the slide presentation (see slide), for instance, because all actions taken in a certain region can benefit other distant regions. If I make the conservation, the recovery of a forest or a forest plantation in Brazil, I will benefit the whole world, and then tends to have this characteristic of public good (such as free software, its use benefits all people).

Patricia Boson (FIEMG): Water. Water resources deserve more care. Water is a public good, but has “domain”. The charge for water usage has its meaning close to the provision of environmental services, but also means public good with economic value. See the 3 objectives of the instruments put into law.

MRT: It is an important point because we tend to confuse. Just because the federal constitution says that everyone has the right to access to water, we tend to neglect this valuable asset. It is very difficult to associate, when you save a service, you are indirectly or directly conserving

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one of the other services. For that reason, in Costa Rica and some other countries or regions, they are paying for the package and not just looking at the carbon. When the payment is due they account, evaluate and value all services.

Felipe Fleury (V&M BRAZIL): I think the most difficult thing is the way to regulate and monitor the permanence of this forest, as forest for the benefit of its conservation. This is one of the points widely discussed in REDD**.**

MRT: I've been working on the issue of monitoring, reporting, and verification (MRV), where there are people committed to see how to assess and monitor the provision of services and it is also complex because you have to evaluate during the project implementation (and the program for the economic profitability) the social importance in relation to the feeding security of these investments, that are made to ensure the permanence of this forest, in the forest management, agroforestry, tourism and other activities that can enable communities, businesses or producers, to ensure by themselves, without relying in the coming years of payment for an environment service.

Mariama Vendramini (Biofílica): Felipe, but the regulation and monitoring of forests have evolved and are already in the phase where the REDD projects have reliability comparable to other types of carbon projects.

MRT: I agree with Mariama, but if I'm not mistaken, for eight years they've been talking about processes, forms of measurement and methodologies to be able to make those monitoring of forests. I understand, by Felipe´s comments that the difficulty is not only in looking through radar or satellite, to see if degradation or deforestation is occurring, even though technology is advancing on it. Also in the sense of the form of distribution of benefits that occur with the payment of environmental services.

Patricia Boson (FIEMG): The report prepared by the World Bank and published by "Veja" of this week presents the obvious. It shows that the sustainable exploration of the natural resources has not been a guarantee for the residents of the environmental reserves to ensure the improvement of their quality of life. Could the PES be an appropriate solution? If yes, what are the main implementation challenges?

MRT: It is one of the central questions of the whole discussion and it is closely related to the opportunity cost. We know that for many years the certification of management systems, of reduced impact or sustainable management of forests, is facing enough trouble to succeed due to the absence of some local policies, governance and local governance. So the people who are working on this issue within the economic logic, makes the standing forest worth more than the lying or cut forest - not only depending on the service, but also on the production of goods, wood or non-timber forest products - is the only logic, in some situations where state presence is not constant, which makes possible the continuity of forest conservation.

Patricia Boson (FIEMG): Today, 50% of the global population lives in cities, and we believe that in the next 25 years, that number will become 70% to 75%. These trends will be centrally in a million of the main urban centers of the world and from there, will come 85% of the growth and wealth. How can the PES be an instrument of environmental management in this scenario?

MRT: These are interesting elements that go beyond a particular place or country. It is a complex issue that the population will be increasingly urban, but anyway, at some point someone will have to produce food and conserve natural resources and will be part of those 25% of the population in the field and certainly this population will be very important. So we're talking about how to recognize the activities of these people, in the protection, conservation and recovery of these services and resources.

BRAZILIAN ACTIONS RELATED TO LOW CARBON ECONOMY

Patricia Boson (FIEMG): Considering that in Brazil, following deforestation, transportation is the biggest factor contributing to emissions, because it is held in a matrix predominantly on road traffic and urban mobility, with great participation in individual transport (see growth of motorcycles), how to promote the carbon market in the area of transportation? Why there are few initiatives in this sector and why the government does not prioritize this issue?

MRT: It is a question that goes beyond my presentation and my ability to answer. What I wanted to show in that sequence of actions, in which the transport is related when you make the carbon footprint of a product or an organization, is that you have to account for the actions of transportation. If you are interested, you will see that some transport companies are already mitigating their actions, by offering more efficient transport. It is a pity that I did not attempt to show this in my examples. I tend to believe that our actions as a civil society and as companies might show the way to the federal, state and municipal actions. When more companies become more efficient in transport and start reporting/informing it to the platforms that I presented, I tend to believe that this will have an interesting and multiplier effect. It is a pity that I did not attempt to show this in my examples

Patricia Boson (FIEMG): Can NAMAs be a way to encourage initiatives for the carbon market in the area of transportation?

MRT: Absolutely

Fernando Alonso (Native Organic Products): My view is that the focus of presentations reflects the current focus on reducing emissions of greenhouse gases, especially because you have worked a lot in coefficients and methods for their quantification. But what about other environmental services mentioned? Soil, water and biodiversity, for example? What's new in terms of quantification of these services?

MRT: At the beginning of the first presentation I said that it was not only carbon and I also commented that some programs are considering accounting for all services. For example, when the government of Costa Rica pays a producer, it is paying for carbon, biodiversity, the water, the scenic beauty that it provides to the country and the region, but when taking into consideration to whom to pay, it defines priorities. For example, I remember that many years ago I participated in a situation, in which they were defining to pay the hydrological environmental services to the ones protecting the water resources, but at the moment of paying also considered additional services. This might be considered as something new and is happening a lot in Mexico. I see that many alternatives are considered here in Brazil. Within some institutions, for example, the institution with which I work, the Forest Trends, there are people who are developing specific methodologies for the quantification of water

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services and biodiversity, the loss of productivity related to the soil has already spanned for many years.

Erika Pinto (IPAM): In relation to the approach of PES, IPAM had an experience in the Transamazônica region with family producers, regarding the need to transform the whole approach of a PES project to ensure sustainability and effectiveness. In other words, in the new approach, the PES is only one component of incentives, that contributes into a process of productive transition to a more sustainable basis and in this large umbrella of incentives that contemplates: support for land regularization and environmental adequacy of the property; strengthening of shared management in communities and settlements; investments in agricultural improvements to increase productivity in areas already opened; support community forest management and strengthening of productive chains. This is a project supported by the Amazon Fund and in partnership with the INCRA and grassroots organizations. Is there already a consolidated discussion on this approach in other regions or countries? In this context it is difficult to treat PES in an isolated form.

MRT: The comment adds to some answers and questions that were asked. The elements of this review relates to the concept of permanence, as to encourage people to have better economic returns from sustainable practices, enabling these people to maintain the supply of natural resources and environmental services. Another important element that has been placed, the land regularization, is the importance of the work of the government and local institutions and adds to what I have said: PES is one of the instruments, but it is not the instrument that can save a situation as complex as the one you placed which is the Transamazônica. I have visited and worked there for a long time and I know that the payment for environmental service itself, cannot give sufficient resources or enough people willing to pay the necessary resources to make the region work in the way it should work, in a sustainable manner. Previously, Patricia quoted NAMAS that is how to account for not only looking into the forest but for what is happening outside, making education work as well as "empowerment" and compensation for people who are outside these areas enabling these areas to remain standing. At NAMA, beyond national emissions reductions, it is also being discussed how to account and consider these more complex contexts. I think that for all those involved in this discussion that is a complex problem and we are looking for solutions from an economic logic of environmental conservation and of the services which demand everyone to have a holistic knowledge.

Marina Marinho Nunes (Vale): Do you mean that PES is a form of compensation?

MRT: I presented three elements. The type of compensation takes into account the payer/ user and is related to those actions of a project or program that will have an action, that impacts the region and part of the resources of the project or program, must be used to mitigate or recover these impacts. In this case, it is not a form of compensation but one of the other two modalities: (1) the first one, the people that have the cost of conservation or recovery and should be compensated for those costs, it makes sense to compensate; (2) The other one, has a high opportunity cost outside the forest area or forest project to demand these areas and these natural resources, for example, in the case of soybeans in Mato Grosso and Rondônia, where the profitability is so high that producers tend to open up new areas and make changes in land use to continue planting soybeans, therefore, in those areas the opportunity cost must be compensated.

Mariama Vendramini (Biofílica): Today there are established methodologies in relation to issuance of REDD carbon credits, in areas under deforestation pressure. How do you see the upward trend for areas that are not under pressure?

MRT: It is the case of most of the Brazilian Amazon and Cerrado. In this sense, I think the funds (Amazon Fund, the Climate Fund) seek to supplement these areas. For a State example, SISA in Acre - which is the system of incentives for environmental services - is contemplating to consider other areas other than those which are under the pressure of deforestation, precisely to avoid the story of perverse mechanism where you only take actions in areas where people have done wrong, in other words, you go there and pay for a person who, for years pressured an area and made deforestation, those people, for many years, did the right thing and had the opportunity, through a project, to benefit themselves in the future. I understand that the discussion at the national and state levels is also taking into consideration and contemplating these areas, to avoid even bigger problems with leakages, as I presented earlier.

Marina Marinho Nunes (Vale): Do you think the methodology ESR (about ecosystem services) also WRI, can gain the same strength as the GHG Protocol methodology?

MRT: I know little about this methodology, but the mere fact of the WRI is working alongside the Fundação Getúlio Vargas, I understand that it is a gateway to the use of this methodology. In this case, I think depending on "who you know or with whom you work" can enable the development of the methodology. I know many methodologies that did not work for being too academic, or because the people who developed (another type of methodologies) had no input channel to enable it to be used. In this case (ESR, WRI) I think tend to go through a good way.

Patricia Boson (FIEMG): Ecological footprint is closely linked to the degree and mode of consumption, purchase of goods and services. Does PES dialogue have sustainable consumption? How?

MRT: Dialogues in this sense. I presented that consumption is part of a process that can be counted. By the time you account for a process of carbon footprint, in order to make a payment for environmental services. Thus, one might also consider the accounting of emissions offsets. The company or the private sector has to report it by the platform that I presented, or communication via national emissions. I see that all this is indirectly connected, but the footprint is connected. Now, once again, the payment for environmental services is an environmental tool and we cannot lose sight of this element. It's happened to a few national and regional programs and some projects, where you get to make a payment for environmental services and soon after other people expect social responses. So I see it more or less connected, the way of working with conscious consumption, is in the environmental management mechanisms, which is the national environmental education of the people. For sure entrepreneurs need not only look and make the cuts, this is happening when a company makes the payment for environmental services, right on the field, but uses that image to be more efficient by using packaging and trying to make the consumer more conscious.

LEGAL ASPECTS FOR THE DESIGN AND IMPLEMENTATION OF PAS SCHEMES / THE ROLE OF THE PRIVATE SECTOR IN DEVELOPING AND DRIVING INITIATIVES FOR PES IN BRAZIL

Erika Pinto (IPAM): In the art. 7 there was a great controversy that was the non-inclusion of the payer in the exemption of taxes. This

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would be critical in attracting the private sector to participate in a national PES. Therefore, it is important to study incentives for paying for environmental services and not only for providers, isn´t so?

MRT: That's right, so that was my concern to try to show the various concepts about payments for environmental services and their differences. From the concept that is today in the proposed law, the elements that are present are the financial resources, but other types of incentives would have to be contemplated. In my daily life I have worked to promote discussion and information on payment for environmental services, but it is not the only one. So two or three slides that I presented come to demonstrate that the payment of environmental services, is the center of other incentives and other complementary environmental policies. But the controversy about tax exemption was and still is big. The question is: how the payment for environmental services is also complemented by ecological services? And if is it possible to have an environmental payment in the same area where the person benefits from an ecological ICMS or other ecological incentive? So, this proposition of incentives has to be included, because it is impossible to have a law that contemplates all elements. It is important that in the discussion of how the law will be implemented, the committees of the private sectors and other sectors be present.

Patricia Boson (FIEMG): In all designs the ratio PES industry, transportation PES is implied, while the ratio PES agriculture is always straightforward. Is this is a result of the fact that we need to work better these concepts?

MRT: I do not believe that it is only working on the concepts better. For sure, from my perspective, the concepts should be improved. It also has a strong work diffusion, to make people understand these concepts that already exist and are already established. I understand that a concept is dynamic and can be used in various ways, for good and for bad. There are people who at any time establish new definitions for a concept, making things more confusing. My answer is that it is not only working on the concept but on its implementation and understanding.

Patricia Boson (FIEMG): One of the major problems today with the charge for the use of water is the application of financial resources with the necessary agility, including the extension application to the private sector. Not even where there are specific fund this situation is facilitated. It is a major barrier and excessive bureaucracy for managing financial resources. I also believe that this is no different with the financial resources for environmental compensation. Would it not be required, a legal initiative, aimed at improving this management taking the risk of the PES to make the same mistake?

MRT: You realize that Patricia has enough experience with the water issue. This story of barriers, this is not only one barrier. I think the different experiences we have, for example the program Water Producers, exemplifies, among many others, such as municipal laws that make it possible to implement these programs and municipal projects or even the level of a basin, that gives inputs to avoid the mistakes mentioned. I see it in a positive way. Now one of the things I usually say, is that if we were to depend on the laws that exist in Brazil, it would not even make sense to think in payments for environmental services (as there is sufficient legal framework in the country, that seeks to regulate most of the environmental problems in the country). What happens is the difficulty of governance in areas of difficult access. Another point, when they were discussing the Amazonia Fund, it was necessary to create a regulatory framework that enabled these external resources, to enter in the country without paying taxes, because anyone who wants to invest in the protection and conservation of natural resources, wants to pay taxes which are not related to the use of resources, so a law was passed. To try making efficient the use of resource by decreasing the transaction cost for whatever might happen to it.

Erika Pinto (IPAM): Another critical point of the PL was to provide for the establishment of a Federal Program for PES, which should be National to ensure the participation of other federal entities, if not, those states that have already anticipated the creation of their own programs, such as Acre, could not, for example, access resources of federal source.

MRT: It is an issue that is being widely discussed among federal and state governments, if these laws will be complementary or not.

Livia Miranda (Votorantim Cements): The Middle São Paulo Tietê basin and the Piracicaba river basin already pay for water use. However, in the slide 6, São Paulo appears as not possessing this type of legislation. Is there any other instrument other than the law?

MRT: That's what I said. In the absence of federal or state law the municipalities themselves develop laws that allow the implementation of these mechanisms, so there are these different spheres. The previous comment mentions in this sense. How will this be dialogued, when there is a federal law?

Natalie Unterstell, Leticia Guimaraes and Alexandre Avelino (MMA): How do the initiatives, presented in the other modules, dialogue with the draft federal law of PES?

MRT: *I've been stressing over the presentation that it is not only looking for a project or a program, of the law payment for environmental service itself, we need to look at how it complements other actions, so I tried to map everything that exists in Brazil. I was unable to but still made the effort, to see how these relations and the implementation of a project in the field of recovery or conservation of forests, is related to the mitigation of the company, because what's the point of a company paying for their mitigation actions and do no internal effort? Not only internal referring to the issue efficiency of their production process, or in the efficient use of energy resources, but the efficiency of the work they can do - as the private sector - when working with suppliers and consumers. What is happening today - at least as I have sensed - is that consumers are increasingly aware of the use, consumption. There are people working here in Brazil on this issue. However, because of time constraints, I could not present it, but the actions are related to the use and consumption, and for me this is all linked to payments for environmental services which per se are related to the draft law.*

CHALLENGES TO STIMULATE DEMAND FOR ENVIRONMENTAL SERVICES

During the webinar of the theme PES Water, key questions were posed to the participants in order to guide the discussions. What is the level of understanding and alignment among private sector actors about PES?

Jerome Amaral (Conservation International): The level of understanding is still very superficial, especially when we talk about marketing of biodiversity products such as sustainable seafood. They understand the meaning of PES but cannot even think of this as an attractive tool for their businesses.

Is there a demand on the part of these actors for environmental services?

Jerome Amaral (Conservation International): As fish resources continue to decline, in other words, 80% of the world´s stock is at risk and being aquaculture an alternative, but harmful to the environment, in this sense, the opportunity to work out a sustainable marketing with protection of breeding areas and consequently the increase of biomass, at local level, becomes viable from the moment when new consumers, such as organic consumers, may require seafood products that have a history of conservation and protection of species, as well as ensuring continuity of artisanal fishing practices, along with managements systems. In this sense, the marine environmental service, especially of provisions, should be worked into a perspective of fair trade throughout its chain, where the fisherman should receive the equivalent of his reduction in fishing effort, in other words, fish less value-added.

What are the main challenges for companies to invest in PES schemes in Brazil?

Jerome Amaral (Conservation International): *I believe that is a net rate of return in the short term, but the actions of management and conservation occur in medium and long term.*

CHAPTER 05

FINAL CONSIDERATIONS

Whichever the subject, the lack of accessible and qualified information can disrupt the consolidation of concepts. For professionals of a specific area it can be crucial for generating interest in the concept in focus. In this context, training activities can promote clear understanding and ensure that professionals are prepared to identify acting opportunities.

When it comes to the environment, what is reported is nevertheless true. The above characterized context fits the current moment of the concept of payments for environmental services (PES): there is a considerable amount of technical publications on the topic, as well as scientific papers, although there are few direct capacity building initiatives on the subject. This reflects in still a low level of awareness - by claimants and providers of environmental services - to the potential number of initiatives in the country

This initiative of the project EU-Brazil Sector Dialogues sought to fill this gap by identifying potential buyers of environmental services and promoting direct interaction, training and exchange of experiences on PES. With the research of current legislation and opportunities, there was constituted instructional material for discussion in a virtual environment, which proved to be very effective as a tool for training.

Through the actions for training it was still sought to raise questions and impressions that could help answer the title of this report - the challenges to stimulate demand for environmental services. After all, without the business sector, as a whole, perceiving PES schemes as opportunities, there is no expected gain on the range of initiatives.

We collected different views, some of which are listed:

(1) The understanding of PES is still very superficial, making it difficult to add value to services and products.

(2) PES should not be seen as a single alternative but as one in a universe of possible incentives: act solely about PES, without addressing land regularization or strengthening of productive chains, it may not change a potentially more complex situation.

(3) Lack of agility in the application of resources, even where there is specific background to that type of PES - the debureaucratisation is fundamental to the scale of initiatives.

Given these and other challenges, coordination between actors involved is of vital importance, which reinforces the role of training activities and the forums for exchange of experience. The activities of the 5th call of the EU-Brazil Sector Dialogues is concluded with this report, which appears as an additional subsidy to public policy makers, decision makers and scholars on payments for environmental services in Brazil.

PAYMENT FOR ENVIRONMENTAL SERVICES: CHALLENGES TO STIMULATE PRIVATE SECTOR DEMAND

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