

Environmental Management

Discussion on the evolution of public policies for payments for environmental services (PES) in Brazilian municipalities

Discussão acerca da evolução das políticas públicas de pagamento por serviços ambientais (PSA) nos municípios brasileiros

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ABSTRACT

Most of the natural resources, which provide ecosystem services, are found in rural areas. With the increasing environmental degradation promoted by economic growth and the complete absence of sustainability mechanisms, the pressure exerted by the government on these areas has increased, burdening mainly small rural producers. Parallel to this reality are the Payment for Environmental Services (PES) programs. This work presents a discussion on the evolution of this mechanism, adopted mainly by Brazilian Municipalities. It addresses the benefits, constitutionality and main obstacles found for its implementation and execution by federation entities. Despite the legal provision contained in article 41 of Federal Law 12,651/2012 and in the recent Federal Law 14,119/2021, the effective implementation of PES programs do not exist at the federal level. However, about 400 Brazilian municipalities have Municipal Legislation on PES, mostly dealing with the conservation of water resources. It demonstrates the viability of this environmental public policy, despite the fear of public managers and the obstacles associated with financial viability due to constant economic crises faced by the country.

Keywords: Sustainable development; Environmental Conservation; Environmental Law

RESUMO

Grande parte dos recursos naturais, os quais prestam serviços ecossistêmicos encontra-se em zonas rurais. Com a crescente degradação ambiental promovida pelo crescimento econômico e completa ausência de mecanismos de sustentabilidade, a pressão exercida pelo poder público sobre estas áreas tem aumentado, onerando principalmente os pequenos produtores rurais. Paralelo a esta realidade

surgem os programas de Pagamento por Serviços Ambientais (PSA). O presente produto traz uma discussão sobre a evolução deste mecanismo, adotado principalmente pelos Municípios brasileiros. Aborda os benefícios, a constitucionalidade e principais entraves encontrados para a sua implantação e execução pelos entes da federação. Apesar da previsão legal constante no artigo 41 da Lei Federal 12.651/2012 e na recente Lei Federal 14.119/2021, a implantação efetiva de PSA inexistente em nível federal. Entretanto, cerca de 400 municípios brasileiros contam com Legislação Municipal sobre PSA, em sua maioria versando sobre a conservação de recursos hídricos, o que demonstra a viabilidade dessa política pública ambiental, apesar do receio dos gestores públicos e dos entraves associados à viabilidade financeira devido as constantes crises econômicas enfrentadas pelo país.

Palavras-chave: Desenvolvimento Sustentável; Conservação Ambiental; Legislação Ambiental

1 INTRODUCTION

With the population growth in urban areas, associated with the technological evolution promoted by the industrial revolution, the world population is currently mostly concentrated in urban centers.

The rural exodus has caused serious socio-environmental problems, such as the illegal occupation of inappropriate areas, generating slums and overloading public services, especially in developing countries. Based on this reality, the concept of sustainable development became part of the public policy agenda for rural areas.

When considering that a large part of the natural resources, which provide relevant ecosystem services, are located in rural areas, the need for conservation and protection of natural resources in these environments. In a way, it entails a disproportionate burden on rural producers, especially family farmers, who live and develop their productive activities on small rural properties (BEZERRA and SCHINDWEIN, 2016).

In this sense, the application of agricultural production methods by large rural producers leads to the annual loss of 822.7 million tons of soil (SALES, 2018).

These losses cause an economic impact of US\$ 2.93 billion per year (SALES, 2018). However, when considering the external damages to the rural property, erosion can cause a total loss of approximately US\$ 4.24 billion per year, related to

the replacement costs of acidity correctors and fertilizers, decrease in productivity, water treatment, road maintenance, among others (HERNANI, et al., 2002).

Thus, public policies on Payment for Environmental Services (PES) have been gaining ground. The actions linked to these public policies are financial transfers from beneficiaries of environmental services to those who, through nature conservation actions, provide these services, in a safe and well-defined way, through a voluntary transaction (WUNDER, 2006).

PES programs have been successfully implemented in South and Central American countries, such as Costa Rica, El Salvador, Colombia and Nicaragua (CAMACHO, 2008; GONZÁLES and RIASCO, 2007).

In general, PES proposals in Brazilian municipalities are directly or indirectly related to the conservation of water resources. According to the Ministry of the Environment (MMA, 2017), about 400 municipalities across the country have municipal legislation on PES.

The objective of this article is to discuss the evolution of PSA programs in Brazilian municipalities, addressing legal issues related to their constitutionality, the main obstacles and the benefits promoted by the actions in progress in Brazilian municipalities, providing technical and legal subsidies to public managers.

2 DEVELOPMENT

2.1 Public policies

Public policy can be conceptualized as a set of formulations promoted by a governmental entity that results in practical actions, whose objectives are oriented towards the solution of certain issues that aim at the public will. In this sense, a public policy begins with a conceptual formulation and culminates in practical actions based on a set of government programs and projects (national, state or municipal). The formulation of public policies can originate from different public powers, that is, it can

come from both the Executive, Legislative or Judiciary Powers, and each one's normative and administrative competence must be observed.

Generally, the implementation of a public policy does not necessarily require the existence of a Law, in certain cases, political will and the absence of prohibition or legal impediment are sufficient, thus generating the participation of society in generating demands related to conservation and environmental sustainability. However, due to the culture of low public participation in the proposition of public policies in Brazil, the acceleration of this process remains difficult.

2.2 Ecosystem services definition

When analyzing PES programs involving water resources, it is observed that the protection of watersheds is not directly aimed at compensating for the opportunity costs associated with restricting the use of natural resources. Although there are numerous studies on the direct relationship between forest and water resources, it is very difficult to accurately quantify the ecosystem services provided by watersheds (HASCIC and WU, 2006). In general, it is considered that the presence of vegetation cover has a direct influence on the reduction of sediment loads in waterways (LIMA and ZAKIA, 2000), in addition to exerting influence in regulating the hydrological cycle, which reduces both the risk of flooding and the probability of water scarcity in times of drought. Therefore, starting from this general principle, when proposing a PES project aiming at the protection and conservation of water resources, what becomes valued is the use of the land, which is considered a provider of environmental services (PAGIOLA; BISHOP and LANDER-MILLS, 2005).

In this sense, the definition of ecosystem services in the law proposed by municipalities, such as Bill 48/2017 of Camaquã Municipality, State of Rio Grande do Sul, Brazil (CAMAQUÃ, 2017) has been presented as:

II - Ecosystem services: conditions and processes generated by ecosystems that result in adequate conditions for a healthy quality of life, in the following modalities:

- a) Provision services: those that directly supply goods or products; environments used by humans for consumption or commercialization;
- b) Support services: those that promote nutrient cycling, waste decomposition, production, maintenance or renewal of soil fertility, pollination, seed dispersal, control of populations of potential pests and vectors potential for human diseases, protection against ultraviolet solar radiation, maintenance of biodiversity and genetic heritage, among others that maintain the longevity of life on Earth;
- c) Regulation services: those that promote carbon sequestration, air purification, moderation of extreme weather events, maintenance of the balance of the hydrological cycle, minimization of floods and droughts, and control of critical erosion processes and from landslides, among others that contribute to the maintenance of the stability of ecosystem processes;
- d) Cultural services: those that provide recreational, aesthetic, spiritual or other non-material benefits to human society.

Most of the existing and running PES programs in Brazilian municipalities propose four major groups of environmental services:

- Carbon market;
- Protection of biodiversity;
- Protection of hydrographic basins;
- Protection for scenic beauty.

In Brazil, environmental legislation is based on command and control instruments. Among the command and control mechanisms are coercive instruments, such as fines for environmental infractions. These instruments are based on the polluter pays principle and are supported by the Brazilian Environmental Legislation (Forest Code: Federal Law No. 12,651/2012, Environmental Crimes Law, Federal Law No. 9,605/98). They have been used as a mechanism to guarantee the environmental services provided by forests and preserved natural environments. Despite this, some

authors have shown that pollution control is more effective when incentive policies are adopted, such as those based on the provider-receiver principle (CLAASSEN et al., 2001).

In Brazilian municipalities, there are consolidated public policies for the use of PES, which use the concept of payment for environmental services to maintain the quality and quantity of Brazilian water resources.

The Water Conservation Project in the municipality of Extrema, State Minas Gerais (MG), Brazil, the Ecocrédito Program in Montes Claro (MG) and the Oasis Project in the Watersheds of the Metropolitan Region of São Paulo (BERNARDES and SOUSA JUNIOR, 2010). In all three cases, these public policies aim to provide payments to environmental service providers that, through conservation practices and management, contribute to improving the conditions of water resources, according to the concept of the receiving provider, where the beneficiary of ecosystem services pays and the conservationist receives.

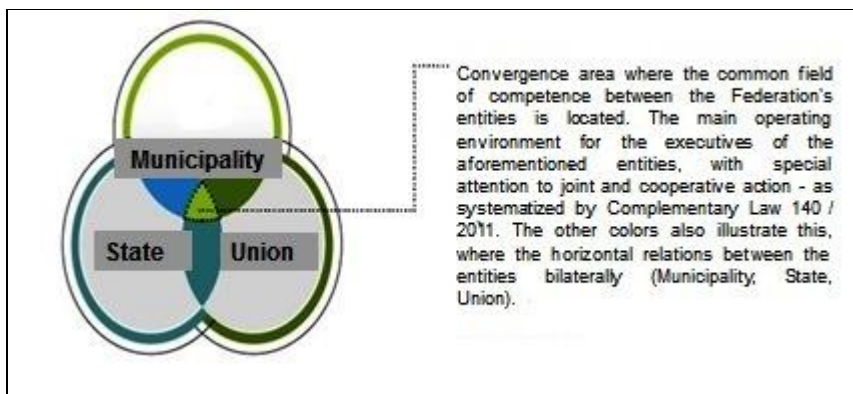
2.3 Payment for environmental services and conservation of water resources

The different legislative powers in terms of environmental legislation are provided for in the current Brazilian Federal Constitution (CF) (BRASIL, 1988). The administrative execution presented in article 23 of the Constitution is a competence common to the federated entities, in the form of cooperative federalism, that is, with regard to the execution of administrative acts, the federated entities act cumulatively without a hierarchy regime, such as environmental management through the National Environment System (NES). Common competence does not refer to legislative activity, but to the acts of administering doing organizing, executing and exploiting. In this sense, it is worth mentioning, as an example, Complementary Law 140/2011, which seeks to systematize the joint action of the various entities of the federation, specifically in administrative matters on the environment (Figure 1).

With regard to the legislative competence in environmental matters, provided for in article 24 of the Federal Constitution, it is concurrent among the federation's entities, as there is an effective division of legislative competence. For such legislative division, the Constitution adopts the model of vertical division of competence, with the Union

being responsible for establishing general rules, supplementary to other federative entities (States and Municipalities). In the absence of general rules edited by the National Congress, the state and municipal legislature can expand its scope and regulate the matter in its entirety, so that it can respond to regional and local concerns (WESHENFFELDER, 2012).

Figure 1 – Graphic representation of the communion of competences in matters of environmental legislation in Brazil between Municipalities, State and Union according to the Federal Constitution and Complementary Federal Law 140/2011



Source: MMA, 2017

It is clear, then, that States and Municipalities have legislative competence in environmental matters in a concurrent and supplementary manner. In view of the constitutional provisions, the legitimacy and competence of States and Municipalities to establish legal norms is verified, and in any case, the supremacy of federal legislation to determine general rules must be observed. Although Brazil has federal legislation, there are numerous ideological and financial political obstacles that prevent its effective implementation, leaving the States and Municipalities to exercise their constitutional role of shared responsibility in the proposition and execution of PES public policies.

From another angle of analysis, the right to an ecologically balanced environment, although not listed in Title I of the Federal Constitution – On Fundamental Rights and Guarantees, is a fundamental right, as taught by Édis Milaré (MILARÉ, 2001, p.111):

... along with the individual and collective rights and duties listed in art. 5°, added the constituent legislator, in the caput of art. 225, a new fundamental human right, aimed at enjoying adequate living conditions in a healthy environment.

And as can be highlighted in the aforementioned article (BRAZIL, 1988):

Art. 225. Everyone has the right to an ecologically balanced environment, a good for common use by the people and essential to a healthy quality of life, imposing on the public power and the community the duty to defend and preserve it for present and future generations.

Likewise, the Supreme Federal Court (STF), in a Writ of Mandamus, through the Minister Rapporteur Celso de Mello (WESHENFFELDER, 2012) decided in the following terms:

The right to the integrity of the environment - a typical third- right - is a legal prerogative of collective ownership, reflecting, within the process of affirming human rights, the significant expression of a power attributed, not to the individual identified in their uniqueness, but, in the truly broader sense, the social collectivity itself.

From the perspective of environmental law, the right to an ecologically balanced environment appears as a trans-individual right, surpassing the concept of collective right, entering the category of so-called new rights. The entities of the federation, as well as society, protected by the Federal Constitution in force, have a common duty to promote an ecologically balanced environment, through the promotion of environmental sustainability, under the terms of article 225 of the FC.

Integrating this perspective arises the concept of the polluter pays, that is, the one who degrades the environment is obliged to repair it. Innovating in terms of legislation, the principle of the recipient protector has recently emerged through the PES, where those who contribute to environmental conservation receive economic benefits for this contribution, strengthening the principles of environmental conservation.

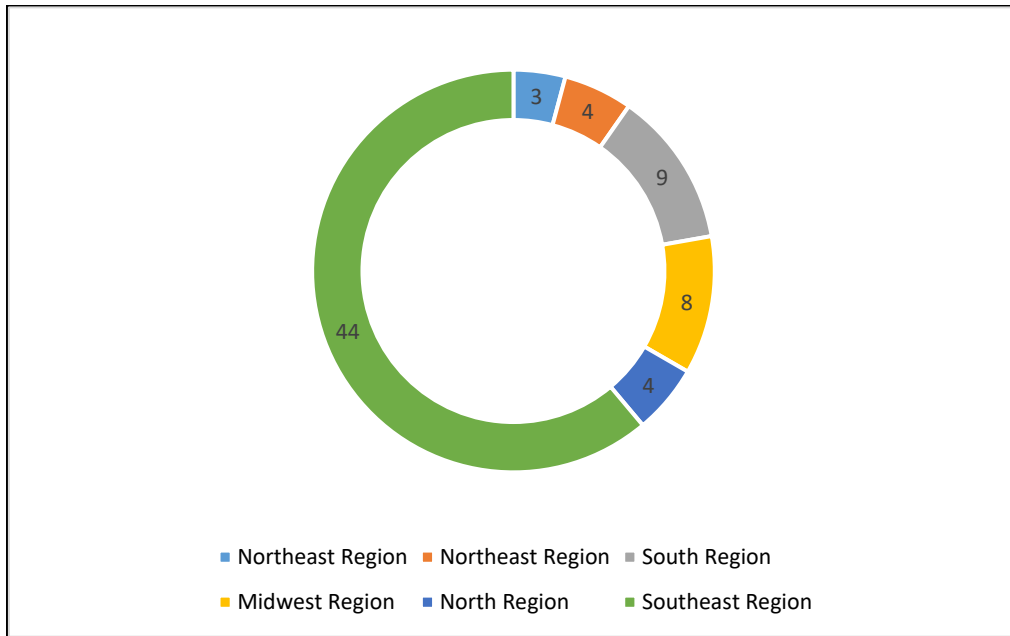
2.4 Legal aspects in the implementation of PES by municipalities: legislative and administrative competence in environmental matters

There is a constitutional provision for the creation and implementation of PES programs in Brazilian municipalities, and a positive evolution in recent years in the number of municipalities with implemented programs. Figure 2 shows the geographic distribution of PES in the different regions of Brazil implemented and operating in 2017.

The main difficulties encountered in implementing PES in Brazil are the lack of trained professionals to design and implement programs associated with the financial

difficulty of maintaining the budget allocation for the effectiveness and permanence of the programs.

Figure 2 – Brazilian Geographic Regions with PES (2017)



Source: Adapted from Coelho et al. (2021)

According to Coelho, et al. (2021) of the 68 PES initiatives, 44 are developed in the Southeast Region, nine in the South Region, eight in the Midwest, four in the North Region, and three in the Northeast Region. According to the authors, eighty percent of the programs are located in the South and Southeast regions.

The Atlantic Forest biome is home to the majority of aquatic PES initiatives. Experiences of PES are expanding to other biomes, such as the Cerrado (19 initiatives), the Amazon (three), and the Caatinga (one), most aquatic PES experiences are coordinated by entities. Programs legally established in state or municipal areas. The largest number of initiatives occurs at the state level (31 initiatives), followed by the municipal level (29). At the regional level, eight initiatives were identified (COELHO, et al., 2021).

The creation of PES programs comes up against the funding source. In principle, the funding source must be created from voluntary transactions. However, it is difficult to create a market from goods that are traditionally perceived by market agents as free

goods, resulting in financing with public resources, which discourages part of public managers in the face of constant economic crises faced in Brazil.

At the federal level, Law 12,651/2012, article 41, I (Brazilian Forest Code) generically establishes the PSA. The recent edition of Federal Law 14.119/2021 deals with PES policies at the federal level, establishing guidelines and legal bases for the elaboration of agreements with States and Municipalities for the execution of public PES policies. The new Law creates a payment policy for environmental services, in addition to providing for the National Registry of Payment for Environmental Services (NRPES) and the Federal Program for Payment for Environmental Services. In this sense, the Ministry of the Environment (MMA, 2017) recommended that PES programs in Municipalities consider the following factors when funding programs:

- Giving itself directly due to appropriations from the municipal budget;
- Be from part of the Municipal Fund of PES; or
- Occur by contributions from private sector partners.

According to the new guidelines (article 10 of Federal Law 14,119/2021), the government cannot subsidize PES programs with public budget. It is necessary to raise funds from individuals and legal entities governed by private law and from multilateral and bilateral international cooperation agencies, preferably in the form of donations or free of charge to the National Treasury.

2.5 Intervening factors in the development of PES programs in Brazilian municipalities

The creation of a PES public policy, whether specific, comprehensive or punctual as a part of another environmental policy, should not occur in isolation, but rather be aligned with broader environmental development and conservation goals and strategies, being built to resolve a specific problem, protect or guarantee a particular ecosystem or set of ecosystems and the respective provision of services. There is also a need to define in advance which environmental and ecosystem services are intended to be regulated with the PES policy, as each location or region of the country has its

environmental characteristics and these will guide the main aspects to be addressed in its programs and PES projects, for example:

- The condition of conservation of natural ecosystems;
- The biome or vegetation type in the region;
- The type of ecosystem service demanded by the local society or whose provision is threatened by development options in the region;
- Socioeconomic trends.

Each of these characteristics will enable public managers to propose programs and projects aimed at meeting their most urgent objectives. According to the Ministry of the Environment (MMA, 2017, p. 24):

Situations of vulnerability and territory management related to a specific environmental issue are, in fact, factors for the choice of environmental and ecosystem services to be contemplated in a PES public policy. These, for example, are the main factors used in municipal public policies in Brazil, which have primarily defined the establishment of PES policies focused on water resources, understanding that this instrument can provide solutions to problems related to the degradation of watersheds.

In other words, the environmental characteristics verified by PES public policy makers will serve as a basis for defining the programs and projects to be regulated and implemented.

3 CONCLUSIONS

The implementation of the PES aims to promote the equitable distribution of the burdens and benefits of environmental preservation and conservation by small farmers. In this way, we seek to correct the distortion caused by the Federal and State Environmental Legislation that penalizes the small farmer, the main producer of food and responsible for conserving the quantity and quality of water that supplies rural and urban areas, in addition to the other multiple uses of water conferred. In the same proportion, it helps to reduce rural exodus and environmental degradation.

The environmental conservation of watersheds is of paramount importance for any municipality, and of greater relevance for regions with a rural and tourist economy and vocation. With the forecast of population growth, given the need to preserve the natural and landscape heritage, in addition to satisfying the growing demand for water by the population, especially urban, a new vision for the sector is necessary.

Under the terms defined by environmental legislation, PES are the financial retribution or through benefits in the form of tax incentives or other non-pecuniary benefit in return for human activities of preservation, maintenance, restoration, recovery and improvement of ecosystems that contribute directly, verifiable and effectively for the generation of ecosystem services, which undeniably play a relevant role in public policies aimed at the sustainability of the next generations.

Rewarding those who contribute to the conservation of the environment for the provision of ecosystem services to humanity must be the central idea of a Municipal Policy for Payment for Environmental Services (PPES). Thus, providers are those who perform environmental services: agricultural producers, recycling cooperatives, environmental non-governmental organizations, among others; and payers are companies and individuals that benefit from the environment and pay for environmental services, aiming at environmental preservation.

For PES programs to actually work, there is a need for political will on the part of municipal managers. The new national legislation on the subject brought innovations and possibilities for the application of PES in the municipalities, being necessary the technical qualification of managers and executors of environmental public policies for these proposals to be fully successful.

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