PAYMENT FOR ENVIRONMENTAL SERVICES TO RECYCLABLE MATERIAL COLLECTORS: A BRAZILIAN EXPERIENCE IN CONSTRUCTION[1]

PAGAMENTO POR SERVIÇOS AMBIENTAIS AOS CATADORES DE MATERIAIS RECICLÁVEIS: UMA EXPERIÊNCIA BRASILEIRA EM CONSTRUÇÃO

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Regina Vera Villas Bôas[2] *– https://orcid.org/0000-0002-3310-4274*
*Paulo Alvarenga*3 *– https://orcid.org/0000-0001-9338-8929*
Alexandre Dias Maciel[4] *– https://orcid.org/0009-0009-8347-6330*[5]

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2 Bi-Doctor of Law, holding doctoral degrees in Social Relations Law and Diffuse and Collective Rights, and a Master of Laws in Social Relations Law, all from the Pontifical Catholic University of São Paulo (PUC-SP), Brazil. Postdoctoral Fellow in Democracy and Human Rights at the University of Coimbra (Ius Gentium Conimbrigae Centre for Human Rights), Portugal. Professor and Researcher in the Graduate Law Programs (PPG and PPGD), Diffuse and Collective Rights Research Center, at the Pontifical Catholic University of São Paulo (PUC-SP). Coordinator of the Special Civil Court (Juizado Especial Cível – JEC) and of the research project "Dialogue Among Sources: Effectiveness of Rights, Sustainability, Vulnerabilities, and Responsibility." São Paulo, Brazil. E-mail: revillasboas1954@gmail.com, https://orcid.org/0000-0002-3310-4274.

3 Master of Laws and Doctoral Candidate in Diffuse and Collective Rights at the Pontifical Catholic University of São Paulo (PUC-SP), Brazil. Researcher in the Graduate Program in Law (PPGD), Diffuse and Collective Rights Research Center, and member of the research project "Dialogue Among Sources: Effectiveness of Rights, Sustainability, Vulnerabilities, and Responsibility" at the Pontifical Catholic University of São Paulo (PUC-SP). Public Defender for the State of São Paulo, Brazil. E-mail estetevesdealvarenga@gmail.com, https://orcid.org/0000-0001-9338-8929.

4 Master of Laws and Doctoral Candidate in Diffuse and Collective Rights at the Pontifical Catholic University of São Paulo (PUC-SP), Brazil. Researcher in the Graduate Program in Law (PPGD), Diffuse and Collective Rights Research Center, and member of the research project "Dialogue Among Sources: Effectiveness of Rights, Sustainability, Vulnerabilities, and Responsibility" at the Pontifical Catholic University of São Paulo (PUC-SP). Senior Attorney at Maciel e Braga Advogados, São Paulo, Brazil. E-mail alexdiasmaciel@gmail.com, https://orcid.org/0009-0009-8347-6330.

5 English translation by Fernando Barbosa Lima Janson Dias, professional translator and academic editor (ORCID: 0009-0008-2111-8186).

"Not everything caught in the net is a fish."
A sea turtle may become entangled in the net and drown.
The same net may also retrieve plastic waste from the water, bringing it ashore and helping prevent the premature death of fish, sea turtles, and other marine life.
In this context, we can make a difference by helping keep our waters clean, preventing the improper disposal of waste into the environment, and protecting fish, sea turtles, and marine ecosystems.
In doing so, we also support the recognition and compensation of the tireless work carried out by waste pickers through Payment for Environmental Services."

Abstract

Objective: To demonstrate that Payment for Environmental Services (PES) is an economic instrument that relies on positive sanctions as an incentive mechanism for implementing environmental public policies aimed at ecosystem preservation and at supporting waste pickers. Hypothesis: The work performed by waste pickers may qualify for compensation under this economic instrument. Methodology: Using a deductive approach, this study draws on bibliographic and documentary research, including classical and contemporary scholarship and relevant legislation, particularly Law No. 14,119/2021, which established Brazil's National Policy on Payment for Environmental Services, and the Bolsa Reciclagem Program implemented in the State of Minas Gerais. Results: Despite Brazil's experience with Payment for Environmental Services in several areas, few PES programs have thus far been made available to waste pickers. Contributions: The work performed by waste pickers may be encouraged and rewarded through Payment for Environmental Services, without prejudice to the compensation to which they are entitled for providing the public service of separate waste collection, since the two forms of compensation are based on distinct legal and practical grounds.

Keywords*: Environmental policy instruments; waste pickers; payment for environmental services.*

Contents*: 1. Introduction; 2. Brief Considerations on Environmental Policy Instruments; 3. Payment for Environmental Services (PES): General Considerations; 4. Waste Pickers as Providers of Environmental Services; 5. The Brazilian Experience with Payment for Environmental Services for Waste Pickers; 6. Concluding Remarks.*

1 INTRODUCTION

The primary objective of this study is to demonstrate that, in Brazil, Payment for Environmental Services (PES) constitutes an economic instrument that relies on positive sanctions (i.e., positive incentives) as a mechanism for encouraging the implementation of environmental public policies aimed at preserving ecosystems while recognizing and supporting the compensation of waste pickers for the environmental services they provide.

This study is justified by the enactment of Law No. 14,119/2021, which established Brazil's National Policy on Payment for Environmental Services (PES), an economic instrument that, in addition to advancing environmental objectives, has an important social dimension by improving the living and working conditions of vulnerable populations whose livelihoods contribute to the conservation and

restoration of ecosystems. Against this backdrop, the study examines Brazilian programs and initiatives that provide Payment for Environmental Services to waste pickers.

These data underscore the continuing challenges facing urban solid waste management in Brazil, despite the fourteen years that have elapsed since the enactment of the National Solid Waste Policy (Law No. 12,305/2010). According to the National Sanitation Information System (SNIS) [6], in 2022, the average Brazilian generated approximately 0.98 kg of solid waste per day, resulting in a nationwide daily collection of approximately 63.8 million tons of waste. Of this total, 62.5% was disposed of in sanitary landfills, 14.3% in controlled landfills, and 11.9% in open dumps. Of this enormous daily volume, only 1.87 million tons originated from separate waste collection programs, which were implemented in 32.2% of Brazilian municipalities, while only 1.12 million tons of recyclable materials were ultimately recovered. The data also highlight the essential ecosystem services associated with solid waste management, as millions of tons of waste disposed of in landfills or improperly discarded in open dumps and oceans contribute to multiple forms of environmental pollution as they undergo decomposition.

Waste pickers play an integral role in the complex process described above through their participation in separate waste collection programs. Their work contributes to the provision of environmental services in several ways: by reducing the demand for virgin raw materials as reusable and recyclable materials are returned to the production cycle, and by preventing waste from being disposed of in landfills or abandoned in the environment, where it would otherwise become a source of soil, water, and air pollution. Despite this significant contribution, however, waste pickers continue to live in conditions of poverty due to a variety of factors, including the fact that they are compensated primarily through the sale of the recyclable materials they collect.

The foregoing discussion gives rise to an initial question: can the economic instrument known as Payment for Environmental Services (PES) be used to encourage and reward the work performed by waste pickers? An affirmative answer is reflected in a statement by Brazil's current Minister of the Environment and Climate Change, who has expressed support for the use of PES as a mechanism for incentivizing and rewarding their work. According to the Minister, waste pickers "provide a service that benefits nature, but they also provide a service that benefits everyone by protecting our springs. For this reason, they should be paid for what they do."[7]

Another recurring question is how to distinguish the economic valuation of the environmental services provided by waste pickers from the compensation due for their provision of the public service of separate waste collection. Moreover, why has

[6] Available at: <https://www.gov.br/cidades/pt-br/acesso-a-informacao/acoes-e-programas/saneamento/snis/painel/rs>. Accessed March 31, 2024.

[7] Available at: <https://brasil.oceana.org/blog/catadores-reivindicam-pagamento-pelo-servico-ambiental-que-prestam-a-sociedade>. Accessed December 28, 2023.

Payment for Environmental Services (PES) for waste pickers failed to gain traction in Brazil?

Using a deductive approach, this study employs an exploratory, qualitative, and explanatory methodology based on a review of the relevant literature, applicable legislation, and public policy initiatives. It examines the hypothesis that the work performed by waste pickers may be encouraged and rewarded through Payment for Environmental Services (PES), without prejudice to the compensation to which they are entitled for providing the public service of separate waste collection.

The study is organized into four main sections. The first provides an overview of the theoretical foundations of the instruments used in environmental public policies, with particular emphasis on command-and-control and economic instruments. The second examines the general features of Payment for Environmental Services (PES). The third discusses waste pickers as providers of environmental services and as providers of the public service of separate waste collection. The fourth analyzes the Brazilian experience with Payment for Environmental Services for waste pickers, focusing on the *Bolsa Reciclagem* Program in the State of Minas Gerais. In the concluding remarks, the study revisits the questions raised at the outset and offers a reasoned assessment of the use of Payment for Environmental Services to compensate waste pickers, highlighting the Brazilian experience as an initiative that remains in the making.

2 BRIEF CONSIDERATIONS ON ENVIRONMENTAL POLICY INSTRUMENTS

Today, as the result of an evolution that began in the late nineteenth century[8], environmental law and environmental public policies in Brazil are implemented through the combined and systematic use of three categories of policy instruments[9]: command-and-control (or direct regulatory) instruments, economic (or market-based) instruments, and communication instruments.[10]

Against this backdrop, it should be noted that Payment for Environmental Services (PES) constitutes a category of economic policy instrument[11]. Before examining PES in greater detail, however, it is necessary to clarify certain aspects of

[8] SARLET, Ingo Sarlet; FENSTERSEIFER, Tiago, *Curso de Direito Ambiental*, Rio de Janeiro, Forense, 2020, p. 77. NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 96.

[9] NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 98.

[10] Communication instruments will not be addressed in this article. They are "instruments used to raise awareness among and provide information to polluting agents and affected populations." Examples include the provision of information, agreements, network building, environmental management systems, environmental labels, and environmental marketing. LUSTOSA, Maria Cecília Junqueira; CÁNEPA, Eugenio Miguel; YOUNG, Carlos Eduardo Frickmann, "Política Ambiental" *in* MAY, Peter H., org., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 257.

[11] NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 160. JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 129.

command-and-control instruments, as the criticism directed at these instruments gave rise to the development of economic instruments. Today, there is broad consensus that all categories of policy instruments are essential to the implementation of environmental policy (...) and that they require "the guiding framework provided by the law."[12]

In this regard, command-and-control instruments are implemented through rules and sanctions established by a regulatory authority and are therefore also referred to as direct regulatory instruments. They were the first environmental policy instruments to emerge in response to increasing environmental degradation and the growing need for government intervention in the mid-1950s. Drawing on principles of administrative law, environmental regulatory authorities began establishing rules, procedures, standards, and limits with which polluting agents were required to comply.[13] Although these instruments are effective in controlling environmental harm, they entail high implementation and enforcement costs. Their principal shortcomings include slow implementation, information asymmetries between regulators and regulated entities, and a lack of incentives for innovation and improvements in production processes.[14]

In response to the criticism directed at command-and-control instruments, economic instruments emerged in the late twentieth century. They have been defined as "instruments that directly affect the production and consumption costs of economic agents whose activities fall within the scope of environmental policy."15 These instruments are also referred to as market-based instruments, as they seek to internalize externalities or costs that would not otherwise be borne by the polluter or resource user."[16] As José Marcos Domingues observes, they "represent an interdisciplinary approach that offers alternatives based either on market mechanisms or on government intervention."[17]

The rationale underlying economic instruments differs from that of command-and-control instruments. Whereas command-and-control instruments seek to achieve the objectives of environmental policy through deterrence and the imposition of negative sanctions for noncompliance, economic instruments pursue the same objectives while also encouraging and rewarding conduct prescribed by legal norms through the use of positive incentives.[18]

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12 DOMINGUES, José Marcos. *Direito tributário e meio ambiente*, 3ª ed., Rio de Janeiro, Forense, 2007, p. 8.

13 LUSTOSA, Maria Cecília Junqueira; CÁNEPA, Eugenio Miguel; YOUNG, Carlos Eduardo Frickmann, "Política Ambiental" *in* MAY, Peter H., org., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 257.

14 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 102.

15 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 104.

16 LUSTOSA, Maria Cecília Junqueira; CÁNEPA, Eugenio Miguel; YOUNG, Carlos Eduardo Frickmann, "Política Ambiental" *in* MAY, Peter H., org., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 258.

17 DOMINGUES, José Marcos. *Direito tributário e meio ambiente*, 3ª ed., Rio de Janeiro, Forense, 2007, p. 8.

18 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 104.

Accordingly, sanctions came to serve a function beyond merely discouraging undesirable conduct through the threat of punishment. They also began to be employed in their positive dimension, as a means of encouraging and promoting conduct consistent with legal norms, thereby performing "a stimulating, fostering, and inducive function with respect to the conduct of individuals and groups, which is the exact antithesis of a merely protective or purely repressive function."[19]

Natália Jodas[20] and Ana Maria de Oliveira Nusdeo[21] argue that economic instruments possess an "inductive character with respect to the conduct encouraged by environmental policy." Among their principal advantages are the ability to generate financial resources to fund incentives or rewards through the collection of taxes, fees, or the issuance of tradable certificates; the possibility of implementing monitoring and control mechanisms at lower operational costs; a more efficient allocation of economic resources by encouraging technologies that are less intensive in the use of environmental goods and services; and intervention at the early stages of the production process, among other benefits.[22]

Payment for Environmental Services (PES) is one example of an economic instrument, although many others exist. As Fernando Cesar da Veiga Neto and Peter H. May observe, Brazilian legislation provides for a "broad range of instruments"[23] that support the creation of Payment for Environmental Services programs. Jose Marcos Domingues[24] identifies subsidies, tradable permits, deposit-refund systems, and environmental taxes as examples of economic instruments.

Ana Maria de Oliveira Nusdeo classifies economic instruments into two categories: price-based instruments and market-creating (or market-based) instruments. According to the author, the former operate by increasing or reducing the costs of certain goods, services, and production processes, depending on the policy objective.[25] As for market-creating instruments, Nusdeo explains that, as the name suggests, they establish tradable rights among economic agents or enable transactions in organized markets.[26] Examples include markets created for the

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19 BOBBIO, Norberto. *Da estrutura à função: novos estudos da teoria do direito*, Tradução de Daniela Beccaria Versiani, revisão técnica de Orlando Seixas Bechara, Renata Nagamine, Barueri, SP, Manole, 2007, p. 100.

20 JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 120.

21 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 104.

22 LUSTOSA, Maria Cecília Junqueira; CÁNEPA, Eugenio Miguel; YOUNG, Carlos Eduardo Frickmann, "Política Ambiental" *in* MAY, Peter H., org., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 258.

23 VEIGA NETO, Fernando Cesar da; MAY, Peter H., "Instrumentos Econômicos para Compensar a Provisão de Serviços Ambientais" *in* MAY, Peter H., *Economia do meio ambiente: teoria e prática*, 3ª ed, Rio de Janeiro, Elsevier, 2018, p. 401.

24 DOMINGUES, José Marcos. *Direito tributário e meio ambiente*, 3ª ed., Rio de Janeiro, Forense, 2007, p. 8.

25 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 105.

26 NUSDEO, Ana Maria de Oliveira, *Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica*, São Paulo, Atlas, 2012, p. 103.

trading of pollutant emission rights under cap-and-trade systems, such as carbon credit markets.[27]

Notwithstanding these potential benefits, the literature has identified several criticisms of market-creating instruments, including the lack of conclusive evidence regarding their effectiveness, the need for government regulation and oversight, limited public participation and social oversight, and the potential for environmental injustice arising from the unequal distribution of socio-environmental impacts. Such situations may occur when companies continue to maintain high levels of pollution by purchasing emission allowances rather than reducing their own emissions, thereby disproportionately affecting vulnerable communities located in the areas where those pollutants are released.[28]

In light of Ana Maria de Oliveira Nusdeo's well-established classification of economic instruments[29], one may conclude, together with Natália Jodas,[30] that Payment for Environmental Services (PES) may fall within either category, depending on the context in which it is implemented.

Regardless of the particular strengths and limitations of each category of policy instrument, it may be concluded that the most effective environmental policies are those that combine the full range of available instruments—that is, mixed policy approaches[31]. In this regard, Ana Maria de Oliveira Nusdeo[32] argues that "the best strategy is to combine the advantages of the different instruments, taking into account whether the environmental problem to be addressed involves a "single" or "multiple" dimension, with a view to designing an appropriate combination of policy instruments.

3 PAYMENT FOR ENVIRONMENTAL SERVICES (PES): GENERAL CONSIDERATIONS

Having identified Payment for Environmental Services (PES) as the focus of this study, it is first necessary to establish a legal definition of environmental services, which provides the conceptual foundation for understanding PES. As noted by Eugene P. Odum and Gary W. Barrett, the ecologist Arthur G. Tansley and the physicist A. J. Lotka independently developed the idea of the ecological system at

27 NUSDEO, Ana Maria de Oliveira, *Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica*, São Paulo, Atlas, 2012, p. 103.

28 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 130. JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 124.

29 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, pp. 129-133.

30 JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 123.

31 LUSTOSA, Maria Cecília Junqueira; CÁNEPA, Eugenio Miguel; YOUNG, Carlos Eduardo Frickmann, "Política Ambiental" *in* MAY, Peter H., org., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 252.

32 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p.137.

approximately the same time in the early twentieth century.[33] Tansley, however, coined the term ecosystem, which is understood as "a dynamic complex of plant, animal, and microorganism communities and their non-living environment interacting as a functional unit."[34] It has also been defined as "ecological communities organized as autopoietic networks and dissipative structures."[35]

Eugene P. Odum and Gary W. Barrett observe that all human beings depend on the resources and services provided by ecosystems. These services sustain everyday life by supplying water and food, purifying the air we breathe, assimilating the waste we generate, and providing opportunities for recreation, among many other benefits. Despite this dependence, ecosystem services have traditionally been regarded as virtually limitless and assigned "little monetary value."[36] According to Fernando Cesar da Veiga Neto and Peter H. May, public awareness of the importance of ecosystem services and the consequences of their degradation is relatively recent. They argue that, owing to the unsustainable use of natural resources for productive purposes, humanity has, for millennia, benefited from "these services free of charge, without paying for them or taking their value into account in the accounting of the activities undertaken."[37]

Costanza, D'Arge, et al. (1997) were pioneers in the study of the economic valuation of ecosystem services. They advanced the idea that the goods and services provided by the Earth's ecosystems are worth trillions of dollars annually, despite not being properly accounted for in the global economy.[38]

According to the *Millennium Ecosystem Assessment*[39], the services derived from natural ecosystems may be classified into four principal categories: provisioning services, such as the production of food, minerals, and energy resources; regulating services, such as carbon sequestration, water purification, and waste decomposition; supporting services, such as nutrient cycling and soil formation; and cultural services, such as recreation, therapeutic uses, and religious or folkloric uses, as discussed in the studies of Ramon Arigoni Ortiz.[40]

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33 ODUM, Eugene P; BARRET, Gary W., *Fundamentos de ecologia*, trad. Pégasus Sistemas e Soluções, São Paulo Paulo, Cengage Learning, 2013, p. 19.

34 SILVA, Pedro Paulo de Lima et al., *Dicionário brasileiro de ciências ambientais*, 2ª ed., Rio de Janeiro, Thex Ed., 2002, p. 90.

35 FRITJOF, Capra. *A teia de vida: uma nova compreensão científica dos sistemas vivos*, trad. Newton Roberval Eichemberg, 1ª ed., 10ª reimpr., São Paulo, Cultrix, 2006, p. 231.

36 ODUM, Eugene P; BARRET, Gary W., *Fundamentos de ecologia*, trad. Pégasus Sistemas e Soluções, São Paulo Paulo, Cengage Learning, 2013, p. 2.

37 VEIGA NETO, Fernando Cesar da; MAY, Peter H., "Instrumentos Econômicos para Compensar a Provisão de Serviços Ambientais" *in* MAY, Peter H., *Economia do meio ambiente: teoria e prática*, 3ª ed, Rio de Janeiro, Elsevier, 2018, p. 367.

38 NUSDEO, Ana Maria de Oliveira, *Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica*, São Paulo, Atlas, 2012, p. 19.

39 MILLENNIUM ECOSYSTEM ASSESSMENT, *Ecosystems and Human Well-being: Synthesis*, Washington, DC, Island Press, 2003, p. 57.

40 ORTIZ, Ramon Arigoni, "Valoração Econômica Ambiental", *in* MAY, Peter H., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 111.

In this context, it is important to distinguish between the concepts of ecosystem services and environmental services, although the two terms are sometimes used interchangeably. Fernando Cesar da Veiga Neto and Peter H. May explain that "ecosystem services are the services provided by natural ecosystems and the species that comprise them in sustaining and maintaining the conditions necessary for human life on Earth."[41] The authors further explain that environmental services, by contrast, are "understood as individual or collective human activities that directly or indirectly promote the preservation, protection, conservation, maintenance, restoration, and/or enhancement of ecosystem services.[42] Finally, they add that ecosystem services differ from environmental services insofar as the latter involve human activities that will contribute "directly or indirectly to the preservation, protection, conservation, maintenance, restoration, and/or improvement of ecosystem services."[43]

An illustrative example helps clarify this distinction: that of a fisherman. In a marine ecosystem, living organisms and the abiotic environment exist in a state of continuous interrelationship and interaction, sustaining the conditions necessary for the survival and reproduction of fish. This interaction also enables fish to perform their natural ecological functions within the food chain, serving as a source of food for both other animals and humans. In this sense, the provision of fish by nature may be understood as a provisioning ecosystem service. In this example, fishermen collect plastic waste encountered in the ocean while fishing, thereby contributing to the maintenance of ecosystem services related to fish provisioning, environmental regulation and support, as well as preserving the area in conditions conducive to ecotourism. The fishermen's act of removing plastic waste that has been improperly discarded into the ocean should therefore be understood as an environmental service.

Cristiane Derani argues that what is at stake is "not only the private use of resources, but also the resulting externalities and the manner in which those resources are appropriated."[44] As explained by Ana Maria de Oliveira Nusdeo, such externalities may be either positive or negative, although the latter are more common. They constitute "market failures that occur when costs or benefits circulate outside the price system and, consequently, their burdens or advantages fall upon third parties rather than upon those who participated in a given transaction."[45] Within this framework, Payment for Environmental Services (PES) seeks to reward positive externalities, whether by facilitating or rewarding behaviors and activities

41 VEIGA NETO, Fernando Cesar da; MAY, Peter H., "Instrumentos Econômicos para Compensar a Provisão de Serviços Ambientais" *in* MAY, Peter H., *Economia do meio ambiente: teoria e prática*, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 386.

42 Ibid.

43 Ibid.

44 DERANI, Cristiane. Direito ambiental econômico, 2ª ed, São Paulo, Max Limonad, 2001, p. 72.

45 NUSDEO, Ana Maria de Oliveira, "Pagamentos por serviços ambientais. Do debate de política ambiental à implementação jurídica" *in*, *Direito e mudanças climáticas: Pagamentos por Serviços Ambientais, fundamentos e principais aspectos jurídicos*, Paula Lavratti, Guilherme Tejeiros, org., São Paulo, Instituto O Direito por um Planeta Verde, 2013, (Direito e Mudanças Climáticas; 6), p. 13.

that generate benefits for other actors who did not participate in producing them and that "would not be recovered by those who produced them [the positive externalities]."[46]

From a principled perspective, the polluter-pays principle (Law No. 6,938/1981, Article 4(VII)) generally requires those responsible for productive or polluting activities to internalize the "internal costs of environmental degradation."[47] These costs are regarded as a burden on society and are characterized as negative externalities, which should be borne by those responsible for generating them rather than by society, lest there be a "privatization of profits and socialization of losses,"[48] as explained by Cristiane Derani. Similarly, Paulo Affonso Leme Machado[49] argues that the polluter-pays principle may be understood as deriving from the broader user-pays principle, under which the obligation to bear costs arises solely from the use of environmental resources rather than from the environmental degradation itself. In both cases, unlawful conduct is not a necessary prerequisite.

According to Ana Maria de Oliveira Nusdeo, Payment for Environmental Services (PES) gives effect to a principle that stands in contrast to the foregoing principles, namely the "protector-receiver principle."[50] Through a positive incentive, this principle encourages the provision of a reward or compensation for actions that generate benefits for ecosystems. Similarly, Ingo Wolfgang Sarlet and Tiago Fensterseifer[51] explain that the protector-receiver principle is a relatively recent principle of Environmental Law, expressly established in Brazil's National Solid Waste Policy Act, alongside the polluter-pays principle, although with "diametrically opposed" meanings. They argue that, whereas the latter requires the "environmental costs" arising from productive activities to be internalized in the price of goods and services, the former "seeks to economically reward those who, for the benefit of society as a whole, protect the environment (climate stability, biodiversity, water resources), for example, by maintaining forest cover on their property (beyond the legal requirements applicable to permanent preservation areas and legal reserves)."

Édis Milaré explains that, under this principle—expressly established for the first time in Law No. 12,305/2010 (the National Solid Waste Policy Act) —"rather than discouraging the generation of negative externalities in the production process, positive externalities would be encouraged through promotional norms."[52]

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46 Ibid., p. 14.

47 Ibid.

48 DERANI, Cristiane. Direito ambiental econômico, 2ª ed., São Paulo, Max Limonad, 2001, p. 162.

49 MACHADO, Paulo Affonso Leme, Direito ambiental brasileiro, 25ª ed., São Paulo, Malheiros, 2017, p. 85.

50 NUSDEO, Ana Maria de Oliveira, *Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica*, São Paulo, Atlas, 2012, p. 138

51 SARLET, Ingo Sarlet; FENSTERSEIFER, Tiago, Curso de Direito Ambiental, Rio de Janeiro, Forense, 2020, p. 166.

52 MILARÉ, Édis, *Direito do ambiente*, 9ª ed., São Paulo, RT, 2014, p. 273.

The first experiences with Payment for Environmental Services (PES) took place in Costa Rica in 1996. According to Ana Maria de Oliveira Nusdeo, at the global level, discussions surrounding the implementation of this instrument began with debates on "reducing emissions from deforestation."[53] As noted by Natália Jodas,[54] several Latin American countries have since emerged as leading references in the development of Payment for Environmental Services programs.

In Brazil, even before the enactment of a general law governing the subject—which was adopted only in 2021 (Law No. 14,119/2021) — Payment for Environmental Services (PES) had been implemented for more than twenty years by various municipalities and states through municipal and state legislation, as well as through contracts and cooperative agreements[55]. It is noteworthy that, although criticized, Law No. 12,727/2012, which provides for the protection of native vegetation, authorized the Federal Executive Branch, under Article 41 (caput), to establish a "program to support and promote environmental preservation and restoration," including the possibility of using "payment or incentives for environmental services" (Article 41(I)). This initiative was welcomed by Morais and Milaré (2013, p. 367), although it did not eliminate the need for a comprehensive federal statute or resolve controversial issues, such as the "undeniable difficulty of assigning a value to such services."[56]

A noteworthy publication issued jointly by the Brazilian and German Ministries of the Environment, together with other organizations and private-sector entities, entitled *Guia para a Formulação de Políticas Públicas Estaduais e Municipais de Pagamentos por Serviços Ambientais* (*Guide for the Development of State and Municipal Public Policies on Payment for Environmental Services*) (2017),[57] documented the widespread adoption of this instrument in Brazil, reporting that more than 2,000 Payment for Environmental Services projects had been carried out by individuals and legal entities through 2014.

After ten years of deliberation in the National Congress,[58] Law No. 14,119/2021 was enacted, establishing the National Policy on Payment for Environmental Services. The statute defines environmental services as "individual or collective activities that promote the maintenance, restoration, or enhancement of

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53 NUSDEO, Ana Maria de Oliveira, *Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica*, São Paulo, Atlas, 2012, p. 10.

54 JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 130.

55 Ibid., p. 129.

56 MORAIS, Roberta Jardim de e MILARÉ, Lucas Tamer, "Do Programa de apoio e incentivo à preservação e recuperação do meio ambiente" *in*, *Novo código florestal: comentários à Lei 12.651, de 25 de maio de 2012, à Lei 12. 727, de outubro de 2012 e do Decreto 7.830, de 17 de outubro de 2012*, coordenação Édis Milaré, Paulo Afonso Leme Machado, 2ª ed., São Paulo, Editora Revista dos Tribunais, 2013, p. 367.

57 Available at: <https://www.gov.br/mma/pt-br/assuntos/biodiversidade-e-ecossistemas/ecossistemas/projetos/arquivos-projetos/20_teeb_factsheet_guiapsa.pdf>. Accessed March 31, 2024.

58 JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 129.

ecosystem services" (Article 2(III)) and defines the economic instrument of Payment for Environmental Services as: "a voluntary transaction through which a payer of environmental services transfers financial resources or another form of compensation to a provider of such services, under mutually agreed conditions and in compliance with the applicable legal and regulatory provisions" (Article 2(IV)).

Natália Jodas[59] (2021, p. 153) reflects on whether the definition of the instrument adopted by the Brazilian legislature should be conceptually revised in order to accommodate broader social interests rather than serving primarily market interests. Among the criticisms raised is that the five criteria used to characterize the instrument—voluntary transaction, environmental service, purchaser of the environmental service, provider of the environmental service, and conditionality (understood as verification that the environmental service has in fact been provided) — are not always present in the practical application of the legal instrument. Another criticism is that the statutory definition is fundamentally market-based.[60]

The same criticisms may be directed at the statutory definition adopted in Brazil, since the national legislature appears not to have taken into account the experience gained from the Payment for Environmental Services projects developed and implemented throughout the country, involving a wide range of stakeholders and institutions, including "the establishment of broad conservation goals, which goes beyond the legal conception of an economic instrument used in isolation between two or more parties,"[61] as observed by Natália Jodas. Ana Maria de Oliveira Nusdeo further emphasizes that "although it is an economic instrument, it is not necessarily a market instrument, since it has been based on strong government involvement or on recommendations issued by third-sector organizations."[62] Thus, although Payment for Environmental Services is an economic instrument aimed at protecting ecosystems, it also "has significant potential to promote social benefits, such as improving the living conditions of traditional communities, agrarian reform settlers, and small landowners."[63]

4 WASTE PICKERS AS PROVIDERS OF ENVIRONMENTAL SERVICES

At the outset, it is important to emphasize the significance of Law No. 14,119/2021 and its 26 articles, while drawing attention to the fact that one category

[59] JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 153.

[60] WUNDER, Sven, "Revisiting the concept of payments for environmental services", Ecological Economics, v. 117, 2015, p. 234.

[61] JODAS, Natália, *Pagamento por serviços ambientais: Diretrizes de sustentabilidade para projetos de PSA no Brasil*, Rio de Janeiro, Lumen Juris, 2021, p. 148.

[62] NUSDEO, Ana Maria de Oliveira, "Pagamentos por serviços ambientais. Do debate de política ambiental à implementação jurídica" *in*, *Direito e mudanças climáticas: Pagamentos por Serviços Ambientais, fundamentos e principais aspectos jurídicos*, Paula Lavratti, Guilherme Tejeiros, org., São Paulo, Instituto O Direito por um Planeta Verde, 2013, (Direito e Mudanças Climáticas; 6), p. 12.

[63] Ibid.

of providers of environmental services was not expressly included in the statutory text, namely, waste pickers. Although the Brazilian legislature recognizes the decomposition of waste as one of the supporting services that sustain the continuity of life on Earth—and, therefore, as a type of ecosystem service eligible for Payment for Environmental Services (Article 2(II)(b) of Law No. 14,119/2021) — the statute makes no express reference to waste pickers.

This category of workers could have been expressly included alongside other groups, such as traditional communities, Indigenous peoples, and family farmers, particularly in the statutory provisions establishing the guidelines of the National Policy on Payment for Environmental Services (Article 5(III) of Law No. 14,119/2021), as well as in the provisions granting priority access to the Federal Payment for Environmental Services Program (Article 6, § 2, of Law No. 14,119/2021).

This apparent legislative omission, however, can readily be overcome through legal interpretation. It is widely recognized that the work performed by waste pickers generates economic, social, and environmental benefits for society by returning reusable and recyclable materials to the production chain while promoting social inclusion, employment, and income generation for a significant segment of the socially vulnerable population. Entire families, often spanning several generations and drawn from the "most precarious strata of the urban proletariat,"[64] with few or no alternative employment opportunities, depend for their livelihood on collecting from the tons of waste discarded by society those materials that can be sold and returned to the production chain, thereby conserving natural resources and contributing to the maintenance of ecosystem supporting services.

With respect to this reality, Jutta Gutberlet estimates that approximately 1% of the population in Latin American, Asian, and African countries is engaged in recycling, where "an extensive informal sector carries out the collection and sorting of recyclable materials."[65] The Brazilian Institute of Applied Economic Research (IPEA) estimates that a reasonable range is "between 400,000 and 600,000 individuals, based solely on the variation among the figures reported by different sources."[66]

According to Emílio Maciel Eigenheer and João Alberto Ferreira[67], as well as Sebatai Calderoni[68] (1999, p. 139), selective collection of solid waste, as it is known

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64 LOÏC, Wacquant, *Punir os pobres: a nova gestão da miséria nos Estados Unidos*, Rio de Janeiro, Freitas Bastos, 2001, Revan, 2003, p. 36

65 GUTBERLET, Jutta. Gestão inclusiva de resíduos sólidos, Revista de Geografia, Universidade Federal de Pernambuco, v. 30, nº 1, 2013, p. 7.

66 IPEA, *Diagnóstico sobre catadores de resíduos sólidos. Relatório de Pesquisa,* Lúcio Flávio da Silva Freitas e Igor Ferraz da Fonseca, autores, Brasília, 2012, p. 13. Available at: https://portalantigo.ipea.gov.br/agencia/index.php?option=com_content&view=article&id=15435%3Arelatorio-de-pesquisa-do-ipea-setembro-2012&catid=222%3Adirur&directory=1&Itemid=1. Accessed March 31, 2024.

67 EIGENHEER, Emílio Maciel; FERREIRA João Alberto. *Três décadas de coleta seletiva em São Francisco (Niterói/RJ): lições e perspectivas*, Engenharia Sanitária Ambiental, v. 20, nº 4, 2015, pp. 677-684.

today, dates back to the early twentieth century, with the first initiatives implemented in the United States and Europe. Grimberg and Blauth[69] further note that, in Brazil, the activity was first reported in the 1940s, with documented initiatives dating from the 1960s in the cities of São Paulo (SP), Porto Alegre (RS), and Pindamonhangaba (SP).

According to Maria Alexandra Aragão (2006, p. 481), the selective collection of waste carried out by waste pickers enables discarded materials to be reintroduced into the production process. She notes that, in both reuse and recycling, "we would still be at the core of the anabolic phase of the materials flow, at a point at which the flow is closed through the recirculation of waste."[70]

The income earned by waste pickers is influenced by a variety of factors, including whether they work independently or through organizations, associations, or cooperatives; their access to recyclable waste in sufficient quantities and suitable condition for recovery; and the formal recognition of the services they provide to the public and private sectors. According to Gina Rizpah Besen *et al.*, compensation may take the form of fixed wages, equal distribution of cooperative income, or payment based on productivity.[71] In this regard, Diogo Sant'Ana and Daniela Maetello identify several "compensation mechanisms,"[72] noting that "the most effective are those that fully compensate the environmental service provided by the waste picker, whereby the cooperative receives an amount equivalent to the costs of sorting, transportation, transfer, and landfilling that would otherwise be paid to a contracted company."[73] According to Ana Maria de Oliveira Nusdeo, the protector-receiver principle is embodied in "the compensation provided to waste pickers who prevent the occurrence of environmental harm."[74]

As Alexandre Altmann observes, because cities depend on ecosystem services, the implementation of urban Payment for Environmental Services programs for waste pickers can increase their income and "progressively encourage

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68 CALDERONI, Sabetai. Os bilhões perdidos no lixo, 3ª ed, São Paulo, Humanitas Editora/FFLCH/USP, 1999, 139.

69 GRIMBERG, Elisabeth; BLAUTH, Patrícia, Coleta seletiva de lixo, reciclando materiais, reciclando valores, Publicações Pólis nº 31, São Paulo, Instituto Pólis, 1998, p. 15.

70 ARAGÃO, Maria Alexandra de Sousa, O princípio do nível elevado de proteção e a renovação ecológica do direito do ambiente e dos resíduos, Coimbra, Almedina, 2006, p. 481.

71 BESEN, Gina Rizpah et al, *Gestão da coleta seletiva e de organizações de catadores: indicadores e índices de sustentabilidade* [livro eletrônico], Fundação Nacional de Saúde, Universidade de São Paulo, Women in informal Employment: Globalizing and Organizing, (col.) Faculdade de Saúde Pública da Universidade de São Paulo (USP), São Paulo, 2017.

72 SANT'ANA, Diogo; MAETELLO, Daniela, "Reciclagem e inclusão social no Brasil: balanço e desafios" *in* PEREIRA, Bruna Cristina Jaquetto; PEREIRA, Fernanda Lira Goes, org., *Catadores de materiais recicláveis: um encontro nacional*, Rio de Janeiro, Ipea, 2016, p. 37.

73 Ibid.

74 NUSDEO, Ana Maria de Oliveira. *Direito ambiental e economia*, Curitiba, Juruá, 2018, p. 82.

the collection of recyclable materials."[75] Ultimately, he concludes, "there is no doubt that the activity carried out by waste pickers deserves compensation, since it makes a significant contribution to improving environmental quality."[76]

In this regard, José Cláudio Junqueira Ribeiro and Alexandre Magrineli dos Reis argue that the work performed by waste pickers satisfies all the criteria required for recognition as providers of environmental services. Accordingly, they contend that waste pickers are entitled to receive compensation through this economic instrument, given that the environmental services they provide include the "reduction in the extraction of raw materials through the reintegration of previously used materials into the production process, the extension of the useful life of sanitary landfills, and the restoration of citizenship through the generation of employment and income."[77]

This study further argues that the work performed by waste pickers constitutes, simultaneously, a public service inherent to basic sanitation and an environmental service. Accordingly, in addition to being entitled to compensation as providers of the public selective collection service under Article 36, § 1, of Law No. 12,305/2010, the work performed by waste pickers may also qualify for compensation under the economic instrument of Payment for Environmental Services. Thus, waste pickers are providers of the public service of selective collection of municipal solid waste and may also be recognized as providers of environmental services, insofar as the work they perform supports ecosystem services. Consequently, compensation through Payment for Environmental Services is not intended to remunerate the public selective collection service itself, but rather the environmental benefits generated by that activity for the ecosystem.

The present study emphasizes that, as a matter of law, selective collection and Payment for Environmental Services are distinct instruments grounded in different legal frameworks, notwithstanding the undeniable relationship between them. Selective collection is a municipal responsibility established under Law No. 12,305/2010, where it is defined as the "collection of solid waste that has been previously separated according to its composition or characteristics" (Article 3(V)) and classified as one of the instruments for implementing shared responsibility throughout the product life cycle (Article 8(III)). By contrast, Payment for Environmental Services is governed by Law No. 14,119/2021 and constitutes an economic instrument designed to internalize positive externalities and give effect to the protector-receiver principle by rewarding and encouraging individual and collective activities that promote the maintenance, restoration, or enhancement of ecosystem services.

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[75] ALTMANN, Alexandre. Pagamento por Serviços Ambientais como instrumento de incentivo para os catadores de materiais recicláveis no Brasil. Revista de Direito Ambiental, v. 01, 2012, p. 356.

[76] Ibid.

[77] RIBEIRO, José Claudio Junqueira; REIS, Alexandre Magrineli dos, "Pagamento por Serviços Ambientais Urbanos – PSAU: elaboração e implementação do bolsa reciclagem em Minas Gerais" *in*, *Gestão e gerenciamento de resíduos sólidos*, José Claudio Junqueira Ribeiro (organizador), Rio de Janeiro, Lumen Juris, 2019, p. 199.

Despite the availability of legal instruments that could be used to support these initiatives by recognizing and rewarding the environmental services provided by waste pickers, the studies reviewed indicate that such measures remain far from being implemented in Brazil. On the contrary, the prevailing practice is to disregard compensation for these environmental services on the assumption that it is already "embedded in the cost of selective collection," without any meaningful assessment of the distinct environmental benefits generated by the activity. By way of illustration, Pollyana Ferreira da Silva[78], after analyzing ninety-three contracts between waste picker cooperatives and Brazilian municipalities, concluded that the vast majority provided no compensation for environmental services. Only the municipalities of Natal (Rio Grande do Norte), Londrina (Paraná), and Maceió (Alagoas) offered financial recognition to waste pickers on environmental grounds, although none expressly referred to the use of the Payment for Environmental Services instrument. Ana Maria de Oliveira Nusdeo[79] likewise observes that "the greatest challenge lies not in recognizing that these services have value, but in estimating that value." She explains that assigning a monetary value to environmental services remains difficult because of the methodological challenges involved in developing reliable valuation approaches.

In this regard, Ramon Arigoni Ortiz[80] concludes that, despite the existence of various valuation methods, selecting the most appropriate one is far from straightforward. While some approaches rely exclusively on economic analysis, others incorporate a broader range of values associated with environmental services, including the power relationships among the stakeholders involved in the valuation process. Ultimately, the decision concerns the extent to which "society would be willing to forgo resources in exchange for an improvement in the quality or quantity of natural resources and the ecosystem services associated with them," including consideration of the costs and benefits for future generations.

5 THE BRAZILIAN EXPERIENCE WITH PAYMENT FOR ENVIRONMENTAL SERVICES FOR WASTE PICKERS

The Brazilian experience with Payment for Environmental Services for waste pickers is still evolving. In the State of São Paulo, for example,[81] despite its extensive experience with the implementation of this instrument, Payment for Environmental Services has not yet been established for the benefit of waste pickers,

78 SILVA, Pollyana Ferreira da, *Pagamento por Serviços Ambientais para Catadores de Materiais Recicláveis*, orient. Helena Ribeiro, coorient. Gina Rizpah Besen, Tese (Doutorado), Faculdade de Saúde Pública da Universidade de São Paulo São Paulo, 2022, 107p.

79 NUSDEO, Ana Maria de Oliveira, Pagamento por serviços ambientais: sustentabilidade e disciplina jurídica, São Paulo, Atlas, 2012, p. 20.

80 ORTIZ, Ramon Arigoni, "Valoração Econômica Ambiental", *in* MAY, Peter H., Economia do meio ambiente: teoria e prática, 3ª ed., Rio de Janeiro, Elsevier, 2018, p. 111.

81 Experiências de pagamentos por serviços ambientais no Brasil, Stefano Pagiola, Helena Carrascosa von Glehn, Denise Taffarello, São Paulo, SMA, CBRN, 2013, 336p.

although a bill is currently under consideration [82] and discussions among the relevant stakeholders remain ongoing.[83]

The State of São Paulo, through the State Forest Foundation (Fundação Florestal), created and implemented a comparable program under Normative Ordinance FF No. 401/2023, although it focuses on the marine ecosystem. Known as the "Sea Without Litter" (*Mar sem Lixo*) Program, the initiative aims to "prevent and combat the leakage of waste into the ocean." Its structure is closely aligned with the Payment for Environmental Services model by providing compensation to artisanal fishers, including those engaged in single- and double-trawl fishing, who land their catches in the municipalities of Bertioga, Cananeia, Itanhaém, São Sebastião, and Ubatuba. Compensation is calculated according to the weight of waste collected in fishing nets. As currently structured, payments range from R$16 (for up to 1 kilogram of waste) to R$653 (for more than 100 kilograms). The amounts are credited monthly to a food-benefit card registered to the fisher's taxpayer identification number (CPF), in accordance with a conversion table based on the quantity of waste collected (kilograms × reais).[84]

José Cláudio Junqueira Ribeiro and Alexandre Magrineli dos Reis[85] note that the pioneering initiative benefiting waste pickers was introduced in the State of Minas Gerais. Law No. 19,823/2011 established the *Bolsa Reciclagem* ("Recycling Grant") program, which provides financial incentives to waste pickers. According to the authors, the Minas Gerais model attracted considerable interest and was subsequently replicated by other municipalities, including Altaneira (Ceará), Campo Grande (Mato Grosso do Sul), and Sapopema (Paraná). Developed at the initiative of the Minas Gerais State Environmental Foundation (Fundação Estadual do Meio Ambiente – FEAM), the program was based on the 2010 publication *Research on Urban Payment for Environmental Services for Solid Waste Management*, prepared by the Institute for Applied Economic Research (IPEA).[86] Commissioned by the Ministry of the Environment, this comprehensive study was intended to support the development of public policy in this area by estimating the environmental and economic benefits of recycling municipal solid waste and by proposing guidelines

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82 Marcolino, Luiz Claudio. Bill No. 610/2023, instituting the State Policy on Payment for Environmental Services. Legislative Assembly of the State of São Paulo. Available at: <https://www.al.sp.gov.br/propositura/?id=1000487503>. Accessed March 31, 2024.

83 There is an initiative led by the office of State Representative Mariana Helou to establish an Urban Payment for Environmental Services Program in the State of São Paulo. At the time this article was completed, the proposal was still being developed in consultation with the relevant stakeholders and had not yet been finalized.

84 Available at: <https://fflorestal.sp.gov.br/mar-sem-lixo/#pagamento-de-servicos-ambientais>. Accessed March 24, 2024.

85 RIBEIRO, José Claudio Junqueira; REIS, Alexandre Magrineli dos, "Pagamento por Serviços Ambientais Urbanos – PSAU: elaboração e implementação do bolsa reciclagem em Minas Gerais" in, Gestão e gerenciamento de resíduos sólidos, José Claudio Junqueira Ribeiro (organizador), Rio de Janeiro, Lumen Juris, 2019, p. 199.

86 IPEA. Pesquisa sobre Pagamento por Serviços Ambientais Urbanos para Gestão de Resíduos Sólidos. Brasília, 2010, pp.1-66. Available at: <https://repositorio.ipea.gov.br/handle/11058/7968>. Accessed March 31, 2024.

for the implementation of Urban Payment for Environmental Services schemes for waste pickers. The study identified the economic benefits of recycling as being associated with "the avoided costs of recycling in terms of natural resources and energy," while the environmental benefits were linked to "energy consumption, greenhouse gas (GHG) emissions, water consumption, and biodiversity loss."[87]

According to IPEA[88], if all recyclable waste currently disposed of in landfills and open dumps in Brazilian cities were instead recycled, the resulting economic benefits to society would amount to approximately R$8 billion annually. IPEA's proposal[89] for implementing Urban Payment for Environmental Services for waste pickers focuses on strengthening waste picker cooperatives, thereby reducing fluctuations in the prices obtained from the sale of recyclable materials and increasing the income of these providers of environmental services.

Notwithstanding the depth and rigor of the study, IPEA did not propose a model under which independent or informal waste pickers—who constitute the majority of these workers—could benefit from Urban Payment for Environmental Services. This highlights one of the principal challenges that remains today: developing an appropriate and comprehensive framework capable of extending compensation for environmental services to independent and informal waste pickers. In this regard, IPEA[90] identified three types of Urban Payment for Environmental Services schemes, all of which are based on the quantity of recyclable material collected—a structure similar to that adopted in the *Mar sem Lixo* ("Sea Without Litter") Program for artisanal fishers.

The State of Minas Gerais adopted the model known as "graduated compensatory payments," under which the quantity of recyclable material collected is combined with a multiplier based on the type of material. This approach is intended to encourage the collection of materials that are "less preferred by waste pickers because they are more difficult to collect or transport, or because they have a lower market value," as explained by José Cláudio Junqueira Ribeiro and Alexandre Magrineli dos Reis[91]. The authors further note that the Urban Payment for Environmental Services program in Minas Gerais was named *Bolsa Reciclagem* ("Recycling Grant"), a designation that drew criticism because it evoked "social assistance programs."

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87 Ibid., p. 7.

88 Ibid.

89 IPEA. Pesquisa sobre Pagamento por Serviços Ambientais Urbanos para Gestão de Resíduos Sólidos. Brasília, 2010, p.9. Available at: < https://repositorio.ipea.gov.br/handle/11058/7968>. Accessed March 31, 2024.

90 IPEA. Pesquisa sobre Pagamento por Serviços Ambientais Urbanos para Gestão de Resíduos Sólidos. Brasília, 2010, p.9. Available at: < https://repositorio.ipea.gov.br/handle/11058/7968>. Accessed March 31, 2024.

91 RIBEIRO, José Claudio Junqueira; REIS, Alexandre Magrineli dos, "Pagamento por Serviços Ambientais Urbanos – PSAU: elaboração e implementação do bolsa reciclagem em Minas Gerais" in, Gestão e gerenciamento de resíduos sólidos, José Claudio Junqueira Ribeiro (organizador), Rio de Janeiro, Lumen Juris, 2019, p. 206.

The use of the term *Bolsa* ("Grant"), however, does not diminish the significance of the instrument. On the contrary, the term is commonly employed in well-established Payment for Environmental Services programs in Brazil, such as *Bolsa Floresta* ("Forest Grant"). This program is based on avoided greenhouse gas emissions resulting from the conservation of the Amazon rainforest and provides financial compensation for the environmental services supplied by traditional communities in the State of Amazonas. Another well-established example is *Bolsa Verde* ("Green Grant"), implemented in the State of Minas Gerais, which provides economic incentives to rural landowners and lawful possessors of properties located within the Atlantic Forest biome in recognition of the environmental services they provide.[92]

José Claudio Junqueira Ribeiro and Alexandre Magrineli dos Reis [93] observe that the Minas Gerais model is directed toward waste picker cooperatives and associations rather than independent or informal waste pickers. They identify as one of its principal strengths the establishment of a Management Committee composed of representatives of the Executive Branch, waste pickers, and the State Public Prosecutor's Office.

Finally, it is worth noting that the *Bolsa Reciclagem* ("Recycling Grant") program, which was discontinued in 2017, was reinstated in 2019. In 2023, it received a significant allocation of R$10 million pursuant to a judicial settlement with Vale S.A. arising from the damages caused by the Brumadinho disaster.[94] Payments to waste picker cooperatives and associations are made on a quarterly basis. During the second quarter of 2023, the program distributed R$702,557.67 among 85 organizations across the State of Minas Gerais, benefiting 1,565 waste pickers.[95]

6 CONCLUDING REMARKS

This study addresses a timely and significant issue within the field of environmental protection, encouraging reflection on contemporary legal instruments designed to protect, preserve, and safeguard environmental values. Ultimately, these instruments serve the broader objectives of protecting human dignity and ensuring the right to an ecologically balanced environment while responding to today's global environmental challenges. Within this context, the study seeks to foster a broader

[92] Experiências de pagamentos por serviços ambientais no Brasil, Stefano Pagiola, Helena Carrascosa von Glehn, Denise Taffarello, São Paulo, SMA, CBRN, 2013, 336p.

[93] RIBEIRO, José Claudio Junqueira; REIS, Alexandre Magrineli dos, "Pagamento por Serviços Ambientais Urbanos – PSAU: elaboração e implementação do bolsa reciclagem em Minas Gerais" in, Gestão e gerenciamento de resíduos sólidos, José Claudio Junqueira Ribeiro (organizador), Rio de Janeiro, Lumen Juris, 2019, pp. 206-212.

[94] Available at: <https://www.agenciaminas.mg.gov.br/noticia/governo-de-minas-realiza-novo-repasse-do-bolsa-reciclagem-e-registra-recorde-de-investimentos-anuais-no-programa>. Accessed March 23, 2024.

[95] Available at: <http://www.meioambiente.mg.gov.br/noticias/5875-governo-de-minas-realiza-novo-repasse-do-bolsa-reciclagem-a-organizacoes-de-catadores-de-materiais-reciclaveis>. Accessed March 23, 2024.

and more critical understanding of the value of the environmental services provided by waste pickers. It advocates for the recognition and remuneration of those services through Payment for Environmental Services (PES) independently of the compensation already received for selective collection activities, as these payments are intended to compensate for distinct services grounded in different legal and policy objectives.

Brazil has developed substantial and significant experience in advancing the effective use of Payment for Environmental Services (PES) as a public environmental policy instrument. Conceived as an economic mechanism based on positive incentives, PES seeks to encourage, promote, and reward behaviors that contribute to the conservation and restoration of ecosystems.

Law No. 14,119/2021, which established the National Policy on Payment for Environmental Services, codified in a general legal framework the knowledge and experience accumulated over decades through the implementation of this instrument by Brazilian states and municipalities.

It is incomprehensible, however, that, despite the significant social, economic, and environmental challenges surrounding integrated solid waste management in Brazil, Payment for Environmental Services (PES) has not yet become an established mechanism for compensating waste pickers for the environmental benefits generated through selective collection. These benefits include reducing pollution, returning recyclable materials to the production cycle, decreasing the extraction of virgin raw materials, extending the useful life of landfills, and providing other valuable ecosystem services.

The relationship between Law No. 14,119/2021 and Law No. 12,305/2010 (the National Solid Waste Policy) is firmly embedded in Brazil's socio-legal framework. Both statutes share the same constitutional foundation, particularly Article 225 of the Constitution of the Federative Republic of Brazil, and should therefore be interpreted in a harmonious and complementary manner. Accordingly, it is essential to distinguish between selective collection and Payment for Environmental Services (PES), as these are distinct legal instruments governed by different statutory provisions and serving different purposes. While selective collection constitutes a public service performed by waste pickers, Payment for Environmental Services is an economic instrument designed to encourage compensation for the contribution that these vulnerable workers make to ecosystem services. Any difficulty in assigning an economic value to those environmental benefits should not be used to justify increasing social inequalities or allowing the positive externalities generated by waste pickers to be appropriated by those who did not create them.

The experiences of *Bolsa Reciclagem* ("Recycling Grant") in the State of Minas Gerais and the *Mar sem Lixo* ("Sea Without Litter") Program in the State of São Paulo demonstrate that Payment for Environmental Services (PES) schemes for waste pickers are both feasible and capable of producing meaningful environmental and social benefits. The latter program, directed at artisanal fishers who recovered

plastic and other waste instead of fish or shrimp, further demonstrates that "not everything caught in a fishing net is a fish"—indeed, in this particular case, what was caught was waste!

The present study has demonstrated that the work performed by waste pickers constitutes, at the same time, a public service within the scope of basic sanitation and an environmental service. Accordingly, they are entitled both to compensation for providing the public service of selective collection, pursuant to Article 36, § 1, of Law No. 12,305/2010, and to remuneration through Payment for Environmental Services (PES). In other words, waste pickers are providers of the public service of selective collection of municipal solid waste and may also qualify as providers of environmental services to the extent that their activities generate benefits for ecosystem services.

Finally, this study emphasizes that selective collection and Payment for Environmental Services (PES) are distinct legal instruments governed by different statutory frameworks, notwithstanding the close relationship between them. Selective collection is a municipal responsibility and is defined as "the collection of solid waste that has been previously segregated according to its composition or characteristics." It also constitutes "one of the instruments for implementing shared responsibility for the life cycle of products" (Law No. 12,305/2010, Article 3(V) and Article 8(III)). Payment for Environmental Services, by contrast, is governed by Law No. 14,119/2021 and is conceived as an economic instrument designed to promote the internalization of positive externalities, thereby giving effect to the protector-receiver principle. Its purpose is to reward and encourage individual and collective activities that contribute to the maintenance, restoration, and enhancement of ecosystem services.

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