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No Time to Waste: Payment for Urban Environmental Services as a Tool to Support Invisible Recyclers in Brazil

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INTRODUCTION

Waste management is a global, pressing issue. In 2019, the United Nations identified waste management as a global concern that is fundamental to achieving sustainable development.[1] The Sixth Global Environment Outlook suggested several strategies, which include the following variations of upcycling or recycling: refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, and repurpose.[2]

Despite the global nature of the issue, the challenges facing sustainable waste management differ according to the geopolitical region. The Global South[3] struggles with rapid urbanization[4] in a time of insufficient governance structures and deficient technical and financial resources.[5]

In the Global South, the informal recycling sector is the leading and, at times, the sole form of resource recovery.[6] A substantial portion of the informal recycling sector is comprised of waste picking.[7] There are nearly twenty million people working as invisible recyclers, known as

1 U.N. Environment, *Global Environment Outlook 6: Healthy Planet, Healthy People*, 33, 67, 84, 90, 93, 488 (2019).

2 *Id.* at 4.

3 Global South and Global North are discursive categories relating to the historical processes experienced under colonialism and imperialism. These terms assist in understanding the common causes and consequences of unequal power relations, manifested in everyday urban politics with high levels of inequality. Both geopolitical spaces are going through urbanization; however, the bulk of the urban population's rapid growth is occurring in the South. *Id.* at 35.

4 *Id.* at 22 n.1, 24, 25, 33, 67, 90.

5 Sonia Maria Dias, *Waste Pickers and Cities*, 28 ENV'T. & URBANIZATION 375, 375 (2016), http://journals.sagepub.com/doi/10.1177/0956247816657302 [https://perma.cc/558P-T8NV].

6 Costas Velis, *Waste Pickers in Global South: Informal Recycling Sector in a Circular Economy Era*, 35(4) WASTE MGMT. & RSCH. 329, 329–30 (2017).

7 INT'L LAB. ORG. & GREEN JOBS INITIATIVE, WORKING TOWARDS SUSTAINABLE DEVELOPMENT: OPPORTUNITIES FOR DECENT WORK AND SOCIAL INCLUSION IN A GREEN ECONOMY 111 (2012).

waste pickers, in the Global South.[8] China, India, Brazil, Colombia, and Turkey have the highest numbers of waste pickers.[9]

The development of policies to support waste pickers in the Global South is critical,[10] especially in those countries that suffer from significant income disparities, such as India, Mexico, and Brazil, where waste pickers account for approximately 1% of the population.[11] Yet research focusing on how the law can support waste pickers is still scarce. This Article contributes to the debate, with a focus on Brazil.

Brazilian society produces millions of metric tons of waste every year, which are still disposed in dumps or environmentally unsustainable landfills. A significant amount of this waste could otherwise be recycled. The recycling activity is mostly carried out by waste pickers who, despite being legally acknowledged as contributors to sustainable waste management, are not properly compensated or integrated into official waste management systems.

Part I of this Article examines the environmental issues related to waste, with a focus on the current state of recycling and the important role that waste pickers play in Brazil. Part II unfolds the social aspects of the waste management crisis in Brazil, exposing the neglect and vulnerability of waste pickers. Part III provides an overview of the Brazilian legal system and analyzes the framework for regulating waste management at the municipal, state, and federal levels—identifying the structural reasons for the mismatch between the statutory context and the reality of neglect and vulnerability facing waste pickers. Part IV performs a literature survey on Payments for Environmental Services (PES) and demonstrates that these schemes have the potential to integrate social justice in waste management models in the Global South. Part V analyzes a bill before the Florianópolis legislative body

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8 Costas A. Velis, *Circular Economy and Global Secondary Material Supply Chains*, 33(5) WASTE MGMT. & RSCH. 389, 391 (2015), http://journals.sagepub.com/doi/10.1177/0734242X15587641 [https://perma.cc/F8Y6-58GX].

9 Martin Medina, *The Informal Recycling Sector in Developing Countries*, GRID LINES (2008).

10 Lavanya Rajamani, *Public Interest Environmental Litigation in India: Exploring Issues of Access, Participation, Equity, Effectiveness and Sustainability*, 19 J. ENV'T L. 293, 306 (2007), https://academic.oup.com/jel/article-lookup/doi/10.1093/jel/eqm020 [https://perma.cc/QN7W-9K8H].

11 Jutta Gutberlet, *Informal and Cooperative Recycling as a Poverty Eradication Strategy*, 6 GEOGRAPHY COMPASS 19, 24 (2012), http://doi.wiley.com/10.1111/j.1749-8198.2011.00468.x [https://perma.cc/HQG5-9DKA].

that aims to integrate waste pickers into the waste management system through the implementation of PES.

The Florianópolis case study demonstrates that PES has the potential to promote waste pickers' social inclusion and increase recycling rates while respecting governmental budgetary restrictions. The research provides a unique contribution to the literature on waste management in the Global South, where environmental and social issues are equally critical and connected.

I
THE WASTE CRISIS IN BRAZIL

Waste management is a critical urban issue in Brazil, affecting environmental and social realities. There are environmental challenges affecting all four stages of the waste cycle—waste production, disposal, collection, and recycling—with each stage presenting its own set of deficiencies. According to the waste hierarchy, the correct order of discussion is production, collection, recycling, and disposal; however, for this Article, the order was changed to accommodate the order of problems diagnosed in Brazil.

The first issue relates to the volume of waste in Brazil. Waste production is problematic due to the size of the country. As a whole, the country produces nearly 216,000 metric tons of urban solid waste per day and seventy-nine million metric tons per year, which includes waste generated by households and waste generated from the cleaning of streets and public areas. From this amount, 92% of waste was collected in 2018.[12]

The second issue relates to the destination of waste, given that unsustainable disposal is still a reality. Dumps and controlled landfills received 40.5% of the urban solid waste collected in 2018.[13] These waste destinations can either be open-air disposal (dumps) or simple coverage of waste without soil protection (controlled landfills).

This situation is improving, and environmentally adequate landfills are becoming more common. Sanitary landfills are preferable to dumps and controlled landfills because the soil in sanitary landfills is impermeable. The amount of household and/or public solid waste

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[12] BRAZ. ASS'N OF PUB. CLEANING & SPECIAL WASTE COS., PANORAMA OF SOLID WASTE IN BRAZIL 2018/2019, at 11–12 (2019) (Braz.), http://abrelpe.org.br/download-panorama-2018-2019/ [https://perma.cc/F5RT-R4PE] [hereinafter PANORAMA OF SOLID WASTE IN BRAZIL].

[13] *Id.* at 11.

disposed on these landfills increased by 120% between 2000 and 2008.[14] In 2018, sanitary landfills received 59.5% of urban solid waste.[15] Although sanitary landfills are preferable to dumps and controlled landfills, they can still cause multiple environmental damages. They contaminate the soil with heavy metals and synthetic organic compounds and release odor—carbon dioxide (CO_2) and methane (CH_4)—into the air.[16]

The third issue relates to waste collection, as not all municipalities are able to afford selective collection. Selective collection distinguishes between dry and organic waste, and it is important for sorting recyclable materials. Nationally, in 2018, the total number of municipalities that had selective collection was approximately 22%.[17] In 2018, the South and Southeast Regions presented the highest numbers, with 90% and 89% respectively.[18]

Selective collection is mostly carried out by waste pickers. Waste pickers' cooperatives are involved in about 50% of all official selective collection carried out in Brazilian municipalities.[19] Other major players include city halls and private companies, which are, respectively, involved in 39% and 36% of all official selective collection.[20] It is important to recognize that municipalities may have more than one agent taking part in selective collection.[21] These agents make recycling possible, which is the next challenge to be discussed.

Selective collection favors the fourth stage in the waste management cycle—that is, recycling processes. Recycling comes from resource cycling, a symbiosis in a chain of agents using another's waste as a resource and delaying waste outputs.[22] In short, recycling transforms what was considered trash into new and usable materials. These products are mainly generated by either postindustrial waste (i.e.,

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14 INST. OF APPLIED ECON. RSCH., DIAGNOSIS OF URBAN SOLIDS RESEARCH REPORT 42 (2012) (Braz.) [hereinafter DIAGNOSIS OF URBAN SOLIDS RESEARCH REPORT].

15 PANORAMA OF SOLID WASTE IN BRAZIL, *supra* note 12, at 11.

16 Lorenzo Giusti, *A Review of Waste Management Practices and Their Impact on Human Health*, 29 WASTE MGMT. 2227, 2231 (2009), http://linkinghub.elsevier.com/retrieve/pii/S0956053X09001275 [https://perma.cc/4ZAY-25Y7].

17 BUS. COMMITMENT TO RECYCLING, REVIEW 2019, at 25 (2018) (Braz.).

18 PANORAMA OF SOLID WASTE IN BRAZIL, *supra* note 12, at 15.

19 BUS. COMMITMENT TO RECYCLING, *supra* note 17, at 25.

20 *Id.*

21 *Id.*

22 Alan Murray et al., *The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context*, 140 J. BUS. ETHICS 369, 371 (2017), http://link.springer.com/10.1007/s10551-015-2693-2 [https://perma.cc/9PBR-HCAS].

the leftovers of the productive processes or the obsolescence of its machinery and tools) or postconsumption waste (i.e., the waste generated by the disposal of the remnants of consumed goods or services).[23]

Recycling is a sustainable process, and in Brazil these activities are primarily undertaken by millions of informal workers called waste pickers. Waste pickers, the majority of whom are women, base their livelihoods on the informal collection and selling of waste, recovering recyclables, and reinserting them into the formal recycling chain.[24]

Official data from 2012 reported that there are between 400,000 and 600,000 waste pickers in Brazil,[25] with 1.4 million people, family members included,[26] being supported by waste picking.[27] However, the National Movement of Pickers of Recyclable Materials[28] estimated an even greater presence,[29] with approximately 800,000 waste pickers estimated to be active in Brazil, with 100,000 of those waste pickers taking part in the social movement.[30]

Waste pickers are responsible for 90% of recycling in Brazil.[31] However, the potential use of waste as a source of income and as an instrument for social inclusion has been only partially uncovered. It is estimated that nearly 15,000 metric tons of aluminum, plastic, steel, glass, and cellulose are wasted due to lack of recycling each year, totaling a lost opportunity cost of $4.4 billion per year.[32] These figures illustrate the potential for recycling incentives.

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23 INST. OF APPLIED ECON. RSCH., DIAGNOSIS OF SOLID WASTE PICKERS: RESEARCH REPORT 22 (2012) (Braz.) [hereinafter DIAGNOSIS OF SOLID WASTE PICKERS].

24 Dias, *supra* note 5, at 375.

25 DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 13.

26 INST. OF APPLIED ECON. RSCH., SOCIAL SITUATION OF WASTE PICKERS AND PICKERS OF RECYCLABLE AND REUSABLE MATERIALS 50 (2013) (Braz.) [hereinafter SOCIAL SITUATION OF WASTE PICKERS].

27 *Id.* at 51. Waste pickers' households usually have a significant presence of children. *See id.* The number of children under sixteen years old living in waste pickers' homes is equal to the number of people over that age. *Id.* This figure is higher than the average in the overall Brazilian population. *Id.*

28 In Portuguese: *Movimento Nacional dos Catadores de Materiais Recicláveis (MNCR)*.

29 There are considerable difficulties in conducting quantitative research on a group that is spread throughout the country and has limited access to technology, which explains the controversy around the number of waste pickers in Brazil.

30 DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 13.

31 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 19.

32 INST. OF APPLIED ECON. RSCH., SURVEY ON PAYMENT FOR URBAN ENVIRONMENT SERVICES FOR SOLID WASTE MANAGEMENT 26 (2010) (Braz.) [hereinafter SURVEY ON PAYMENT FOR URBAN ENVIRONMENT SERVICES].

The recycling market is volatile. There are oscillations with prices and ease of access to certain products. Aluminum and plastic recycling rates indicate that access and profit margins go hand in hand when it comes to key factors motivating recycling. While plastic is profitable, recycling is limited to easy-access materials. Because they serve as containers for popular alcoholic and nonalcoholic beverages in Brazil and can usually be found in any household bin, polyethylene terephthalate (PET) plastics and aluminum cans are particularly attractive.

The aluminum market is considered stable, with waste pickers recycling 339 metric tons per year, receiving $1600 per metric ton (in 2010 US dollars).[33] On average, 37% of all aluminum products are recycled; however, aluminum cans present even higher numbers, with a recycling rate of over 90%.[34] In fact, Brazil is the world leader of aluminum can recycling.[35] This impressive statistic is almost exclusively due to the waste pickers' work and is a direct consequence of the profitability and ease of access to aluminum.

In contrast, plastic has low recycling rates. Waste pickers recycle fifty-six metric tons of plastic per year and receive $658.90 per metric ton.[36] From this group, PET is considered the segment with the best results, with a postconsumer recycling rate of about 60%, followed by low-density polyethylene (LDPE), with a postconsumer recycling rate of around 20%. All other plastic products have rates of less than 10%.[37]

II
WASTE PICKERS' PRECARIOUS REALITY IN BRAZIL

While waste pickers produce environmental and social benefits to the general public, they are still a marginalized group of workers who are suffering the consequences of inadequate working conditions. Although they are not a monolithic group of people, waste pickers have strong, heterogenous features of vulnerability. They often are full-time workers who started working during their childhood to help provide for their families due to the lack of better alternatives.[38] Relevant elements

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33 *Id.* at 8, 19, 21.

34 DIAGNOSIS OF URBAN SOLIDS RESEARCH REPORT, *supra* note 14, at 31.

35 J. MENDO CONSULTORIA, *Estudo da Reciclagem de Metais no País* 50–51 (2009) (Braz.).

36 SURVEY ON PAYMENT FOR URBAN ENVIRONMENT SERVICES, *supra* note 32, at 21.

37 DIAGNOSIS OF URBAN SOLIDS RESEARCH REPORT, *supra* note 14, at 33.

38 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 8.

of vulnerability include race, gender, age, education, income, prejudice, and a lack of health and safety regulations, as discussed below.

A. Race, Gender, Age, Education, and Income

Waste pickers generally are members of a racial minority. Around 66% of waste pickers self-identify as pardo[39] or black.[40] A low level of schooling is also common, with 20% of the surveyed population declaring to be illiterate and only 11% of the surveyed waste pickers over the age of twenty-five having finished school.[41] Gender is a controversial issue, given the mismatch between the official data and the waste pickers' estimates. While the Brazilian Institute for Applied Economic Research[42] estimates that 69% of waste pickers are men,[43] the National Movement of Pickers of Recyclable Materials questioned that figure, estimating that women represent 70% of the group.[44] The income disparities related to gender and race make this data particularly relevant. A woman earns on average 32% less than her male counterpart, and waste pickers who identify as white earn about 22% more than those who identify as black or pardo.[45]

Another alarming category of data concerns the age of workers. Although the average waste picker is thirty-nine years old, 8% of the group is fourteen years old or younger, which constitutes illegal child

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39 Pardo is an ethnicity/skin color classification used by the Brazilian Institute of Geography and Statistics in the Brazilian censuses. It is a complex term, often referring to Brazilians of mixed ethnic ancestries, such as white, black, and indigenous.

40 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 50.

41 *Id.* at 45.

42 In Portuguese: *Instituto de Pesquisa Econômica Aplicada (IPEA)*.

43 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 49.

44 Movimento Nacional dos Catadores de Materiasi Recicláveis, *Mulheres São Maioria Entre Catadores de Materiais Recicláveis*, MNCR (Mar. 21, 2014, 11:24 AM) (Braz.), http://beta.mncr.org.br:8080/site/noticias/noticias-regionais/mulheres-sao-maioria-entre-catadores-organizados-em-cooperativas?searchterm=mulheres+sao [Perma | beta .mncr.org.br:8080].

45 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 54.

labor in Brazil.[46] This number increases during school break.[47] The fact that minors are working illegally as waste pickers further exposes the financial struggles that the families of waste pickers endure.

Indeed, many waste pickers are living in poverty and extreme poverty. On average, waste pickers' earnings do not reach the minimum wage. Further, children join their parents in the waste picking in order to supplement the family income. In 2012, waste pickers earned between $207 and $256 per month[48] while the minimum wage that year was $333.50 per month.[49] The situation has not improved meaningfully since then, with earnings averaging approximately $295 per month in 2017 and 2018.[50] When translating these numbers into an entire family's income, it can reach as little as $34.50 per capita per month,[51] putting these people in extreme poverty.[52]

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46 Chapter 2, article 7.XXXIII of the Brazilian Constitution provides that it is illegal to have people under sixteen years old working. CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] art. 7.XXXIII (Braz.), http://www.planalto.gov.br/ccivil_03/constituicao/constituicaocompilado.htm [https://perma.cc/SX63-MFSC]. Article 428 of the Consolidation of Labor Laws (Labor Statute) establishes an exception for a specific type of work called "apprenticeship," which can start at fourteen years old. However, articles 404 and 405.I, II, § 2º of the Labor Statute prohibit people under eighteen years old to work in jobs that are dangerous or unhealthy, or in any way degrading to their morale; legally, minors can only be working under these conditions with a judge order foreseeing exceptional circumstances. *See* C.L.T. 5.452, de 1º de Maio de 1943 (Braz.), http://www.planalto.gov.br/ccivil_03/decreto-lei/Del5452compilado.htm [https://perma.cc/V4EL-U6K2].

47 DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 13.

48 *Id.* at 61.

49 According to the Inter-Union Department of Statistics and Socio-Economic Studies (DIEESE), the ideal minimum wage in Brazil should be 3,804.05 Brazilian Reais ($1,027.04) per month. *See* https://www.dieese.org.br/analisecestabasica/salarioMinimo.html [https://perma.cc/P43C-5MQF].

50 NATIONAL ASSOCIATION OF WASTE PICKERS & PRAGMA SOLUÇÕES SUSTENTÁVEIS, RECYCLING YEARBOOK 2017-2018, at 16 (2019) (Braz.).

51 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 45.

52 This income is sometimes supplemented with social welfare programs such as *Bolsa Família* (62.92%), *Bolsa Escola* (6.74%), and *Peti* (2.25%). DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 20. *Bolsa Família* is a social welfare program for families in poverty that promotes direct cash transfers and, for those with children, requires school attendance and health checks. *Id. Bolsa Escola* is a poverty-targeted social assistance program providing cash grants to families with school-age children between the ages of seven to fourteen and aiming to promote school attendance. *Id. Peti* is a Portuguese acronym for "Programme to Eradicate Child Labour," which seeks to get children and teenagers out of work considered dangerous, degrading, or unhealthy. *Id.*

B. Health and Safety Concerns

Waste picking is classified as "unhealthy to a maximum extent" by the Brazilian Ministry of Labour and Employment.[53] Health and safety problems include environmental exposure to heat, humidity, rain, loud noises, and strong smells and gases, in addition to heavy weightlifting and other dangerous risks of cuts, falling,[54] being hit by cars, animal bites, contact with flies and rats, work overload, and contamination by chemical and biological materials.[55]

Most waste pickers work alone.[56] These workers usually have close ties with scrap dealers or other intermediaries in an often harmful relationship, whereby they are provided with waste collecting equipment and are kept dependent or in debt.[57] They also become more vulnerable to the pricing policies imposed by the scrap dealers or other intermediaries.[58]

Encouraged by the National Movement of Pickers of Recyclable Materials, cooperatives and associations are becoming more common.[59] Working in an organization tends to alleviate health

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53 BRASIL. MINISTÉRIO DO TRABALHO E EMPREGO, NR 15 - ATIVIDADES E OPERAÇÕES INSALUBRES, Annex. 14 (Braz.), http://www.ccb.usp.br/arquivos/arqpessoal/1360237303_nr15atualizada2011ii.pdf [https://perma.cc/7EWF-P4ZR].

54 SONIA DIAS & ANA CAROLINA OGANDO, CUIDAR PROJECT: WASTE PICKERS' HEALTH RISK MAPPING 5 (2018) (Braz.).

55 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 6.

56 *Id.* at 20. (noting that only about 10% of pickers associate with co-ops or collection groups).

57 *See id.* at 20–22.

58 Martin Medina, *Living off Trash in Latin America: Debunking the Myths*, 14 REVISTA HARV. REV. LATIN AM. 20, 21 (2015).

59 In 2008, Brazil had over 1,175 waste pickers' cooperatives or associations in 684 municipalities, gathering over thirty thousand people. *See* INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA, PESQUISA NACIONAL DE SANEAMENTO BÁSICO [NATIONAL BASIC SANITATION SURVEY] 87 (2008) (Braz.), https://biblioteca.ibge.gov.br/visualizacao/livros/liv45351.pdf [https://perma.cc/Q4RC-36J4]. This meant the existence of 461 waste pickers for every 100,000 workers in Brazil. *See* Ricardo de Sampaio Dagnino & Igor Cavallini Johansen, *Os Catadores No Brasil: Características Demográficas e Socioeconômicas Dos Coletores de Material Reciclável, Classificadores de Resíduos e Varredores a Partir Do Censo Demográfico de 2010* [*Catchers in Brazil: Demographic and Socioeconomic Features of Recyclable Materials Collectors, Waste Classifiers and Sweepers from the 2010 Demographic Census*], 62 BOLETIM MERCADO DE TRABALHO 117, 118 (2017) (Braz.), http://www.ipea.gov.br/portal/images/stories/PDFs/mercadodetrabalho/170505_bmt_62.pdf [https://perma.cc/4LZ8-HFJH]. It is argued that by 2017 this figure had risen to over 1,700 cooperatives and associations, and this outstanding performance is linked to the ten-years-long governmental support via the Social Technology Network. *See* Velis, *supra* note 6, at 330. The South and Southeast regions lead the number of waste pickers' cooperatives in Brazil. *See* DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 14.

issues,[60] creating a better, safer, and more satisfactory work environment.[61] Nonetheless, waste picking is still predominantly informal, and workers lack insurance, social security, and labor rights.

Despite the obstacles of their unstable monetary gains, the unhealthy working conditions, and the lack of labor rights, most waste pickers take pride in their work.[62] Over 60% of surveyed waste pickers have expressed their intention to continue working on the same activity.[63] The most commonly cited reason for this choice is the perception of the social importance of the waste collection and recycling activity.[64]

C. Prejudice and Exclusion

Waste pickers are an urban phenomenon, with 93% living in urban areas.[65] A research study conducted in the South Region of Brazil reported that 64% of these workers walk to work, with a majority commuting less than thirty minutes.[66] This suggests that they are living near their "working areas," meaning dumps or landfills.

Waste pickers often suffer from social prejudice.[67] Conflicts between waste pickers and people who live near the storage sheds of recyclable material or waste sorting stations are common.[68] Residents complain about the bad smell, disease exposure, and even the visual aspects that such developments bring to the region.[69] There are reports of criminal fires at these sites in an attempt to force the waste pickers to move.[70]

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60 Eric Binion & Jutta Gutberlet, *The Effects of Handling Solid Waste on the Wellbeing of Informal and Organized Recyclers: A Review of the Literature*, 18 INT'L. J. OCCUPATIONAL ENV'T. HEALTH 43, 43 (2012), http://www.tandfonline.com/doi/full/10.1179/1077352512Z.0000000001 [https://perma.cc/SL7S-34DC].

61 DIAS & OGANDO, *supra* note 54, at 9.

62 *See* DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 21.

63 *Id.*

64 *Id.*

65 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 44.

66 UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL, RELATÓRIO PARCIAL: ESTUDO DO PERFIL SÓCIO-EDUCACIONAL DA POPULAÇÃO DE CATADORES DE MATERIAIS RECICLÁVEIS ORGANIZADOS EM COOPERATIVAS, ASSOCIAÇÕES E GRUPOS DE TRABALHO [PARTIAL REPORT: STUDY OF THE SOCIO-EDUCATIONAL PROFILE OF THE POPULATION OF RECYCLABLE MATERIAL COLLECTORS ORGANIZED IN COOPERATIVES, ASSOCIATIONS AND WORK GROUPS] 19 (2009) (Braz.).

67 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 6–7.

68 *Id.* at 7.

69 *Id.*

70 *Id.*

The alarmingly low income, critical health and safety issues, and social prejudice and exclusion facing waste pickers expose a concerning disconnect between the importance of waste pickers' services to the community and how society values them. In this context, any urban waste management model that does not integrate the social aspects as well as the environmental considerations above will continuously fail to properly address the waste crisis and deliver social justice. While federal legislation has provided a framework to incorporate social and environmental sustainability into waste management since the 1990s, the states and municipalities have been failing to implement it, as discussed below.

III
LEGAL FRAMEWORK FOR INCLUSION OF WASTE PICKERS IN THE WASTE MANAGEMENT SYSTEM

On par with the United States of America, Brazil is a federation, also known as a federal state.[71] The combination of states, municipalities, and the Federal District constitutes the Federative Republic of Brazil.[72] Therefore, the Union is the federal government of Brazil, the federal entity formed by the combination of those component parties.[73] Located in the Federal District, Brasília is the federal capital of Brazil.[74]

The Brazilian legal system is primarily based on the civil law tradition. Domestic laws follow a hierarchal order that can never be disrespected, with the Brazilian Constitution (the Constitution) at the top, followed by federal legislation, then Federal District and state legislation, then municipal supplementary legislation at the bottom.[75] State legislation that violates federal legislation is automatically void.[76]

Therefore, the provisions of the Constitution dictate the fundamental law of Brazil. Title III of the Brazilian Constitution provides for the

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71 JOSÉ AFONSO DA SILVA, CURSO DE DIREITO CONSTITUCIONAL POSITIVO 99 (25th ed. 2005).

72 CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] art. 1 (Braz.), http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm [https://perma.cc/KS5M-PAZR].

73 SILVA, *supra* note 71, at 100.

74 CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] art. 18.1 (Braz.), http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm [https://perma.cc/KS5M-PAZR].

75 *Id.* art. 18.

76 Leonardo Greco, *Competências Constitucionais em Matéria Ambiental* [*Constitutional Competences in Environmental Matters*], 29 REV. INFORMAÇÃO LEGIS. 135, 142–43 (1992) (Braz.), http://www2.senado.leg.br/bdsf/handle/id/176036 [https://perma.cc/ZS98-CWSN].

powers of each of its entities.[77] Chapter II provides for the Union's exclusive powers, leaving few residual powers to the states.[78] Article 23 lists the matters of common competencies between the Union, states, and municipalities.[79] The Federal District accumulates the powers of both states and municipalities.[80]

Although there is no specific provision about waste management, the Constitution provides for the Union's power to create general national laws relative to urban development, including basic sanitation.[81] Environmental protection and the control of pollution are concurrent powers of the Union, the Federal District, and the states.[82] Municipalities also have the power to create supplementary legislation in relation to environmental and pollution control.[83]

A. Early Municipal Schemes

As mentioned above, the municipalities have the power to enact legislation to supplement federal and state laws. They also have the power to legislate on matters of local interest and are responsible for managing local public services. Waste management is primarily of local interest, and local governments were the first to notice the realities of waste pickers. Thus, the first legislative instruments to deal with recycling schemes and waste pickers in Brazil were enacted at the municipal level in the early 1990s.

The capital of the southeastern state of Minas Gerais, Belo Horizonte, was one of the first to integrate waste pickers in its municipal recycling programs. In 1990, the Municipal Organic Law[84] gave preferential treatment to the collection and sale of recyclables through the work of cooperatives.[85] Historically, the city has had a

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77 CONSTITUIÇÃO FEDERAL [C.F.] [CONSTITUTION] arts. 18–43 (Braz.), http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm [https://perma.cc/KS5M-PAZR].

78 *Id.* arts. 20–24.

79 *Id.* art. 23.

80 *Id.* art. 32(1).

81 *Id.* art. 21.XX.

82 *Id.* art. 24.VI.

83 *Id.*

84 The Municipal Organic Law is the superior law of a municipality. This legal provision constitutes a general law forming the foundation of the municipal government. *Id.* art. 29.

85 Lei Orgânica de 21 de Março de 1990, art. 151, Diário Oficial de Belo Horizonte [D.O.B.H.] de 21.3.1990 (Braz.), https://leismunicipais.com.br/lei-organica-belo-horizonte-mg.

strong presence of organized waste pickers[86] and has acknowledged and supported waste pickers' enterprises.[87] It is also noteworthy that Belo Horizonte continuously maintains itself among the selective group of cities that together constitute approximately one-quarter of the Brazilian economy.[88]

The capital of the southern state of Rio Grande do Sul, Porto Alegre, was also a forerunner in local recycling programs. In 1990, Complementary Law No. 234 gave waste pickers' groups preferential treatment over the recyclable materials collected through the municipal recycling system.[89] This matter is currently regulated by Complementary Law No. 728 of 2014.[90]

Ten years later, the municipality of Diadema in the state of São Paulo added waste pickers' organizations as possible partners for the municipal recycling schemes and beneficiaries of any profit generated.[91]

In contrast, the city of São Paulo, which is the capital of the state of São Paulo and is Brazil's largest municipality, did not produce any significant regulation on the matter until many years later, after the federal legislation for waste management, known as the National Solid Waste Policy, entered into force. In 2014, the city of São Paulo

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86 ANA CAROLINA OGANDO & MARINA BRITO, ESTUDO DE MONITORAMENTO DE ECONOMIA INFORMAL: CATADORAS E CATADORES EM BELO HORIZONTE, BRASIL [INFORMAL ECONOMY MONITORING STUDY: WASTE PICKERS IN BELO HORIZONTE, BRAZIL] 2 (2013) (Braz.).

87 INST. OF APPLIED ECON. RSCH., GOOD PRACTICES FOR URBAN SOLID WASTE MANAGEMENT AND REVERSE LOGISTICS WITH THE INCLUSION OF WASTE PICKERS AND WASTE PICKERS OF RECYCLABLE MATERIALS: RESEARCH REPORT 41 (2015) (Braz.) [hereinafter GOOD PRACTICES FOR URBAN SOLID WASTE MANAGEMENT].

88 INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA, PRODUTO INTERNO BRUTO DOS MUNICÍPIOS 2016 [GROSS DOMESTIC PRODUCT OF MUNICIPALITIES 2016] 1 (2016) (Braz.).

89 Lei No. 234, de 10 de Outubro de 1990, Diário Oficial de Porto Alegre [D.O.E.P.A] de 10.10.1990 (Braz.), http://www2.portoalegre.rs.gov.br/cgi-bin/nph-brs?s1=000022314.DOCN.&l=20&u=%2Fnetahtml%2Fsirel%2Fsimples.html&p=1&r=1&f=G&d=atos&SECT1=TEXT [https://perma.cc/7H89-MW6H].

90 Lei No. 728, de 08 de Janeiro de 2014, Diário Oficial de Porto Alegre [D.O.E.P.A.] de 8.1.2014 (Braz.), http://www2.portoalegre.rs.gov.br/cgi-bin/nph-brs?s1=000033832.DOCN.&l=20&u=%2Fnetahtml%2Fsirel%2Fsimples.html&p=1&r=1&f=G&d=atos&SECT1=TEXT [https://perma.cc/D3E4-FRZV].

91 Lei No. 1921, de 23 de Maio de 2000, art. 1, Diário Oficial de Diadema [D.O.E.D.] de 23.5.2000 (Braz.), http://www.cmdiadema.sp.gov.br/legislacao/leis_integra.php?chave=192100 [https://perma.cc/2X7D-79TV].

developed the Plan for the Integrated Management of Solid Waste.[92] This plan amplified the selective collection of waste, prioritized recycling, and integrated waste pickers.[93]

While local laws integrating waste pickers have existed since the 1990s, this development has been organic and uncoordinated, and to this date it is limited to a small number of medium- and large-sized municipalities. Access to municipal data is scarce and often unreliable. But low rates of selective collection and the spread of dumps and landfills across the country show that most municipalities do not have a plan for solid waste management, and even more do not integrate waste pickers into their policies.[94]

About 11% of municipalities have integrated waste pickers into their selective waste collection.[95] Most of these municipalities are located in the South and Southeast Regions of Brazil.[96] However, even where integration exists, a lack of stable contracts or employment relationships endures, and these schemes are failing to alleviate the vulnerabilities of waste picking.[97] A government report concluded that only thirty-five municipalities in Brazil have adopted good practices[98] that are capable of achieving meaningful outcomes; however, even those practices continue to present limitations.[99]

As the governmental bodies that have the greatest responsibilities for waste management and that have direct contact with waste pickers, municipalities have paved the way toward integration. Early municipal schemes represented the first formal interaction between the

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92 Decreto No. 54.991, de 2 de Abril de 2014, Diário Oficial da Cidade de São Paulo [D.O.E.C.S.P.] de 5.4.2014 (Braz.), http://legislacao.prefeitura.sp.gov.br/leis/decreto-54991-de-2-de-abril-de-2014/detalhe [https://perma.cc/XJ8P-SGYY].

93 PREFEITURA MUNICIPAL DA CIDADE DE SÃO PAULO, PLANO DE GESTÃO INTEGRADA DE RESÍDUOS SÓLIDOS DA CIDADE DE SÃO PAULO 15 (2014) (Braz.), https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/servicos/arquivos/PGIRS-2014.pdf [https://perma.cc/K8FG-RMDR].

94 GOOD PRACTICES FOR URBAN SOLID WASTE MANAGEMENT, *supra* note 87, at 19.

95 CEMPRE, REVIEW 2019, at 25 (2019), https://cempre.org.br/wp-content/uploads/2020/11/CEMPRE-Review2019.pdf.

96 *Id.* at 32.

97 *Id.* at 19.

98 *Id.* at 31. The report uses eleven indicators of good outcomes, or good practices. These indicators include infrastructure and access to adequate work conditions according to occupational health and safety standards, made possible by the municipalities; inclusion of waste pickers' expertise to conduct environmental and educational awareness; cooperation between the municipality's public policies for waste pickers with other governmental public policies; and others. *Id.* at 56.

99 *Id.* at 54.

government and waste pickers in Brazil.[100] At first, waste pickers were simply allowed access to waste. Gradually, this access was expanded to make waste pickers the preferred recipients of municipal waste. At present, some programs have integrated waste pickers into the municipal services for selective collection of waste, with very few initiatives focusing on fair compensation, environmental education, and training.[101]

Nearly four decades have passed since the first municipal legislation was enacted, yet municipal programs remain uncommon and limited, waste pickers remain vulnerable, and working conditions remain unimproved. Some initial conclusions can be drawn from the few successful cases of waste picker integration into waste management at the municipal level. Conditions that have facilitated success include access to resources and ongoing contact with waste pickers' groups.

B. Waste Management Regulation at the State Level

At the state level, Santa Catarina and Minas Gerais differentiate themselves from the other twenty-four Brazilian states in terms of championing waste pickers and waste management.[102] This can be observed in their innovative legislation and the results achieved by recycling and waste management in these regions. Santa Catarina and Minas Gerais have the highest rates in the country for selective waste collection, waste sorting facilities, and final disposal in sanitary landfills.[103]

In 2005, the state of Santa Catarina enacted its Solid Waste Policy, recognizing the importance of promoting waste pickers' enterprises.[104] In 2009, the Santa Catarina Environmental Code addressed waste management, seeking to incentivize the creation and development of waste pickers' enterprises.[105]

Also in 2009, the state of Minas Gerais instituted its own Solid Waste Policy, integrating waste pickers and explicitly pursuing the

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100 *Id.* at 14.

101 *Id.* at 35, 39, 41.

102 *See* DIAGNOSIS OF URBAN SOLIDS RESEARCH REPORT, *supra* note 14, at 17.

103 *Id.* at 44.

104 Lei No. 13.557, de 17 de Novembro de 2005, art. 6.VII, Diário Oficial de Santa Catarina [D.O.E.S.C.] de 17.11.2005 (Braz.), http://leis.alesc.sc.gov.br/html/2005/13557_2005_lei.html [https://perma.cc/JF5T-PJQ9].

105 Lei No. 14.675, de 13 de Abril de 2009, tit. VI, ch. I, art. 256.XVI, Diário Oficial de Santa Catarina [D.O.E.S.C.] de 13.4.2009 (Braz.), http://leis.alesc.sc.gov.br/html/2009/14675_2009_lei.html [https://perma.cc/N9YB-FFF7].

recognition of their services while ensuring dignified work conditions.[106] In 2012, the "Recycling Bonus" program[107] was created to provide financial support based on the volume and type of recyclable materials collected and sold by waste pickers.[108]

There is a positive correlation between the existence of these programs and the development of recycling facilities in the two regions. More than three out of four solidarity economy enterprises, which include cooperatives and associations, in the recycling sector in Brazil are based in the South or Southeast Regions.[109] Empirical data also indicate that waste pickers' enterprises in the South and Southeast Regions commercialize more recycled materials than other regions.[110] In fact, waste pickers in these regions earn more than the national average, with the highest pay in Santa Catarina.[111]

C. Waste Management Regulation at the Federal Level

In order to fill in the gap left by the states and municipalities in the last two decades, federal legislation has increasingly regulated waste and waste pickers under the environmental protection power.[112] Such legislation included the recognition of waste picking as a professional occupation[113] in 2002,[114] and the facilitation of the direct hiring of

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106 Lei No. 18.031, de 12 de Janeiro de 2009, art. 7.VII, Diário Oficial de Minas Gerais [D.O.E.M.G.] de 13.1.2009 (Braz.), http://www.siam.mg.gov.br/sla/download.pdf ?idNorma=9272.

107 In Portuguese: *Bolsa Reciclagem*.

108 Lei No. 19.823, de 22 de Novembro de 2011, Diário Oficial de Minas Gerais [D.O.E.M.G.] de 22.11.2011 (Braz.), http://www.siam.mg.gov.br/sla/download.pdf ?idNorma=19694.

109 SOCIAL SITUATION OF WASTE PICKERS, *supra* note 26, at 27.

110 NATIONAL ASSOCIATION OF WASTE PICKERS & PRAGMA SOLUÇÕES SUSTENTÁVEIS, *supra* note 50, at 22.

111 INST. OF APPLIED ECON. RSCH., SOCIAL SITUATION OF WASTE PICKERS AND MATERIAL PICKERS RECYCLABLE AND REUSABLE: SOUTH REGION 16 (2013) (Braz.).

112 CONSTITUICÃO FEDERAL [C.F.] [CONSTITUTION] art. 24.VI (Braz.). As mentioned above, environmental protection and the control of pollution are concurrent competencies of the Union, the Federal District, and the states, under article 24.VI of the Constitution.

113 The Brazilian Occupation Classification, which is a document issued by the federal government, recognized waste picking as a professional category and waste pickers as professionals that collect, sort, and sell recyclable materials such as paper, cardboard, glass, ferrous, and other reusable materials, either working individually or in associations or cooperatives.

114 Classificação Brasiliera de Ocupações CBO - 5192 Trabalhadores Da Coleta e Seleção de Material Reciclável (*Classificação Brasiliera de Ocupações CBO*, 2002) (Braz.), http://www.mtecbo.gov.br/cbosite/pages/pesquisas/BuscaPorTituloResultado.jsf [https://perma.cc/DS3E-7DA5] (last visited Feb 5, 2021).

waste pickers' associations and cooperatives to provide selective waste picking to municipalities, with a waiver of bidding requirements in 2007.[115] Still, the most important legislation came in 2010, with Law No. 12,305 implementing the National Policy for Solid Waste (National Policy), as discussed below.[116]

1. The National Policy for Solid Waste

This legislation legally integrated waste pickers into Brazilian solid waste policy. Article 7.XII provides the objectives of the National Policy, including the integration of waste pickers to act on the products' life cycles.[117] In order to achieve this objective, article 8.IV requires that incentives to promote and support waste pickers' cooperatives and enterprises be implemented by the federal government, independently or in cooperation with the states, the Federal District, and the municipalities.[118]

The National Policy also provides for the Union's responsibility to create and update the National Plan for Solid Waste. The law requires that, in diagnosing the current status of waste management and preparing targets to eliminate and recuperate dumps, the Union must address the social inclusion and economic emancipation of waste pickers. In addition to these requirements for the Union, states and municipalities are held to similar requirements and are obligated to create plans for solid waste.[119]

Waste management is considered a local interest; thus, the National Policy has imposed more practical obligations upon municipalities. For instance, all municipalities that have waste pickers' enterprises must develop programs to promote and support them. In order to increase

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115 Lei No. 11.445, de 5 de Janeiro de 2007, Diário Oficial da União [D.O.U.] de 5.1.2007 (Braz.), http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/lei/L11445compilado.htm [https://perma.cc/4NES-VZE7].

116 Leo No. 12.305, de 2 de Agosto de 2010, Diário Oficial da União [D.O.U.] de 2.8.2010 (Braz.), http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm [https://perma.cc/2UWR-V6DK]. Article 3.XVI of the National Policy defines solid waste as material, substance, object, or good discarded as a result of human activities in society. Solid waste's final destination is carried out in solid or semisolid states. The definition also includes materials with gases and liquids that have particularities unsuitable for release into the public sewage system, or water bodies, or require technically or economically unviable solutions considering the best available technology.

117 *Id.* art. 7.XII. Article 3.IV of the National Policy defines the product's life cycle as the set of actions that involve product development, sourcing of raw materials and inputs, the production process, consumption, and final disposal.

118 *Id.* arts. 4, 8.IV.

119 *Id.* arts. 15–17.

compliance by municipalities, the National Policy adopted a "carrots and sticks" approach, whereby the transfer of resources for urban cleaning and solid waste management from the Union to the municipalities became contingent on the submission of integrated municipal management plans for solid waste. Priority was given to municipalities that incorporated waste pickers into their management plans.[120] As explained below, however, this approach has failed to perceive that many municipalities did not have the financial capacity and technical resources to create plans for solid waste. Because many municipalities suffer from limited revenue, they depend on funding from the federal government.

The National Policy contemplates economic instruments that aim to create a sustainable waste management system. For example, the National Policy awards credits that can be used toward equipment acquisition and other infrastructure needs of waste pickers' enterprises.[121] The National Policy also created financing schemes to support a range of initiatives that can apply to waste pickers, such as solid waste production programs, sustainable management systems for productive processes' improvement, and reuse of residues.[122] Furthermore, the National Policy encouraged the states, Federal District, and municipalities to provide other financial incentives to entities and projects aiming to improve recycling and responsible management of the products' life cycles, especially waste pickers.[123]

2. Other Federal Programs

In addition to the enactment of the National Policy, and in line with the Union's responsibilities provided in article 8.IV of the National Policy, two other programs were implemented in 2010. First, the "Pro-Waste Picker Program"[124] aimed to articulate all the federal government's actions toward supporting waste pickers' organizations and improving working conditions. The program envisaged support through training, technical advice, research, and studies on the products' life cycle, in addition to shared responsibility for waste management, equipment acquisition, and infrastructure

120 *Id.* art. 18.

121 *Id.* art. 42.III.

122 *Id.* art. 42.II, III, V.

123 *Id.* arts. 42, 44.

124 In Portuguese: *Programa Pró-Catador*.

implementation.[125] Although an important initiative in theory, almost a decade later, data on the outcomes of the Pro-Waste Picker Program are scarce. In the municipality of Florianópolis, the capital of Santa Catarina, research found that most waste pickers were unaware of the existence of the Pro-Waste Picker Program.[126] The few waste pickers who knew about the program stated they were indifferent to its results.[127]

Second, Law No. 12,375 granted taxation incentives to the industry sector for the acquisition of solid waste directly from the waste pickers' cooperatives. The fiscal incentives were valid until the end of 2014[128] and were later extended until the end of 2018.[129] We were not able to find data on the outcomes of this program.

Therefore, despite these programs, waste pickers in Brazil are still widely marginalized,[130] impoverished, and exploited by the system. The programs have faced challenges, such as changing political views and governments, the increased costs of selective collection as compared to traditional collection, and the difficulties of articulating a multidimensional program.[131] In addition, practical limitations of the waste management programs involving waste pickers are an obstacle to the expansion of recycling.[132]

3. Remaining Challenges

Several issues remain, which tend to be interconnected. First, the Union has not updated its National Plan for Solid Waste in years. Without an updated and valid National Plan, the Union does not have a legitimate instrument to address lingering problems in the states and municipalities, such as irregular waste collection and inadequate final

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125 Decreto No. 7.405, de 23 de Dezembro de 2010, Diário Oficial da União [D.O.U] de 23.12.2010 (Braz.), http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/decreto/d7405.htm [https://perma.cc/KK9Y-6774].

126 Alessandra Knoll, O Programa Pró-Catador e a Nova Política Nacional de Resíduos Sólidos: Uma Análise da Associação de Coletores de Materiais Recicláveis, 144–45 (2014) (M. dissertation, Universidade Federal de Santa Catarina) (on file with author) (Braz.).

127 *Id.* at 145.

128 Lei No. 12.375, de 30 de Dezembro de 2010, art. 5, Diário Oficial da União [D.O.U.] de 30.12.2010 (Braz.), http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2010/Lei/L12375.htm [https://perma.cc/VC37-6QSG].

129 Lei No. 13.097, de 19 de Janeiro de 2015, art. 7, Diário Oficial da União [D.O.U.] de 19.1.2015 (Braz.), http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2015/Lei/L13097.htm#art7 [https://perma.cc/3LSS-HDKM].

130 GOOD PRACTICES FOR URBAN SOLID WASTE MANAGEMENT, *supra* note 87, at 55.

131 DIAGNOSIS OF SOLID WASTE PICKERS, *supra* note 23, at 51–52.

132 *Id.*

disposal. The Federal Ministry for the Environment has offered support in the form of financial transfers and training of public agents. However, these programs take an average of fifty-seven months to present results, and, in some cases, the programs have not even evolved from planning to practice.[133]

The lack of commitment at the federal level is reflected by lack of plans for solid waste at the state level. In 2017, seven years after the National Policy was enacted, only twelve of twenty-six states have elaborated their plans for solid waste.[134] At the municipal level, 2,325 municipalities declared to have municipal plans for solid waste.[135] On the other hand, 3,245 municipalities declared not to have their plans, accounting for ninety-seven million people, or 48% of Brazilians, living in municipalities without the required plans.[136]

Second, the "carrots and sticks" approach to get municipalities on board has failed dramatically. Municipalities are not adopting the directives of the National Policy, primarily due to planning and financing issues.[137] Municipalities face structural, technical, and economic difficulties in preparing waste management policies.[138] This produces a spiraling effect, as without the elaboration of their plans for solid waste, the poorest municipalities in the country are not able to access the Union's resources for urban cleaning and solid waste management.

Third, there is a dramatic discrepancy between the resources promised by the Union and the actual amount set aside for those municipalities that comply with the National Policy. Between 2007 and 2014, the federal budget had earmarked approximately $150 million per year to be transferred to complying municipalities. However, in reality, only $3.8 million, or 5% of the yearly budget, was

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133 BRASIL MINISTÉRIO DA TRANSPARENCIA E CONTROLADORIA GERAL DA UNIÃO, RELATÓRIO DE AVALIAÇÃO POR ÁREA DE GESTÃO NO. 9 RESÍDUOS SÓLIDOS [EVALUATION REPORT BY MANAGEMENT AREA NO. 9 SOLID WASTE] 10, 11, 36 (2017) (Braz.).

134 *Id.* at 42.

135 BRASIL MINISTÉRIO DO MEIO AMBIENTE, RESÍDUOS SÓLIDOS (2015), http://www.mma.gov.br/mma-em-numeros/residuos-solidos (Braz.).

136 *Id.*

137 GOOD PRACTICES FOR URBAN SOLID WASTE MANAGEMENT, *supra* note 87, at 17.

138 *Id.*

actually available.[139] There is a justifiable lack of trust in the federal government.

The National Policy authorizes the use of economic instruments to foster sustainable waste management projects, although it does not prescribe the type of instrument. In order to be sustainable over time, these schemes must be designed with municipalities' budgetary constraints and other limitations in mind. We argue that Payment for Environmental Services (PES) can support the integration of waste pickers into the waste management system, properly compensating their services at the local level, while staying within the limitations of the municipalities' existing budgets.

IV
THE USE OF PAYMENT FOR URBAN ENVIRONMENTAL SERVICES FOR SOLID WASTE MANAGEMENT

Payment for Environmental Services, sometimes known as Payment for Ecosystem Services, is an innovative environmental policy instrument that has been progressively applied in the Global South. Time and practice revealed it to be a popular public policy, aligning natural resource management with human well-being improvement through the provision of incentives.[140]

The idea behind PES is to promote sustainable practices, referred to as environmental services. This concept initiated from the understanding of nature as a resource that provides a flow of services—however, the complexity and the range of environmental challenges proved to be of importance.[141] Therefore, issues regarding waste management were incorporated into the concept, under the name of urban environmental services. Payment for Urban Environmental Services[142] is an instrument that has the capacity to support the waste pickers' sustainable waste management practices.

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139 BRAZIL SECRETARIAT FOR EXTERNAL CONTROL OF AGRICULTURE AND THE ENVIRONMENT, SURVEY REPORT: NATIONAL POLICY ON SOLID WASTE LAW NO. 12.305 OF 2010, REGULATED BY DECREE NO. 7,404 OF 2010, at 12 (2015) (Braz.).

140 Vijay Kolinjivadi et al., *Capabilities as Justice: Analysing the Acceptability of Payments for Ecosystem Services (PES) Through 'Social Multi-Criteria Evaluation*,*'* 118 ECOL. ECON. 99, 99 (2015), https://linkinghub.elsevier.com/retrieve/pii/S0921800915002992 [https://perma.cc/4VYS-Y437].

141 Richard B. Norgaard, *Ecosystem Services: From Eye-Opening Metaphor to Complexity Blinder*, 69 ECOL. ECON. 1219, 1226 (2010), https://linkinghub.elsevier.com/retrieve/pii/S0921800909004583 [https://perma.cc/SNE9-X9ZL].

142 Payment for Urban Environmental Services is also known as Payment for Environmental Services towards Waste Pickers.

A. Definition of Payment for Environmental Services

PES is an increasingly popular mechanism to address environmental degradation,[143] especially in the Global South. PES was conceived as a market-based instrument, reflecting the scarcity of environmental services and internalizing the external costs of ecosystems' degradation.[144] The instrument is currently the subject of important ecological discussions,[145] such as the scope, design, implementation, equity, social, and political features of environmental policies, and it is a chief policy instrument in the conservation agenda.[146]

There are many definitions of PES. The predominant theoretical conceptualization defines PES as a combination of five elements: "(1) voluntary transactions (2) between service users (3) and service providers (4) that are conditional on agreed rules of natural resource management (5) for generating offsite services."[147] Thus, PES promotes sustainable activities that produce positive environmental outcomes, benefiting society as a whole.

The reality of socioecological systems turned out to be more complex than the assumptions of the market-based model,[148] especially considering that the geographical areas where PES has been adopted are often impoverished regions in the Global South.[149] As vulnerable

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143 Stefanie Engel, *The Devil in the Detail: A Practical Guide on Designing Payments for Environmental Services*, 9 INT'L REV. ENV'T. RES. ECON. 131, 132 (2016), http://www.nowpublishers.com/article/Details/IRERE-0076 [https://perma.cc/DY2M-78AV].

144 Stefanie Engel et al., *Designing Payments for Environmental Services in Theory and Practice: An Overview of the Issues*, 65 ECOL. ECON. 663, 663–64 (2008), http://linkinghub.elsevier.com/retrieve/pii/S0921800908001420 [https://perma.cc/HP75-HQU7].

145 Unai Pascual et al., *Social Equity Matters in Payments for Ecosystem Services*, 64 BIOSCIENCE 1027, 1027 (2014), http://academic.oup.com/bioscience/article/64/11/1027/2754206/Social-Equity-Matters-in-Payments-for-Ecosystem [https://perma.cc/6R5Q-UH7X].

146 Justine Bell-James, *Integrating the Ecosystem Services Paradigm into Environmental Law: A Mechanism to Protect Mangrove Ecosystems?*, 31 J. ENV'T. L. 291, 294 (2019), https://academic.oup.com/jel/article/31/2/291/5476565 [https://perma.cc/FX7W-7WWD].

147 Sven Wunder, *Revisiting the Concept of Payments for Environmental Services*, 117 ECOL. ECON. 234, 241 (2015), http://linkinghub.elsevier.com/retrieve/pii/S0921800914002961 [https://perma.cc/7KST-N8D8].

148 Roldan Muradian et al., *Reconciling Theory and Practice: An Alternative Conceptual Framework for Understanding Payments for Environmental Services*, 69 ECOL. ECON. 1202, 1204 (2010), http://linkinghub.elsevier.com/retrieve/pii/S0921800909004558 [https://perma.cc/7MEY-UCZ4].

149 Roldan Muradian et al., *Payments for Ecosystem Services and the Fatal Attraction of Win-Win Solutions*, 6 CONSERV. LETTERS 274, 275 (2013), http://doi.wiley.com/10.1111/j.1755-263X.2012.00309.x [https://perma.cc/SHJ4-NVKZ].

people became cobeneficiaries of PES services, social equity concerns received prominence in PES debates.[150] Over time, experience mandated that social matters and equity should be at the center of PES's design and implementation.[151]

Hence, the way in which this internalization will operate is a crucial point for PES's effectiveness.[152] Without the consideration of a sixth element—one that contemplates the social dimension—PES schemes will likely be unsuccessful in the Global South.

B. Payment for Environmental Services in Brazil

PES schemes are widespread in Brazil, predominantly in rural areas.[153] The country has 316 ongoing PES schemes, with 52% located in the Southeast Region, and 19% in the South Region.[154] The lack of federal legislation providing guidelines on governance, design, modalities, funding, access to benefits, social equity, and others has meant that these programs have different characteristics. There are private initiatives, public initiatives (involving all members of the Union), as well as public-private partnerships for implementing PES schemes.[155] The programs are created to pursue objectives—the most common of which are watershed protection, biodiversity, forest protection, and land-use carbon.[156]

The only federal legal provision regulating PES schemes is found in the National Forest Code, which in general terms allows PES to exist

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150 Melanie McDermott et al., *Examining Equity: A Multidimensional Framework for Assessing Equity in Payments for Ecosystem Services*, 33 ENV'T. SCI. POL'Y 416, 417 (2013), https://linkinghub.elsevier.com/retrieve/pii/S1462901112001773 [https://perma.cc/D3S2-CGCF].

151 Jan Börner et al., *The Effectiveness of Payments for Environmental Services*, 96 WORLD DEV. 359, 371 (2017), https://linkinghub.elsevier.com/retrieve/pii/S0305750X17300827 [https://perma.cc/F8KD-8K2C].

152 Ana Paula Rengel Gonçalves et al., *Payment for Environmental Services to Promote Agroecology: The Case of the Complex Context of Rural Brazilian*, 7 SUSTAIN. AGRIC. RSCH. 56, 61 (2018), http://www.ccsenet.org/journal/index.php/sar/article/view/73830 [https://perma.cc/M5NK-5CG5].

153 *Id.* at 64.

154 Natália Jodas, Sustainability Guidelines of the Ecological Economy for Payment Projects Environmental Services (PES) in Brazil (2019) (unpublished Doctoral Thesis, University of São Paulo Law School) (on file with author) (Braz.).

155 *See* Ana Maria de Oliveira Nusdeo & Natália Jodas, *Pagamento por Serviços Ambientais (PSA) no Brasil e Sua Governança: Experiências e Reflexões* [*Payment for Environmental Services (PES) in Brazil and Its Governance: Experiences and Reflections*], *in* O ESTADO REGULADOR NO CENÁRIO AMBIENTAL 89–95 (Ana Alice de Carli, Elena Aydos & Pedro Curvello Saavedra Avzaradel eds., 2017) (Braz.).

156 Jodas, *supra* note 154, at 166.

and provides a nonexhaustive list of "environmental services." Among others, the services listed are as follows: (a) the sequestration, conservation, maintenance, and increase of inventory and the reduction of carbon flow; (b) the conservation of natural scenic beauty; (c) the conservation of biodiversity; (d) the conservation of water and water services; (e) climate regulation; (f) cultural valuation and traditional ecosystem knowledge; and (g) soil conservation and improvement.[157]

This nonexhaustive list of environmental services, however, has been criticized for being too broad and for the lack of clarity around the actual "benefits" it would produce. Environmental services are better understood when considering their targets: (1) pollution management, (2) cleaner technologies and products, (3) natural resource management assets, and (4) environmentally preferable goods. The first classification—pollution management—relates to goods or services contributing to air pollution control, effluent and solid waste management, soil contamination, surface and groundwater protection, and noise and vibration reduction, as well as monitoring, analysis,
and environmental assessment. The second—cleaner technologies and products—relates to "environmental services" production, meaning goods or services that are cleaner or more efficient, such as photovoltaic units. The third—natural resource management assets—represent goods or services contributing to protection of water supply, sustainable management of forests, protection of farms or fishing areas, conservation of energy, and reduction of natural disasters' impacts. Lastly, environmentally preferable goods are goods or services that significantly reduce environmental damage throughout their life cycle when compared to similar products or goods.[158]

C. Urban Environmental Services and Waste Pickers

The term "urban environmental service" is used to contextualize activities conducted in the urban area that generate positive environmental externalities or minimize negative environmental externalities. Examples of urban environmental services include sewage treatment that improves water quality, collective transportation that reduces greenhouse gas (GHG), and green area maintenance that

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[157] Lei No. 12.651, de 25 de Maio de 2012, art. 41, Diário Oficial da União [D.O.U.] de 5.25.2012 (Braz.), http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/L12651compilado.htm [https://perma.cc/7FHW-PDJ3].

[158] SURVEY ON PAYMENT FOR URBAN ENVIRONMENT SERVICES, *supra* note 32, at 32.

increases soil permeability and reduces risks of floods and landslides.[159]

In terms of waste management in urban areas, urban environmental services would include two key activities. First is the correct disposal of solid waste, which results in improved water quality, GHG reduction, and decreased risks of infectious diseases.[160] Second is urban waste recycling, which provides reduced water consumption and pollution, lower GHG emission, less impact on natural resources, and a decline in the need for renewable and nonrenewable virgin raw material (e.g., pulp, iron ore, bauxite, petroleum, and others).[161]

Importantly, in order to be sustainable, waste initiatives should build on existing waste management practices. Selective collection of waste for recycling in Brazil, and in many other countries of the Global South, is executed by waste pickers.[162] In this context, PES schemes can assist the sustainability of the waste pickers' crucial work in Brazil, ensuring that they are properly compensated for the environmental services they provide.[163] A key strength of this proposal is the potential for cost neutrality. As we discuss below, when well designed, these schemes would not impose extra costs on already resource-poor municipalities.

Given the dissonance between local practices across municipalities, regions that have already been including waste pickers in their regulatory framework are likely to be the first to implement PES programs. One such example is a bill establishing Payment for Urban Environmental Service in the municipality of Florianópolis in the South Region of Brazil.[164] In the final section of this Article, we provide a qualitative analysis of the bill, concluding that it is a promising instrument to integrate waste pickers into the formal waste management system and to promote social justice while respecting the municipal budget.

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159 *Id.* at 32–33.

160 *Id.* at 32.

161 *Id.*

162 Jutta Gutberlet et al., *Bridging Weak Links of Solid Waste Management in Informal Settlements*, 26 J. ENV'T. & DEV. 106, 106 (2017), http://journals.sagepub.com/doi/10.1177/1070496516672263 [https://perma.cc/7EUF-ZSDM].

163 SONIA M. DIAS & MELANIE SAMSON, INFORMAL ECONOMY MONITORING STUDY SECTOR REPORT: WASTE PICKERS 41 (2016).

164 There are other examples of good practices, such as Bolsa Reciclagem, in Minas Gerais; Programa Londrina Recicla, in Londrina; Recicla Ourinhos, in Ourinhos; Programa Recicla Tibagi, in Tibagi.

V
PAYMENT FOR URBAN ENVIRONMENTAL SERVICES FOR SOLID WASTE MANAGEMENT IN FLORIANÓPOLIS

Bill No. 17,765 (the Bill), proposing a Payment for Urban Environmental Services scheme for solid waste management in the municipality of Florianópolis, was presented on April 4, 2019, and currently awaits voting by the municipal legislative body—Câmara Municipal.[165] This innovative bill was developed collaboratively by organized waste pickers in the region, members of the local government, academics, and the cabinet of Marcos José de Abreu, a local member of parliament also known as Marquito.[166]

The proposed bill is in line with the progressive legislation and the leadership position of the South and Southeast Regions. As mentioned above, these regions have been championing recycling, selective collection of waste, support for waste pickers' enterprises, and the creation of PES in rural communities.

Although the proposal was initially lobbied by the waste pickers,[167] who were primarily concerned about their working conditions, the policy is timely for environmental reasons. Florianópolis currently lacks effective and universal water and sewage treatment, drainage systems, and an efficient solid waste system. In 2017, approximately 203,000 metric tons of urban solid waste were collected, of which 94% went to landfills and only 6% was from selective collection destined for recycling.[168]

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165 Lei No. 17.765, de 4 de Abril de 2019, Diário Oficial de Florianópolis [D.O.F.] (Braz.), http://www.cmf.sc.gov.br/tramitacao/PL.-17765-2019 [https://perma.cc/59P9-VZN5].

166 The first author of this Article was engaged in the review of the draft of the Bill, by invitation of local Member Marquito.

167 The National Movement of Pickers of Recyclable Materials has been advocating for Payment for Urban Environmental Services for waste pickers for many years, and this claim is on their National Program. For more information, see MNCR, *Programa de Luta e Organização nas Bases do Movimento Nacional dos Catadores de Materiais Recicláveis* (2012), http://www.mncr.org.br/sobre-o-mncr/o-que-e-o-movimento/programa-de-luta-e-organizacao-nas-bases-do-movimento [https://perma.cc/U6ZB-Q5QM] (last visited Feb. 5, 2021).

168 AUTARQUIA MELHORAMENTOS DA CAPITAL COMCAP, *Movimentação de Resíduos – 2018* (2018), http://www.pmf.sc.gov.br/arquivos/arquivos/pdf/09_01_2019_13.18.11.8a8a69ddefa4b760b29fc0f85fbd44ec.pdf [https://perma.cc/YZH4-QQTT].

A. The Five Elements of the PES Scheme

As mentioned above, there are five key elements that characterize PES schemes: "(1) voluntary transactions (2) between service users (3) and service providers (4) that are conditional on agreed rules of natural resource management (5) for generating offsite services."[169] The scheme proposed in the Bill incorporates all these elements.

Participation is voluntary.[170] Waste pickers are not obligated to be part of the PES scheme and can choose to remain independent—working with waste management outside the official collection.[171] The transaction involves financial compensation for the waste pickers' work, granting a stable source of income.[172]

The Bill defines service users as the general public, represented by the City Council.[173] The service providers are the cooperatives, associations, and other waste pickers' enterprises that have adopted the solidary economy model and are listed on the National Register of Solidarity Economy Projects.[174] The scope of the Bill is limited to waste collected through the official municipal service; that is, organizations engaged in private collection of waste on beaches are not considered service providers under the Bill.[175]

Furthermore, in order to be eligible, the organization's governance must be aligned with the principles of solidarity economy, aiming to better waste pickers' autonomy and strengthen their community-based initiatives.[176] Article 4 of the Bill encourages the formalization of waste pickers' enterprises and the increase in their efficiency rates, which may assist in increasing the number of waste pickers who are engaged in collectives and leave informal waste picking.[177] This is expected to lead to safer and healthier work conditions, as well as the support of labor rights, pensions, and other social rights.[178]

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169 Wunder, *supra* note 147, at 241.

170 *Id.*

171 *Id.* at 241–42.

172 Lei No. 17.765, de 4 de Abril de 2019, Diário Oficial de Florianópolis [D.O.F.], arts. 2, 5, 6.

173 *Id.* arts. 2, 3.

174 *Id.* art. 5.1. In Portuguese: *Cadastro de Empreendimentos Econômicos Solidários (CADSOL)*.

175 *Id.* arts. 6, 7.

176 *Id.* art. 3.

177 *Id.* art. 4.

178 *Id.*

The final elements are conditioned on agreed-upon rules of natural resource management and provision of a service. The Bill provides that waste pickers' cooperatives and associations and other solidarity economy enterprises are compensated for performing and providing training for the sorting, treatment, and environmentally correct disposal of urban solid waste.[179] The total mass of recyclable solid waste effectively diverted from the landfill will be measured by the Autarchy of Improvements from the Capital, known as COMCAP, as further explained below.[180] The Bill creates a management committee responsible for monitoring the implementation of the scheme, evaluating the fulfilment of its goals, and supervising its accounts.[181]

The urban environmental services provided by waste pickers are twofold: first, the increase in the recycling rates reintroduces more recyclable materials into the production chain, alleviating the need for natural resources and raw materials; second, less waste will be disposed in landfills, reducing soil degradation, air pollution, water usage, and pollution.

B. The Social Dimension of the PES Scheme

The Bill aims to promote the fight against poverty and raise the average income of recyclable waste pickers in Florianópolis. This scheme assimilates the social and environmental duality of Brazilian waste management. Indeed, one objective of the Bill is to strengthen the indivisibility of these rights and the understanding that, by recognizing the waste pickers' work, the local government is also promoting environmental protection. The Bill recognizes that waste pickers promote sustainable urban development and, through this recognition, aims to alleviate social vulnerability and prejudice.[182]

Therefore, the Bill respects the growing body of evidence suggesting that social considerations must be integrated into PES schemes. The Bill has a clear concern over the sixth element, social dimension of local waste management, seeking to promote equity for waste pickers and a departure from the ongoing exploitation of these informal workers. The Bill explicitly mentions the unity between social and environmental issues, introducing PES as a tool to acknowledge the

179 *Id.* art. 1.

180 *Id.* art. 2.1, 3.

181 *Id.* art. 8.

182 *Id.* arts. 3–5.

leading role of waste pickers and to integrate them into the formal waste management system.

C. Cost Neutrality

Cost neutrality is critical to the financial sustainability of the scheme. It is expected that, in the medium- to long-term, the scheme will not only be cost neutral but it will lead to savings for the Treasury. Currently, transportation and disposal of solid waste collected in Florianópolis is contracted to third parties.[183] The cost of this service to the council is based on the tonnage of waste transported, which is ultimately taken to the landfill.[184] The volume redirected from the landfill due to the increase in recycling generated by the PES scheme will reduce the amount to be paid to the contractors. The Bill proposes that any funds saved are given to waste pickers as payment for their services.

The scheme is focused on cost neutrality, and it is based on existing waste budgets of Florianópolis. The Bill provides that the maximum amount to be paid per metric ton of solid waste diverted from the landfill will be equivalent to 100% of the amount that would have been paid by the municipality for transportation and final disposal to the landfill in the absence of the PES scheme.[185] This will be calculated according to the contract in place between the City Council and the contractors.[186] Weighing will continue to be carried out by COMCAP, which currently measures the waste that is transported to the landfills and therefore has all the necessary equipment.[187]

As discussed above, the National Policy determined that municipalities should promote recycling and support waste pickers. However, the lack of funding and planning has been a constant obstacle for municipalities, and the vast majority have yet to fulfill their obligations. Through the proposed PES scheme, the municipality of Florianópolis will be able to increase its recycling rate, aligning itself

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183 Exposição de Motivos Do Projeto de Lei No. 17765/19, Diário Oficial de Florianópolis [D.O.F.], at 3–5.

184 Exposição de Motivos Do Projeto de Lei No. 17765/19, Diário Oficial de Florianópolis [D.O.F.], at 3–5.

185 The payment established in the Bill is only possible due to the current situation and market of Florianópolis. It is unclear if the fixed amount will be sustainable in the long term, mainly because of the link to the landfill contract.

186 Lei No. 17.765, de 4 de Abril de 2019, Diário Oficial de Florianópolis [D.O.F.], art. 2.

187 *Id.*

with the federal legislation without incurring any additional cost. Importantly, the PES Bill introduces the social element at the core of waste management, rectifying years of unfair treatment of waste pickers.

CONCLUSION

Waste management is a challenge for Brazil due to critical environmental and social issues. Brazil is facing a waste crisis given that the large amounts of waste produced every day are mostly sent to unsustainable disposal sites. Sustainable waste management practices are emerging, predominantly on account of the work done by invisible recyclers, informally called waste pickers, who are responsible for nearly all the country's recycling. However, in reality, this is achieved at the cost of the ongoing exploitation of these workers, perpetuating health, safety, legal, and social issues.

The Brazilian legal system has gradually recognized the importance of sustainable waste management and the need to integrate waste pickers. The country has laws regulating waste as an environmental problem at all levels of the Union. As municipalities are constitutionally responsible for waste management, they have paved the way, later followed by some states.

More recently, the federal legislation recognized that no waste management system in Brazil can truly be sustainable without the integration of waste pickers. However, after nearly two decades of the National Policy targeting this integration, many municipalities still struggle to comply with it. Municipalities find themselves in a vicious cycle where they do not have the means to create waste management policies and consequently are not eligible to receive the Union's resources. Moreover, the expressive discrepancies between the promised budget by the Union and the amount later allocated resulted in skepticism and reduced compliance.

While it is unquestionable that many municipalities are struggling financially, it is also true that the fair compensation of waste pickers is long overdue, as these workers have been performing sustainable waste management for decades under extremely precarious conditions. Also, medium- and large-sized municipalities already provide selective collection of waste; with adequate projects, they could work with waste pickers toward improving recycling.

Great strides have been made in the legal framework, but laws are obsolete if unapplied. This is the case for most of the legislation and

programs analyzed, with few exceptions. The legal system is well tailored but fails to work with the existing social, financial, and structural reality of local governments.

In this context, PES emerged as a possible mechanism to connect waste pickers and waste management. Traditionally, PES is a rural policy instrument rewarding sustainable practices that produce environmental services. In the urban scenario, the recycling activity executed by waste pickers provides an urban environmental service—for example, a reduction in water consumption and pollution.

This Article demonstrates that PES can be a powerful public policy tool to support waste pickers' recycling cooperatives, associations, and other collective enterprises, alleviating their vulnerability and protecting the environment. The Bill, which proposes a PES scheme for solid waste management in the municipality of Florianópolis, is a relevant case study for several reasons: it is the first official PES for waste in Brazil; it is especially created for waste pickers, who were engaged in the legislative process; and it operates within the scope of already existing programs. The qualitative analysis of the Bill confirmed that, in addition to containing all the required elements, according to PES theory, the scheme is promising in terms of incorporating the social and environmental duality of the Brazilian waste situation.

The case analysis demonstrates that it is possible to enhance the waste management systems that are already in place, properly remunerate the waste pickers for their work, and significantly increase recycling rates through the implementation of municipal urban PES schemes. Importantly, these objectives can be achieved while respecting budgetary constraints and even reducing the public expenditure on waste in the long term.