

FROM RECLAIMER INTEGRATION TO GETTING INTEGRATED INTO THEIR RECYCLINGSCAPE: THREE STORIES FROM BRAZIL

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ABSTRACT

Catadores in Brazil, reclaimers in South Africa, diverters in Canada, recyclers (recicladores) in other South American countries, waste pickers in India, and all over the world. Who are informal workers acting at the core of the circular economy? Identifying and acknowledging their role in the economic, social, and political system is not merely a semantic exercise but a critical intervention in transforming waste governance, changing our understanding of waste and waste production, and doing justice to a population whose rights have historically been denied. Focusing on Brazil, where catadores are formally recognized as a professional category by law and in official job classifications and statistics, this study supports recognizing catadores' work as political work and the need to overcome a charity-driven, paternalistic perspective that reproduces marginalization rather than supporting integration. A research agenda is put forward to advance the debate on integration and reclaimers from a transformative (i.e., systemic change) perspective.

1. INTRODUCTION

Municipal solid waste (MSW) generation worldwide is projected to rise sharply, as major producers like the US fail to implement meaningful changes in consumption patterns, while lower and middle-income countries increase both production and consumption of goods (UNEP, 2024). Even more concerning is the projected growth of uncontrolled waste (UNEP, 2024), the fraction of discarded materials that escape formal collection and proper disposal, ending up in the environment or managed inappropriately, e.g., being burned. However, the boundaries between formal and informal waste management are often blurred, and "formal infrastructures", especially incineration, do not necessarily reduce socio-environmental harms. Practices such as excavating, collecting, sorting, and reusing discarded materials have existed since ancient times (Freestone, 2015; Healey, 1978) and remain deeply rooted in community-based organizations in contexts such as Brazil (Maiello, 2022), Colombia (Parra & Abizaid, 2021), and India. The lack of inclusion and recognition of this informal sector is increasingly acknowledged as a major barrier to effective waste management, where 40% of global informal workers operate in the waste sector (UNEP, 2024).

This research investigates municipal integration processes in Brazil and their relationship to the recovery of recyclable materials. The cities of Belo Horizonte, São Paulo,

and Volta Redonda were selected for their high income per capita and associated waste generation (Downs & Medina, 2000). Using the extended case method and Samson's (2020) typology, the study's main contribution lies in applying this framework to Brazil's distinctive context of reclaimer institutionalization. Material recovery data were obtained from the Brazilian National Sanitation Information System (SNIS), which was subsequently replaced by the National System of Information on Basic Sanitation (SINISA).

2. WHO ARE RECLAIMERS AND WHO ARE CATADORES?

We use the terms "reclaimers" and "catadores" interchangeably to refer to workers engaged in the manual collection and sorting of recyclable materials in Brazil. Other terms are also used in English-language literature, such as recyclers, collectors, diverters, informal recyclers (Gutberlet & Carenzo, 2020), refuse sorters (Bouvier & Dias, 2021), independent street or dump pickers (Rutkowski & Rutkowski, 2015), and waste pickers. While the latter is the most common term (Ali & Yusuf, 2021; Gutberlet & Carenzo, 2020; Gutberlet, 2023; Gutberlet & de Carvalho Vallin, 2024; Kalina & Tilley, 2020; Rutkowski, 2020; Schamber & Bon, 2022; Yamane et al., 2023), it carries pejorative connotations that associate their work with rubbish and

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limit it to the act of picking (Samson, 2020, p.195), misrecognizing the tacit and experiential knowledge involved in identifying and revaluing different discarded materials (Ibid.) as well as the complex, embodied labor required to navigate scattered spaces where materials are disposed and organized.

Reclaimers are specialized service providers (Gutberlet & Carenzo, 2020; Gutberlet et al., 2017; Dias, 2006) who contribute to the extension of landfill lifespans (Kadyamadare & Samson, 2024) and the reduction of CO₂ equivalent emissions (Chintan, 2013; in Departments of Environment, Forestry and Fisheries & Science and Innovation of South Africa, 2020, p. 21; IPCC, 2023, pp. 103, 105). Despite these contributions, they face social stigma, institutional barriers, precarious work, and low pay in the billionaire waste management industry (UNEP, 2024), with negative physical and mental health impacts (Gutberlet & Carenzo, 2020; Sekhwela & Samson, 2020; Parizeau, 2015) (Figure 1).

In Brazil, catadores are not a homogeneous, monolithic category but a diverse group, ranging from freelance individuals to cooperative members, and from occasional actors supplementing their income to political activists in a national movement (Maiello, 2022), who negotiate concessions, resist exclusion, and construct group identity and dignity in diverse ways. Most operate informally, with women constituting the majority (Bouvier et al., 2022; Marques et al., 2020). Decades of practice, sometimes across generations, have enabled nationwide political organization since 1999 (Maiello, 2022) and inclusion in the National Registry of Professions (CBO) since 2002 (Ibid.), positioning Brazil as a leader in the formal recognition compared with similar economies, which is the result of political mobilization and social struggles of catadores (Ibid.).

3. INTEGRATION THEORY

Integration, for Samson (2020), does not mean opening institutional processes to include reclaimers' informal practices, but rather rethinking the economic and political systems surrounding reclaimers' organizations and the recyclingscape (Ibid.), in which the value of discarded materials and their circular potential are recognized, contrasting with the wastescape. Integration is a contested, power-laden process (Sekhwela & Samson, 2020) that can reinforce or challenge existing power relations, eliciting transformations.

Samson (2020) identifies four dominant conceptualizations: a) charity, b) (tokenistic) participation, c) multifaceted process, and d) social transformation, which form a dynamic continuum rather than isolated siloes, as real-world initiatives rarely fit into a single category. Reflecting on the political work of integration, Samson identifies five forms of neglection, referred to as erasures under the charity model: i) economic role and fair recognition of labor; ii) knowledge and agency (e.g. epistemological misrecognition); iii) recyclingscape (e.g. the informal sociospatial system created by reclaimers whose erasure entails displacement); iv) sphere of accumulation related to rescued materials, livelihood and economic neglect; v) and humanity. This theoretical framework is instrumental for exploring the different levels of integration and, for relevant institutions (e.g., municipalities) and researchers, for understanding the implications of a charity approach (Figure 2).

The Brazilian context is especially relevant for understanding "reclaiming" as political work (Samson, 2020) and catadores not as victims of marginalization, but as actors with agency and power. We applied Samson's typology to map how three Brazilian municipalities, within major industrial regions, relate to local communities of catadores.



FIGURE 1: Skilled catadores, sorting recyclables, enabling the circularity of various materials. Credits: @catakiapp. Photo: Júlia Nagle | @ju.nagle.

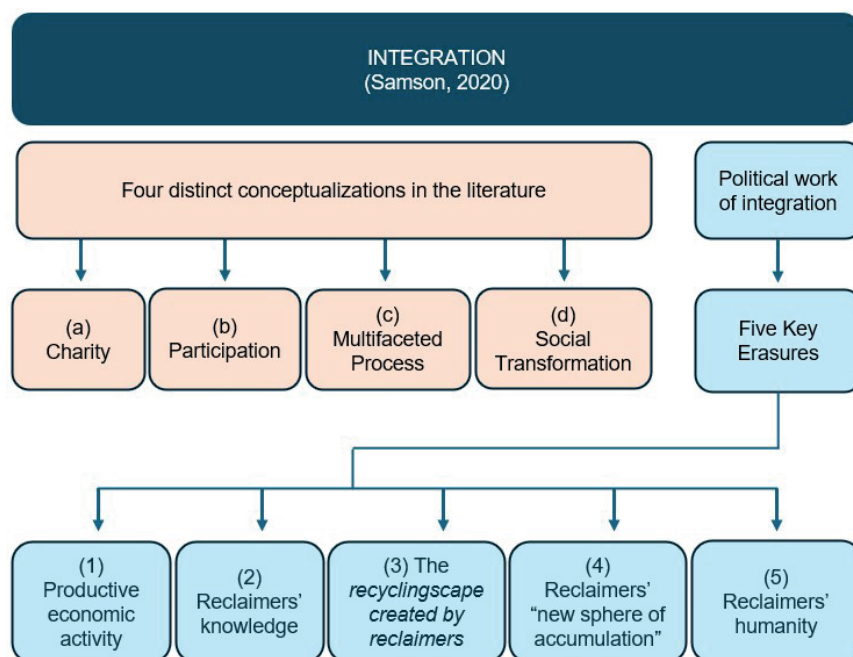


FIGURE 2: Visualization of the theoretical framework.

4. STORIES FROM THREE CITIES

This study adopts an extended case method (Burawoy, 2009) as an overarching framework. A transdisciplinary approach was used for data collection, incorporating insights from scholars, local activists, and grassroots initiatives, including catadores' associations in Rio de Janeiro (Maiello, 2022), virtual engagement with Pimp My Carroça, and an in-depth interview from a previous study with the Volta Redonda Secretariat of Environment.

In total, 1 595 pages from nine policy documents and 11 news articles (2019-2024) were analyzed, capturing legal frameworks and reclaimers' lived experiences. Three municipalities representing core industrialized metropolitan regions, differing in size and political culture, were selected (Table 1).

Our central guiding research question is: to what extent are different approaches to reclaiming integration associ-

ated with the performance of recyclable material recovery at the municipal level?

A codebook (Saldaña, 2013) based on Samson's (2020) framework was developed, including a summative reliability check (Drisko & Maschi, 2016). Quantitative data on recyclable recovery were sourced from SNIS database, version 2024.006 (<http://app4.mdr.gov.br/serieHistorica/>) filtered by category and municipality. From 290 indicators and components (2002-2022), nine key metrics were selected: CO116 (collected by public agent), CO117 (by private agents), CO142 (by other agents), CS009 (amount recovered), CS026 (by selective collection service), CS048 (collected by reclaimers), IN031 (recovery rate), IN032 (per capita recovered) and IN054 (per capita collected), supplemented by data from the Brazilian Institute of Geography and Statistics (IBGE). Data inconsistencies were identified and corrected.

TABLE 1: Profile of the selected municipalities.

Ref.	Indicator	Belo Horizonte, Minas Gerais	São Paulo, São Paulo	Volta Redonda, Rio de Janeiro
1	Urbanized territory (km ²)	274	914	43
2	Population	2 315 560	11 451 999	261 563
3	GDP (R\$, billions)	105.8	828.9	19.6
4	PIB per capita (R\$)	41 818.32	66 872.84	71 551.44
5	Total waste generated (kg/inhabitant/year)	315.6	359.7	262
6	Recyclables collected per capita (selective collection) (kg/inhabitant/year)	2.73	6.47	4.12
7	Number of cooperatives/ associations	6	26	3
8	Number of reclaimers affiliated with associations	197	1 050	34
9	Estimated number of informal reclaimers	Data not available	Data not available	Data not available

Sources: [1-2] 2022 IBGE; [3-4] 2021 IBGE; [5] SNIS-2023 (CO119); [6] SNIS-2023 (IN054); [7] SNIS-2023 (CA006); [8] SNIS-2023 (CA007); [9] SNIS-2023

5. INTEGRATING THE RECYCLINGSCAPE? WHAT DATA CAN(NOT) TELL US?

Our findings contribute empirical grounding to Samson's conceptualization. From a conceptual perspective, Samson also identifies Brazil as an advanced reality in the political recognition of catadores' work and activism, as evidenced by the notion of *reciclagem inclusiva* (inclusive recycling) developed by the catadores movement, which resonates with her conceptualization of integration. While, in theory, we agree with the author and acknowledge the political value of the Brazilian recyclingscape, our research reveals gaps that complicate the picture, pointing to avenues for a research agenda. The following presents the results for each of the investigated municipalities.

In Belo Horizonte, the 1999 Municipal Waste & Citizenship Forum laid the foundation for the national reclaimers' movement (Dias, 2006), raising awareness of integrated waste management (Ibid.). The Municipal Waste Management Law No. 10 534/2012 assigns the Urban Cleaning Authority (SLU) the duty to involve catadores' cooperatives and those forming cooperatives in formal collection (Art. 34). However, the law assigns to catadores only a complementary role (Ibid., para. 3), meaning they are not responsible for the service provision. While this is one of the first laws to establish reclaimers' involvement, it reflects a charity-oriented approach (Samson), focusing on their labor rather than their professionalism. Catadores have provided door-to-door sorting since 2019, improving the quality of discarded material and municipal recycling rates (Reclaimers' National Movement, 2019). Despite this, they face institutional neglect, as during the COVID-19 pandemic (Gonçalves et al., 2022), when 309 formal and roughly 3 000 informal catadores' livelihoods were disrupted (Dias, 2020) (Figure 3).

In São Paulo, the country's wealthiest city, urban vulnerabilities are addressed through Law No. 16 050/2014.

Unlike Belo Horizonte, this is not a law on waste management, but a broader legislative instrument. On paper, it is a progressive policy, establishing the right to the city as a principle to ensure universalized access to urban services and amenities (para. 5). The law makes a step forward compared to Belo Horizonte by including catadores within cooperatives and as individuals. Moreover, under this law, the city commits to providing space and involvement, and "find a strategy" to ensure contractual stability. However, these are vague commitments, and, as in the case of Belo Horizonte, they address reclaimers as vulnerable people to be involved. We are far from the Samson's perspective on integration as the process of designing policy for the recyclingscape, and still closer to her definition of charity integration. Alongside public institutions, grassroots initiatives such as Pimp My Carroça report that most catadores continue to face discrimination, police violence, low remuneration, and high risk of accidents, with social stigma remaining a persistent barrier (Pimp My Carroça, 2024). Exclusion from decision-making persists (Gringos Podcast, 2024) as observed in the local sorted collection program (Decree No. 48 799/2007, Art. 4) and local initiatives, such as the Open Letter, supported by 36 institutions, denouncing the worsening socioeconomic conditions during the pandemic (Figure 4).

In Volta Redonda, Law No. 5 762/2020, driven by catadores and allies, legally integrates catadores, including those outside cooperatives, into the public sorted collection and decision-making via the deliberative body CACS-VR, where catadores are members. However, implementation challenges include governance tensions due to the hollowing out of public policies (Gripp & Valério, 2023) and warehouse irregularities which fall under the responsibilities of the municipality (Public Labor Prosecution Office in Rio de Janeiro, 2023), and threats to livelihoods from a proposed incineration plant, later halted by judi-



FIGURE 3: Specialized catadores in Belo Horizonte. Credits/Photo: ASMARE @asmaremg.



FIGURE 4: NGO Pimp My Carroça at COP 30, hosting a panel in the Green Zone, bringing the catadores' agenda to the forefront of climate discussions. Credits/Photo: Pimp My Carroça @pimpmycarroca.

cial intervention (Federal Public Defender's Office, 2022) (Figure 5).

Regarding content analysis, it revealed charity was the dominant framing in policy documents, followed by multifaceted process, participation, and social transformation. In gray literature, charity also prevails, followed by social transformation and multifaceted process, while participation is absent (Table 2).

Analysis of material recovery revealed a systematic gap in data reporting for component CS048 across all cities,

with missing years such as 7 in Belo Horizonte, 17 in São Paulo, and 16 in Volta Redonda, reflecting the misrecognition of reclaimers' direct contributions and limiting the assessment of their economic and environmental impact. Recyclables recovery per capita was significantly low in all cities, roughly half the national. Municipal recovery rates were similarly low across all cities, well below the national rate. These low figures coincide with the charity-oriented integration approach observed across all cities, suggesting an association with framing catadores primarily as recipi-



FIGURE 5: Skilled catadores in Volta Redonda. Credits/Photo: Folha Verde Cooperative.

ents of support rather than as active participants in waste governance. However, given the missing data and the exploratory nature of this research, based on case studies, these findings should be considered a speculation to be validated in future studies (Table 3).

6. BEYOND CHARITY, TOKENISM, AND PATERNALISM IN RECLAIMERS' INTEGRATION: A RESEARCH AGENDA

Samson's theory enabled a critical view of the concept of "inclusão de catadores" (reclaimers' inclusion) in Brazil's legislative framework, illuminating a charity approach by defining it and unravelling its underpinning structures, namely the five forms of erasure. Each of the five erasures relates to a specific sphere of misrecognition: i) labor and skills; ii) epistemological; iii) spatial; iv) economic; v) human and moral.

Despite some progress in social inclusion through associational practices and formal policies, our analysis shows a prevailing charity approach to reclaimers' integration, raising questions about the implementation of many of the political achievements of catadores' social and political movements. Problematic structural discontinuities and gaps in data production limit local public decision-making (Maiello et al., 2015) and affect social inclusion. Samson's transformative view of integration, as changing the system around catadores' recyclingscape rather than involving them in the formal wastescape, helped us identify structural paternalistic (i.e., charity-like)

patterns and imagine integration beyond tokenistic approaches. Integration is not a neutral policy goal, or a process of educating catadores to integrate them (Gutberlet & de Carvalho Vallin, 2024), but a discursive, contested process and political tool, exposing the hiatus between discourse, both in the policy and in the academic literature, and the practice in waste governance.

We acknowledge that the research has limitations. Its qualitative nature introduces multiple selection biases, from case identification to single-coder document interpretation. Remote data collection of empirical materials limited its breadth, as only half of municipalities have a waste management plan (Ministry of Cities, 2023, p.24). Incomplete national datasets, transitioning from SNIS to SINISA, and limited direct interaction with reclaimers constrained our ability to fully answer the research questions.

Building on this acknowledgement and aiming to advance Samson's transformative perspective on integration as systemic change, we propose a three-part research agenda using the five Samson erasures as entry points. First, we see multi-sited ethnographic research (Marcus, 1995) as the most suitable approach to explore both labor/skills and spatial erasures, allowing to observe, from multiple spatial foci and multiple scales (from the reclaimer's bodies to the region of waste transit, crossing through the organizational sites) the recyclingscape, its everyday functioning and the tensions with the formal waste management system. The ethnographic approach allows the building of necessary relations, breaking unintentional hierarchies and challenging power structures, all of which

TABLE 2: Results of the content analysis in descending order by code.

Codes	BH		SP		VR		Total Count	
	P	GL	P	GL	P	GL	P	GL
c assistance to work/ passive targets	22	9	43	8	27	6	92	23
m labor requires S-C-P-L-E actions	14	1	38	2	29	0	81	3
c exclusion of reclaimers' recycling system	8	3	4	6	5	4	17	13
t new understanding of the world & role	1	12	8	5	2	0	11	17
t social justice to forge citizenship	2	1	8	2	2	0	12	3
p attention to key aspects for success	4	0	6	0	4	0	14	0
p participatory approaches to work	4	0	5	0	1	0	10	0
m sociocultural actions for unhindered work	0	1	2	0	0	0	2	1

Legend: BH=Belo Horizonte; SP=São Paulo; VR=Volta Redonda; P=Policy; GL=Gray Literature

TABLE 3: Recovery of recyclables and the integration approach among municipalities.

Ref.	Data	BH	SP	VR
1	Recyclables recovery per capita (kg/inhabitant/year)	2.4	2.8	2.1
2	National estimate of recyclables recovery per capita (kg/ inhabitant/year)	5.5		
3	Municipal recovery rate of recyclable materials (%)	0.76	0.77	0.79
4	National recovered rate of recyclable material (%)	2.37		
5	Integration (mostly)	Charity-driven	Charity-driven	Charity-driven

Sources/ Legend: [1] SNIS, version 2024.006 (IN032); [2] Brazil recovered 1.12 million tons of dry recyclable waste from all 5 060 municipalities in 2022 (Ministry of Cities – Brazil, 2023, p.116), or 5.52 kg/ inhabitant/year per capita, considering a population of 203.1 million in that year (IBGE Census 2022); [3] SNIS, version 2024.006 (IN031); [4] Ministry of Cities – Brazil, 2023, p.120; [5] Results of content analysis of this present study based on the Samson's (2020) framework.

are constantly involved in the research process. Second, acknowledging epistemological injustices inherent in capitalist society and even in participatory research (Kimura & Kinchy, 2016), we recommend a feminist-inspired citizen science (CS) approach (Engelmann et al., 2022) to address the data gap identified here. This entails a new way of engaging with CS, coupled with multi-sited and extended ethnography (Burawoy, 2009), addressing both epistemological and human erasures, by involving multiple actors in the waste management process, both users and service providers, such as reclaimers and municipal utility operators, to create connections rather than reproducing hierarchies and siloed social spaces. We understand a feminist approach to citizen science as an approach informed by an ethics of care (in this case, for knowledge and common data collection) and shared responsibilities in the public service (Pioggia, 2024). Finally, to address the economic erasure, we recommend adopting a diverse economy (Gibson-Graham, 2008) perspective as an overarching theoretical framework that allows us to recognize the economic power of the recyclingscape, its transformative potential, and stimulate the imagination that is necessary to make new, inclusive, and circular alternatives possible (Roelvink et al., 2015).

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