

From Informal to Impactful: Role of Social Enterprises in Transforming Solid Waste Management in India

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ABSTRACT

Often framed as a problem of overflowing landfills, the heart of India's urban waste crisis arises much earlier in the chain. Weak segregation at source, alongside the marginalization of its informal workforce, have long marred the country's waste system. Despite waste pickers' central role in recovering recyclables and diverting significant volumes of waste away from landfills, they are not fully or meaningfully integrated into formal frameworks. In response to these institutional gaps, social enterprises have emerged as important intermediaries between municipalities and informal workers. Through a comparative study of two prominent social enterprises—SWaCH in Pune and Hasiru Dala in Bengaluru—this paper examines how inclusive and decentralized approaches to solid waste management can strengthen urban waste management. Drawing on existing evidence, the study analyzes how both enterprises integrate waste pickers into service delivery, generating significant environmental gains, while also promoting source segregation and improving incomes and bargaining power for workers. Ultimately, the paper argues that effective waste governance in India cannot be achieved through technological solutions, but rather by building systems that strengthen informal networks that already underpin the country's waste economy.

Keywords: Solid waste management, sustainability, SWaCH, Hasiru Dala, social enterprises

Introduction

India is urbanizing faster than it is planning for, which has led to a mounting waste crisis across its cities. Managing these byproducts, generated from household and commercial activities, is a crucial function of local governments and bodies (Robinson, 1986). Presently, an estimated 25 crore metric tonnes of accumulated waste is held across 2,479 dumpsites (Press Information Bureau Delhi, 2026). The underbelly of the country's major metropolises has long been evident at these landfills: they have contaminated lakes and wetlands (Tandon, 2025); rendered

groundwater highly dangerous to use (Jhamnani & Singh, 2009); exposed residents to toxic fumes, fires, and collapses (The New Indian Express, 2019); and disenfranchised marginalized communities. As populations rise, it is estimated that a staggering 1,450 km² of land will soon be needed in order to safely dispose of the increased volumes of waste (Pal & Bhatia, 2022).

However, the crux of this issue does not lie at these dumping yards, but further upstream: in the mixing of wet and dry waste at source (Meena et al., 2023). Once waste is mixed, whether at homes or establishments, its separation later is not only extremely capital-intensive, but also makes the implementation of recycling operations more cumbersome (Bandela & Henam, 2020; Chakma & Kapoor, 2024). Mixed waste creates the grounds for unorganized and unregulated dumping, releases harmful chemicals and heavy metals into the environment, and affects air, water, soil, and public health.

Legally, waste segregation is mandated by the Municipal Solid Wastes (Management and Handling) Rules, 2000. But in reality, much of the actual work in this sector, including the essential service of extracting recyclables from mixed waste, has traditionally been performed by informal waste workers (Gupta & Priya, 2020; Rathore, 2020). Despite being the central workforce—over 4,000 waste pickers serve approximately 1 million households, and reach around 4 million residents (Mishra, 2026)—they have long remained structurally invisible to policymakers and urban planners.

Across extant literature, the informal workforce and source segregation have both emerged as the most widely favored entry points in improving India's SWM infrastructure (Bandela & Henam, 2020; Chandrasekhar & Pisupati, 2026; Meena et al., 2023). But due to various structural gaps, social enterprises have emerged as key institutions which bridge this divide between urban local bodies and informal waste workers, and advocate for the rights of these marginalized groups. Through a comparative study investigating two such enterprises—Pune's SWaCH and Bengaluru's Hasiru Dala—this paper explores the role of social enterprises and their inclusive, decentralized systems, in improving solid waste management in India. By highlighting evidence, opportunities, and challenges, it aims to explore how integrating waste pickers into formal waste systems can strengthen both livelihood security and environment and sustainability outcomes.

Background

India's formal waste picking system is supplemented by an active informal recycling economy, comprising waste pickers, scrap collectors, traders, and recyclers (Gerdes & Gunsilius, 2010). Caste system is a determining factor within this landscape, with over 80% of waste pickers coming from Scheduled Caste (SC), Scheduled Tribe (ST), and Other Backward Caste (OBC)

communities (Lakshman, 2026). These workers recover recyclable plastic, paper, metal, glass, and textiles from streets, bins, dumpsites, and from households that sell recyclables directly.

Collectively, waste pickers manage around 60–70% of urban recyclable waste, leading to a significant amount waste being diverted away from landfills (Gour et al., 2022; Mishra, 2026). These materials reach recycling units where they are processed into raw materials. This informal ecosystem plays a crucial role in resource recovery; yet waste pickers are subjected to widespread social exclusion, exploitative labor practices, poor wages, and adverse health outcomes (Gupta & Priya 2020).

Since the 1970s, NGOs and women-led groups have worked to organize India's informal waste pickers and advocated for formal recognition and protection (Gerdes & Gunsilius, 2010). Recently, these movements have culminated into burgeoning social enterprises that further these livelihood demands while also putting forth service models that integrate waste pickers into formal waste management systems. Although there is no official definition for social enterprises, they are generally characterized by their social mission, community-oriented principles, and the reinvestment of surpluses towards these objectives (Darko et al., 2015).

Both SWaCH and Hasiru Dala identify as social enterprises and are rooted in decades of organizing and advocacy. In the early 1990s, waste pickers organized themselves under the union Kagad Kach Patra Kashtakari Panchayat (KKPKP), advocating for recognition, better working conditions, and integration into the city's waste management system (SWaCH, n.d.-a). Pune Municipal Corporation (PMC) became the first urban local body in India to formally recognize waste pickers, issuing identity cards in 1995 and extending welfare benefits such as health insurance. To comply with evolving waste management regulations and improve collection services, PMC partnered with KKPKP in 2005 to pilot a door-to-door collection model led by waste pickers. The success of the pilot led to the creation of SWaCH in 2008—a cooperative of self-employed waste pickers operating through a public-private partnership with PMC.

In the neighboring state of Karnataka, a similar case emerges. In 2011, Bengaluru's administrative body Bruhat Bengaluru Mahanagara Palike (BBMP) began formally recognizing waste pickers by issuing occupational identity cards (Development Monitoring and Evaluation Office, 2021). This was followed in 2016 by a tripartite agreement between BBMP, waste pickers, and Hasiru Dala, an organization that supports and professionalises informal waste workers. Under the model, waste pickers manage segregated dry waste through BBMP-funded Dry Waste Collection Centres (DWCCs) across the city, providing collection and resource recovery services.

Both enterprises share similar goals: integrating informal waste workers into the municipal waste value chain, and improving their incomes and livelihoods. They run in partnerships with urban local bodies, promote source segregation and decentralized waste management, and view livelihood security as critical to service delivery.

Discussion

Solid waste management (SWM) interventions put forth by policymakers and municipalities often favor mechanization and capital intensity that are relevant to countries where, unlike India, little or no informal labor exists (Chakma & Kapoor, 2024; Singh, 2026). SWaCH and Hasiru Dala differ, precisely, because both social enterprises recognize that informal workers already perform the functions essential for urban waste systems, and do so in an efficient manner (Anantakrishnan, 2021; Hasiru Dala, n.d.-a). To them, waste workers are not just beneficiaries of schemes, but key service providers, whose skills, knowledge, and networks are indispensable to public service delivery.

Successes in both cases can be measured through their environmental returns. The ability to recover and recycle materials is central to waste pickers' livelihoods. Due to this, the informal sector has achieved high resource recovery rates consistently (Gerdes & Gunsilius, 2010). SWaCH collects over 850 tonnes of municipal solid waste per day, of which 150 tonnes is recycled and 130 tonnes is composted. This energy-efficient and environmentally beneficial model avoids total carbon emissions of 100,000 metric tonnes of CO² annually (SWaCH, n.d.-b). Similarly, Hasiru Dala's work diverting away per tonne of plastic, paper, glass, and metal is estimated to save 236,506 m³, 27,731 m³, 4,174 m³, and 2,782 m³ of landfill space respectively (Hasiru Dala, n.d.-b). Ultimately, for both enterprises, the social and environmental dimensions of waste management are not separate categories, but share a mutually reinforcing relationship.

Yet, even the progressive 2016 and 2026 updates to SWM rules fail to recognize this fact, or see waste pickers as key stakeholders despite their central role in achieving environmental outcomes (Gupta & Priya, 2020; Kulasekaran, 2026). Instead, they place continued emphasis on waste-to-energy plants, which have long been criticized for contributing to toxic emissions, while also creating competing demand for the same waste streams waste pickers rely on for their livelihood (Tiwari, 2026).

Conventional waste management models see waste pickers as labor to be hired, while the aforementioned social enterprises uplift them as service providers and entrepreneurs. Their models not only address the exploitation inherent in informal recycling but also increase workers' collective bargaining power. SWaCH is owned and governed by waste pickers themselves, encompassing over 3,500 members, 80% of whom are women from Dalit and other

marginalized communities (SWaCH, n.d.-a). Workers collect user fees directly from households and retain earnings from selling recyclables. As a result, SWaCH members earn higher and more stable incomes than unorganized waste pickers, with reported monthly earnings ranging from ₹13,000 to ₹16,000 or more, several times higher than those typically earned in the unorganized sector (Galvin et al., 2019; Gawade, 2025).

Similarly, Hasiru Dala follows a differential variable pricing model to incentivise better source segregation and gives an opportunity for waste picker entrepreneurs to earn 4 to 5 times more than their earlier income (Development Monitoring and Evaluation Office, 2021). With Hasiru Dala, a waste picker has two sources of income: the fixed monthly fee at the collection centre, and revenue from the recyclables. Hence, effective waste systems, for both enterprises, do not arise from replacing informal workers, but from recognizing, organizing, and investing in their rights, which in turn bring environmental and economic benefits for all stakeholders involved.

In Pune, the economics evidence these returns clearly. As a result of SWM integration with SWaCH, the city not only demonstrates higher recovery rates, but its per-capita waste management cost is 30% lower than other cities which use fully privatized waste systems (Singh, 2026). The municipality saves money, not at the expense of workers' wages, but through source segregation which lowers quantities of waste transported and sent to landfills. Bengaluru, however, reveals the opportunity cost of failing to fully embed the informal workforce within municipal systems.

On one hand, Hasiru Dala supports 33 DWCCs in Bengaluru city, diverting inorganic waste from landfills and into recycling which helps save costs throughout the economic chain (Hasiru Dala, n.d.-b). Recognizing this, the city has institutionalized Hasiru Dala in some ways—including support for decentralized waste management and Dry Waste Collection Centres (DWCCs)—but these models remain vulnerable to political changes (Devadiga, 2025). “Every time a new commissioner or mayor takes charge, we have to start all over again, making them understand why this model works,” notes Hasiru Dala co-founder Nalini Shekar.

In 2019 for example, the municipal corporation, favoring newer scientific waste management methods, sought out private contractors to mechanize waste collection, and to contract out door-to-door waste collection, while simultaneously excluding cooperatives from bidding (Harman & Santhosh, 2020). As a result an estimated 8,000 waste pickers lost access to residential waste overnight, led to recyclable materials entering collection streams, created greater competition for shrinking volumes at dumpsites, and ultimately resulted in increased costs for the city (Harman & Santhosh, 2020; Singh, 2026). While Pune demonstrates the potential of social enterprises when absorbed into municipal governance, Bengaluru, by contrast, illustrates their limits in the absence of deeper institutionalisation. The lesson is clear here, environmental goals cannot be

sustained if they come at the cost of displacing the very workers who built India's recycling economy.

Yet SWaCH and Hasiru Dala remain an exception in India, rather than the norm. As India pursues circularity and decentralization, the challenge is no longer proving that these models work, but how external and institutional conditions can align to support these dynamic realities.

Conclusion

Moving India's waste governance beyond resource-strapped municipalities is necessary for efficient SWM. Social enterprises such as SWaCH and Hasiru Dala demonstrate how inclusive, decentralized approaches can generate economic, environmental, and social gains. The contrast is equally telling: Pune shows what is possible when urban local bodies and social enterprises align around the strengths of informal workers, while Bengaluru reveals the costs of leaving that relationship vulnerable to privatization. Yet even Pune's much-cited PPPP (pro-poor public-private partnership) remains far from fully institutionalized. Suman More, chairperson of SWaCH recalls how protests with close to 1,000 women were conducted before their recent contract was finalized, while a waste picker Vidya Naiknaware asks, why despite the environmental and climate benefits generated by their work, should waste pickers have to continually fight for a place within the system (Gawade, 2025).

The experiences of SWaCH and Hasiru Dala suggest that organizing waste pickers through social enterprises can be an effective pathway from informal to impactful waste management. Rather than treating informal workers as obstacles, municipalities could recognize them as key service providers whose work already underpins urban recycling systems. One way forward could be to ensure that collection, segregation, and recycling targets are met primarily through waste picker organizations, with mechanized facilities handling only those residual fractions that cannot be processed locally. Equally important is avoiding parallel collection systems that displace informal workers and divert recyclable materials away from their livelihoods. Ultimately, as India pursues circularity and decentralized waste management, the most effective solutions may not come from replacing informal systems, but from recognizing the ones in cities that are already working.

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