

From Informal Waste Pickers to Formal Green Workforce: A Comparative Study of State-Led and Civil-Society Models of Green Workforce Formalisation in Kerala and Bengaluru

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Abstract

Informal waste pickers form the backbone of solid waste recovery in urban and semi-urban India, yet they remain among the most socially excluded occupational groups in the country. The Solid Waste Management Rules, 2016 marked the first national policy attempt to formally recognise this workforce, opening space for state governments and civil society to design pathways from informality to a recognised “green workforce” (Wikipedia, 2026; Deccan Herald, n.d.). This paper presents a comparative case study of two contrasting Indian models of formalisation: Kerala’s state-driven Haritha Karma Sena (HKS), operating under the Haritha Keralam Mission and Kudumbashree network, and Bengaluru’s civil-society-driven ecosystem built around the cooperative Hasiru Dala and its partnership with the Bruhat Bengaluru Mahanagara Palike (BBMP). Drawing on secondary data from government reports, peer-reviewed literature, and organisational documentation, the paper compares the two models on institutional structure, scale, income mechanisms, social protection, and persistent barriers such as stigma and caste discrimination. The analysis finds that while both models have improved dignity, income security, and recognition for waste workers, the state-led Kerala model has achieved wider geographic scale and cadre-based standardisation, whereas Bengaluru’s NGO-mediated model demonstrates deeper attention to the lived realities and self-organisation of pre-existing informal waste pickers. The paper concludes with implications for medical and social work practice, particularly the roles of community organisation, policy advocacy, and gender-sensitive livelihood programming in sustaining the transition of waste pickers into a formal green workforce.

Keywords: informal waste pickers, formalisation, Haritha Karma Sena, Hasiru Dala, Solid Waste Management Rules 2016, green workforce, social work practice

1. Introduction

India generates approximately 62 million tonnes of municipal solid waste every year, of which only about 43 million tonnes (roughly 70 per cent) is collected and a much smaller fraction is scientifically treated (Wikipedia, 2026; Mukherji, 2021). The gap between waste generated and waste formally managed has historically been filled by an informal workforce of rag pickers, itinerant buyers, and scrap sorters who recover recyclable material from streets, bins, and dumpsites for a livelihood (SCITECH, 2024). Globally, an estimated 15 to 20 million people are engaged in informal waste picking, making up close to one per

cent of the urban population in developing countries (Medina, 2008; Zolnikov, 2023). In India, analysts have estimated that recovering even 15 per cent of daily waste generation could sustain the livelihoods of about 500,000 waste pickers (Mukherji, 2021).

For decades this workforce operated entirely outside formal recognition, facing occupational hazards, social stigma, and exclusion from welfare schemes. The Solid Waste Management Rules, 2016, notified by the Ministry of Environment, Forest and Climate Change, were the first national policy instrument to explicitly acknowledge the role of the informal sector in India's solid waste management system and to direct urban local bodies to integrate waste pickers into formal systems (Wikipedia, 2026; Deccan Herald, n.d.). In the years since, different states and cities have interpreted this mandate differently. Kerala built a state-administered cadre, the Haritha Karma Sena, under its Haritha Keralam Mission and the Kudumbashree women's network. Bengaluru, by contrast, saw civil-society organisations — most prominently Hasiru Dala — negotiate recognition, identity cards, and infrastructure for pre-existing informal waste pickers in partnership with the Bruhat Bengaluru Mahanagara Palike (BBMP).

This paper undertakes a comparative case study of these two models to understand how different institutional pathways — one state-initiated and cadre-based, the other NGO-mediated and rooted in pre-existing informal labour — shape the transition “from informal waste pickers to formal green workforce.” The comparison is of direct relevance to Master of Social Work (MSW) students and practitioners, since both models sit at the intersection of livelihood promotion, gender empowerment, occupational health, and policy advocacy that define community and industrial social work practice.

2. Rationale of the Study

Waste pickers occupy a paradoxical position in urban India: they perform essential environmental labour — reports suggest waste pickers in Bengaluru alone process around 800 tonnes of recyclable material every day — yet they are among the most economically and socially marginalised occupational groups, frequently subject to caste-based discrimination and public stigma (South First, 2025; Frontiers in Sociology, 2026). Understanding how formalisation efforts succeed or fall short is therefore central to social work concerns of social justice, dignity of labour, and inclusive development. Kerala and Bengaluru represent two of the most widely cited and structurally distinct Indian formalisation efforts, making a comparative study of the two valuable for identifying transferable lessons, persistent gaps, and entry points for social work intervention.

3. Objectives of the Study

- To trace the institutional origins and structure of Kerala's Haritha Karma Sena and Bengaluru's Hasiru Dala-led waste picker ecosystem.
- To compare the scale, income mechanisms, and social protection outcomes of the two models using available secondary data.
- To identify the persistent challenges each model faces in sustaining the formalisation of waste pickers.
- To draw out implications for social work practice in community organisation, livelihood promotion, and policy advocacy around informal-to-formal workforce transitions.

4. Review of Literature

4.1 The Global and National Context of Informal Waste Picking

Globally, informal waste picking has been documented as both a survival strategy for the urban poor and

a significant, under-recognised contribution to municipal recycling systems. Medina (2008), in a World Bank study, estimated that at least 15 million people in developing countries — about one per cent of the urban population — survive through salvaging recyclables, and identified microenterprises, cooperatives, and public-private partnerships as the three principal organisational models used to formalise this workforce. More recent estimates place the global waste-picker population at around 20 million (Zolnikov, 2023), underscoring both the scale of the sector and the continuing lack of uniform data. In India specifically, the Solid Waste Management Rules, 2016 were the first national regulation to define a “waste picker” and to direct urban local bodies to facilitate the integration of waste pickers and itinerant waste buyers into the formal solid waste management system (SCITECH, 2024; Deccan Herald, n.d.).

4.2 Models of Integration

A sociological analysis of Kerala’s decentralised solid waste governance notes that Indian cities have historically pursued formalisation through cooperatives, identity cards, and direct engagement with municipal systems — approaches associated particularly with cities such as Pune and Bengaluru (Chikarmane & Narayan, 2005, as cited in *Frontiers in Sociology*, 2026). However, the same analysis cautions that such integration efforts frequently fall short of their promised benefits: middle-class residents remain hesitant to interact with waste pickers, municipal contractors resist ceding territory for political reasons, and caste discrimination continues to restrict pickers’ mobility and market access, so that the “rules-in-form” of policy documents do not always translate into “rules-in-use” on the ground (*Frontiers in Sociology*, 2026). Pune’s SWaCH cooperative, which formally integrated about 2,700 waste pickers and secured city-wide collection rights for their cooperative, is frequently cited as a comparator model for Bengaluru (Deccan Herald, n.d.).

4.3 Gender Dimensions

Both Kerala and Bengaluru’s models intersect closely with gender. Kerala’s HKS is built substantially on Kudumbashree, the state’s women’s self-help network, and is reported to have improved the social acceptance of its largely women workforce, repositioning them as “environmental educators” rather than merely waste pickers (Equator Initiative, 2024). In Bengaluru, women waste pickers have historically formed a large share of the informal workforce, often the sole earners for their households, and formalisation efforts led by organisations such as Hasiru Dala have paid particular attention to preventing women from being displaced from entrepreneurial roles as formalisation proceeds (GAIA, 2024; 30 Stades, 2021).

5. Methodology

This paper adopts a qualitative, comparative case study design. Data were drawn entirely from secondary sources: government and mission websites (Haritha Keralam Mission, Local Self-Government Department Kerala, Clean Kerala Company), organisational documentation (Hasiru Dala and partner reports), a NITI Aayog/DMEO case study on urban transformation, peer-reviewed and pre-print academic literature, and reputable news reportage (The Hindu, Deccan Herald, The South First, 30 Stades). Documents were analysed thematically along five dimensions — institutional origin, structure, scale, income and protection mechanisms, and challenges — to allow a structured comparison between the two cases. As a secondary-data study, the paper does not include primary fieldwork; figures reported by government or organisational sources are presented as such and should be read as self-reported unless independently verified.

6. Case Study I: Kerala's Haritha Karma Sena

6.1 Origins and Institutional Structure

The Haritha Karma Sena (HKS) was launched in 2013 by the Government of Kerala as part of the Haritha Keralam Mission, with statewide formation of local units carried out from 2017 (Clean Kerala Company, n.d.; Haritha Keralam Mission, n.d.). HKS is a semi-formal, door-to-door waste collection cadre with two defined roles — Green Technicians and Green Supervisors — selected by local self-government bodies according to guidelines set by the Haritha Keralam Mission (Frontiers in Sociology, 2026). Each member is typically assigned a minimum of 250 households for the collection of non-biodegradable waste (Equator Initiative, 2024). Members collect a locally fixed user fee from households and institutions, transport sorted waste to Material Collection Facilities, and hand over recyclables to the Clean Kerala Company for onward sale to the resource-recovery and recycling chain (Haritha Keralam Mission, n.d.). The workforce is overwhelmingly composed of women drawn from Kudumbashree, Kerala's state-wide women's poverty-alleviation network, many from economically and socially weaker sections of society (Equator Initiative, 2024).

6.2 Scale and Economic Outcomes

According to the Kerala Local Self Government Department, 35,214 women members organised into 4,438 HKS units collected 50,190 tonnes of inorganic waste and handed it over to the Clean Kerala Company over a one-year period; in that period, members collectively received Rs. 341 crore as user fees for door-to-door collection and a further Rs. 7.8 crore as remuneration for sorted waste from the Clean Kerala Company (LSG Kerala, 2024). The Haritha Keralam Mission separately reports that more than 36,000 HKS workers are currently active across all local bodies in the state (Haritha Keralam Mission, n.d.).

6.3 Social Recognition and Challenges

HKS has been credited with improving the social acceptance of its workforce, repositioning members as environmental educators who conduct public awareness activities on the harmful effects of plastic dumping and burning, which the Equator Initiative (2024) frames as a contribution to gender equality and reduced inequality under the Sustainable Development Goals. At the same time, members have reported friction in the early stages of household engagement, and door-to-door collection was significantly disrupted during the COVID-19 lockdowns of 2020 and 2021, with local bodies having to specially authorise HKS members' movement (Equator Initiative, 2024). Academic assessments also point to funding constraints, limited household participation in segregation, and behaviour-change gaps as persistent operational challenges (AIP Publications, 2024). The state has responded with measures such as Viability Gap Funding for underperforming units and the branding of bio-fertiliser products ("Haritha Mithram") to help units become financially self-sustaining (Haritha Keralam Mission, n.d.).

7. Case Study II: Bengaluru's Waste Picker Ecosystem

7.1 Origins and Context

Bengaluru, a city of an estimated six million people, generates roughly 3,500 tonnes of waste a day, about 72 per cent of it organic, and by the late 2000s had a largely centralised collection system dependent on private contractors covering 80–90 per cent of households (Global Alliance of Waste Pickers, n.d.). By 2010, overflowing landfills and mounting public-health concerns triggered a citizens' push to reform the city's waste management, and it was in this context that Hasiru Dala (Kannada for "green force") was founded by Nalini Shekhar and Anselm Rosario as a member-based cooperative model of social enterprise

for waste pickers (Mission Sustainability, 2024; 30 Stades, 2021; DMEO/NITI Aayog, 2020).

7.2 Formalisation Strategy

Rather than creating a new cadre from scratch, Hasiru Dala worked to formalise the pre-existing informal waste-picker workforce already active in the city. It first documented the scale of the workforce's contribution — an estimated 800 tonnes of recyclable material processed by waste pickers daily — and used this evidence to negotiate recognition from the Bruhat Bengaluru Mahanagara Palike (BBMP) (South First, 2025). In 2011, following this advocacy, the BBMP began issuing identity cards bearing the city's logo and the municipal commissioner's signature, making Bengaluru the first city in India to grant occupational identity cards to waste pickers; the practice was subsequently codified into municipal policy by 2016 in line with the national SWM Rules (South First, 2025; 30 Stades, 2021). Hasiru Dala also worked with BBMP and the Lok Adalat to extend identity cards to about 2,000 waste pickers by January 2012, with an initial target of covering up to 5,000 (Global Alliance of Waste Pickers, n.d.). Hasiru Dala went on to pioneer Dry Waste Collection Centres (DWCCs) — municipally backed sorting facilities that are operated and managed by trained waste pickers themselves, where collected dry waste is segregated into more than ten categories of recyclables before sale to the recycling industry (Global Alliance of Waste Pickers, n.d.; South First, 2025).

7.3 Scale and Welfare Outcomes

A city-level survey identified around 30,000 waste pickers in Bengaluru who could establish city residency, of whom more than 10,000–11,300 had been issued occupational identity cards as of recent reporting, extending into Karnataka more broadly and into Andhra Pradesh (30 Stades, 2021; Hasiru Dala/Give Discover, n.d.). These identity cards and accompanying proof-of-residence documentation have functioned as a gateway to government welfare schemes, health insurance, and microfinance access for waste pickers (DMEO/NITI Aayog, 2020; Hasiru Dala/Give Discover, n.d.). Hasiru Dala also runs the Buguri children's programme, which has supported over 3,700 children of waste pickers, alongside training in organic and event waste management and a certificate course for small recycling entrepreneurs run jointly with Waste Wise Trust and Jain University (Hasiru Dala/Give Discover, n.d.).

7.4 Challenges

Despite this progress, Bengaluru's waste sector continues to face structural resistance. Sociological analysis highlights that middle-class residents often remain reluctant to interact with waste pickers, that municipal contractors resist ceding collection territory for political reasons, and that caste-based discrimination continues to restrict the mobility and market access of pickers even after formal recognition (Frontiers in Sociology, 2026). Advocates have also argued that Bengaluru could go further by adopting a Pune-style model in which a waste-picker cooperative is granted exclusive city-wide collection rights, as recommended by bodies such as the CAG Audit on Municipal Solid Waste (2008) and the Asim Burman Committee (Deccan Herald, n.d.).

8. Comparative Analysis

Table 1 summarises the two models across institutional origin, structure, scale, income mechanisms, social protection, and challenges.

Table 1. Comparison of Kerala's Haritha Karma Sena and Bengaluru's Hasiru Dala-led Waste Picker Ecosystem

Dimension	Kerala – Haritha Karma Sena (HKS)	Bengaluru – Hasiru Dala-led Ecosystem
Year of initiation	2013, scaled up statewide from 2017 under the Haritha Keralam Mission (Clean Kerala Company, n.d.; Haritha Keralam Mission, n.d.)	2010, founded as a member-based waste-picker cooperative/social enterprise (DMEO/NITI Aayog, 2020)
Driving actor	State-led: Government of Kerala, Local Self-Government Departments, Kudumbashree and Suchitwa (Haritha Keralam) Mission (Clean Kerala Company, n.d.)	Civil-society/NGO-led: Hasiru Dala, working in partnership with the Bruhat Bengaluru Mahanagara Palike (BBMP) (South First, 2025; DMEO/NITI Aayog, 2020)
Institutional model	Semi-formal door-to-door collection by “Green Technicians” and “Green Supervisors”, selected through local bodies under Haritha Kerala Mission guidelines (Frontiers in Sociology, 2026; Clean Kerala Company, n.d.)	Occupational identity cards issued by BBMP; waste pickers organised into Dry Waste Collection Centres (DWCCs) that they operate and manage (South First, 2025; Global Alliance of Waste Pickers, n.d.)
Workforce composition	Predominantly women from economically and socially weaker sections, largely mobilised through Kudumbashree (Equator Initiative, 2024)	Historically male- and female-mixed rag pickers/itinerant buyers, later including women-headed households supported through education and welfare linkages (30 Stades, 2021)
Reported scale	About 35,214 women members across 4,438 HKS units collected 50,190 tonnes of inorganic waste in one year (LSG Kerala, 2024); more than 36,000 workers statewide (Haritha Keralam Mission, n.d.)	Occupational ID cards issued to over 10,000–11,300 waste pickers across Karnataka and Andhra Pradesh, out of roughly 30,000 surveyed (30 Stades, 2021; Hasiru Dala/Give Discover, n.d.)
Legal/policy backing	Backed by the Solid Waste Management Rules, 2016 which place waste-management duty on local bodies, operationalised through Kerala-specific government orders on user fees (SCITECH, 2024; Frontiers in Sociology, 2026)	BBMP identity-card practice (2011) later codified into municipal policy by 2016, informed by SWM Rules 2016, Section 11(b) provisions on waste-picker integration (South First, 2025; Deccan Herald, n.d.)

Income mechanism	User fees collected door-to-door plus payment from Clean Kerala Company for sorted waste — Rs. 341 crore in user fees and Rs. 7.8 crore in remuneration in one reported year (LSG Kerala, 2024)	Sale of segregated recyclables (over 10 material categories) to the recycling industry, plus service fees at DWCCs; about 800 tonnes of recyclables processed daily by Bengaluru's waste pickers (Global Alliance of Waste Pickers, n.d.; South First, 2025)
Social protection / welfare linkage	Positioned as “environmental educators”; linked to Kudumbashree's wider poverty-alleviation and gender-empowerment network (Equator Initiative, 2024)	Proof-of-residence and ID cards used as a gateway to government welfare schemes, health insurance, microfinance, and children's education support through the Buguri programme (Hasiru Dala/Give Discover, n.d.; DMEO/NITI Aayog, 2020)
Persistent challenges	Funding constraints, limited household participation, behaviour-change gaps, and disruption during COVID-19 lockdowns (Equator Initiative, 2024; AIP Publications, 2024)	Middle-class stigma, caste-based discrimination limiting mobility and market access, and resistance from municipal contractors (Frontiers in Sociology, 2026)

Read together, the two cases illustrate two distinct routes to the same policy goal set out in the Solid Waste Management Rules, 2016. Kerala's HKS represents a top-down, state-manufactured cadre model that has achieved rapid, standardised, statewide scale by embedding waste collection within an existing women's self-help infrastructure (Kudumbashree). Its strength lies in uniform coverage and direct linkage to local government financing, but this same top-down design means the cadre was largely built afresh rather than absorbing Kerala's pre-existing informal rag-picker population, raising the separate question of what happens to informal waste pickers who fall outside the Kudumbashree-linked HKS structure. Bengaluru's model, in contrast, is bottom-up: it began with the explicit goal of recognising and upgrading an already-existing informal workforce, using data-driven advocacy (the 800-tonnes-a-day figure) to negotiate concrete entitlements — identity cards, DWCC management roles, and welfare access — from the municipal corporation. Its strength lies in continuity with, and direct benefit to, the pre-existing waste-picker population, but its progress has depended heavily on sustained NGO capacity and has not eliminated caste-based and contractor-driven resistance (Frontiers in Sociology, 2026).

9. Discussion: Implications for Social Work Practice

For MSW students and practitioners, both cases offer concrete entry points across the three classical methods of social work — casework, group work, and community organisation — as well as for policy practice and social action.

- Community organisation and cooperative-building: Hasiru Dala's trajectory from a citizens' advocacy push to a functioning cooperative managing DWCCs illustrates the classic social work role of

organising a marginalised occupational group into a collective negotiating body (South First, 2025; DMEO/NITI Aayog, 2020).

- Gender-sensitive livelihood promotion: Kerala's embedding of HKS within Kudumbashree demonstrates how linking a green livelihood to an existing women's network can rapidly scale women's formal employment, a model transferable to other states seeking to combine self-help-group infrastructure with SWM Rules 2016 mandates (Equator Initiative, 2024).
- Policy advocacy and evidence-based negotiation: Hasiru Dala's use of workforce and tonnage data to negotiate BBMP recognition is a model of evidence-based policy practice that MSW students engaged in labour or urban-poverty settings can replicate in other cities still implementing SWM Rules 2016 (South First, 2025).
- Addressing caste and stigma: Both cases show that legal or institutional recognition alone does not resolve deep-seated caste discrimination and public stigma against waste workers, pointing to a continuing need for anti-discrimination and public-education interventions alongside livelihood formalisation (Frontiers in Sociology, 2026).
- Sustaining welfare linkages: The Buguri children's programme and Kudumbashree's broader welfare architecture both show how formalisation initiatives can be paired with education, health insurance, and microfinance access to address intergenerational poverty among waste-picker households (Hasiru Dala/Give Discover, n.d.; Equator Initiative, 2024).

10. Conclusion and Recommendations

Kerala's Haritha Karma Sena and Bengaluru's Hasiru Dala-led ecosystem represent two of India's most substantial responses to the Solid Waste Management Rules, 2016 mandate to integrate informal waste workers into formal municipal systems. Both have delivered measurable gains in income, recognition, and welfare access for thousands of workers, and both remain works in progress. The comparison suggests that formalisation is strengthened when (a) it is anchored in an existing social infrastructure — whether a women's self-help network as in Kerala, or an organised cooperative as in Bengaluru — and (b) it is backed by clear municipal or state financing and legal recognition. At the same time, both cases show that formal recognition on paper does not automatically dissolve caste-based stigma or contractor resistance on the ground. Future formalisation efforts, and the social work practitioners who support them, would benefit from combining Kerala's scale and cadre standardisation with Bengaluru's emphasis on absorbing and empowering the pre-existing informal workforce, while investing explicitly in anti-stigma and anti-discrimination work alongside livelihood and welfare programming.

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