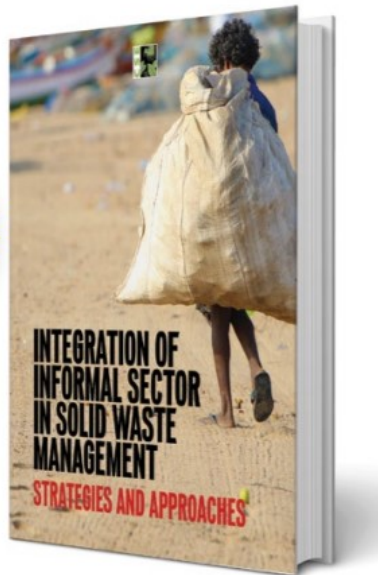


INTEGRATION OF INFORMAL SECTOR IN SOLID WASTE MANAGEMENT: STRATEGIES AND APPROACHES



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Social Inclusion & Pillars of Sustainability



‘Everyone has the right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment. Everyone, without any discrimination, has the right to equal pay for equal work. Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other means of social protection. Everyone has the right to form and to join trade unions for the protection of his interests.’

— Article 23 of The Universal Declaration of Human Rights

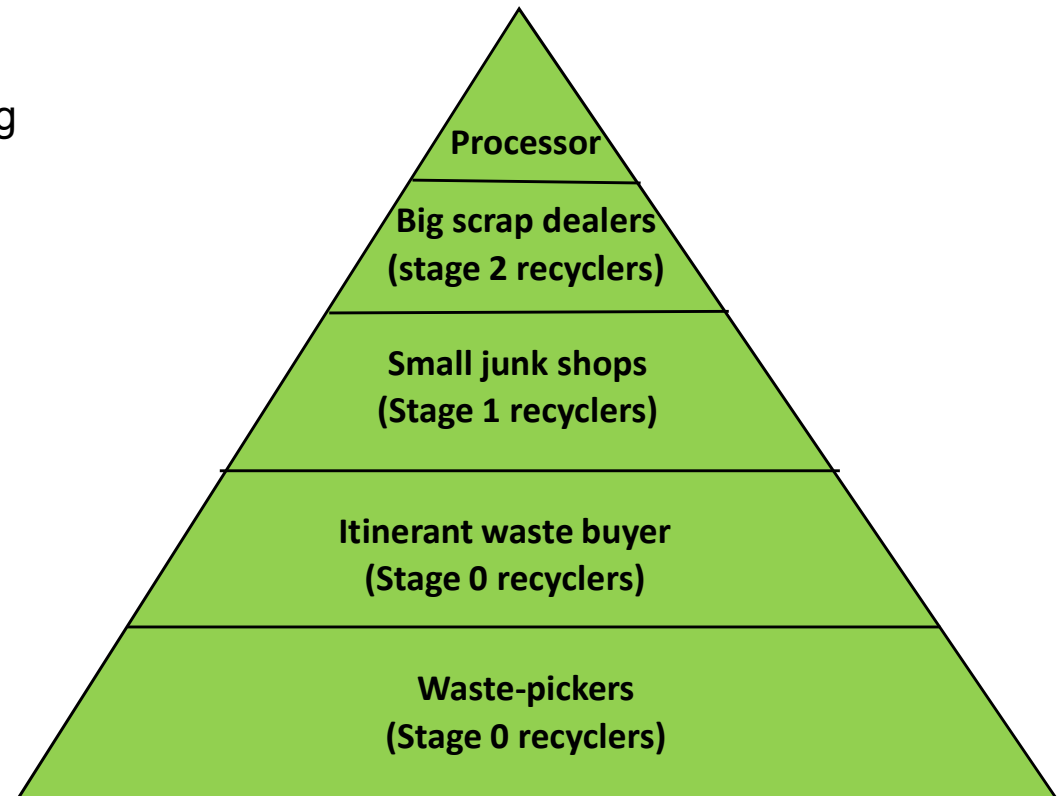
Informal Sector in Solid Waste Management



The informal sector in SWM may refer to individuals, families, and private sector (micro-) enterprises working in SWM services, whose activities are neither organized, sponsored, financed, contracted, recognized, managed and taxed, nor reported upon by governmental authorities.

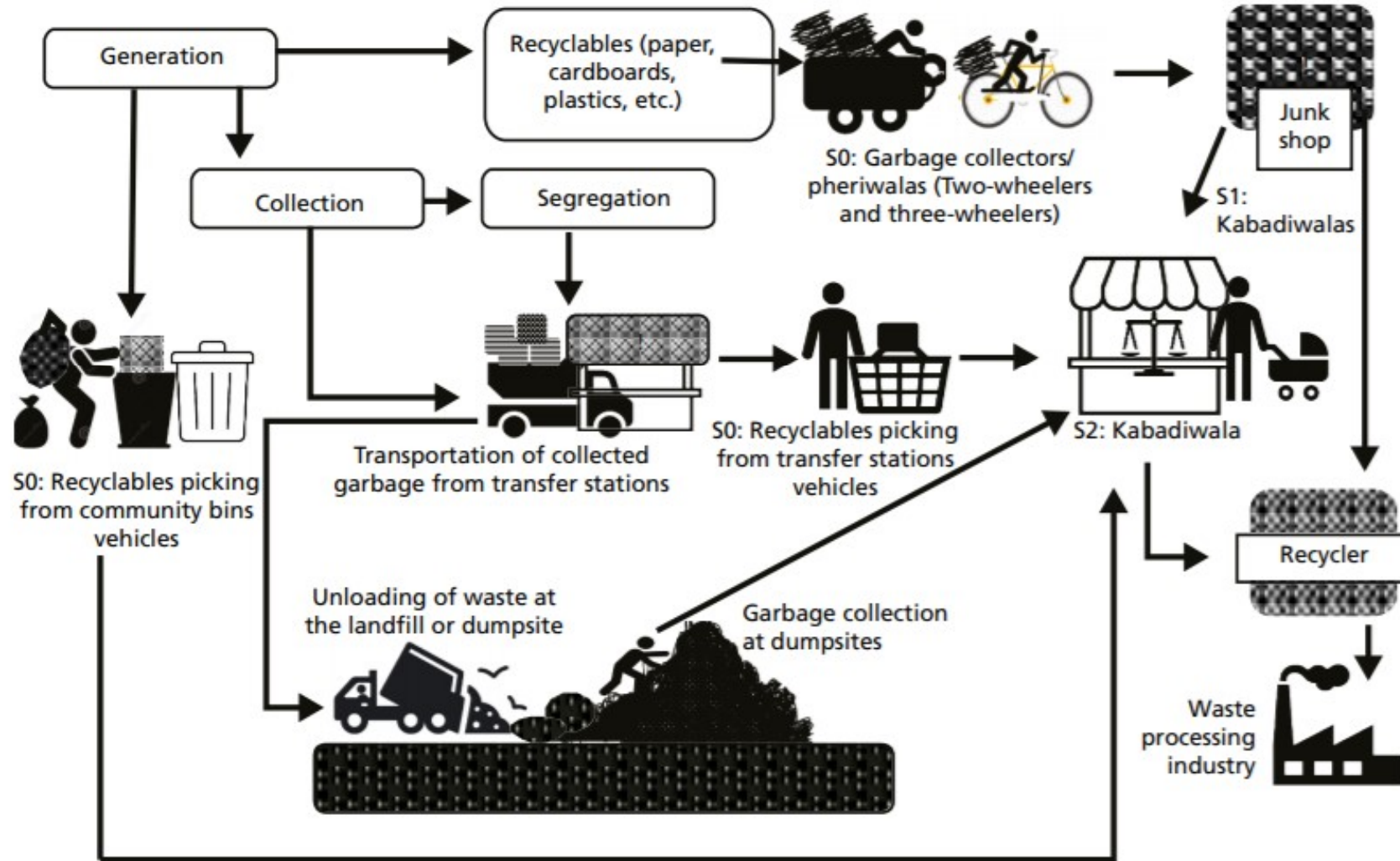
As per the SWM Rules (2016), 'informal waste collectors' includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials.

Solid Waste Rules (2016) define a 'waste picker' as a person informally engaged in the collection and recovery of reusable and recyclable solid waste from the source of waste generation to sale of waste to recyclers directly or through intermediaries



Pyramid of the informal waste recycling system

Informal sector in waste management



Informal Sector in Solid Waste Management



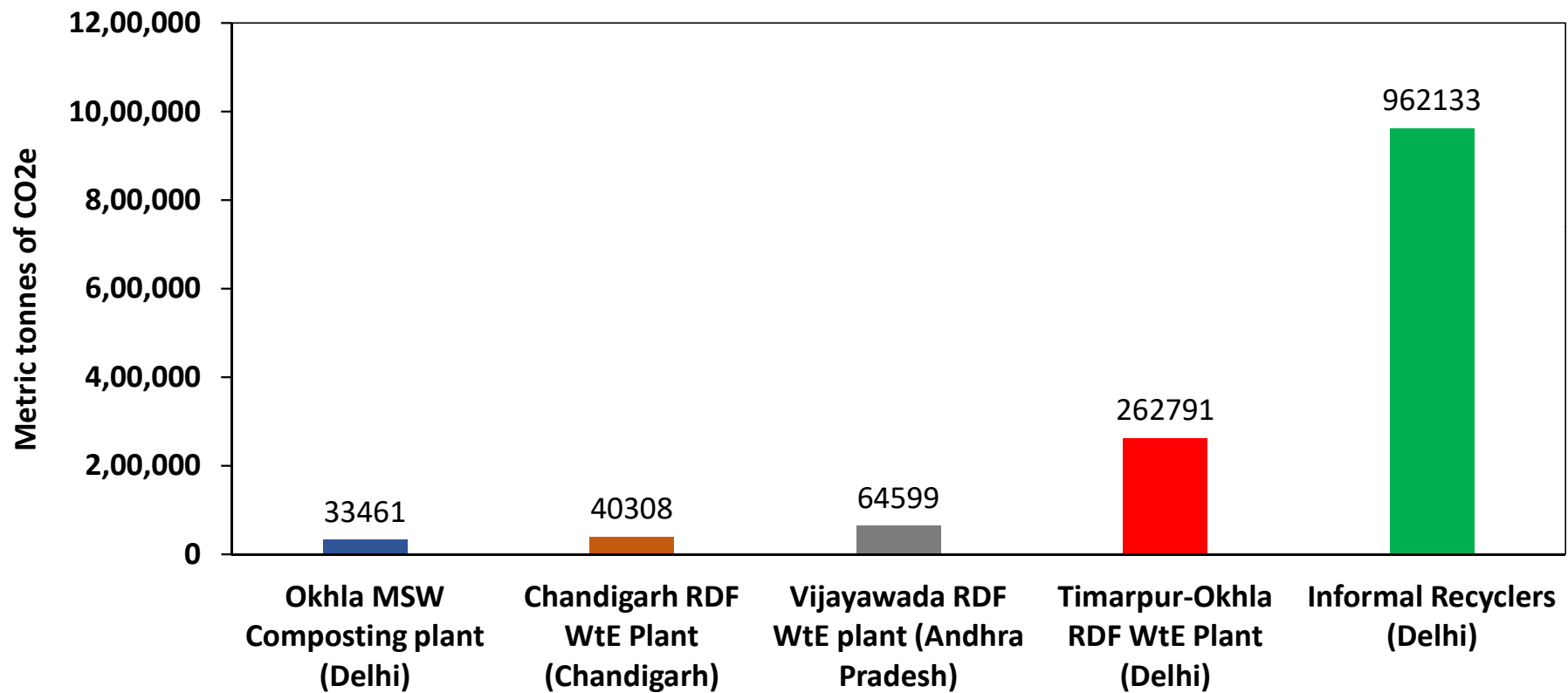
City	Population range (year)	Number of reported informal workers (range)	Percentage of informal actors in overall population
Ahmedabad	4,800,000–5,570,585 (2003–11)	20,000–50,000	0.36–0.42
Amritsar	1,132,761–1,183,705 (2011)	3,000–3,500	0.25–0.31
Bangaluru	5,000,000–8,425,970 (2000–11)	25,000–70,000	0.30–1.40
Delhi	11,007,835–18,680,000 (2010–11)	80,000–300,000	0.43–2.73
Kanpur	2,767,031–2,920,067 (2011)	15,000–20,000	0.51–0.72
Kolkata	4,486,679–15,100,000 (2010–11)	20,000–80,000	0.13–1.78
Mumbai	12,478,447–19,200,000 (2010–11)	85,000–135,000	0.44–1.08
Overall (India)	364,459,000 (2010)	1,500,000	0.41

Source: Linzner and Lange, 2013

Environmental Benefits



Estimated average annual GHG emissions reductions





Provides waste recycling workers the opportunity to generate income and sustain their families



Waste recycling avoids hazardous emissions-causing incineration



Women form a majority of waste pickers. Women have an equal job opportunity and participate in leadership and decision making



Management of waste by the informal sector helps avoid waste disposal in water bodies, thereby reducing water pollution



The informal waste recycling sector adds value to the economy by transforming waste into tradable goods



Pushes the transition towards a circular economy and encourages technological innovations for recycling



Recycling services provided by waste pickers make cities more sustainable (by reducing the risk of water logging and flooding). Cooperatives promote citizenship building, social inclusion, de-stigmatization, increased self-esteem and community building; making cities more resilient. Costs associated with management of waste by urban local bodies are also reduced



Recycled waste reduces the need of virgin raw material, thereby minimizing resource depletion



Diverting more waste to recycling instead of for incineration or thermal treatment



Minimization of recyclables (especially plastics) ending up in the oceans



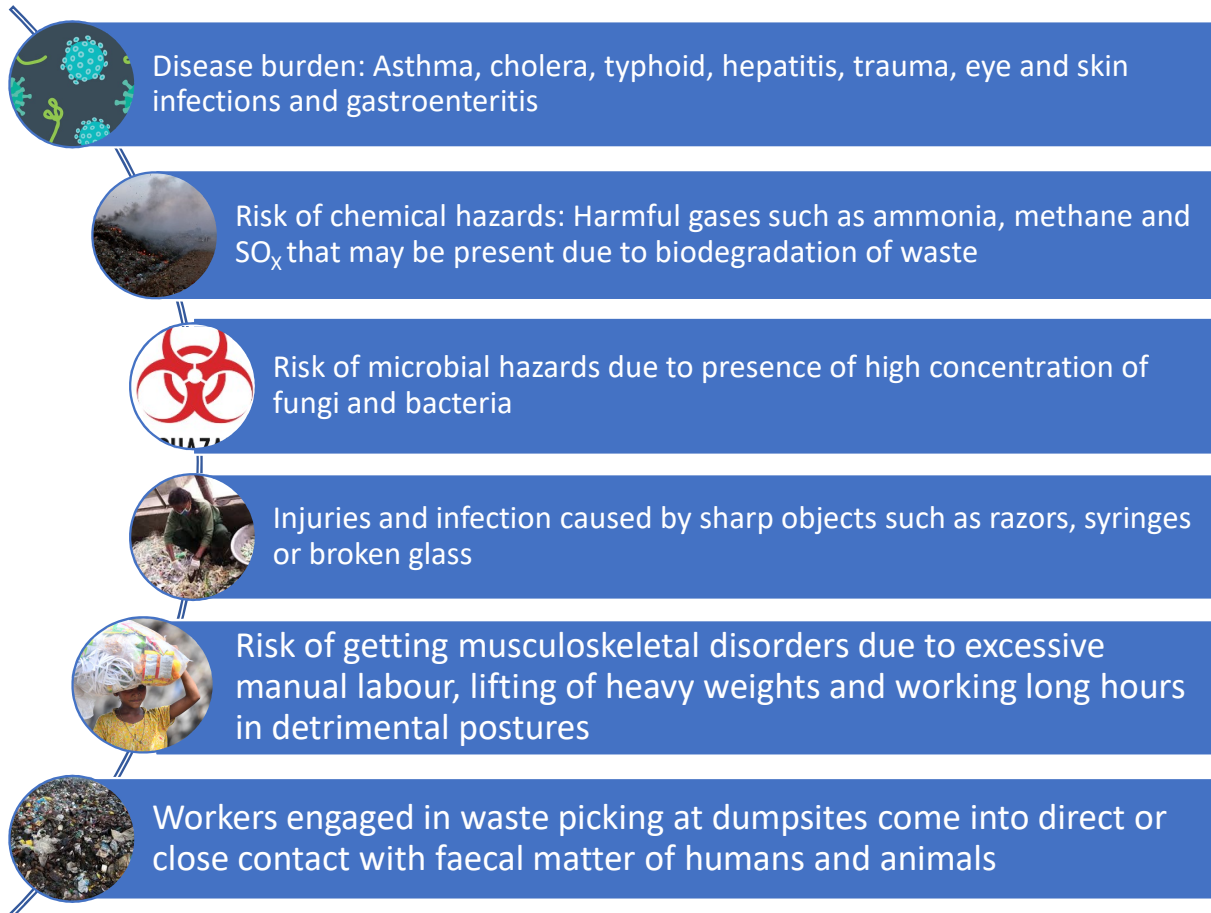
Contribution of informal recycling of waste in achieving SDGs and Circular Economy

Economic Benefits



Parameter	Contribution of 4,175 registered waste pickers	Contribution of 15,000 waste pickers
Waste collected per day (As each waste-picker picks up 0.07 tonnes of waste daily)	292.25 tonnes	1,050 tonnes
Percentage of waste collected by waste pickers in a day (of the total 4,500 TPD waste generated)	6.40 per cent	23.30 per cent
Gross waste diverted from landfills per year	106,671 tonnes	383,250 tonnes
Savings per day taken (Current cost for BBMP to landfill a tonne of waste is Rs 2,210)	Rs 6.43 lakh	Rs 23.1 lakh
Savings per year (approximately)	Rs 23.4 crore	Rs 84.3 crore

Socio-economic status of informal sector



- **Poor living and working conditions**
- **Occupational health hazards**
- **Harassment**
- **Public behaviour**
- **Child labour**
- **Migrant workers**
- **Exploitation by scrap traders**
- **Risk from privatization of waste management services**
- **Unstable income source**

Income loss due to privatization of the waste sector in Amritsar



Category	Income before private operations began (average monthly earnings)	Income after private operations began (average monthly earnings)	Average decline	Average decline in percentage
	In rupees			
Waste pickers (landfill)	5,500	4,000	1,500	27
Waste pickers (roadside and secondary containers)	5,000	3,500	1,500	30
Waste pickers (households)	6,000	2,000	4,000	60
Itinerant waste buyers	10,000	9,000	1,000	10

Dry Waste Collection Centers in Bengaluru



- DWCCs are decentralised centres set for aggregation and sorting of recyclables by the BBMP which are operated by the waste pickers.
- The DWCC is a means of integrating the informal waste workers (wastepickers and waste-collectors) to have better livelihood opportunities.
- BBMP attained the unique distinction of being the country's first urban local body to initiate this process with the help of a social enterprise called Hasiru Dala.
- As of 2013, the BBMP had distributed over 5,000 ID cards and sanctioned an additional 7,000 registrations.
- In 2018, the DWCCs diverted over 2,871 tonnes of plastic waste on its way to landfills.
- In 2020, nearly 5,508 tonnes of plastic waste was collected and sent for recycling by the DWCCs.

Solid waste management by SWaCH in Pune

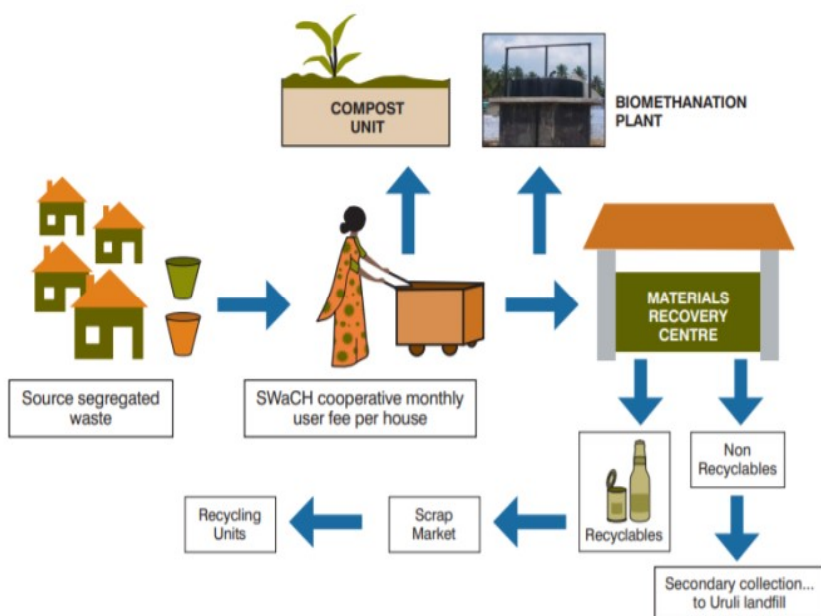


Table 7: Salient features of the PMC-SWaCH partnership in Pune

Memorandum of Understanding (MOU): Signed in October 2008
Nature of the arrangement: Pro-poor public partnership
Main tasks: Door-to-door collection of source-segregated domestic waste: maintenance of separate streams Collection of road sweepings, biomedical waste excluded Collection of garden waste, construction and demolition waste, e-waste on payment of user fees
Mode of collection: Manual push carts (small motorized vehicles introduced in difficult terrain)
Workers involved: Two workers for 200–300 households, offices, shops and other establishments
User fee: From all classes of users
User fee amount: Usually Rs 10–30 per household per month depending upon certain variables; in slums Rs 15 per household per month
Collection from slums: To be partly subsidized (but this clause not implemented)
Rights over recyclables: Collectors have rights over recyclables and retain income from sale of scrap
Provision of collection equipment and safety gear: Pune Municipal Corporation
Office, infrastructure and resource recovery centres: Pune Municipal Corporation
Terms of payment: Operational grant to cover management costs and some operational costs reducing annually
Worker benefits: Provided by PMC
Complaints and customer care helpline: Operated by SWaCH
Performance indicators: Specified in the arrangement
Validity of MOU: Five years
Monthly per household cost to municipality: Rs 4.38

Source: Chikarmane, 2012

Movement of waste from households in Pune

Plastic waste management programme in Mumbai



Issues faced by rag pickers

Occupational issues:

- Informal employment & low wages
- Commence profession at an early age of eight–ten years
- Low remuneration and unhygienic environment

Personal issues:

- Social and financial exploitation
- Financial debt and bondage with scrap dealers
- Health hazards and poor access to medical care, education and credit

Interventions

- ID cards
- Insurance
- Pension schemes
- Bank accounts
- Trainings
- SHG formation
- Children's' crèche

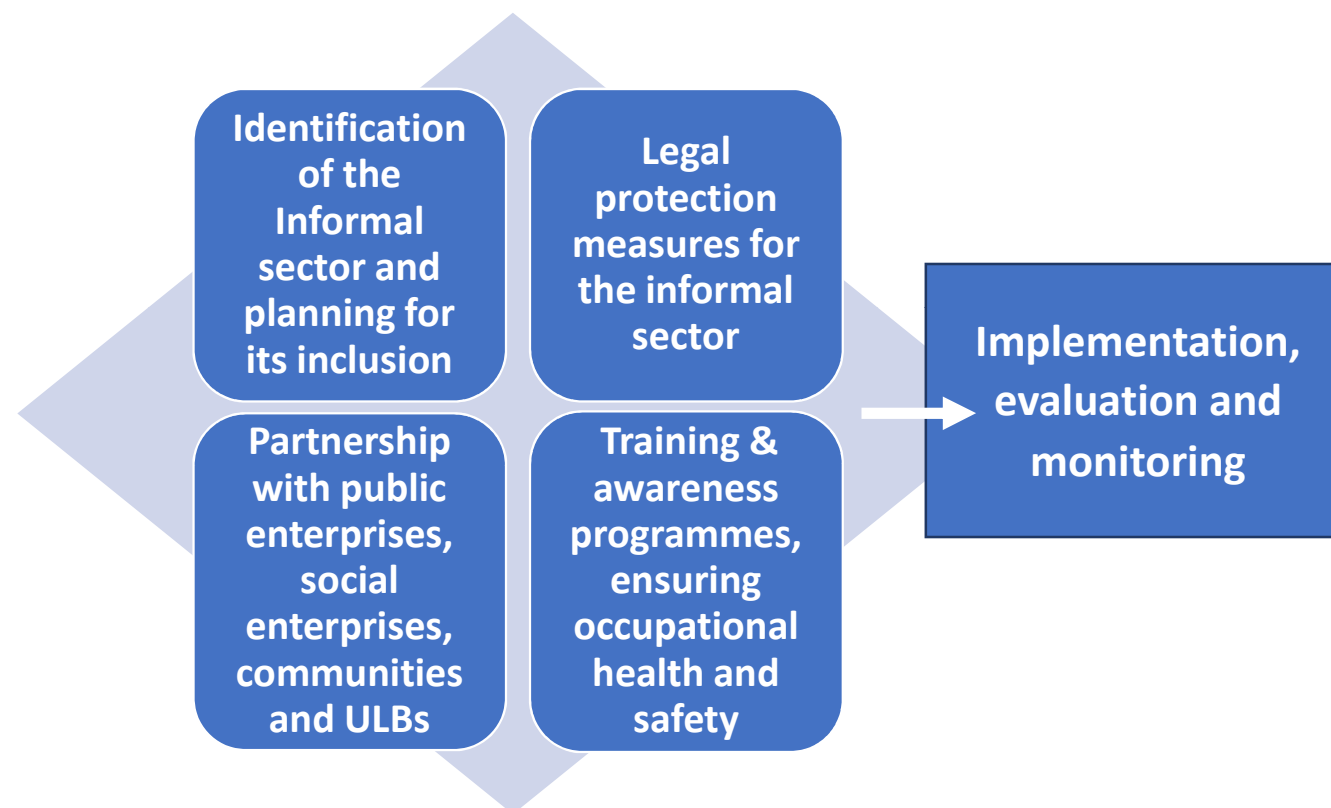
Measurable outputs

- Reduced vulnerability
- Increased collection and better quality of waste
- Predictable and increased income
- Dignified livelihood
- Fair price for recyclables
- Safe work environment

- The plastic waste management programme, a collaborative effort of the MCGM and HUL, is driving an end-to-end plastic waste management programme in Mumbai as well as behavioural change and improving livelihood for waste pickers.
- The project is currently being implemented in 3 wards of Mumbai: H-west, K-East, and R-North
- It aims to enhance segregation, collection and recycling of all kinds of plastic and dry waste along the waste value chain.

Mainstreaming waste pickers in Mumbai under the UNDP plastic project

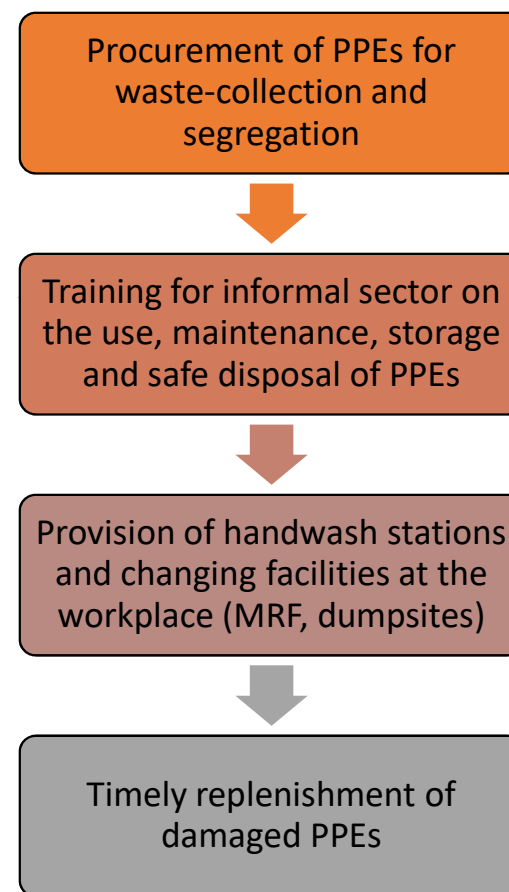
Enabling mechanisms for integration of the informal sector



Enabling mechanisms for integration of the informal sector



- Identification of informal sector actors and planning for their inclusion
- Partnership with public and social enterprises, communities and ULBs
- Training and awareness programmes
- Legal protection measures for the informal sector
- Ensuring occupational health and safety
- Implementation, evaluation and monitoring

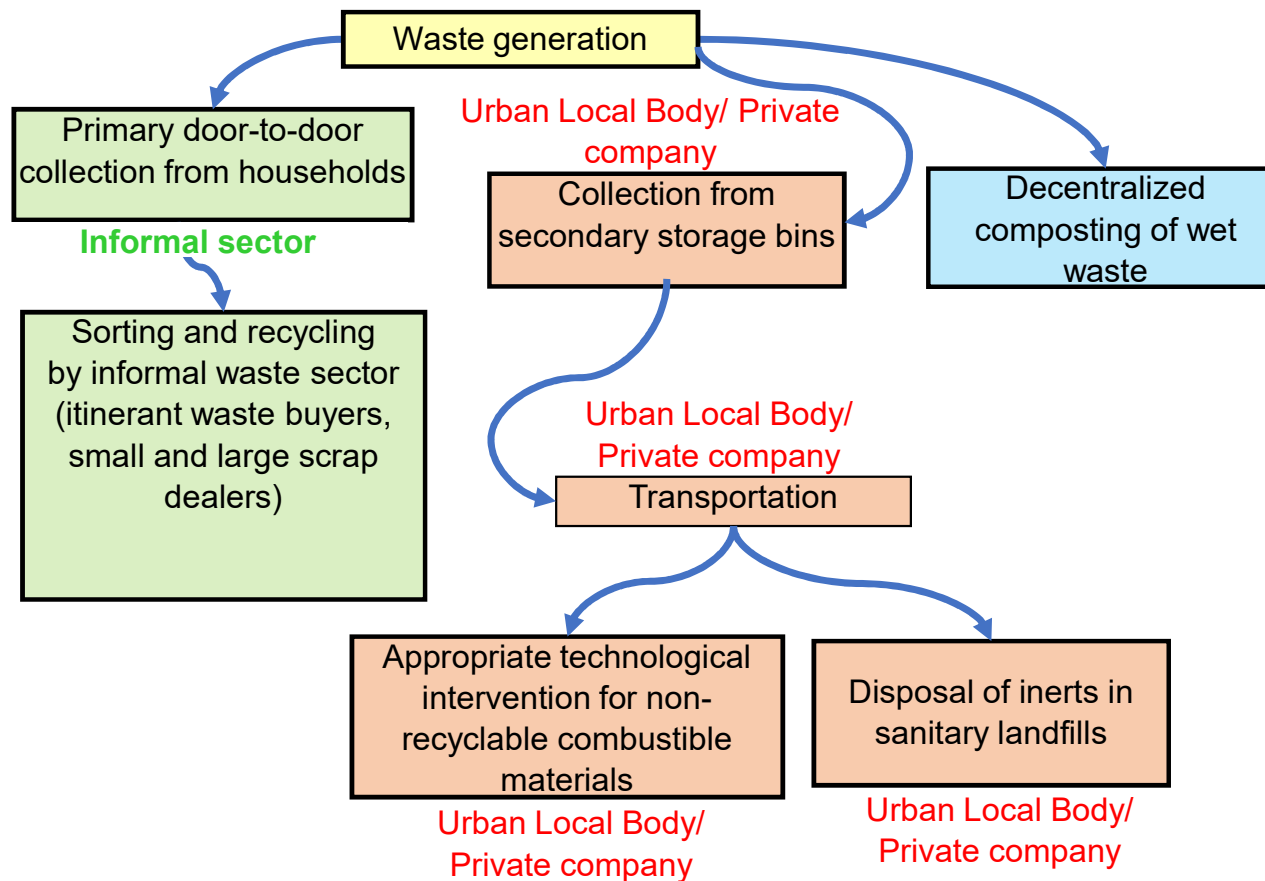


Policy recommendations



- Regulatory oversight
- Formation of waste picker member-based organizations
- Designing a model for integration
- Formation of an authority to integrate the informal sector
- Training and awareness campaigns
- Allocate working space and other facilities to the waste-pickers and *kabadiwalas*
- Financial inclusion

Model for Integration



Proposed model
for integration of
the informal
sector in the solid
waste
management
chain

I used to think the **top environmental problems** were **biodiversity loss, ecosystem collapse** and **climate change**.

I thought that **thirty years of good science** could address these problems.

I was wrong.

The top environmental problems are **selfishness, greed and apathy**, and to deal with these we need a **cultural and spiritual transformation**.

And we scientists don't know how to do that.



Thank you!