

Informal Waste Workers Contribution in Bangalore

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...Whenever you are engaged in work that serves humanity, and is for the building of humanity, it has dignity, and it has worth. One day our society must come to see this. One day our society will come to respect the sanitation worker if it is to survive. For the person who picks up our garbage, in the final analysis, is as significant as the physician. All labor has worth.

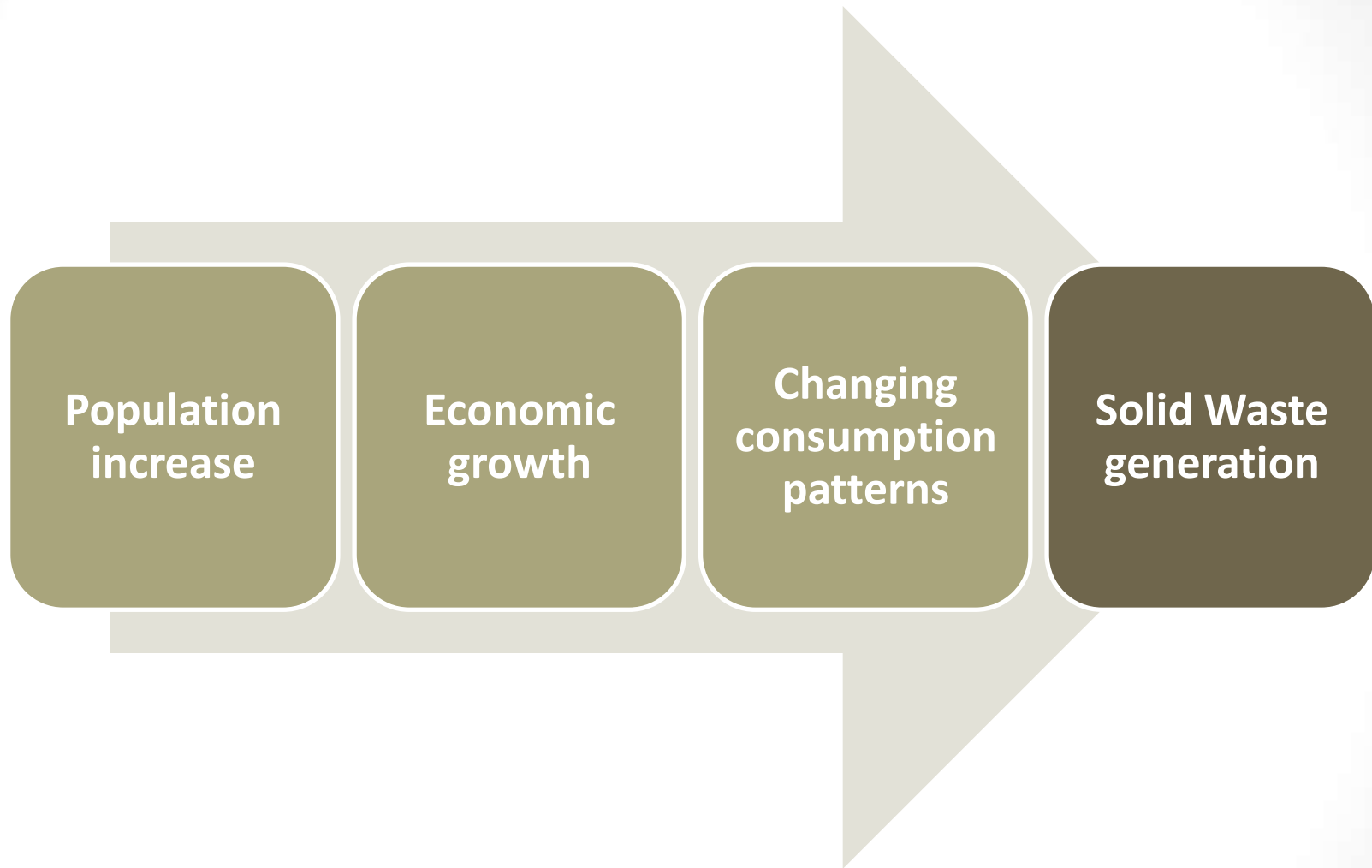
- Martin Luther King, Jr. addresses strikers in Memphis, Tenn., March 18, 1968



Introduction

- India is a part of the global trends where an increasing number of people live in urban areas.
- The number of towns and the absolute urban population in India has increased steadily over the last 60 years.
- Varying projections place urban population at about 590 million – 600 million in 2030
- According to the 2011 census data, “The population density in Bangalore has risen 47% in the past decade as job opportunities and economic growth have lured people from across the nation to India’s Silicon Valley. The number of people living per square kilometer in the city has increased to 4,378 in 2011 from 2,985 in 2001





SWM- A by product of urbanization



Solid Waste has three outlets:



The informal sector forms a critical link in waste management and recycling and this paper attempts to study waste-picker's demographic profile in Bangalore and their net contribution to the city

Bangalore

- On an average Bangalore generates about 3000- 4500 tonnes of municipal solid waste
- Follows a centralized approach of collection and transportation to the landfills
- There is a prevalent attitude of treating waste as disposal
- The BBMP, spends nearly Rs. 450 crore annually on solid waste management
- There exists a large informal workforce consisting of waste-pickers, itinerant buyers, waste sorters, small and medium scrap dealers, whole sale dealers in the recycling pyramid.
- Several community based initiatives were initiated in the late 1980s, stressing the need for public participation in solid waste management.
- CEE started the Committee for Clean Bangalore in partnership with various organizations in 1989 to promote segregation at source



Lok Adalat and SWMRT

- Twenty years later, in 2009, the Solid Waste Management Roundtable (SWMRT), a group of individuals and organizations got together to promote decentralized waste management in the city for efficient waste handling. SWMRT engaged with the Lok Adalat,(People's court) a system of alternative dispute resolution (non-adversarial system) from mid-2010 which led to certain significant directions to the BBMP to implement decentralized waste management across the city.
- In 2011, through the Alliance of Waste-pickers filed an affidavit for recognition of waste-pickers which led the Lok Adalat to issue the landmark directive to the BBMP was the registration and enumeration of waste-pickers and scrap dealers.



Approach adopted for Waste-picker Registration by the BBMP

- Bangalore is divided into eight zones for administrative purposes
- **Directives from the Commissioner to all zonal commissioner to register waste-pickers.**
- The BBMP appointed the Technical Advisor and the Chief Engineer of Environmental Cell as the nodal officer for enumeration
- Hasiru Dala provided the needed technical know-how
- The environmental engineers were instructed to coordinate process in each zone
- The methodology used for registration was based on the registration process proposed by AIW the task force members in Labour Welfare, GOI on extending social security scheme for waste pickers and rickshaw puller



- The BBMP allocated a budget for printing of registration forms, data entry and creation of a centralized database and the design and printing of identity cards to waste pickers.
- Training of BBMP staff members and surveyors on the process of enumeration and registration
- The BBMP agreed to support 18 surveyors from NGOs in completing the survey and registration and issued Expression of Interest to enable the surveyors come on board
- The deadline of March 2012 was fixed by the BBMP to complete 5000 registrations
- In addition a central database was created by the IT department of the BBMP.
- A circular was issued by the BBMP articulating the methodology to all the zones

Key Milestones

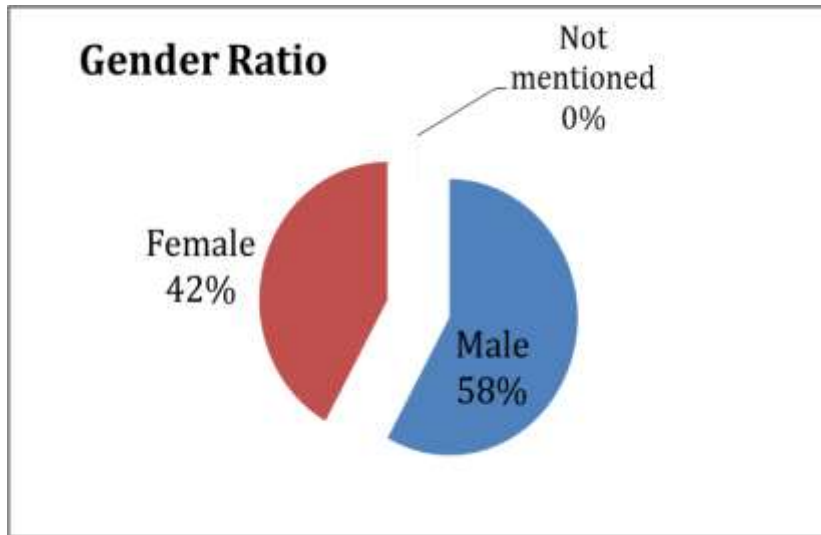
- 5000 registration forms for waste pickers and itinerant buyers, 3000 forms for enumeration of scrap dealers and 1000 instruction forms were printed and distributed to the zones.
- First pilot on tested in West Zone of the City. The gaps identified from the pilot helped improve the efficiency of registration process)
- The first 20 identity cards were distributed to waste-pickers during the first Samavesha (conference) of waste-pickers in the city in August 2011. Over five hundred waste-pickers, itinerant buyers, citizens, officials and media persons from the city attended the event
- An additional 2700 identity cards were distributed in January 2012



Socio Economic Profile of Waste Pickers

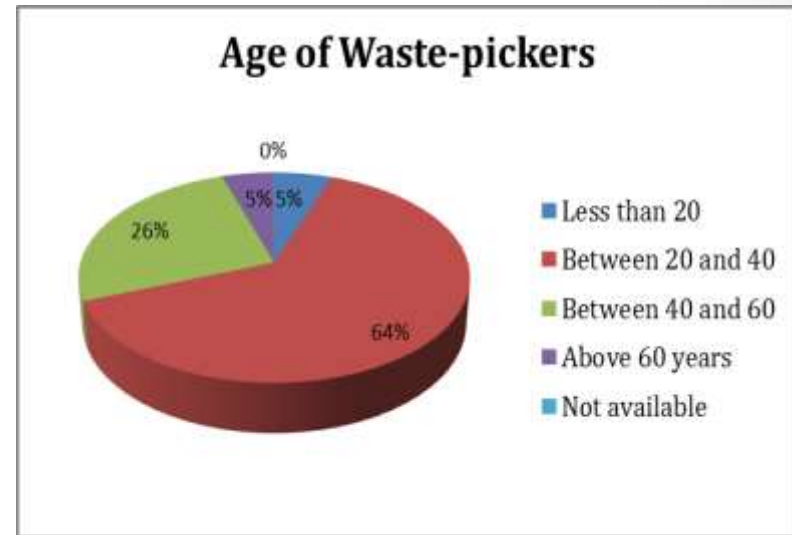
The information collected through the registration survey conducted between 2011 & 2012 has been used to arrive and determine the socio-economic status of the 4175 waste-pickers and their economic contribution to the city

Gender



- 58% are men and 42% are women

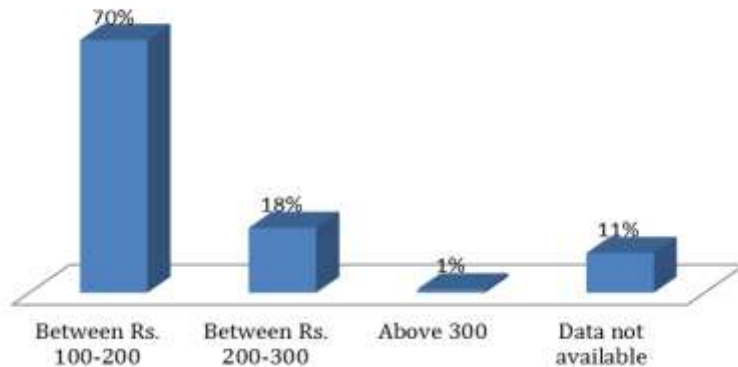
Age



- 64% of the waste-pickers registered are in the age-group of 20 and 40 years and 26% are in the age group of 40 and 60 years. Only 5% of those registered are in the age group of less than 20 and above 60 years age group

Income

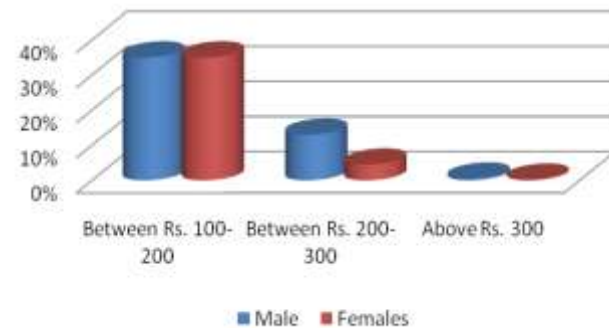
Income per day



- 70% of those surveyed earn an average of Rs. 100 to Rs. 200 per day which amounts to approximately Rs. 3000-6000 per month, and only 18% earn between Rs. 200 to 300 a month which amounts to approximately Rs. 6000-9000 per month. Barely 1% of those registered earn above 3000 a month

Comparison of Gender Earnings per day - Average Earnings by Sex

Comparison of Gender Earning per day

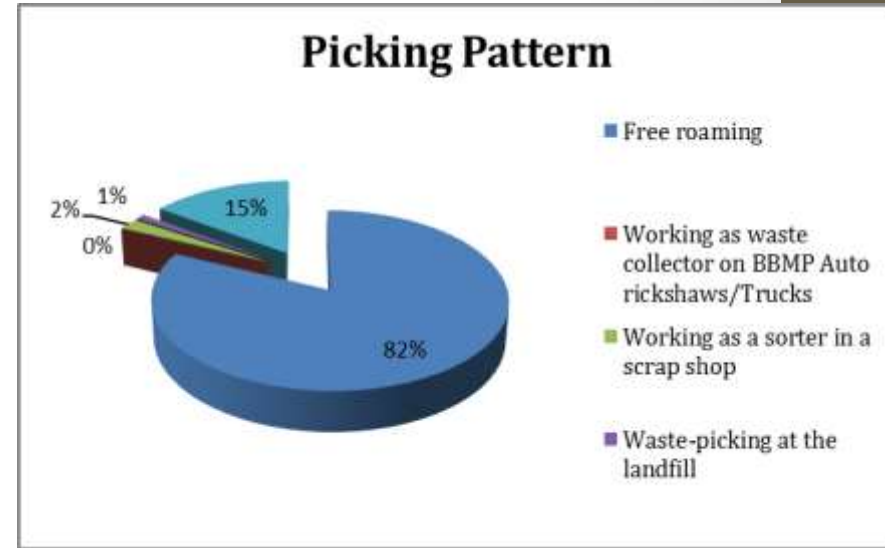


The average earnings of ranged between Rs. 100 – 200 per day for both men & women waste-pickers

- Only 4.5% of Women waste-pickers registered earned in the higher range of Rs. 200 -300 per day as opposed to 13% of the men which goes to prove that gender gap in earnings exists in the informal sector



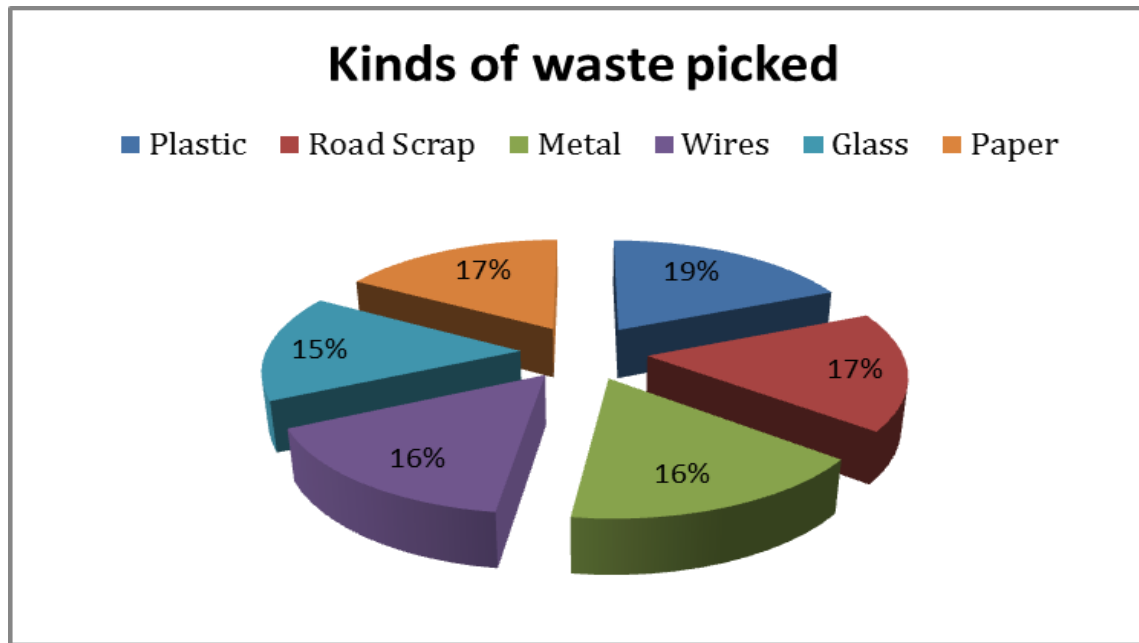
Frequency of waste-picking & Picking Pattern



The data reflects that majority of waste pickers that is 99% collect or pick waste daily. With respect to picking patterns, the data also shows that 82% are free roaming waste-pickers, whereas 2% works as sorters in scrap shops



Kinds/Types of waste picked



It comes as no surprise that plastics and road scarp figure marginally high on the type of waste collected by waste-pickers 19% and 17% respectively, though paper (17%) , Metals (16%), Wires (16%) and glass (15%) also feature. Though Bangalore boasts of a robust door-to-door collection , a significant percentage of waste is retrieved on the road 82%

Economic Contribution of Waste pickers

- On an average a waste picker collects about **60 to 90 kgs of waste per day** *working for about 8 -10 hours*. The working conditions vary, as there those that collect waste by **carrying a sack on their back, to those who move about in a tricycle to iterant buyers** who work for specific dealers collecting only high value waste often newspapers and papers. The main difference between those who collect waste by carrying a sack and those that use a tricycle is the distance covered, while the former restrict their movements to their immediate locality and sell to a local dealer, the latter usually aggregates the waste with other waste-workers and then enters into an arrangement with middleman to trade the waste



Calculations in the study

The calculations in this study are based on following assumptions and extrapolations:

Assumption 1: Population Growth and the Amount of Garbage Generation

There is **no clear quantification of actual waste generated in Bangalore**. Various reports / articles have quoted differently.

- **According to the Article- War over waste (November 30th, 2012), Down to Earth:** “Bengaluru generates **3,000-4,000 tonnes** of solid waste daily”
- **According the newspaper report – Bangalore awards contract to convert city waste to energy (September 10, 2012) :** India generates around 67.5 million tonnes of municipal waste per day of which Bangalore accounts for **3,000 tonnes**, according to industry estimates.
- **According to According to the paper titled “Towards a sustainable waste management system for Bangalore”, (2009) :** Bangalore generates around **3000-4000 t/d** of MSW. The total MSW generated in Bangalore city has increased from 650 t/d (1988) to 1450 t/d (2000) and today it has become 3500 t/d. Generation rate has also increased from 0.16 (1988) to 0.58 kg/capita/day (2009) attributable to development and lifestyle changes. The rapid increase from 1450 in 2000 to 3600 tpd in 2008-09 itself corroborates the above change and rising generation rate With an estimated population of 6 million, Bangalore is among the largest five cities of India... In addition, the city has expanded from about 400 km² in the 90’s to about 800 km² of greater Bangalore



- **According to the Evaluation of Technology for processing existing waste at Seven Landfill sites of BBMP, Bangalore : Technical committee Recommendations on EOI application - REPORT 03-01-2013** : Bangalore, the capital of Karnataka State is one of India's fast developing city with an average annual growth rate of 3.25 % and population of 8.4 Million (census 2011) and area of 800 sq km. Most of the study reports suggest waste generation rate of 0.4 to 0.6 Kg per capita per day. Based on this per capita consumption of 0.5 kg per capita per day is proposed as waste generation pattern for Bangalore city. Estimated Municipal Solid Waste generation Projection from all sources for BBMP zones is **4000 MTPD**. While the increase in population has been tremendous, there has been increase in the generation of Solid waste.
- **According to the article titled “Bangalore amongst most polluted global cities”** : “In 2008, Bangalore produced around 2,500 metric tonnes of solid waste, and increased to **5000 metric tonnes in 2012**”



For the purpose of this study

- For the purpose of this study it is assumed that Bangalore generates about 4500 tons of waste per day.

Population: 60 Lakhs people = 3000 tons of waste (2009)

Population: 96 lakhs = 4500 tons of waste (2011)

- **Rationale:**

The amount of waste is directly proportional to the population of the given city

As quoted in TERI (2011) Wealth from Waste Trends and Technologies (Third Edition)

“Waste generation is always directly proportion to the population”



Assumption 2: Composition of Waste

There is again a dispute with reference to the composition of waste

- *According to the paper titled “Towards a sustainable waste management system for Bangalore”, (2009) : Bangalore wastes have **21.27%** of the recyclable materials: paper, polythene, cloth, rubber, glass and Metals, major constituent (72%) of which is organic waste*
- *According to the article titled ‘Each town in State must have action plan for effective waste management’(October 10,2012) : Wet waste composition was 60 to 80 per cent of the total waste here, while it is just 16 to 24 per cent in the west*



For purpose of this study

- It has been assumed that Organic Waste is 60%, Inorganic Waste (Dry Waste) is 30% and Inert waste is 10%

Composition	Tonnes per day
Organic	2700
Inorganic	1350
Inert	450

Assumption 3: Waste pickers retrieving capability

For the purpose of this study the average waste retrieved by the waste-pickers has been taken at **70kgs a day per person.**

Economic Contribution of 4175 waste-pickers in the city

Waste saved per day (tons) per person	Waste saved by all people (tons) per day	% of waste saved in the city in day when generated	Gross waste diverted from landfill /year (tons)	Savings per day taken @ Rs. 2200 per ton (Current cost for BBMP to landfill 1 ton of waste is Rs. 2210 per ton)	Savings per year
0.07	292.25	@ 4500 tons per day = 6.4%	1,06,671/-	Rs. 6,42, 950/-	Rs. 23, 46,76750 annually

- The 4175 registered waste-pickers save the city about 23 crores annually, which would otherwise cost the BBMP to spend an additional 23 lakhs of the budgeted 450 crores



Economic Contribution of 15000 waste-pickers in the city

Waste saved per day (tons) per person	Waste saved by all people (tons) per day	% of waste saved in the city in day (when generated	Gross waste diverted from landfill /year (tons)	Savings per day taken @ Rs. 2200 per ton (Current cost for BBMP to landfill 1 ton of waste is Rs. 2210 per ton)	Savings per year
0.07	1050	@ 4500 tons per day = 23%	3,83,250/-	Rs. 23,10,000	84, 31, 50,000 (which is INR 843 million, 150 thousand and 13 million, 614 thousand 564.83 USD

- **The estimated 15,000 waste-pickers save the city about 84 crores annually**



Conclusion

It is evident that the informal sector makes a significant contribution to the overall economy

The BBMP is saving about **23 crores per annum** from the contribution of **4175 waste-pickers in the city** and an estimated **84 crores per annum** by the contribution of **15,000 waste-pickers** in the city

It is estimated that *at least one percent of a city's population is made up of recyclers*. Without the informal sector subsidizing costs, for the municipality the cost of recycling will dramatically increase. It is time now to strengthen this sector, and incorporating waste-pickers into waste management and recycling programs can be socially desirable, economically viable and environmentally sound



Way Forward

- **Adopt Zero Waste Approach:** Enforce segregation at source, set recycling targets, minimize waste to the landfill. Move away from a centralized approach and adopt a decentralized policy and invest in necessary infrastructure like the setting up of Dry Waste Collection Centers at ward level. This approach will help protect the environment, create jobs and strengthen local and regional economies
- **Access to livelihoods:** Access to waste is a first step towards providing them with access to livelihoods. Waste-pickers and Scrap Dealers must be given first preference to run the Dry Waste Collection Centers at Ward level. In addition bulk generators must be encouraged to use the services of waste-pickers to implement waste management on site. The policy must also consider the entire recycling chain and must create an enabling environment for the sector to function



- **Enforcing Extended Producers Responsibility:** The Government must strictly enforce EPR on manufacturing companies to invest in recycling infrastructure to purchase waste (buy-back) from waste-pickers. The Informal sector can provide efficient supply chain for the collection. EPR, if implemented correctly has the potential to improve health and safety as it directly address issues of occupational health, at one level and responsibility of protecting the environment at the other level.
- **Social Security for waste-pickers:** It is equally important for the government to focus on social security measures to ensure a decent standard of living and assist in poverty alleviation and reducing child labour in waste-picking

- **Formalization of Informal Enterprises and Informal Jobs:** While the BBMP has made an attempt to register waste-pickers and enumerate scrap dealers, there is still a lot to be done in creating an enabling environment like creating access to finance and market information, access to government subsidies and incentives, empanelment of the informal sector, access to use public space etc for the Informal enterprise and for the waste-pickers – access to waste, minimum wage for waste sorters, social security, access to run dry waste collection centers, interventions during discrimination

Inclusion of informal sector can be a strategy for both effective solid waste management and poverty alleviation, both the primary responsibility of an Urban Local Body.

Integrating waste-pickers will help foster urban development, promote cleaner environment and increase recycling activities



Thank you

