

Swachh Bharat Mission

An Inclusive Swachh Bharat through the Integration of the Informal Recycling Sector: A Step by Step Guide



(2016)



एक कदम स्वच्छता की ओर

Preface

In 2014, on the 2nd of October, under the clarion call of our Honorable Prime Minister, Sri Narendra Modi, India launched the Swachh Bharat Mission, with a vision of ensuring hygiene, waste management and sanitation across the nation. The MoUD houses the mission and indeed, it is the crucible in which many innovative ideas and plans have been-and continue to be nurtured and developed to ensure the success of the Mission.

One of mission's crucial objectives is "modern and scientific municipal solid waste management (SWM)". Guidelines for implementing the Swachh Bharat Mission include the setting a target of "80% of the urban population to be covered by SWM services (allowing for a 2% increase year on year)."

But how will India get here? The Mission is keenly aware of the relevance and importance of the informal sector in this context. We realize that to achieve this target, the involvement of the informal

sector will be essential. India today is home to 10% of the world's wastepickers, or about 15 lakh wastepickers. The rest live in not only the developing world, but even in Spain, New York, USA and Vancouver, Canada. Wastepickers apart, India's informal sector comprises waste sorters, waste traders and itinerant buyers. They comprise nearly 1% of a city's population. Anyone who has lived in an Indian city is familiar with this phenomenon.

It is well known that almost 20% of a city's waste is already being segregated and recycled by this sector. By doing this, they are preventing waste from being burned or reaching the landfills. In this way, they play a significant role in fighting green house emissions, and contribute to India's well being. In many cities, from Delhi to Pune to Bangalore, they have played a significant role in cleaning up the city by offering services beyond what they already informally undertake, as the case studies in this manual will show. They have demonstrated that they can handle significant amounts of waste and help clean up our cities in a low

cost, decentralized manner, as well as save municipalities significant expenditure.

It is unfortunate that their conditions of work are sub-optimal. Many of them are looked down upon, and the waste they handle impacts their health. Since they are typically poorly educated or uneducated, they are unable to apply for many kinds of social security that is available for them. Combined with the fact that many are either Dalit or from lower castes, they are also historically marginalized and poor.

Including them in the Solid Waste Management system of a city or town will be a win-win for everyone. Not only will the sector be able to provide the services required, but it will also result in creating sustainable livelihoods, which are eventually a key to fighting poverty.

It is time to learn to include our wastepickers and kabaris in our Solid Waste Mission such that they can have dignified, decent and green livelihoods via the Swachh Bharat Mission Framework. This manual has been created to enable ULBs to learn how they can include the informal sector in SWM.

Inclusion will not mean hiring them as employees, because that is only one option, and one that very few ULBs can do. However, many other options exist—including recognizing and enabling them to work, offering total waste management

services to residents, bulk generators and offices. I urge each and every ULB to take this aspect of SWM seriously and make a sincere effort to work towards integrating this sector in their plans for a Swachh Bharat.

While ULBs may be over-burdened by a number of challenges, including the informal sector has been made easy by this manual, which offers a step-by-step methodology to include them in SWM in the city. It is simple, sensible and highly user-friendly. I urge all ULBs to read, assimilate and implement it. It will enable the ULB to be compliant with the Solid Waste Management Rules 2016 and the Plastic Waste Management Rules, 2016.

I wish to thank Chintan Environmental Research and Action Group, whose immense hands-on knowledge, skills and experience helped the Ministry to bring out this manual. In the coming years, I hope more and more success stories can be celebrated across India around this issue.

I wish you all the ULBs success in achieving this.

Hon'ble Shri. Venkaiah Naidu

*Union Minister for Urban Development,
Housing and Urban Poverty Alleviation and
Parliamentary Affairs
Government of India*

Table of Contents

Introduction	8
Main challenges in the current waste management landscape	8
Imagining a future waste management landscape	10
Chapter 1: Purpose and scope	15
Who should read this manual?	15
Chapter 2: The need for Inclusive Solid Waste Management	17
Role of the informal sector in waste management	17
Savings to the city	23
Chapter 3: Integrating the Informal Sector in Waste Management: A step-by-step Guide	25
Chapter 4: Plan	26
Task 4.1 Understand the challenges in the current waste management environment	26
Task 4.2 Review applicable policies and rules and their implementation	29
Task 4.3 Develop informal sector inclusion goals for the next five years	30
Task 4.4 Establish baseline and target metrics to monitor performance against the goals	31
Chapter 5: Partner	33
Task 5.1 Partner with the informal sector	33
Task 5.2 Partner with the formal sector	36
Task 5.3 Partner with the public	39
Chapter 6: Recognize and Legitimize	41
Task 6.1 Document the current informal sector landscape	42
Task 6.2 Identify and enumerate informal sector workers	42
Task 6.3 Identify protocols and systems to provide legitimacy	43
Task 6.4 Legitimize informal sector workers	44

Chapter 7: Establish Protocols and Standards	46
Chapter 8: Communicate and Train	51
Chapter 9: Implement and Monitor	53
Monitoring Activity 1: Periodic reporting	54
Monitoring Activity 2: Periodic audits	54
Monitoring Activity 3: Annual progress reporting	55
Chapter 10: Case Studies	57
1. Chintan's Award Winning Zero Waste PPP Model	57
2. Government Steps Forward: Achieving zero waste goals through the integration of the informal sector in doorstep collection in Kolar	59
3. SWaCH: City wide doorstep waste collection with wastepickers in Pune	60
4. Hasiru Dala's dry waste collection centers	62
Chapter 11: What does it all cost?	64
Available Resources	68
Appendix A: Sample MoU between Municipality and Contractor	70
Appendix B: Sample Communication Materials	94
List of Figures:	
Figure 1: Conceptual Framework of a target waste management system	11
Figure 2: Informal sector in waste management	17
Figure 3: Integrated Waste Management Hierarchy	18
Figure 4: Profile of an average informal sector worker in UP	20
Figure 5: Step-by-step approach to integrating the informal sector	25
Figure 6: Informal Sector Waste Collection Points in NDMC	28
Figure 7: Partnering with stakeholders	33
Figure 8: Developing and maintaining informal sector partnerships	34
Figure 9: Assessing inclusion in formal waste management systems	37
Figure 10: Recognizing and legitimizing informal sector workers	41
Figure 11: Sample design of an MRF	44
Figure 12: Sample identification card	44
Figure 13: Sample reporting template	54
Figure 14: Sample audit template	55
List of Boxes:	
Box 1: Facts on the informal sector from across India	19
Box 2: What the informal sector looks like in UP	21
Box 3: The informal sector saves money for municipalities	24
Box 4: Ways to support informal sector partners	34

Box 5: NDMC launch Eco-friendly Garbage Stations in New Delhi Municipal Council	35
Box 6: Assessing the feasibility of employing informal sector workers in waste management projects	37
Box 7: Terms and Conditions Assessment Checklist	38
Box 8: Are informal sector workers willing to change their line of work?	39
Box 9: Minimizing risk of fires in waste handling facilities	47
Box 10: Ensuring occupational health and safety	47
Box 11: Establishing and operating a customer helpline	48
Box 12: Customer feedback survey	49
Box 13: Eliminating child labor in waste	49
Box 14: How are wastepickers organized in different cities?	67

List of Tables:

Table 1: Global city-wise waste recovery (in tonnes and percent)	22
Table 2: Informal sector presence in 6 global cities from middle and low-middle income countries	23
Table 3: Metrics to measure desired outcomes of the goals	31
Table 4: Communication/ training objectives with proposed frequency and media	51
Table 5: Implementation schedule to achieve objectives in a reasonable timeframe	53
Table 6: Metrics to measure annual progress report	55

List of Pictures:

Picture 1: Safai Sena wastepickers at the Swachh Bharat Mission launch at New Delhi Railway Station on 2nd October, 2014	14
Picture 2: Once shy, now brimming with confidence	16
Picture 3: Women wastepickers in Pimpri Chinchwad, Maharashtra	18
Picture 4: Trained wastepickers by Chintan delivering professional D2D collection service in NDMC	29
Picture 5: NDMC and Chintan's domestic hazardous based collection centre	36
Picture 6: A trained woman wastepicker at a residential complex in Bengaluru, Karnataka	44
Picture 7: Wastepicker women at one of the Dry Waste Collection Centre in Mysuru, Karnataka	42
Picture 8: I-card distribution at Srinagar	45
Picture 9: Chintan's wastepickers at the New Delhi Railway Station	57
Picture 10: Neatly segregated wet waste in Kolar, Karnataka	59
Picture 11: Wastepickers from SWaCH a cooperative in Pune, Maharashtra	61
Picture 12: Wastepicker women from Hasiru Dala a cooperative in Bengaluru, Karnataka	63

Introduction

As we all know, for several decades, waste was a neglected, and even, stigmatized subject. It was a public issue only when it posed a threat to public health, but never otherwise. In 2014, the Swachh Bharat Mission (SBM) was launched with a vision of “ensuring hygiene, waste management and sanitation across the nation” (MoUD, 2014, p. 3). One of the mission’s crucial objectives is “modern and scientific municipal solid waste management” (ibid.). Guidelines for implementing the Swachh Bharat Mission include the setting of a target of “80% of the urban population to be covered by SWM services (allowing for a 2% increase year on year).” To achieve this target, the involvement of the informal sector will be essential.

However, India faces several challenges while handling its solid waste.

Main challenges in the current waste management landscape

The key challenges in current waste management systems include:

- *Composition of waste is not well understood:* Knowing what the waste stream contains is crucial to designing

systems to manage that waste. While it is broadly known that most waste produced at the household level is organic (between 50 to 70 percent), the exact proportions of the inorganic portion of the waste is still unknown. As waste generation rates rise with increasing incomes, waste composition is likely to change as well. Understanding the waste stream therefore will continue to be important. This problem will continue to plague the design of waste management systems unless we have a clear understanding of our waste streams.

- *Waste is not segregated at - source:* There is widespread agreement that segregation of waste at - source is imperative to manage waste optimally. While households and bulk waste generators such as offices do segregate high value recyclables that are bought by itinerant buyers and waste traders, lower value recyclables are often mixed with other waste. This reduces the quality of potentially recyclable waste. Further, when inorganic waste is mixed with organic waste, heavy metals can leach into the organic fraction and make it unusable for treatment as

compost. Finally, mixed waste poses risks of disease and injuries to those who handle them. Sharp objects and sanitary waste (such as diapers and sanitary napkins) mixed with other wastes pose occupational health and safety risks and reduce the quality of the portion of waste that can be recycled or treated. Some data from the study in UP point out to the following :

- o Almost 98 percent of respondents noted facing health risks in their work. Fevers and stomach ailments were the main health risks identified by respondents.
- o About 70 percent of respondents noted having had an accident at work. About 95 percent of respondents noted having been sick or experiencing health problems in the past year. Fever/cold is by far the most dominant health problem followed by gastro-intestinal issues.
- o All respondents who had noted having health problems in the past year had consulted with a doctor, but respondents accessed different types of medical service providers. Overall, a majority of respondents reported consulting with government doctors followed by private medical practitioners.
- o Overall, a doctor's visit cost respondents an average of Rs. 573, which is nearly four times the reported daily income. Those who sought government medical services on average paid much less than those who

went to a private provider;

- o Overall, about 45 percent respondents said they had procured medication.
- *Existing rules and policies are not applied:* Several existing policies and rules mandate the handling of certain waste streams such as solid waste, e-waste and plastic waste. Many rules and policies also mandate the inclusion of the informal sector in waste management. Despite the existence of such progressive policies, they are not implemented. A report in 2008 by the Comptroller and Auditor General (CAG) of India, for instance, pointed out the lack of implementation of existing waste management rules in states across India. In addition, the CAG report noted that a mere 17 percent of the sampled states recognized the role of rag pickers in reducing and recycling waste¹. A similar report by Chintan in 2011 showed that none of the 14 cities surveyed fully implemented the laws, rules and policies on inclusive waste management².
- *Informal sector contributions are not well understood and recognized:* In addition to state and local government bodies not following rules and policies on inclusion of the informal sector, the informal sector faces problems of daily harassment by the police, municipal officials and the public. In the survey of the informal sector conducted in cities of UP, when asked about attitudes of the public towards them and their work, 88% of the respondents noted a significant lack of respect.

1 CAG. 2008. Performance Audit on Management of Waste in India: Report No. PA 14 of 2008. New Delhi: CAG. Retrieved from: http://www.environmental-auditing.org/Portals/0/AuditFiles/India_f_eng_Management-of-Waste-in-India.pdf

2 Chintan. 2011. Failing the Grade: How Cities Across India are Breaking the Rules, Ignoring the Informal Recycling Sector and Unable to Make the Grade. New Delhi: Chintan Environmental Research and Action Group. Retrieved

- *Waste management services are not benchmarked, standardized and monitored:* Regardless of who provides a particular waste management service, service levels need to be standardized and benchmarked in order for performance against them can to be measured. Because services may be provided by different actors – municipal, formal private firms, and informal sector – standardizing, benchmarking and performance monitoring are all the more essential. The Solid Waste Management Rules, 2016³ provide some such benchmarks to be implemented countrywide, although more guidance on implementing those standards may be required for everyone to be able to follow the rules. The establishment and implementation of standards will help make sure that formal and informal service provision work in complementarity. Resources for setting such benchmarks and standards, and monitoring performance against them are provided in Chapter 7.
- *Treatment technology options are not well understood:* As previously mentioned, lack of a clear understanding of waste composition hinders the identification of technologically appropriate treatment options. Even when treatment options are technologically sound, other problems such as lack of availability of segregated waste may mar the implementation of those options. This becomes an even bigger challenge when capital and operational expenditures in waste

treatment technologies are high. There are many low-cost waste management technology options available, but to make them work in specific contexts, there needs to be a comprehensive understanding of the requirements for implementing those technologies. Municipalities and ULBs often adopt technologies without understanding these requirements and therefore fail at implementing them. Assessing technology options is outside the scope of this document but the Ministry of Urban Development has developed a manual on municipal solid waste management that provides some guidelines on technology selection to municipalities and ULBs⁴.

Imagining a future waste management landscape

Municipalities and ULBs can address some of these challenges by implementing inclusive waste management systems in their cities. By doing so, they will not only improve waste management service provision but can also improve occupational health and safety conditions within the informal sector, and also help alleviate poverty by providing safe, secure and stable livelihood for workers in that sector. Although target waste management systems will depend on municipalities' and ULBs' specific individual priorities, a conceptual vision for such a target system can provide a framework for setting such priorities. The figure below suggests a future scenario where the informal sector is included in SWM systems:

3 Solid Waste Management Rules are issued in 2016 and can be found here: http://www.moef.gov.in/sites/default/files/SWM%202016_0.pdf

4 http://moud.gov.in/swm_manual

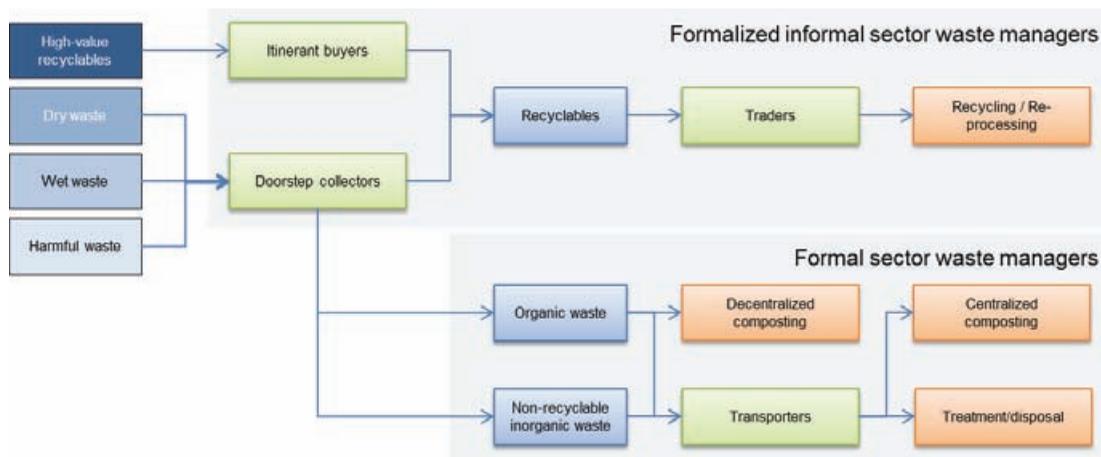


Figure 1: Conceptual Framework of a target waste management system

In the conceptual framework offered above, the previously informal sector carries on its work in much the same manner as in the current environment with one crucial difference. It is now formalized. What formalization means in this framework is:

- The informal sector is recognized as a legitimate service provider as long as they follow a certain set of standards and guidelines that would be stipulated by the municipality or ULB. What such a potential set of standards and guidelines could entail is discussed in more detail in the relevant section of the step-by-step guide described in Section 3 of this document.
- Another crucial difference in the target scenario is that waste generators, in addition to setting aside high-value recyclables as they currently do, are also required to segregate their waste into three broad categories: dry waste (both recyclable and non-recyclable), wet waste (primarily organic kitchen or food waste), and hazardous waste (e.g. sharp objects and sanitary waste that pose hazards to the workers and can potentially contaminate other waste materials).
- In the target scenario, itinerant buyers continue to buy highest-value recyclables from waste generators. Doorstep collectors, on the other hand, now collect and maintain other kinds of waste streams in their collection system – wet, hazardous and high (but not the highest). What this means for the municipality/ ULB is that it needs to provide the necessary temporary storage (e.g. neighborhood or community bins) and transportation systems for these waste streams. Doorstep collectors continue to keep the recyclable items from the dry waste portion of the waste stream as they currently do.
- In the target scenario, they would not have to risk their own health by sorting through mixed waste. Instead, they will only have to pick through the dry waste those items that are recyclable.
- Because a high proportion of waste is organic, composting is a cheap technology that should ideally be considered a feasible option. The problems that larger

cities experience with composting are two-fold. First, the quality of compost produced at a large scale is often not usable because of mixed waste and heavy metal concentrations in that waste. Second, markets for compost are limited. Decentralized composting addressed the first of these problems and to a limited extent the second one as long as the compost can be used locally within public parks or in households. In smaller cities, agricultural areas are closer; therefore the cost of transportation to potential customers will be lower but might need to be subsidized. Composting can work if it is coupled with segregation at-source and separate waste storage and transportation systems. This is where partnerships between the formal and informal sector can really make a difference.

- Cities may select the most appropriate options for treating or disposing non-recyclable wastes based on available technology and financial resources, but one particular issue deserves mention. A significant proportion of non-recyclable trash currently includes multi-layered plastic packaging commonly used for selling snack foods such as chips, biscuits and *namkeens*. In 2016, the Government of India passed the Plastic Waste Management Rules, 2016, that are designed to address the problems of disposing multi-layered plastic packaging waste. Implementation of these rules will turn currently non-recyclable waste into a resource for those who separate these materials out of the waste stream and channelize them towards different treatment options, with the active help

of the manufacturers of such waste. Once those rules are implemented and appropriate treatment/recycling systems are developed, the burden of disposing this portion of waste will be significantly minimized for municipalities. More information on these rules can be found in Section 4.

The Swachh Bharat Mission has ambitious plans to clean up India. Its ambitions include elimination of open defecation, eradication of manual scavenging, modern and scientific Municipal Solid Waste Management, building and augmenting capacities for Urban Local Bodies (ULBs), generating awareness about sanitation and health as well as creating an environment in which the private sector can participate in expenditure, operation and maintenance⁵.

One aspect of the SBM is related to solid waste management. Not only does the mission hope to handle waste, but it wishes to do so by working with India's over 20 lakh wastepickers and thousands of kabaris. This aspiration is also reflected in the newly updated Solid Waste Management Rules, 2016. Reflecting the SBM, it mandates for the inclusion of the informal sector under Rule 15, Rule 15 (c), 15 (h) and 15 (l) etc. as:

as under establish a system to recognize organizations of wastepickers or informal waste collectors,

- establish a system for integration of these authorized wastepickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste,

5 India, G. o. (2016). *Swachh Bharat Urban*. Retrieved August 3, 2016, from Ministry of Urban Development: <http://swachhbharaturban.gov.in/>

- setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorized waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile etc. from the source of generation or from material recovery facilities

Further, these rules have assigned the following implementation timelines:

Activity	Implementation time frame
Ensure door-to-door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years
Identify suitable sites for setting up solid waste processing facilities	1 year
Procure suitable sites for setting up solid waste processing facility and sanitary landfill facilities	2 years
Set up solid waste processing facilities by all local bodies having 100000 or more population	2 years
Set up solid waste processing facilities by local bodies and census towns below 100000 population	3 years

The Plastic Waste Rules 2016 similarly, have called for the inclusion of the informal sector in the management of those specific waste streams mandating that local bodies engage civil societies or NGOs working with waste pickers in the collection of

plastic wastes by establishing a system in partnership with producers, brand owners and importers. The rules assign the following implementation timelines to various stakeholders:

Activity	Implementation timeframe
Local bodies must set up systems for plastic waste management with assistance of producers.	1 year
The producers shall work out modalities for waste collection system based on Extended Producers Responsibility and involving State Urban Development Departments, either individually or collectively, through their own distribution channels or through the local body concerned.	6 months
Producers, Importers and Brand Owners have the primary responsibility for the collection of used multi-layered plastic sachet or pouches or packaging of their products. They need to establish a system for collecting back the plastic waste generated due to their products. This plan of collection must be submitted to the State Pollution Control Boards while applying for Consent to Establish or Operate or Renewal. The Brand Owners whose consent has been renewed before the notification of these rules shall submit such plan within one year from the date of notification of these rules and implement within two years thereafter.	1 year for plan; 3 years for implementation

Both sets of rules and the Swachh Bharat Mission have set aggressive timeframes for implementation. Both rules also require that the informal sector be included in planned waste management system improvements. The urgent need for planning for their inclusion goes hand-in-hand with the urgent need to clean up India's cities. This guidance manual should help local bodies take a step in the right direction and help them meet the established timeframes.

The informal sector in waste management provides crucial environmental and public health services in cities across the world. Broadly defined, the informal sector of the economy is that portion of economic activities that is not taxed or monitored by the government.

The informal sector in waste includes those workers who collect, sort, transport and recycle waste materials such as *kabariwalas*. Even though they are not formally employed by municipalities or contractors that provide waste management services, they do this work to make a living. As cities modernize their waste management systems, these livelihoods are forgotten and cities are losing out on the important contributions that this sector offers. No doubt, there are occupational health and safety risks associated with their work that need to be addressed.

Further, as cities in India continue to grow and produce increasing amounts of trash, existing systems will need to be upgraded to address these needs. For instance, according to some estimates, solid waste generation are expected to increase five-fold by 2030

and the gap between supply and demand of solid waste management services is expected to increase four-fold during this period⁶.

Currently, per capita waste generation rates are estimated at approximately 0.45 kg/day⁷.

The informal sector plays a crucial role in keeping cities clean. We see wastepickers collecting, segregating, recycling and composting tons of waste, diverting it from landfills while eking out livelihoods for themselves. Without their contribution, we will find it even harder to make Bharat Swachh.



Picture 1: Safai Sena wastepickers at the Swachh Bharat Mission launch at New Delhi Railway Station on 2nd October, 2014

6 http://www.mckinsey.com/insights/urbanization/urban_awakening_in_india

7 <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/0,,contentMDK:23172887~pagePK:210058~piPK:210062~theSitePK:337178,00.html>

Chapter 1:

Purpose and scope

There is widespread agreement in the national and international stakeholder community that the informal sector must be formalized and included in waste management systems. The Government of India, international organizations such as the United Nations, the World Bank and the Asian Development Bank, the academic community and non-governmental organizations all agree that the informal sector provides crucial services, and that they must not be denied their right to a livelihood. Despite this agreement, the problem is the municipalities and ULBs do not often have guidance or support on how to do so. To this end, this manual provides guidance to municipalities and urban local bodies (ULBs) on improving their waste management systems by integrating the informal sector.

Waste management is a complex issue. **The scope of this document is limited to the informal sector's involvement in waste**

management activities. This manual does not intend to provide municipalities' guidance on choosing waste management technologies. Instead, it focuses on how the informal sector can be leveraged in a win-win partnership for cities, their residents, and waste management service providers. This manual provides a step-by-step guide that can be used to develop and implement waste management systems that are inclusive of the informal sector. Including the informal sector is a necessity if cities in contemporary India are to meet their waste management service needs at low costs while providing efficient and optimal services. Including the informal sector should be a priority also because it allows cities to become cleaner by partnering with a particular section of the urban poor, and thereby aiding in poverty alleviation.

Who should read this manual?

The intended audience for this manual is practitioners and decision-makers from municipalities and ULBs who are charged with running waste management systems and are interested in improving

these systems by integrating the informal sector. Academics, non-governmental organizations, and informal sector organizations may also find this manual useful. While municipalities and ULBs can use this manual at any time, it should ideally

be used as a planning tool before new waste management projects are implemented, to ensure that the socio-economic impacts of those projects are understood and accounted for.



Picture 2: Once shy, now brimming with confidence

Chapter 2: The need for Inclusive Solid Waste Management

This section provides an overview of the role that the informal sector plays, the main challenges in the waste management landscape across cities in India, and what an inclusive waste management system could look like.

Role of the informal sector in waste management

At first glance, the informal economy of waste seems complex and chaotic but a closer look reveals the simplicity of the functioning of this organic system. The informal sector is composed of numerous

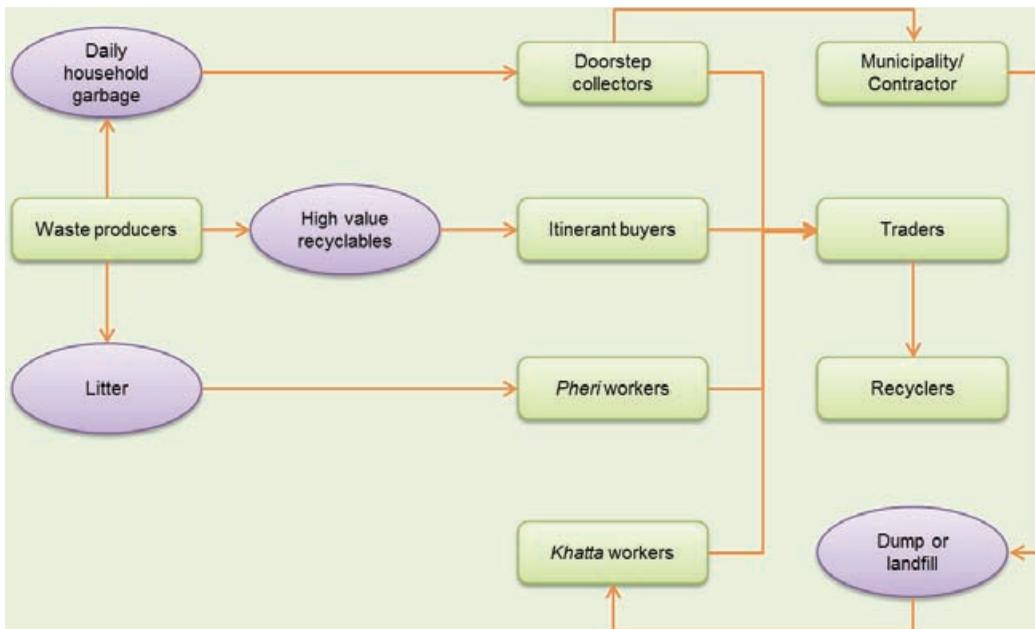


Figure 2: Informal sector in waste management

actors – as high as one percent of the urban population, according to some estimates – that collect, segregate, transport and recycle large amounts of discarded materials. In doing so, they divert the burden of managing waste at no cost to the municipality. Figure 2 above is a stylized graphic of how the existing informal system works alongside formal systems.

To simplify the understanding of how the informal waste economy works, let us take the example of a typical waste producer, say a household. Households normally dispose their trash daily and store high value recyclables such as newspaper, cardboard, glass bottles etc. Members of a household may also litter in public places such as parks, roadsides or market areas. High value recyclables are typically bought by **itinerant buyers**, sometimes also known as *kabariwalas*. Daily trash is largely collected by **doorstep collectors** who often only make income by sorting through our daily trash to separate recyclable materials from non-recyclables. **Pheri workers** (Mobile waste collectors who move around on a cycle, or with a cart.

They traditionally buy waste from users) scour open public areas where litter can commonly be found to collect recyclable items. Doorstep collectors sort through our daily trash to set aside recyclable materials and leave the rest in neighborhood dumps where the **municipality** or its **contractor** can collect it and transport it to the local dump or landfill. At the landfill or local dump, **khatta workers** (Waste handlers who traditionally work at waste dumps, collecting and valuable recyclable waste) sort through the trash to collect recyclables.



Figure 3: Integrated Waste Management Hierarchy



Picture 3: Women wastepickers in Pimpri Chinchwad, Maharashtra

The materials collected by informal sector workers are sold to **traders**. Traders make money by hyper-segregating materials into finer categories and selling them onwards in the recycling chain eventually to **recyclers** or re processors. In some cases, traders may approach collectors directly to buy materials. In other cases, collectors go to traders to sell their materials. Traders are typically defined by the size of their operations. Some traders buy materials directly from collectors and operate at a small scale. They often employ collectors or other workers as **segregators** in their warehouses or **godams** (Warehouses where waste is stored, sorted and further sold). These small-scale traders often sell

materials to much larger scale traders who may buy materials from multiple small traders. The scale of their operations is markedly larger than that of the smaller scale traders. Large-scale traders may sell particular materials to suppliers who specialize in trading those specific materials or directly to recyclers or re-processors who transform those materials into new products.

Box 1 below gives an overview of some key aspects of the informal sector and its contribution in India. Contribution ranges from waste collected, to financial savings to carbon emission reduction.

Box 1: Facts on the informal sector from across India

- In India, there are approximately 15 lakh persons engaged in the job of wastepicking, amounting to 10% of the total wastepickers globally.
- By 2026, over 50% of India's population is expected to live in urban areas, leading to an exponential growth in quantity of waste generated.
- 3-4%⁸ of India's Greenhouse gases originate from inadequate waste management. Without the informal sector, this number would likely have been higher.
- Recycling is a well known way to reduce such emissions. A study showed that in Delhi, wastepickers have saved over 900,000 CO₂ tons per annum, which is nearly 3.6 times higher than any waste project approved for CDM⁹.
- There is considerable **value addition to discarded materials**. For example, a single unit of plastic rises in value by 750%¹⁰ prior to even being sold as a new recycled product in the market.

8 Gokhale, N. (2016, January 27). *India's 10 year green report card: GHG emissions rose by 40%, CO2 up 60%*. Retrieved August 11, 2016, from Catch News: <http://www.catchnews.com/environment-news/india-s-10-year-green-report-card-ghg-emissions-rose-by-40-co2-up-60-1453808035.html>

9 Chintan Environmental Research and Action Group, Cooling Agents, 2009

10 Bharati Chaturvedi, Public Waste, Private Enterprise, H.B.S., 1998

The figure below shows a profile of a typical person engaged in waste collection and recycling in Uttar Pradesh (UP), India's most populous state and is based on data collected in a survey conducted by Chintan in 2014. The survey was conducted across 8 cities of the state, wherein data pertaining to various aspects of the informal sector was gathered.

Given in the box below are some useful facts about the informal sector in UP. The data and facts have been borrowed from the sample study conducted in UP by Chintan in 2014. A multitude of materials including glass, cardboard, paper, plastic, rubber etc, are recycled here. These facts will give an idea of the scenario of the informal

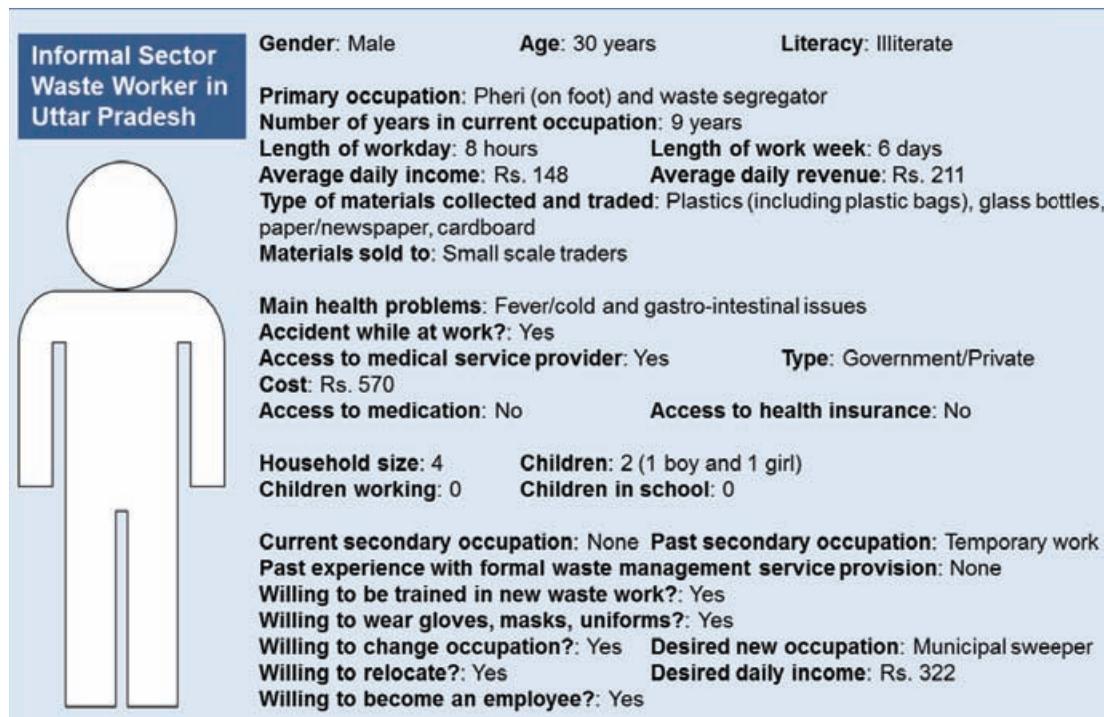


Figure 4: Profile of an average informal sector worker in UP¹¹

11 <http://www.labourlawreporter.com/minimum-wages-in-uttar-pradesh-revised/>

sector and waste recycling in UP. A larger percentage of states and other territories across the country paint a similar picture when it comes to this sector.

Box 2: What the informal sector looks like in UP

- The informal economy recycles a multitude of materials. An analysis identified a total of approximately 42 distinct materials. To facilitate the analysis, materials were grouped into 14 high-level categories of items based on their similarities in nature of the materials and their prices. Not all recyclable items have equal prominence in waste markets in cities in UP. Paper/newspaper, plastic, plastic bags, glass bottles and cardboard are the most commonly traded materials.
- On average, respondents reported collecting and trading an average of 30kgs of materials daily. Adjusted for quantity, the overall distribution of recyclable material changes. Paper/newspaper and glass bottles emerge at the top while plastic bags reduce in importance.
- Plastic is the best seller at the top followed by glass bottles. Paper/

newspaper and cardboard emerge next in importance.

- The average revenue inferred was Rs. 211/day. This also means that workers in the informal economy earn on average higher than minimum wages which are currently Rs. 200/day for unskilled workers⁴. Offering minimum wage employment to these workers is likely not going to be an attractive option for most people.
- On average, godam owners buy waste from approximately 11 waste collectors. Godams typically employ between 1 and 2 waste segregators.

High Material Recovery and Reduced Dependence on Landfills:

There is still a high dependence on landfills in developing countries. With an ever increasing burden on land, it is imperative to find alternatives to landfill disposal. Wastepickers provide the alternative by diverting materials from landfills through resource recovery and recycling. Landfills are highly susceptible to fires as seen over the last few months, thus ensuring waste does not reach here is paramount. Given below is some data on formal as well as informal sector waste recovery in a few cities around the world.

Table 1: Global city-wise waste recovery (in tonnes and percent)¹²

City	Tonnes recovered, all sectors	Percent materials prevented or recovered	Percent recovered by formal sector	Percent recovered by informal sector	Total percent recycled as materials	Total percent to agricultural value chain
Bamako, Mali	392,893	85%	0%	85%	25%	31%
Bengaluru, India	524,688	25%	10%	15%	15%	10%
Belo Horizonte, Brazil	145,134	7%	0.1%	6.9%	6.9%	0.1%
Canete, Peru	1,412	12%	1%	11%	12%	0%
Delhi, India	841,070	33%	7%	27%	27%	7%
Dhaka, Bangladesh	210,240	18%	0%	18%	16%	2%
Ghorahi, Nepal	365	11%	2%	9%	11%	NA
Lusaka, Zambia	17,446	6%	4%	2%	6%	NA
Managua, Nicaragua	78,840	19%	3%	15%	17%	2%
Moshi, Tanzania	11,169	18%	0%	18%	NA	18%
Quezon City, Philippines	287,972	39%	8%	31%	37%	2%
Sousse, Tunisia	4,168	6%	0%	6%	2%	4%
Varna, Bulgaria	37,414	27%	2%	26%	27%	NA
Average		30%	16%	15%	23%	9%
Median		25%	4%	11%	22%	4%

Widespread Global Presence:

Informal sector waste workers are present in countries all over the developing world. A 2010 paper from India puts the number of wastepickers at 15 lakhs¹³. Brazil estimates half a million¹⁴ wastepickers

across the country. Wastepickers are one of the best local resources to fight both waste and poverty. Depicted in the table below is the presence of the informal sector in 6 developing cities of the world.

¹² Adapted from: Solid Waste Management in the World's Cities, Water and Sanitation in the World's Cities 2010. UNHABITAT

¹³ Chaturvedi, Bharati (2010). "Mainstreaming Waste Pickers and the Informal Recycling Sector in Municipal Solid Waste, Handling and Management Rules, 2000", a discussion paper

¹⁴ Helena, Maria; Tarchi Crivellari, Sonia Dias and André de Souza Pena (2011), "Waste Picker Brazil", a discussion paper

Table 2: Informal sector presence in 6 global cities from middle and low-middle income countries¹⁵

	Number of Informal Sector Workers	Number of City Inhabitants per Informal Sector Worker	Number Informal Sector Workers Per km ²
Cairo, Egypt	33000	441	6
Cluj, Romania	3226	118	18
Lima, Peru	11183	694	4
Lusaka, Zambia	480	2.58	1.3
Pune, India	8850	339	64
Quezon City, Philippines	10105	246	63
Total (6 cities)	66844	422	26

Savings to the city

This informal system co-exists with and supplements formal systems of waste collection, treatment and disposal. In doing so, the informal system provides services to the city in two crucial ways. First, it decreases costs of collection for municipalities. Most cities in India do not have formal doorstep waste collection systems. The informal sector closes this gap by providing regular and reliable doorstep collection services. The municipality or its contractor only has to transport waste from neighborhoods to final disposal

points. Second and more importantly, the informal sector reduces the waste burden for municipalities by decreasing the amount of waste that needs to be disposed. The informal sector segregates recyclable materials from trash and provides it as raw material for recycling and reprocessing industries. This not only reduces the cost of managing waste for the municipality, it also provides a crucial environmental service. Box 3 below provides an estimate of the cost savings to municipalities that informal doorstep waste collectors provide.

15 Adapted from: Scheinberg, Anne, Michael H. Simpson, et al (2010): "Economic Aspects of the Informal Sector in Solid Waste." GTZ (German Technical Cooperation), Eschborn, Germany

Box 3: The informal sector saves money for municipalities

Assuming that doorstep collectors work part-time and get paid minimum wages for their services, at existing minimum wage rates for unskilled workers (Rs. 200/day), it can be assumed they get paid for working 4 hours/day, Rs. 100/day approximately. Typically, doorstep collectors provide services to between 100-300 households/day depending on how close the houses are to each other and how much trash they produce daily which tends to be a function of their income. For the purpose of this example, let us assume that each collector collects waste from 200 households daily. This means that on an annual basis, each informal sector doorstep collector saves the municipality approximately Rs. 180 per household, because doorstep collection is now a national goal. For a city that has a population size of 10 lakh people, assuming a household size of 5 persons/ household implies 200,000 households in that city. If the informal sector provides services to 100 percent of the households in that city, this implies that informal sector collectors save the city Rs. 3.6 crore annually. Conservatively assuming that the informal sector provides services to only 50 percent of the households in that city, this still implies an annual savings of Rs. 1.8 crore for that city.

The data given above gives us a quantified look at the contribution of the informal sector, be it collecting tons of waste to the monetary savings it provides to municipalities across the world.

Wastepickers direct a proportion of waste to recycling and away from landfills, which is one of their biggest contributions today, with cities facing a space crunch in all spheres.

Chapter 3: Integrating the Informal Sector in Waste Management: A step-by-step Guide

Faced with mounting challenges of managing urban waste, cities must be able to leverage existing resources to surmount them. To do this, a simplified approach is depicted in the figure below.



Figure 5: Step-by-step approach to integrating the informal sector

Cities can adopt and tailor this high-level approach to fit their particular needs. Broadly, these steps are defined as follows:

- **Step 1: Plan** the target waste management system.
- **Step 2: Partner** with the informal sector, private waste management service providers, and the public;
- **Step 3: Recognize and legitimize** informal sector service providers;

- **Step 4: Establish protocols and standards** for the performance of waste management service providers, both formal and informal;

- **Step 5: Communicate and train** stakeholders in the target waste management system; and
- **Step 6: Implement and monitor** the waste management system.

The rest of this report describes these steps in detail.

Chapter 4:

Plan

Defining a target waste management system is a crucial first step in developing an understanding of how the informal sector fits into the target system and then planning for their formal inclusion into that system. Waste management planning involves setting goals and strategies for meeting the city's current and future waste management needs. While such planning is typically done for the city's waste management system as a whole, this document is only concerned with planning for the inclusion of the city's informal sector into current and future waste management systems.

Although goals and objectives should be defined based on the particular needs and contexts of the city, there are some general internationally accepted best practices and guidelines that should be kept in mind as plans are developed. Among these is the integrated waste management hierarchy –

an internationally recognized strategy for management of municipal solid wastes – which places great emphasis on strategies and programs for avoiding and reducing waste, with treatment and disposal being the least favoured option, as shown in Figure 3¹⁶. The work of the informal sector is in alignment with this hierarchy focusing on reuse and recycling and therefore should be given preference in waste management systems planning.

We propose the following four tasks that will help ensure that cities have adequately planned for their waste management needs by including the informal sector:

Task 4.1 Understand the challenges in the current waste management environment

In the preceding section of this document, some common challenges faced by cities across India have been outlined. Individual cities will no doubt have their own set of specific challenges that will need to be

16 Source: <http://www.epa.gov/epawaste/nonhaz/municipal/hierarchy.htm>

identified. Understanding these challenges and their root causes is a first step in being able to address them. Developing such an understanding involves documenting the following characteristics about the informal sector through formal and informal discussions, background research and quick surveys:

- Estimated number of informal sector workers in the city;
- Types of waste-related work performed in the city;
- Locations of informal sector work and habitation in the city; and
- Informal sector work systems and processes.

One useful way to document and present this information is through a map showing key points at which informal sector workers live and work. The figure below provides

one example of such a map of the New Delhi Municipal Council (NDMC) area showing *dhalaos*, open dumps, and *kabadi* shops.

NDMC is the municipal council of New Delhi. It has been identified as a leader by both the Swachh Bharat Mission and the Smart Cities Program of the Government of India. This is based on its innovative work in the area of digitalization, health, solid waste and other urban initiatives. The NDMC has been amongst the first bodies to implement the tenets of the newly promulgated Municipal Solid Waste (Management and Handling) Rules, 2106, E-waste (Management) Rules, 2016 and Plastic Waste Management, Rules, 2016; with respect to the inclusion of wastepickers.

A model partnership between NDMC and Chintan has been explained in Box 5.

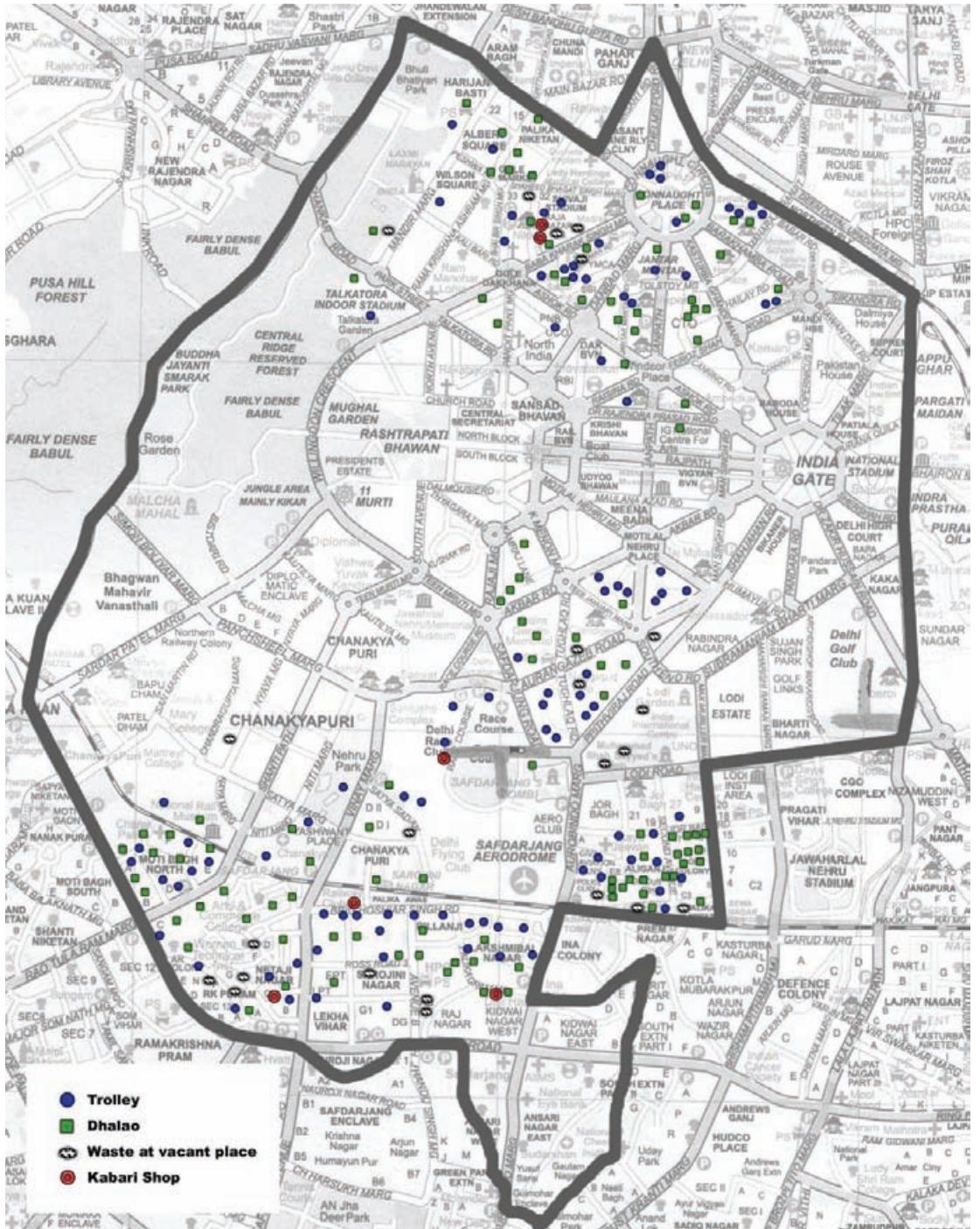


Figure 6: Informal Sector Waste Collection Points in NDMC¹⁷

17 http://www.chintan-india.org/documents/research_and_reports/chintan_study_space_for_waste.pdf



Picture 4: Trained wastepickers by Chintan delivering professional D2D collection service in NDMC

Task 4.2 Review applicable policies and rules and their implementation

There are many rules and policies in India applicable to the management of municipal solid wastes and the inclusion of the informal sector. Municipalities must have a clear understanding of what these rules and policies are, and what the roles and responsibilities of different stakeholders are in their successful implementation. Chapter 7 of this document provides a list of national rules and policies. Key applicable rules are noted below:

- *Solid Waste Management Rules, 2016* assign the following duties to the municipal authorities: “establish a system to recognize organizations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorized

waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste”, “setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorized waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities” and “provide training on solid waste management to waste-pickers and waste collectors”.

- *Plastic Waste Management Rules, 2016* apply to the management of plastic wastes, specifically plastic carry bags and multilayered plastic pouches or sachets.

These Rules assign the municipalities the responsibility for “setting up, operationalization and co-ordination of the waste management system and for performing the associated functions, namely... engaging civil societies or groups working with waste pickers” and assign responsibility on the waste generators to “...ensure segregated storage of waste at source and handover segregated waste to.... registered waste pickers’, registered recyclers or waste collection agencies”.

Indian National Policy clearly recognizes the informal recycling sector through referring to them and their work as follows:

- **The National Environment Policy, 2006**, which states “Give legal recognition to, and strengthen the informal sector systems of collection and recycling of various materials. In particular enhance their access to institutional finance and relevant technologies.” (Section 5.2.8, point (e), Pg 36)
- **The National Action Plan for Climate Change, 2009**, states, “While the informal sector is the backbone of India’s highly successful recycling system, unfortunately a number of municipal regulations impede the operation of the recyclers, owing to which they remain at a tiny scale without access to finance or improved recycling technologies” This is part of the Mission on Urban Sustainability.
- **The CAG Audit on Municipal Solid Waste in India (December 2008)** also recommends (Chapter 3, Section 3.5) that “MOEF/states should consider providing legal recognition to rag pickers so that recycling work becomes more organized and also ensure better working conditions for them.”

- **The Supreme Court accepted recommendations of the Report of the Committee constituted by the Supreme Court in 1999** (Solid Waste Management in Class 1 Cities in India). According to this report, in points 3.4.7 (Pg 34) and Pgs 3.4.8, ragpickers must be converted into doorstep waste collectors as a means of up gradation.

In addition to these, there may be state and city-level regulations and bye-laws that might need to be accounted for in the design of future waste management systems. If city level bye-laws are not compliant with national-level legislations, these will need to be updated accordingly.

Task 4.3 Develop informal sector inclusion goals for the next five years

Based on an understanding of the current challenges and a review of applicable regulations, the next task is to develop a set of goals that can address those challenges and comply with applicable regulatory requirements. Below are examples of some goals that comply with the Solid Waste Management Rules, 2016, while simultaneously also addressing current challenges in waste management. Here are some suggested goals:

- Goal 1. Provide universal doorstep waste collection services by formalizing informal sector doorstep collectors and by training informal sector actors in areas where there is no collection yet.
- Goal 2. Enable and support recycling by the informal sector by establishing material recovery facilities (MRFs).
- Goal 3. Reduce overall waste burden through centralized and decentralized composting.

- Goal 4. Implement extended producer responsibility to reduce waste burden of specific streams.

Task 4.4 Establish baseline and target metrics to monitor performance against the goals

Once the goals have been set, there needs to be a mechanism to monitor performance against them. Typically this is done by establishing and monitoring metrics that allow us to measure the desired outcomes associated with those goals. The table below provides an example of some such metrics.

Table3: Metrics to measure desired outcomes of the goals

Goal/Metric	2014 (Baseline)	2015 (Target)	2016 (Target)	2017 (Target)	2018 (Target)	2019 (Target)
Goal 1. Provide universal doorstep waste collection services						
Metric 1.1 Percentage of households with formalized doorstep collection services	25%	50%	75%	100%	100%	100%
Metric 1.2 Percentage of informal sector collectors formalized	0%	50%	75%	100%	100%	100%
Goal 2. Enable and support recycling						
Metric 2.1 Percentage of total waste recycled	10%	20%	25%	25%	25%	25%
Metric 2.2 Percentage of <i>godam</i> owners formalized	0%	25%	50%	100%	100%	100%
Goal 3. Reduce overall waste burden by implementing centralized and encouraging decentralized composting						
Metric 3.1 Percentage of organic waste at final disposal site	60%	40%	20%	10%	10%	10%
Metric 3.2 Percentage of households composting	0%	10%	20%	30%	40%	50%
Metric 3.3 Amount of compost produced at composting facility as a proportion of estimated organic waste generated	0%	10%	15%	20%	25%	30%

Goal/Metric	2014 (Baseline)	2015 (Target)	2016 (Target)	2017 (Target)	2018 (Target)	2019 (Target)
Goal 4. Implement extended producer responsibility to reduce waste burden of specific streams						
Metric 4.1 Estimated percentage of non-recyclable plastic waste diverted from landfills	0%	10%	20%	35%	45%	60%
Metric 4.2 Estimated percentage of e-waste collected through registered collection centers	0%	10%	20%	30%	40%	50%

Chapter 9 proposes developing a detailed implementation plan that will show how

and when each of these goals will be met through specific tasks and activities.

Chapter 5:

Partner

The goal of this step is to identify and partner with informal sector service providers and organizations, private formal sector service providers and other stakeholders affected by the target system. The success of the target system will depend on developing and enabling partnerships between all stakeholders – informal, formal, and city residents (or the public) – as shown in Figure 7. It is important to share with each of these stakeholders the waste management goals so that everyone has a common understanding of the target waste management system. In the following sections, each of these is described separately.

Task 5.1 Partner with the informal sector

In many cases, there are existing organizations, often NGOs that work with informal sector actors in cities.



Figure 7: Partnering with stakeholders

The goal of this step is to identify such organizations and if none exist, then establishing such an entity. Partnering with an organization that works with the informal sector will help alleviate the administrative burden of managing the inclusion of the informal sector by the municipality. While in most cases, such organizations already exist and are very receptive to working with municipalities, in some cases, such organizations may need to be formed. There is precedence where municipalities have supported the establishment of such organizations. For instance, Shimla Environment Heritage and Beautification (SEHB) Society was formed under the aegis of the Shimla Municipal Corporation to provide doorstep waste collection services by formalized informal sector workers in the city. The organization

now functions as an independent entity but is supervised directly by the Municipal Commissioner and Health Officer¹⁸.

Figure 8 provides a process flow that guides municipalities through the decisions involved in partnering with informal sector organizations:



Figure 8: Developing and maintaining informal sector partnerships

- The process starts with determining whether or not a potential partner organization already exists. If such an organization does not already exist, the municipality should consider supporting the establishment of an informal sector organization. One of the ways to do this is to invite reputed and successful organizations from other cities to support the formation of a similar organization within the municipality's jurisdiction.
- The next step is to establish a partnership with the organization through a memorandum of understanding or a contract. This contractual document should clearly outline the roles and responsibilities of both the municipality and the organization. Appendix A provides a sample MoU between a

municipality and informal sector partner organization. Informal sector organizations will require funding to do their work. If there are funds available in the municipal budget, they could be allocated for supporting their work. If not, the municipality should support

the organization in finding government or external donor funding. One way to do this is by allowing the organization to collect doorstep waste collection fees from households. But aside from money, there are other ways in which the municipality can help informal sector groups (see Box 4).

Box 4: Ways to support informal sector partners.

Aside from funding, municipalities can support informal sector groups in the following key ways:

- Provide forms of identification (more on this in Chapter 6);

18 <http://www.shimlamc.gov.in/file.axd?file=2012%2F6%2FMSWM+Plan.pdf>

- Support their access to social security programs such as pension schemes, Aadharcard, ration card, health schemes, etc.
- Enable their access to government medical facilities and services;
- Provide places for them to wash their hands after work;
- Provide space where they can segregate and store recyclable materials.

- Once the partnership has been established, it is necessary to maintain it. Ideally, there should be at least one person of contact within the municipality who is in charge of managing the partnership. Managing the partnership also means periodically assessing the relationship against the original terms and conditions, regularly meeting with the organization's representatives to understand and address their challenges, and monitoring their performance against benchmarks. This is discussed in more detail in Chapter 9.

Box 5: NDMC launch Eco-friendly Garbage Stations in New Delhi Municipal Council

The NDMC has been identified as a leader by both the Swachh Bharat Mission and the Smart Cities Program of the Government of India. NDMC has been the first to implement the inclusion of wastepickers as promulgated by the new rules.

The initiative between Chintan and NDMC builds on urban innovation and infrastructure, to create an inclusive model of waste handling. Existing garbage stations have been used by trained and formalized wastepickers to collect and handle both dry waste and e-waste. The public is being informed about this in many ways, such as information on the garbage stations sharing the idea and encouraging them to segregate and recycle. As waste is brought in, or deposited by residents, it undergoes secondary segregation and finally, recycling. Each garbage station is run by a set of trained waste handlers under the supervision of Chintan, who are responsible for their selection, training and functioning.

The work will be undertaken following these rules:

- Doors and walls of the garbage station will be painted to look clean and appealing.
- Some of these will be used as electronic waste drop off centers and some for segregation of waste only.
- These will only be operated by trained wastepickers who will be within NDMC.
- Wastepickers will work in proper uniform and identity card.
- All these 'Zero Waste Stations' will be closed by 7 pm or dark, whichever is earlier, so no one can stay in them.
- Waste should not be stored overnight.
- No fires or cooking will be undertaken inside or nearby outside.



Picture 5: Safai Sena wastepicker at NDMC's Domestic Hazardous Waste Collection Centre

Task 5.2 Partner with the formal sector

In some cases, the municipality may already have a contract with a private firm as of today to provide certain waste management services. For example, the municipality may have hired a company to transport the waste to a designated dumpsite. In other cases, the municipality may be considering outsourcing certain waste management services to a private company. **Managing such a contract and ensuring that the contractor delivers services on time and in accordance with the standards in the contract is necessary but not the focus of this document.** Some such resources can be found in Chapter 7 of this document. Instead, this section is focused on understanding the implications of privatization of solid waste management services on the informal sector and

ensuring that the negative impacts are addressed.

For this reason, it is important to partner with the formal service provider to ensure that the formal partner is following regulatory guidelines for the inclusion of the informal sector. A useful resource developed by Chintan for assessing the inclusion of the informal sector in waste management can be found on the Ministry of Urban Development's website¹⁹. Requests for proposals (or RFPs) for waste management service contracts need to ensure that inclusion of the informal sector is stipulated in them. We reviewed a number of RFPs issued by municipalities across India and found that the informal sector was scarcely mentioned. In the figure below, we provide a step-by-step approach for the inclusion of the informal sector in waste management projects.

19 <http://jnnurm.nic.in/wp-content/uploads/2013/11/Chintan-Inclusion-Tool-and-Appendices.pdf>

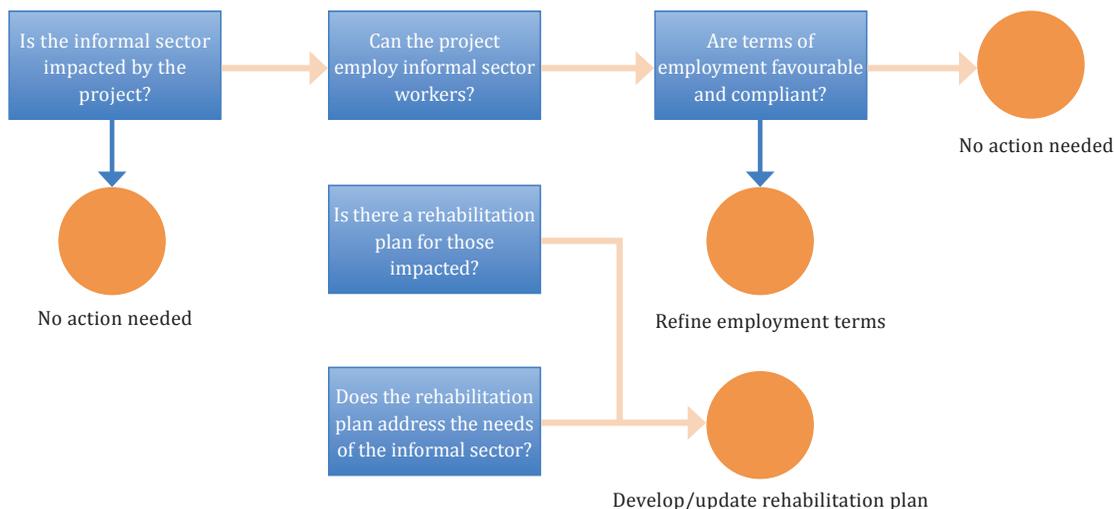


Figure 9: Assessing inclusion in formal waste management systems

The process must start with asking the question whether or not informal sector workers are or will be displaced as a result of a waste management projects. In most instances as seen in Box 4, the answer is yes but in some cases such as a composting project, they might not be. The informal sector earns their livelihood by collecting, sorting and selling recyclable materials from waste. Projects that hinder access to either recyclable materials or spaces of sorting and storage will have negative impacts on this sector. Composting does not have negative impacts because informal sector workers do not sell organic waste, although they can gain livelihoods by composting. The goal is to determine if and how many informal sector workers are displaced and to what extent. The Chintan toolkit mentioned previously provides a way to conduct an impact assessment or in the absence of resources to conduct such an assessment. It provides a way to estimate the number of informal sector workers impacted. The next step is to whether or not the project

employs or can employ informal sector workers. In most cases, a project should be able to employ some or the entire impacted workforce. To determine what parts of the project can employ existing informal sector workers, the municipality should use the steps outlined in Box 6.

Box 6: Assessing the feasibility of employing informal sector workers in waste management projects

- Document the work and number of workers required in the new process;
- Document the skill and literacy requirements of labor in the new process;
- Determine the skill and literacy levels of existing informal sector workers;

- Map the existing informal labor workers to new requirements;
- Document the number of workers that can be employed in the new process;
- Audit the project to ensure that existing informal sector workers have been employed in the appropriate portions of the project. It is not acceptable for any worker to be left out.

If the project can or does employ informal sector workers, then it is important to determine whether the terms and conditions of employment comply with applicable regulations and are favorable to the workers. Box 7 provides a checklist for municipalities to assess this by doing a quick survey of the workers. Important questions to ask at this stage include whether remuneration rates meet minimum wage standards and are acceptable to the workers, whether appropriate health and safety measures are in place at work, whether workers are accorded the benefits that are due to them, and whether they were provided the appropriate training needed to perform the work. If employment terms are not satisfactory, then they should be refined based on consultation between the private firm, municipality and informal sector representatives. In the research conducted for this project, it was found that although none of the informal sector workers had experience working with formal waste management service providers, they are open to working for them. More than 95 percent of the informal sector respondents expressed their willingness to be employed. About 98 percent noted that they would be

willing to be trained in new work in waste and follow protocols such as wearing masks, gloves and uniforms.

Box 7: Terms and Conditions Assessment Checklist

- Are workers paid minimum wages etc., stipulated by the jurisdiction?
- If yes, are workers earning above or below what they were earning before?
- Are they allowed to keep and sell the recyclables they collect?
- Are workers provided the appropriate safety gear for their work?
- Are workers provided training to perform the tasks they are allotted?
- Are workers provided the following:
 - o Breaks during work?
 - o On site bathroom facilities?
 - o Time off from work?

If the project does not or will not employ informal sector workers, or if it is able to employ only a portion of the impacted workforce, then this is not an ideal scenario and a rehabilitation plan is needed to find suitable alternative employment for them. To do this, a rehabilitation plan made along with the people it will apply to must be in place that details how alternative livelihoods might be secured. If a plan is in place, it should be assessed to ensure that it meets the needs of those who are or will be displaced. To do all this, it is necessary to develop a partnership with the private waste firms so that the needs of the informal sector are taken into account. Through such

partnerships, the municipality can act as an intermediary between the private firm and the informal sector and ensure the success of the project. Box 8 provides the findings from survey on the willingness of the surveyed informal sector workers to change line of work.

Box 8: Are informal sector workers willing to change their line of work?

In a survey undertaken in UP, the informal sector participants were asked if they were willing to change their line of work and almost 90% of respondents expressed their willingness to do so. The challenge is that they do not have the skills or training to move into a different line of work. Almost 90% of the respondents had not done any other work in the past besides waste-related work. But their willingness to move to a different line of work was contingent upon getting much higher pay, almost twice of what they earn currently. This is partly because their current work affords them some flexibility in work hours. This loss of flexibility as employee's demand greater remuneration. Also, travelling beyond current areas is a challenge. For these reasons, it is important to take into account the specific constraints that informal sector workers face in the design of alternative livelihood plans.

Task 5.3 Partner with the public

Public participation is well recognized as crucial to the success of waste management systems. That the public is unconcerned

about waste management and adopts an “out of sight, out of mind” mentality to their waste is not necessarily true anymore. There are many examples of community-led waste management initiatives from across India that attests to this. Further, recognition from the public is important for informal sector workers who often face a lack of respect and recognition from the public. Partnering with the public is therefore going to be crucial for the success of inclusive waste management systems.

There are three key ways of engaging the public:

1. Understand residents' waste management needs and problems: One key way to ensure public participation is to understand what they want and what their key problems in waste management are. As producers of waste, it is important for the municipality to understand their knowledge, attitudes and practices with regards to waste management so that appropriate systems can be developed to address them. This can be done through household surveys, public forums, online social media feedback and polling systems. To understand public perceptions Chintan conducted a survey and found that residents were very interested in waste management issues. The study also found that the public were quite aware of the contribution that the informal sector makes towards waste management and recycling in the city. The survey also revealed some gaps in understanding of waste management systems and processes such as the difference between biodegradable and non-biodegradable waste.
2. Spread awareness to induce positive behavior change: The actions of city

residents as waste generators can impact the fate of the waste stream. For instance, segregation-at-source is widely held to be the basis of an efficient waste management system that optimizes resource recovery and enables safer work conditions for waste handlers. But if waste generators do not know how to segregate their waste into which categories, source segregation will be unsuccessful. Public awareness campaigns that induce behavior change and encourage people to segregate needs to be a first step. In this, informal sector partners can provide assistance by being trained on teaching people to segregate and monitoring their segregation practices. This is crucial for creating healthier conditions of work for waste handlers also. As mentioned previously, our survey showed that informal sector workers are at high risk of diseases and other health problems. Segregation of waste at-source can help minimize these risks.

3. Incentivize community waste management and monitoring systems: Partnership with the public through their organizations such as resident welfare associations (RWAs) can be quite productive in two ways. First, it can help reduce the waste burden on the city by encouraging community-led decentralized waste management initiatives such as composting. Second, it can allow for constant monitoring of the performance of the waste management systems. Many cities such as Delhi for instance use social media to allow residents to provide feedback and complaints on waste collection or street sweeping. Municipalities need to find ways to incentivize such behavior by issuing small grants or awards for neighborhoods that perform well by taking charge of some of their waste management issues. Training neighborhoods to set up such systems is going to be the key, as described in Chapter 8.



Picture 6: A trained woman wastepicker at a residential complex in Bengaluru, Karnataka

Chapter 6: Recognize and Legitimize

Recognizing the informal sector for the important services it provides should be a fundamental step in its formalized inclusion into the city's waste management system. But merely recognizing that the informal sector provides services is not enough. Municipalities also need to legitimize their contribution by treating them as legitimate service providers. To this end, something as simple as an identification card can go a long way. Providing waste collectors with identify cards will legitimize them as providers of a service to a designated area and population. It will also enable authorities such as police etc. to recognize them as workers under a governing body. The identity cards will not entitle waste workers to permanent employment, they will be issued for work in specific areas for a specific time period. The identity cards will

be issued to waste workers by the municipal authority under the aegis of a set of conditions. Partnering with informal sector organizations is the key to this process of providing recognition and legitimacy. While a formal memorandum of understanding or a contract with informal sector organizations legitimates them as an entity that supports waste management service provision in the city, individual informal sector providers often face harassment from public officials and city residents. Formalizing informal service providers can help alleviate some of these problems. Figure 10 provides an overview of the tasks and activities involved in recognizing and legitimizing informal sector actors. These are described in detail in the following sections.

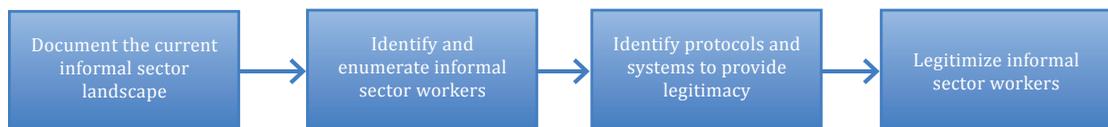


Figure 10: Recognizing and legitimizing informal sector workers



Picture 7: Wastepicker women at one of the Dry Waste Collection Centre in Mysuru, Karnataka

Task 6.1 Document the current informal sector landscape

Figure 1 provided a generalized view of what the informal sector currently looks like in most cities across India. No doubt, the situation in each city will be different and will need to be identified and documented. Informal sector organizations currently working in the city may be able to provide a more comprehensive and realistic view of the existing landscape. If no informal sector organization exists, then the municipality or the new informal organization should conduct a quick study to get such an understanding. This can be done by:

1. Observing the main sites of informal waste collection such as houses where doorstep collectors collect waste daily

from, neighborhood garbage bins, public areas, and landfills.

2. Observing waste segregation activities that are typically done where waste collectors live and in *godams*;
3. Understanding who the main buyers of recyclable materials are: In many cities, in addition to *godam* owners, there are contractors who buy recyclable materials from collectors.

Task 6.2 Identify and enumerate informal sector workers

In the previous step, what the current informal sector landscape looks like was identified. In other words, it should tell us what types of waste collection and recycling work is currently happening and what main

types of actors are involved. In this step, the quantity and type of actors involved in the different kinds of waste-related work in the city need to be identified. The survey shows that typically each actor performs multiple types of collection and segregation work. For instance, one person could simultaneously be involved in doorstep collection, be a *godam* owner and help segregate recyclables at the *godam*. Partnering with an informal sector organization will be very helpful in identifying and enumerating informal sector workers. If resources for a detailed survey are not available, numbers can be estimated using a formula. For instance, if we know that a doorstep collector typically collects waste from 200 households daily, and there are 10,000 households in the city, then there should be approximately 50 doorstep collectors.

The survey should capture the following information about existing wastepickers:

- Name
- Gender
- Address
- Phone
- Type of waste work they are involved in (e.g. door-to-door collection, pheri etc.)
- Where do they collect waste from?
- Where do they sell the recyclables?
- Who do they sell to?
- If door-to-door collector, number of households they serve
- Work times (daily start and end times)
- Number of days per week they work
- Estimated daily income
- Years of waste-related work experience

- Challenges they face
- How many children do they have?
- What are their ages and genders?
- How many and which ones are in school?
- Are they interested in becoming members of an organization? If they express interest, a membership form must be provided and completed with the help of the informal sector partner organization.
- Are they interested in working with the partner organization in the door-to-door collection program?

Task 6.3 Identify protocols and systems to provide legitimacy

In this step, the municipality needs to determine how informal workers will be recognized as legitimate service providers. Identification cards and uniforms are two ways in which informal service providers can be granted legitimacy. These forms of recognition should be contingent upon informal sector workers complying with protocols and standards as described in Chapter 7. For instance, *godam* owners should follow certain occupational health and safety guidelines in their segregation and recycling operations that minimize the risk of fires and provide safe working conditions for segregators. *Godams* can be registered as material recovery facilities (MRFs) as long as they follow those guidelines. IDs should be renewed on a periodic basis. But without intensive training and periodic monitoring of such standards and protocols, informal sector workers cannot be expected to be compliant. The importance of such training is reiterated in Chapter 8 and a periodic audit process is provided in Chapter 9. Figure 11 below shows a sample design for a MRF.

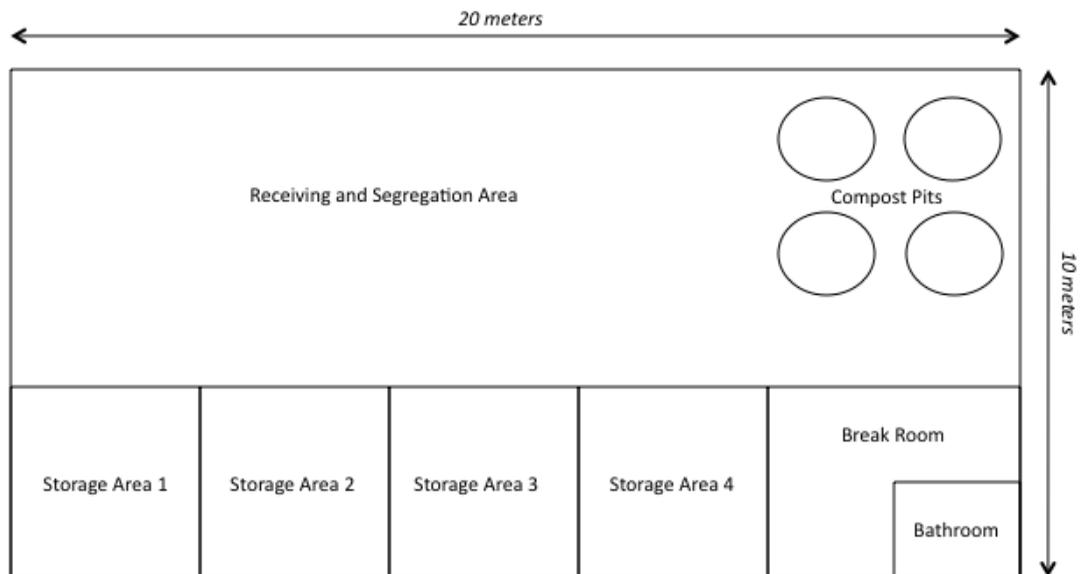


Figure 11: Sample design of an MRF

Task 6.4 Legitimize informal sector workers

Once protocols have been determined, the municipality should work with the partner informal sector organization to implement the new system. As a first step, the partner organization should sign a contract with individual waste pickers so that both parties are accountable for conditions specified in the contract. Identification cards are very

simple and can be produced inexpensively. The partner organization should be in charge of maintaining the formal registry of identified workers. Figure 12 shows an example of an ID that Chintan has used to formalize doorstep collectors in New Delhi. Uniforms are more expensive but are more visible and therefore can be very useful for proffering public recognition to workers. If the municipality has funds for uniforms, they should invest in these.

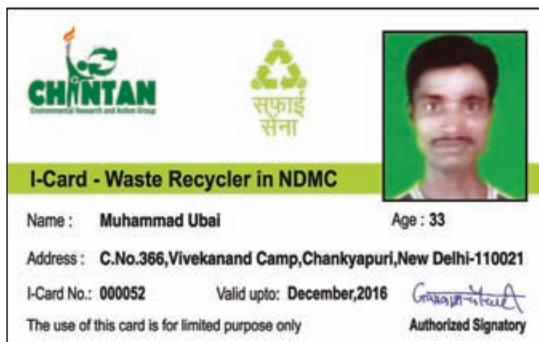


Figure 12: Sample identification card

The registry should contain the following information about waste collectors:

- Name
- ID number
- Address
- Phone number
- Contract signed? (Y/N)
- Date contract signed
- ID issued? (Y/N)
- ID expiration date
- Uniforms issued? (Y/N)
- Uniform issue date
- Rickshaw issued? (Y/N)
- Rickshaw number
- Rickshaw issue date

In addition to providing ID cards and uniforms, the municipality should do the following:

- Train the police and municipal workers (e.g. sanitation inspectors) to recognize ID cards and inform them about new protocols for the informal sector as also described in Step 6;
- Train informal sector workers on where and how to handle waste as also described in Chapter 9;
- Make space available for sorting and temporary storage of recyclable materials for the informal sector;
- Convert existing *godams* into low cost material recovery facilities (MRFs) and/ or build new MRFs that can be run either by *godam* owners or by organized wastepicker collectives;
- Provide a helpline number for informal sector actors so they can call their organization when needed.



Picture 8: I-card distribution at Srinagar

Chapter 7:

Establish Protocols and Standards

Although the informal sector provides valuable and crucial services, the challenge is to upgrade their work in order for cities to optimize and modernize their waste management systems in accordance with internationally accepted standards of environmental and occupational health and safety. As mentioned previously, the registration of informal sector providers and its periodic renewal must be contingent upon them following such protocols and standards. Below is a list of standards that municipalities can adopt:

- Doorstep waste collection must be timely and regular. In other words, doorstep collectors must collect waste at approximately the same time every day from a household. To ensure this, collection routes should be planned and the number of households that each collector provides services to should be standardized.
- Waste must be pre-segregated by the household and collected and transported separately by the collectors. This is

primarily the responsibility of waste generators and collectors can help ensure that waste producers follow the appropriate source segregation practices.

- Neighborhood garbage bins must not be messy and should be cleared at least once daily. This is partly the responsibility of the municipality or its contractor and partly of informal sector collectors. Informal sector collectors must ensure that the waste is confined to the garbage bin and not strewn about. To ensure this, the municipality or its contractor must empty the bin daily so that garbage does not overflow.
- MRFs (existing upgraded *godams* or new facilities) must be clean and should be designed to minimize occupational hazards such as fires. It should be the responsibility of *godam* (or MRF) owners to comply with basic design standards such that the risk of fires is mitigated. Some basic guidelines are provided in Box 9.

Box 9: Minimizing risk of fires in waste handling facilities

- Ban smoking inside the facility;
 - Do not handle material on fire or set fire to materials in the facility;
 - Examine materials visually for potential fire sources (glowing ash or glowing burning remains);
 - If fire sources are located, neutralize them with cover material immediately;
 - Furnish the facility with a fire extinguisher.
- Workers should follow occupational health and safety protocols by wearing the required safety gear and other equipment as specified in municipal protocols. The municipality, formal and informal organizational partners should ensure that workers have access to safety gear. Detailed guidance on the appropriate safety gear is provided by the Ministry of Urban Development²⁰ and is summarized in Box 10.

Box 10: Ensuring occupational health and safety

- Safety boots (always to be used while working outside the buildings);
- Reflective vests (always to be used by all staff working outside the buildings),

- Safety helmets (to be used in case of risk of injuries to the head e.g. during construction, loading or unloading activities, while operating machinery etc.);
 - Gloves (to be used in case of risk of injuries to the hands e.g. during loading/unloading or maintenance activities)
 - Ear protectors (to be used while working in noisy areas);
 - Disposable dust mask (to be used e.g. in case of exposure to dust)
 - First aid kits to be present in all MRFs. Training to be provided to staff on how to tend to minor injuries including cuts, burns, bandages. Also, on how to renew and refill the kits.
- Workers employed by formal and informal service providers should conform to minimum wage standards applicable to their jurisdictions. To facilitate waste recovery and increase recycling rates, workers should be allowed to keep the recyclable materials so they can sell these to supplement their income. This will also incentivize them to perform better.
- Waste management service customers must have access to a system where complaints and grievances can be filed. Formal and informal service providers must have a complaint monitoring system that allows for tracking and

20 http://moud.gov.in/sites/upload_files/moud/files/pdf/Draft%20on%20manual.pdf

addressing complaints. Such a system could be phone-based, online or in-person. Ideally, all three options should be made available to customers because not everyone will have access to web-based or phone-based systems. Box 11 provides guidance on setting up a customer helpline.

Box 11: Establishing and operating a customer helpline

Waste collection service customers, that is, households and commercial establishments should be provided a mechanism to file complaints on the web, on the phone and/or in- person. Information about this system should be shared with customers on a periodic basis by distributing flyers on a quarterly schedule for instance. Customers typically complain about service disruptions (e.g. waste has not been collected), behavioral problems with waste collectors, or quality of service (e.g. community bin not clean). Typically, the complaint redressal system works in the following way: A customer files a complaint. A data entry person collects the following information about the complaint: name, address, phone number, complaint date, and what the complaint is. The person then forwards the complaint to the supervisor of the

area that the complaint is from. The supervisor coordinates between the waste collector and the customer to resolve the issue. Once the complaint is resolved, the supervisor informs the data entry person. The data entry person marks the complaint as resolved along with the date in the complaint database. This data can then be used for reporting purposes to the municipality.

- Formal and informal service providers should conduct an annual customer feedback survey and share the results of the survey publicly. The inclusion tool available on the website of the MoUD provides detailed guidance on conducting a customer feedback survey. Box 12 provides a sample survey instrument.

Box 12: Customer feedback survey

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly
Service is timely					
Service providers are professional courteous and respectful					
Complaints are addressed in a timely manner					
There has been an overall improvement in service since [organization name] started work					
I am satisfied with the overall quality of service					
What do you like best about our service?					

- Waste management service providers in the formal and informal sectors should not use child labor. Box 13 provides some ways in which municipalities can help eliminate child labor in the waste economy.

Box 13: Eliminating child labor in waste

Child labor in waste is a problem in cities across the country. The problem stems largely from household economic insecurity and lack of access to educational and alternative opportunities for children in waste picker households. Formalizing informal sector livelihoods such that parents have access to safe, stable and secure means of income is the first step in addressing child labor issues. In the survey mentioned earlier in this text, it was found that 25% of children in waste picker families perform some sort of employment work. Of those, more than 90% work in waste. Further, approximately 80% children do not attend school. Those children who work in waste are much less likely to be in school than those who work elsewhere. Clearly, access to education is a problem for children in waste picking communities. To address this, many organizations across India are providing parallel schooling and support classes to help children get into and remain in formal schools. Although the Right to Education Act, 2009, enacted by the Government of India makes education free and compulsory for all children up to the age of 14. In 2011, the age was extended to 16.

The following are recommendations as means for municipalities to support elimination of child labor in waste:

- Formalize informal sector livelihoods to ensure economic security for parents;
- Identify government programs that waste picker children can benefit from e.g. In May 2013, the Government of India included waste picking as one of the occupations eligible for inclusion in the "Pre-Matriculation Scholarship for children of those engaged in Unclean Occupations";
- Identify NGOs that provide education services for children in your city;
- Identify government and private schools that will enroll waste picker children.

These are only some recommended standards and protocols that may be

modified by the municipality to fit their particular needs.

Chapter 8: Communicate and Train

Once standards and protocols have been developed, all stakeholders who have the responsibility of implementing them need to be trained. In the following table are provided some of the communication and

trainings. Objectives for the particular audience, proposed frequency and recommended media of training and communication activities.

Table 4: Communication/ training objectives with proposed frequency and media

Communication/training objective	Frequency	Media
Audience: Formal and informal service provider organizations		
Follow environmental and occupational health and safety operational protocols	Quarterly	In-person and online
Address customer complaints and gather customer feedback	Annually	In-person and online
Comply with applicable environmental and labor regulations	Annually	In-person and online
Audience: Formal and informal sector workers		
Follow occupational health and safety operational protocols	Annually	In-person
Understand rights and applicable regulations	Annually	In-person
Provide services in accordance with established operational quality standards	Every six months	In-person

Communication/training objective	Frequency	Media
How to establish and run a material recovery facility (MRF)	Every six months	In-person
Audience: Police and municipal workers		
How to deal with informal sector workers	Every six months	In-person
Audience: Waste generators		
Segregate your waste	Every six months	Flyers, PSAs, and online
Set up a composting system at home, school or your Workplace	Annually	In-person, flyers, and Online
Set up a composting system in your neighborhood	Annually	In-person and online
File and track your complaints about waste management	Every six months	Flyers and online
How your waste turns into social wealth	Every six months	Flyers and online
Know your waste collector	Every six months	Flyers and online

Only when all stakeholders know and understand their roles and responsibilities will the target waste management system work successfully. The training and communication objectives outlined above are merely examples that can be tailored according to the specific needs of the municipality. In Appendix B, the following sample communication materials have been provided:

- Segregate your waste (in English): This flyer is suitable for waste generators and focuses on the importance of segregating waste to safeguard the health of waste handlers.
- Salaamkabaari (in English): This flyer is suitable for waste generators and municipal officials. It highlights the important work of the informal sector in keeping cities clean and safeguarding the urban environment.
- Zero waste (in English). This flyer encourages waste generators to reduce their waste footprint.
- Waste segregation (in English): This fact sheet provides information on why waste segregation is important and how waste generators can segregate their waste.

Chapter 9: Implement and Monitor

The final step in the process is to develop an implementation schedule for the set of activities that will allow the municipality to meet its inclusive waste management goals and objectives. When developing such a schedule, it is important to bear in mind the resources required for implementing

the activities and the dependencies between various activities. This will allow you to determine the most feasible timeline for achieving your objectives in a reasonable timeframe. The following table is an example of what such a timeline could look like.

Table 5: Implementation schedule to achieve objectives in a reasonable timeframe

Task/Activity	2014	2015	2016	2017	2018	2019
1. Plan						
1.1 Develop strategic goals, objectives and metrics	X					
1.2 Document baseline metrics	X					
1.3 Update waste management plan	X	X	X	X	X	
2. Partner						
2.1 Identify informal & formal sector partners	X					
2.2 Identify roles and responsibilities	X					
2.3 Establish contracts	X					
2.4 Understand public needs & challenges	X					
3. Recognize & legitimize						
3.1 Identify & enumerate informal sector workers	X					
3.2 Legitimize workers	X	X				
4. Establish protocols & standards	X					
5. Communicate & train	X	X	X	X	X	
6. Implement & monitor	X	X	X	X	X	

In addition to developing an implementation schedule, the municipality should periodically monitor the implementation of planned activities. Three types of such monitoring activities have been proposed.

Monitoring Activity 1: Periodic reporting

Informal and formal sector partners should provide periodic reports on their activities. We recommend quarterly reporting because this will allow the municipality to rectify issues as they emerge. Reporting requirements should be written into the partnership agreements or contracts. Figure 13 provides a sample of what such a report from an informal sector partner could look like.

Monitoring Activity 2: Periodic audits

In addition to the periodic reports, the municipality should also audit the operations of formal and informal service providers. These should be unplanned so that service providers are not able to predict when such an audit might happen. Figure 14 provides an example of an audit of a doorstep collection program. Similar tools can be used to audit *godam* across the city as well as any services that a private contractor may be providing to the city. Data from such audits should be collated and reported publicly to build and maintain public trust.

[Informal Sector Organization] Quarterly Report	
Reporting period: _____	Report date: _____
Number of informal sector workers: _____	Number of households serviced: _____
Number of new workers: _____	Number of new households: _____
Monthly dues collected: _____	Percentage of delinquent households: _____
Number of complaints received: _____	Number of complaints addressed: _____
Most common complaints received: _____ _____	
Issues that need to be addressed by the municipality: _____ _____	

Figure 13: Sample reporting template

[Municipality] Doorstep Collection Audit Sheet	
Date: _____	Auditor: _____
Place: _____	Time: _____
1. Was the collector on time?	Yes No
2. Wearing uniform?	Yes No
3. Carrying ID?	Yes No
4. Waste segregated by household?	Yes No
5. Neighborhood bin clean?	Yes No
6. Other observations	

Figure 14: Sample audit template

Monitoring Activity 3: Annual progress reporting

The municipality needs to ensure that it is making progress against the goals and metrics developed as part of the planning process. To do this, the municipality should use the periodic reports and results of the audits in addition to gathering and analyzing other required data. At a very minimum, such reporting should occur on an annual basis. The table below provides a sample report of what such an annual progress report might look like.

Table 6: Metrics to measure annual progress report

Goal/Metric	2015 (Baseline)	2016 (Target)	2016 (Actual)
Goal 1. Provide universal doorstep waste collection services			
Metric 1.1 Percentage of households with formalized doorstep collection services	25%	50%	40%
Metric 1.2 Percentage of informal sector collectors formalized	0%	50%	50%
Goal 2. Enable and support recycling			
Metric 2.1 Percentage of total waste recycled	10%	20%	25%
Metric 2.2 Percentage of godam owners formalized	0%	25%	30%
Goal 3. Reduce overall waste burden by implementing centralized and encouraging decentralized composting			
Metric 3.1 Percentage of organic waste at final disposal site	60%	40%	50%
Metric 3.2 Percentage of households composting	0%	10%	20%
Metric 3.3 Number of informal sector composters supporting projects	0	25	20

Goal/Metric	2015 (Baseline)	2016 (Target)	2016 (Actual)
Metric 3.4 Amount of compost produced at composting facility	0%	10%	5%
Goal 4. Implement extended producer responsibility to reduce waste burden of specific streams			
Metric 4.1 Estimated percentage of non-recyclable plastic waste diverted from landfills	0%	10%	10%
Metric 4.2 Estimated percentage of e-waste collected through registered collection centers	0%	10%	10%

Chapter 10: Case Studies

1. Chintan's Award Winning Zero Waste PPP Model

Chintan, a registered Delhi based NGO, works across the solid waste vertical. Its implementation work includes providing waste management services to waste generators. Chintan trains wastepickers to



Picture 9: Chintan's wastepickers at the New Delhi Railway Station

offer professional services, from e-waste handling to doorstep collection and facilitates waste handling across a number of sites in Delhi, Jammu and Kashmir, Uttar Pradesh and Haryana. In Delhi, Chintan along with Safai Sena – a registered association of wastepickers informal sector waste collectors, itinerant buyers and junk dealers – has mobilized over 12000 wastepickers and trained them to deliver professional waste management services at grass-root level. Chintan has been able to generate over 2000 wastepicker livelihoods through its zero waste model.

Through Chintan's model over 21 tons of waste are collected, segregated, composted and recycled daily, with over 5,00,00 citizens benefitting from the waste services provided by Chintan every day.

Collected waste is brought to Material Recovery Facilities (MRFs) where waste is segregated into different varieties, value added and sold to authorized recyclers. The income generated is utilized to run the MRFs, augment their incomes and provide informal education to their children by running Learning Centres.

Waste Management System and Stakeholder Involvement

Chintan has been in partnership with the Northern Railways at four major railway stations across Delhi - New Delhi, Old Delhi, Hazrat Nizamuddin and Anand Vihar — to handle the waste from trains and platform bins. Under this, Chintan, in partnership with Safai collects waste from all trains as they arrive on the platform, provides liners for bins on platforms and collects the waste before it spills out and litters the station.

At the New Delhi Railway Station alone, over 300 trains and 360,000 passengers come in everyday, generating a mammoth quantity of solid waste.

The waste is collected and taken to a Material Recovery Facility (MRF), for which purpose land has been allocated to Chintan by the Northern Railways. At the MRF, waste is then segregated into various categories. At the New Delhi Railway Station, plastic PET bottles from the waste collected are cut to avoid any refilling and misuse. All the paper, plastics, metals, cardboard, glasses are then sent for recycling.

Chintan composts the organic food waste collected at the New Delhi Railway station which is well over 100 kilograms per day. Approximately 300 kilograms of compost is prepared per month thus saving 3 tonnes of waste per month from being dumped at the landfills.

Through this unique partnership Chintan and Safai Sena have been able to demonstrate that the Northern Railways can handle its waste, reduce pollution, create safe livelihood opportunities for the poor and make the railway stations cleaner and greener. No financial transactions are involved in this process, that is, neither the

Northern Railways nor Chintan exchange any payments for this service. Wastepickers earn their livelihoods from the sale of recyclable materials. This partnership handles over 4 tons of waste each day and has created 74 wastepicker livelihoods at the New Delhi Railway station alone.

Outcomes and Next Steps

For the wastepickers, steady livelihoods resulted in reduced vulnerability to many economic and social risks, access to medical care and health camps, personal protective equipment and a significantly cleaner work environment, reduced injuries and disease, education of children wastepicker children. A stable income and increased interaction with the railway police has increased security and eliminated bribes. By recycling waste, several environmental benefits accrued. Greenhouse gases that would be emitted from mining, transportation of raw materials and their processing were eliminated. Paper and cardboard, otherwise rotting in landfills and spewing methane, was prevented. Waste was not burned, hence, carbon dioxide and dioxins were prevented from being released. Vectors could not breed in waste not dumped in the open, as was widely prevalent at the station previously. Clearly, there is significant environmental benefit to both directly and indirectly impacted persons as well as the city of Delhi.

Chintan was awarded the prestigious Deutsche Bank Urban Age Award for this initiative in 2014.

This zero waste model demonstrates that alternative ways of managing urban wastes are financially viable and environmentally and socially responsible.

2. Government Steps Forward: Achieving zero waste goals through the integration of the informal sector in doorstep collection in Kolar

The city of Kolar serves as the headquarters of the Kolar district; one of 30 districts of the state of Karnataka. The Municipal Corporation of Kolar city has taken the initiative to make the city a zero waste city by implementing its model of zero waste management. The former District Collector, D K Ravi joined hands with Kolar City Municipal Corporation's assistant engineer, Kotreshappa Benni and junior health inspector KG Ramesh in order to revamp the city's waste management system and transform the city in to a clean area.



Picture 10: Neatly segregated wet waste in Kolar, Karnataka

Waste Management and Stakeholder Involvement

We have continuously mentioned how waste management is a mega-task for

most municipalities across the country, barring exceptions. Kolar was no different. Beginning 2014 saw the city suffer from acute waste management woes caused by the inability to manage a mere 64 tonnes per day. Authorities were struggling to find new places to create waste dumps, villages in the vicinity refused to allow dumping of waste on their lands and waste began to overflow on the streets.

The three authorities got together and involved students of nursing colleges to conduct a door-to-door campaign to generate awareness among residents about benefits of waste segregation and how to go about it. Once the initial stages of awareness were completed, the authorities got strict with residents over unsegregated waste. Residents disposing unsegregated waste were penalized by the authorities thereby forcing them to take up segregation at source. A number of meetings were also held with bulk waste generators including hospitals, offices, restaurants, schools, etc. Amongst monetary penalties, failure to segregate waste at source led to authorities refusing to collect mixed waste. The initiative did face many hiccups in the initial stages with people refusing to, or not segregating. Over time however, these minor bumps were traversed.

Kolar has become a one of a kind city which does not need or use a landfill. The municipal solid waste system is so well-defined that no waste really goes to waste. Of the 64 tonnes that are generated every day, 22-24 tonnes are household organic waste which is composted five composting yards. The rest of the waste generated is collected in the form of recyclables, inerts and from bulk generators. The dry waste is then sold to local vendors for recycling while inerts are sold to an entrepreneur

at a rate of Rs. 1.10/kg to be made in to briquettes.

An effective part of this waste management system was the banning of plastic bags of all micron sizes. It has also helped keep litter in check. It is hard not to praise this well-worked system endlessly. The door-to-door waste collection is carried out by municipal sweepers (pourakarmikas in Kannada) who come by each street with a cart carrying four bins each. A single cart is managed by 2 municipal sweepers provided with all safety and hygiene equipment including gloves, masks and coats. They also carry with them a weighing scale in order to weigh each batch of waste they collect. This helps in monitoring the system, finding discrepancies in segregation as well as serves as a continuous waste audit of the city. At each collection point, bins are off-loaded and fresh bins are placed at the site for the next round of collection. A municipal truck collects waste from the collection point. The municipal corporation has tied up with local waste dealers (kabaddiwallah), itinerant buyers (raddiwallah) and larger waste traders to whom all dry recyclables are sold to. The income from the sale of dry recyclables goes to the pourakarmikas, thereby giving them an additional source of income. As mentioned before, inerts along with low-grade plastics are sold to make briquettes.

The municipality has partnered with hospitals in the city wherein the municipal sweepers collect dry and wet waste from hospitals and biomedical waste (this is done free of cost). Biomedical waste is then transported to an incineration site 18 kilometers outside the city. The waste segregation mechanism is so well devised that it is one of the only places in the country where sanitary waste and diapers

are collected separately by the municipal sweepers.

The municipal waste collectors are supervised by a route manager. In all, Kolar has 150 waste collectors who serve a population of 150000 individuals. The city has 10 route managers and one health inspector. Weighing waste allows a tab to be kept on the amount of waste and how well it is being segregated. Data gathered is filled in to a computerized system and revealing any discrepancies in the process.

Outcomes and Next Steps

A distinguishing feature of this exemplary model is that the initiative came from the government officials rather than from any community based organization as happens in most cases. The credit for this success lies in the hands of the three governing bodies who took responsibility to make Kolar a “Swachh Kolar”. The system is so well designed that it even has a separate system for collection of broken glasses. This model goes to show how administrative, political and citizen willingness can go a long way in achieving targets and goals to make India *swachh*.

3. SWaCH: City wide doorstep waste collection with wastepickers in Pune

Pune in Maharashtra is the eighth largest city in India. It is witnessing urbanization at a rapid pace, which has put pressure on its infrastructure and municipal services. The city daily generates 1,500-1,600 tonnes of waste everyday, which is expected to go up to 2,400 tonnes by 2021.

A few years ago, the Pune Municipal Corporation (PMC) decided to try out a



Picture 11: Wastepickers from SWaCH a cooperative in Pune, Maharashtra

new model of solid waste management – commonly known as the SWaCH model – by involving waste pickers in door-to-door collection and decentralized management of waste. SWaCH is an organization of women waste pickers that has emerged out of Kagad Kach Patra Kashtakari Panchayat (KKPKP), a registered trade union of waste pickers and waste collectors in Pune.

Waste Management System and Stakeholder Involvement

In September 2008, a formal memorandum of understanding (MoU) was signed between PMC and SWaCH to decentralize door-to-door collection (DTDC) services for households, shops, offices, and small commercial establishments. According to this contract, 2,300 waste pickers of SWaCH were to cover over 4 lakh households, including slums, for doorstep waste collection. As a part of this, the corporation had to pump in Rs 8.5 crore in the designated five years towards overhead

costs of the monitoring system (150 supervisors/coordinators, management information system), health insurance of waste pickers and providing hand carts, uniforms, etc to waste collectors. Out of the then 144 wards of Pune city, SWaCH was handed over 80 wards for waste management. At present, there are 76 wards (post re-organization of wards) in the city with two corporators from each ward.

The source of income for SWaCH waste pickers was the monthly user fee from the households and the sale of recyclables. Five per cent of the monthly user fee per waste picker had to be given to SWaCH as an operational cost for the functioning of the organization. As per the MoU, in five-years the SWaCH model had to become self-sustainable, with no further financial assistance from the PMC towards salaries of supervisors/coordinators.

In this model, the PMC provided wheelbarrows, hand carts, tricycles to

women waste pickers for waste collection. Areas within the 80 wards were divided among the waste pickers for door-to-door waste collection. SWaCH charged Rs 30 per household per month as user fee. Households were expected to segregate waste at source, an aspect of this model that was unsuccessful.

Organic wet waste collected by the waste pickers was composted in a decentralized manner. Recyclables were sold and money earned, whereas non-recyclables were sent for landfilling through the municipal trucks. It is estimated that SWaCH was handling 600 tonnes of waste every day, of which 130 tonnes was composted in a decentralized manner and 150 tonnes was recycled.

The project took off well and waste pickers started door-to-door waste collection in 2008. Over 150 supervisors and coordinators were hired by SWaCH, whose salaries had to come from PMC funds, for creating a monitoring and feedback system (MIS). There was a mutually decided schedule as per which both the corporation and SWaCH had to come out with their respective deliverables.

Outcomes and Next Steps

The model was able to generate a source of livelihood for the wastepickers involved in the formal collection system.

The first phase allowed the PMC and SWaCH to understand the functioning of the model and improve on management and contract issues prior to renewal of the next phase. A major lesson learnt was that such waste management models cannot be financially sustainable without funds dedicated specifically for project management. As of today, in phase 2, the PMC and SWaCH have renewed their contracts. SWaCH will now

cover the entire city with their operations. Rs. 3.2 crores with 5% escalation will be paid to the cooperative annually. Monthly household charges paid to wastepickers are Rs. 50 in urban areas and Rs. 30 in slums. Wastepickers are entitled to health insurance, banking, educational and other social security schemes.

Rs. 600 per year is paid to each wastepicker for maintenance of equipment, provided by the PMC. As of March 2016, the cooperative has received Rs. 1.12 crore of the 1.32 crore to be paid by the PMC as wastepicker reimbursement.

4. Hasiru Dala's dry waste collection centers

Hasiru Dala or Green Force is a member based organization of wastepickers in Bangalore. The organization works improving the working conditions of informal sector waste workers by ensuring continued access to livelihoods while attempting recognition for them as silent environmentalists. The organization seeks to secure for members benefits of various government programs that they are entitled to, social security provisions that are required to enable enhanced quality of life as well as providing their children with better access to education.

The membership to the organization has been extended to all waste workers including wastepickers, itinerant waste buyers, small and large wholesalers and buyers of waste, a majority of whom are women.

Waste Management System and Stakeholder Involvement

The model followed by Hasiru Dala was initiated as a tri-party model which has now

settled in to a dual-party model mode of functioning. The collective of wastepickers works with the Bruhat Bengaluru Mahanagar Palike (BBMP), the municipal corporation of Bangalore. BBMP is divided into 198 wards, but works with Hasiru Dala in 33 wards currently, with plans for expansion²¹.

Once an agreement for a particular location has been crafted, the BBMP constructs a Dry Waste Collection Center (DWCC) and hands it over to a group of waste workers of the organization. A single DWCC is managed by 4 waste workers. Once a DWCC has been constructed, a corporate partner such as ITC, Infosys etc are sought to fund the collection center for a period of 2 years.

The waste collected by wastepickers is sold to wholesalers of waste where they are able to access better process for segregated materials. A part of their waste is also bought from the waste workers of the BBMP – called “*pourakarmikas*”. In order to enable access to better prices of waste, the wastepickers sell the waste to larger dealer part of the organization itself, as opposed to selling to third part wholesalers and waste buyers.

Outcomes and Next Steps

The largest gain of the model is that wastepickers have been able to access education and technology which has been able to boost their confidence and work.



Picture 12: Wastepicker women from Hasiru Dala a cooperative in Bengaluru, Karnataka

Hasiru Dala and its waste workers are able to divert over 1050 tons of waste for recycling every day leading to saving of Rs. 8400 lakh (84 crore) annually for the municipality.

The organization has been in talks with the BBMP and State Pollution Control Boards to collect low and no value calorific waste for use in the cement industry as raw material for furnaces. One such cement manufacturer has agreed to transport the waste from the DWCC to the factory free of cost; an MoU was signed for the same.

21 Rani, K. (2016, August 3). Program Coordinator. (A. Varma, Interviewer)

Chapter 11:

What does it all cost?

The core of any workable, scalable and replicable model for waste management is its financial foundation. Without some financial and infrastructure support, it has a challenge to include the wastepickers on the ground.

How have other municipalities done this?

Pune

In Pune, the Pune Municipal Corporation has partnered with SWaCH, a co-operative of wastepickers, to for collection of segregated waste from households, shops, offices and commercial establishments in areas under their jurisdiction. Waste is collected through its network of wastepickers members and waste is deposited in municipal containers, vehicles or collection points in areas specified by the PMC under the contract. The waste collector or wastepickers in this case, have the right to sell the waste and keep with themselves earnings from the sale.

There are two sources of payment in Pune- the households and the Municipality.

Households:

The service is not free for anyone. Everyone has to pay. The charge collected monthly for

door step collection of waste by SWaCH and its members are:

- i. Rs. 50/- per month per household (annual increase at 5% per annum)
- ii. Rs. 100/- per month for commercial establishments, shops, etc (annual increase at 10% per annum)
- iii. Rs 30/- per household per month in slums areas (annual increase at 5% per annum)

In order to determine user fees, a few criteria have been put in place:

- i. Separate residential units are treated as separate households for the purpose of collecting user fees
- ii. In residential societies, apartment blocks and other aggregations of generators, each individual property unit is chargeable as a household, irrespective of the occupancy status of the property unit in question
- iii. The user fee payable to SWaCH or its members involved in the actual collection of waste is depicted below. The user fee has to be paid on the basis of the depiction below, irrespective if the status of actual commencement of service to a particular user.

Year of Operation	Households (collected per month)	Commercial Establishments, shops, etc. (collected per month)	Households in Slums (collected per month)
I	Rs. 50	Rs. 100	Rs. 30
II	Rs. 55	Rs. 110	Rs. 35
III	Rs. 60	Rs. 120	Rs. 40
IV	Rs. 65	Rs. 130	Rs. 45
V	Rs. 70	Rs. 140	Rs. 50

In order to make this system more robust, SWaCH is not entitled to refuse collection of waste from any generator willing to pay the user fee for any reason. SWaCH and its network of waste collectors are entitled to collect an extra charge from citizens for the collection of wastes other than solid waste such as electronic waste, domestic hazardous waste, construction and

demolition waste, bio-medical waste, garden waste etc.

The Municipality

The PMC is also tasked with providing financial support and has allocated its budget accordingly. A detailed break up of finances according to the latest agreement between SWaCH and the PMC is given below:

Year of Operation	Period of Operation	Date of release of amount	Amount payable	Total amount for the year	Total amount in words
I	1st Jan 2016 – 31st Dec 2016	15 days of execution the agreement	16100000	32200000	Three crore twenty two lakhs only
		June 2006	16100000		
II	1st Jan 2017 – 31st Dec 2017	December 2016	16905000	33810000	Three crore thirty eight lakhs ten thousand only
		June 2017	16905000		
III	1st Jan 2018 – 31st Dec 2018	December 2017	17750250	35500500	Three crore fifty five lakhs five hundred only
		June 2018	17750250		
IV	1st Jan 2019 – 31st Dec 2019	December 2018	18637763	37275525	Three crore seventy two lakh seventy five thousand five hundred and twenty five only
		June 2019	18637763		
V	1st Jan 2020 – 31st Dec 2020	December 2019	19569651	39139301	Three crore ninety one lakhs thirty nine thousand three hundred and one only
		June 2020	19569651		

The payments above amount to a mere lakh a day for ensuring that not merely is waste being collected from the doorstep efficiently, but it is being well monitored and data is being kept and reported. This ensures the municipality can outsource quality and be assured of it, instead of expecting the supervision and management to be paid for by collection fees, which is always too little for this. An additional charge would be levied for doorstep collection. By paying this amount to SWaCH, the PMC has ensured that open dumping is reduced, doorstep collection is provided to most residents, and that there is quality control, while including the poorest of the poor in the solution. The cost of not doing this would be higher.

Infrastructure

The costs for push carts, vehicles, uniforms, gloves, maintenance of equipment, office spaces as well as social welfare benefit are not included in the finances above and are to be borne separately by the PMC.

The PMC is also entitled to provide office and desk spaces for SWaCH administration within each ward to facilitate administration by SWaCH and its members. PMC and SWaCH have also identified and allocated space and land for establishment of sorting sheds for recyclable waste based on the geography, population and size of the area in question. Here, the PMC is to bear all expenses and costs of construction and infrastructure, to be handed over to SWaCH for operation. Maintenance and renovation costs are also to be borne by the PMC.

Delhi

New Delhi Railway Station

The Northern Railways (NR) and Chintan work with the wastepicker's association,

Safai Sena, in a partnership to manage waste at the New Delhi Railway station, along with three other railway stations - Old Delhi, Hazrat Nizamuddin and Anand Vihar - to handle the waste from trains and platform bins.

Infrastructure

The land for the purpose of the MRF as well as composting has been allocated by the Northern Railways. Chintan pays for the electricity consumed, as the railways have installed a meter at the site. The MRF was built by funds raised by Chintan.

Financial

The model currently works without any financial transactions between the NR and Safai Sena. The NR has provided the spaces for segregation, sorting and composting Safai Sena. In a typical model, vendors pay the Railways for the waste, but in this particular case it is a neutral payment model in order to make it successful in terms of quality control. The NR has also provided office spaces for the wastepickers to carry out administration and other tasks.

A similar model can be replicated in larger stations as well as long as the wastepickers are able to earn adequately from the sale of waste generated.

New Delhi Municipal Council (NDMC)

New Delhi Municipal Council (NDMC) is the municipal council of the city of New Delhi, India, and the area under its administration is referred to as the NDMC area.

Infrastructure

The NDMC along with Chintan have initiated a project on urban innovation

and infrastructure, to create an inclusive model of waste handling. Five (5) existing garbage stations have been used by trained and formalized wastepickers to collect and handle both dry waste and e-waste. Each garbage station is run by a set of trained waste handlers under the supervision of Chintan, who are responsible for their selection, training and functioning. This enables them to collect waste and e-waste from the neighbouring areas, segregate it optimally and sell it at the best prices daily.

NDMC has also allocated space for an MRF to Chintan.

NDMC has also worked with Chintan for e-waste collection.

Financial

The NDMC gave Chintan Rs. 3 lakhs for the training of wastepickers and giving them I-Cards and tri-cycles etc. for a pilot project.

In subsequent areas, as doorstep collection expanded, the NDMC did not give financial assistance, but provided tricycles to wastepickers to aid in collection, segregation and transport of waste as well as space nearby for segregation.

NDMC linked Chintan with the residents of most of the NDMC colonies, and helped them provide doorstep collection. A user fee of between Rs. 40 and 75 is charged from households depending on the type and quantity of waste generated, which the NDMC does not take any share of. The waste is also kept by the wastepickers: the amount of waste collected and

sold by wastepickers under this project translates to appx. Rs. 12000 per month per wastepicker, as this is primarily an elite area. Some of the collection fees is used for supervision and some distributed amongst wastepickers.

Box 14: How are wastepickers organized in different cities?

How are wastepickers and others organized in different cities?

In Pune, wastepickers are organized into first, a Trade Union, Kagad Kach Patra Kashtakari Panchayat KKKPKP. Those who are also working as part of the doorstep collection initiative are further part of the SWaCH cooperative, which the municipality works.

In Bangalore, the Hasirudala began in 2010 by being an unregistered body, in 2013, it became a trust. In November 2015, it became a company called Hasirudala Innovations which works with the informal sector and enables their entrepreneurship.

In Delhi, Chintan is a registered association, which works with an association of wastepickers, Safai Sena. Safai Sena's own members are in the process of forming a cooperative.

Available Resources

In this section, we outline some key policies, best practices and guidance documents developed by the Government of India and international organizations such as the United Nations, World Bank and Asian Development Bank. These are organized thematically in sections below.

Government of India National Policies and Rules

Ministry of Urban Development. 2016. *National Urban Sanitation Policy*. Retrieved from: http://moud.gov.in/sites/upload_files/moud/files/NUSP_0.pdf

Ministry of Environment, Forest and Climate Change. 2016. *Solid Waste Management Rules, 2016*. Retrieved from: http://www.moef.gov.in/sites/default/files/SWM%202016_0.pdf

Ministry of Environment, Forest and Climate Change. 2016. *Plastic Waste Management Rules, 2016*. Retrieved from: http://www.moef.gov.in/sites/default/files/PWM%20Rules,%202016_0.pdf

Ministry of Environment, Forest and Climate Change. 2016. *E-Waste (Management) Rules, 2016*. Retrieved from: <http://www.moef.gov.in/sites/default/files/EWM%20Rules%202016%20english%2023.03.2016.pdf>

Guidance on Solid Waste Management Planning

United Nations Environment Program. Undated. *Solid Waste Management*. Retrieved from: <http://www.unep.org/resourceefficiency/Policy/ResourceEfficientCities/FocusAreas/SolidWasteManagement/tabid/101668/Default.aspx>

World Bank. Undated. *Solid Waste Management Strategic Planning*. Retrieved from: <http://go.worldbank.org/EI3G7AK1J0>

Ministry of Urban Development. 2014. *Manual on Municipal Solid Waste Management*. Retrieved from: http://moud.gov.in/sites/upload_files/moud/files/pdf/Draft%20on%20manual.pdf

India, G. o. (2016). *Swachh Bharat Urban*. Retrieved August 3, 2016, from Ministry of Urban Development: <http://swachhbharaturban.gov.in/>

Guidance on Public Private Partnerships

World Bank. 2014. *Public-Private Partnerships: Reference Guide Version 2.0*. Retrieved from: <http://www.scribd.com/doc/236899332/PPP-Reference-Guide>

Asian Development Bank. 2008. *Public-Private Partnership (PPP) Handbook*. Retrieved from: <http://www.adb.org/documents/public-private-partnership-ppp-handbook>

Ministry of Finance. 2010. *PPP Toolkit for Improving PPP Decision-Making Processes*. Retrieved from: http://toolkit.pppinindia.com/solid-waste-management/module1-intro.php?sector_id=4

Informal Sector Inclusion Guidance

Chintan Environmental Research and Action Group. 2013. *Chintan's Assessment Tool for Informal Sector Inclusion in Waste Management*. Retrieved from: <http://jnnurm.nic.in/wp-content/uploads/2013/11/Chintan-Inclusion-Tool-and-Appendices.pdf>

Inter-American Development Bank. 2013. *Preparing Informal Recycler Inclusion Plans: An Operational Guide*. Retrieved from: <http://publications.iadb.org/handle/11319/697?locale-attribute=en>

Maryadit, Pune Municipal Corporation and SWaCH Pune Seva Sahakari Sanshta. (2016). *Agreement for Solid Waste Handling*. Pune: Pune Municipal Corporation.

Ministry of Environment, Forest and Climate Change. (2016, March 28). *NABH*. Retrieved June 12, 2016, from NABH Website: http://nabh.co/Announcement/BMW_Rules_2016.pdf

Appendix A:

Sample MoU between Municipality and Contractor

The following agreement is a sample only and may be modified by a municipality for its own use.

This AGREEMENT is entered into this _____ day of _____ 2016

BETWEEN

[Municipality/ULB Name], a statutory body having its main Office at _____

(Here in after referred to as "[Municipality]"), which expression shall always mean and include, unless it be repugnant to the context or meaning thereof, its administrators, assigns and successors, through Shri _____, its _____, who is duly authorized to sign and execute this Agreement, being the Party of the FIRST PART

AND

[Contractor Name], an autonomous organization duly registered under the [Act and Date], and having its registered office at _____, which is engaged in solid waste collection, segregation and handling (herein after referred to as "[Contractor]"), which expression shall always mean and include, unless it be repugnant to the context or meaning thereof, its administrators, assigns and successors, through the hands of its authorized office-bearers _____, Chief Executive Officer and _____, Treasurer, being the Party of the SECOND PART

WHEREAS the Party of the First Part ([Municipality]) is an urban local body responsible for providing municipal services and civic amenities as per Municipal Corporation Act, which includes the collection, segregation, transportation and disposal in a scientific manner of Municipal Solid Waste (MSW) generated in its territorial jurisdiction as per MSW Rules 2016;

AND WHEREAS [Municipality] wishes to initiate (*Please describe the task in summary. Eg: Door-to-door waste collection, segregation and composting*) in order to ensure efficiency and uniformity in the collection system and to minimize cost and manual handling;

AND WHEREAS the Party of the Second Part ([Contractor]) which is managed by a professional team has proficiency and a proven track record in undertaking MSW Management within a civic jurisdiction and seeks to uplift the conditions of work of wastepickers, and in addition to involve citizens through citizen outreach programs and engage them in supporting waste management systems, thus moving towards a ‘zero garbage’ society;

AND WHEREAS [Municipality] has received a proposal from [Contractor] for MSW Management from the Assigned Area of [Municipality];

AND WHEREAS [Municipality] is empowered to procure and implement services under the Public- Private Partnership model;

AND WHEREAS [Municipality] has reviewed the proposal submitted by [Contractor] and wishes to partner with [Contractor] as its sole collaborator for MSW Management from the Assigned Area within its territorial jurisdiction and [Contractor] is agreeable to act as [Municipality]’s sole collaborator from the Assigned Area;

AND WHEREAS both Parties wish to record in writing the terms and conditions of the Agreement relating to the said MSW Management;

NOW THIS AGREEMENT RECORDS THE FOLLOWING:

1. Definitions and Interpretations

1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively ascribed to them hereunder:

“Agreement” shall mean this Public Private Partnership Agreement with its recitals and schedules, and includes any amendments hereto made in accordance with the provisions hereof.

“Applicable Law” shall mean and includes any statute, law, bye-law, rule, regulation, ordinance, judgment, order, decree, injunction, writs or orders of any court of record, clearance, directive, guideline, policy, requirement, or other governmental restriction or any similar form of decision of, or determination by, or any interpretation or administration having the force of law of any of the foregoing, by any Government Agency having jurisdiction over the matter in question, whether in effect as of the date of this Agreement or thereafter.

“Assigned Area” shall mean households, shops and offices in municipal administrative [AREA NAMES] excluding, [AREA NAMES] within the jurisdiction of the [Municipality]; and any other wards that may be added by [Municipality] during the Contract Period of the Agreement and added to the Schedule through written communication from [Municipality].

“Contract Period” shall mean the period of time the contract is valid for.

“Facility” means any establishment wherein the solid waste management processes, namely, segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out.

“Joint Committee” shall mean the body of 5 (five) members, comprising of 3 (three) members from [Municipality], 2 (two) persons from [Contractor], and whose objectives are as specified elsewhere in this Agreement.

“Material Breach” shall mean a breach by either Party of any of its obligations under this Agreement which has or is likely to have a Material Adverse Effect on the Project and which such Party shall have failed to cure.

“Micro Plan” shall mean plan for MSW Management and as defined in clause 6.1(a)

“Municipal Solid Waste (MSW)” shall mean and include residential and office waste that may be recyclable or non-recyclable, organic or inorganic, generated in a municipal or notified area in either solid or semi-solid form, and:

- (i) Shall include ‘recyclable waste’ which shall mean non-biodegradable waste containing recoverable resources that can be recycled; and
- (ii) Shall include ‘office waste’ and ‘household waste’ which shall mean small quantities of kitchen waste, packaging, bottles, etc. generated by a single household
- (iii) Shall exclude garden waste and construction and demolition debris.
- (iv) Shall exclude waste generated from road sweeping.
- (v) Shall exclude industrial hazardous wastes and treated or untreated bio-medical wastes;

“Municipal Solid Waste (MSW) Management” shall mean Primary Collection from each of the households, residential societies, commercial complexes and institutions from the Assigned Area and Segregation of the same as per the MSW Rules 2016 and Sorting of the MSW and transportation of the segregated waste to the designated collection points identified by [Municipality].

“Operation Grant” shall mean the payment for MSW Management payable by [Municipality] to [Contractor] in accordance to the services rendered as per the terms and conditions of this Agreement.

“Parties” shall mean the parties to this Agreement and “Party” shall mean either of them, as the context may admit or require.

“Performance Parameters” shall mean parameters stipulated in this Agreement in the clause 9.2 to monitor the performance of [Contractor]

“Project” shall mean MSW Management from the Assigned Area

“Project Facilities” shall mean the facilities provided by [Municipality] for this Project and has been detailed under clause 8.2

“Primary Collection” shall mean collection of waste at the source of the waste generation, it, at the doorstep of each waste generator. The source shall mean the individual houses of an apartment block, bungalow, commercial and the institutional establishments in the Assigned Area.

“Source Segregation” shall mean separation of MSW into organic (commonly referred to as “wet”), inorganic (commonly referred to as “dry”). No other waste, such as hazardous waste, is to be picked up under the MSW Rules, 2016, Schedule I, Section A, by the waste collectors. Sanitary waste will only be collected if it is securely packed and dropped into the dry waste bin.

“Hyper-segregation” shall mean segregation of dry waste into multiple finer categories of each type of recyclable material. This is usually undertaken at a Material Recovery Facility.

“Termination” shall mean the early termination of this Agreement pursuant to termination notice or otherwise in accordance with the provisions of this Agreement but shall not, unless the context otherwise requires, include expiry of this Agreement due to efflux of time in the normal course.

“Termination Date” shall mean the date specified on the termination notice as the date on which the termination occurs.

“Waste Pickers” shall mean a person or groups or persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation in the street bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

1.2 Interpretation

In this Agreement, unless the context otherwise requires,

- a) Any reference to a statutory provision shall include such provision as is from time to time modified or re-enacted or consolidated so far as such modification or re-enactment or consolidation applies to any transactions entered into hereunder;
- b) References to applicable law shall include the laws, acts, ordinances, rules, regulations, notifications, guidelines or bylaws which have the force of law;
- c) The words importing singular shall include plural and vice versa, and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity);
- d) The headings are for convenience of reference only and shall not be used in, and shall not affect the construction or interpretation of this Agreement;

- e) The words "include" and "including" are to be construed without limitation;
- f) Any reference to day, month or year shall mean a reference to a Gregorian calendar day, month or year respectively;
- g) The Schedules to this Agreement form an integral part of this Agreement as though they were expressly set out in the body of this Agreement;
- h) Any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference;
- i) References to recitals, Articles, sub-articles, clauses, or Schedules in this Agreement shall, except where the context otherwise requires, be deemed to be references to recitals, Articles, sub-articles, clauses and Schedules of or to this Agreement;
- j) Any Agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Agreement from or by any other party shall be valid and effectual only if it is in writing under the hands of duly authorized representative of such party and not otherwise;
- k) Any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days and dates.

2. The Contract

2.1 Project Scope

The scope of work for the Project includes the following. [ONLY A SAMPLE, DO ADAPT]

- (a) Primary Collection of MSW from houses, apartments, bungalows, shops, commercial areas and institutions from the Assigned Area
- (b) Hyper-Segregation of MSW
- (c) Transportation of segregated waste at the specified locations as assigned by the [Municipality]
- (d) Maintain project facilities provided by [Municipality] for implementation of the Project during the Contract Period
- (f) Composting or treatment of wet waste within 5 kilometers of generation, with the equipment and infrastructure provided by the generator or any other third party at no cost to [Contractor]

2.2 Contract Period

This Agreement shall be for an initial period of [...years] commencing from the date of the start of the operation; and may be extended after mutual written agreement between the Parties.

2.3 Grant of Contract

Subject to and in accordance with the terms and conditions and covenants set forth in this Agreement, [Municipality] hereby grants and authorizes [Contractor] to undertake MSW Management from the Assigned Area and to exercise and/or enjoy the rights, powers, benefits, privileges, authorizations and entitlements as set forth in this Agreement.

3. Conditions Precedent

3.1 Responsibilities of [Municipality]

[Municipality] shall fulfill the following conditions precedent within 30 days from the Commencement Date:

1. [Municipality] shall provide [Contractor] with the maps of the Assigned Area and the collection points for waste.
2. [Municipality] shall provide list of residential and commercial properties in each Ward of the Assigned Area and issued instructions to the RWAs and MTAs to participate in the scheme with the [Contractor]
3. [Municipality] shall assist [Contractor] to establish area-wise routes for collection, along with the timing of each route ('start time' of collection and projected 'end time'). It shall also arrange for reallocation of waste containers with at least one container located within a 2 km radius of each household.
4. [Municipality] shall provide adequate space and infrastructure for segregation of waste appropriate for all weather. A space of 20 feet by 20 feet should be provided for approximately 1000 households, assuming a generation of 3.5 tons of waste for said number of households.
5. [Municipality] shall provide office space for [Contractor] employees working on this project.
6. [Municipality] shall provide parking space and garage space for cleaning vehicles.
7. [Municipality] shall form a Joint Monitoring Committee with [Contractor].
8. Issue a written communication to all levels of relevant [Municipality] functionaries in Assigned Area about the new system established by virtue of this Agreement and seek their cooperation and compliance in accordance with this Agreement; (k) Facilitate orientation session with [Contractor] for various functionaries of [Municipality] in the Assigned Area.
9. [Municipality] shall allow the [Contractor] to keep the dry waste.
10. [Municipality] shall write to the DCP and the SHO of the relevant police stations informing them about the Contractor and facilitate a first meeting for future liasoning, so that both the police and the workers can work smoothly.

11. [Municipality] shall facilitate the [Contractor] to access adequate land for the contract period for the decentralized composting and ensure it is accessible for transportation of waste as well as connected to electricity.

3.2 Responsibilities of [Contractor]

[Contractor] shall fulfill the following conditions precedent within 30 days from the Commencement Date:

1. [Contractor] shall undertake the activities under this contract to the best of its abilities.
2. [Contractor] shall have opened a separate bank account for receipt of Operation Grant from [Municipality] for this Project.
3. [Contractor] shall have prepared and submitted a Micro Plan for approval by [Municipality] and undertake necessary modifications as suggested by [Municipality] or as jointly agreed between both the Parties. The plan shall be finalized within 30 days from the start of the project.
4. [Contractor] shall take over the Project Facilities provided by [Municipality], such as spaces for Material Recovery Facilities and composting.
5. [Contractor] shall form a Joint Committee with [Municipality].

3.3 Cost of Satisfying the condition precedent

The cost of satisfying the above conditions precedent shall be borne by the respective Parties.

3.4 Non-fulfillment of the condition precedents

1. If any of the conditions precedent contemplated in clause 3.1, 3.2 has not been satisfied in full or has not been waived, within the time stipulated or such extended time that the Parties may agree upon, then and in such event either party shall have the right to terminate this Agreement by 30 days' notice in writing to the other party, given at any time thereafter, but prior to such conditions precedent being satisfied or waived, and if the conditions precedent are not satisfied or waived within such notice period, upon expiry of such notice, this Agreement shall terminate. In the event of such Termination, [Contractor] shall without demur hand back possession of all Project Facilities handed over to it by [Municipality] for the purposes of this Project under this Agreement.
2. If the Agreement is terminated due to non-satisfaction of conditions precedents set forth in clause 3.1, then [Contractor] shall without demur hand back possession of all Project Facilities handed over to it by [Municipality] for the purposes of this Project under this Agreement.

3.5 Rights, Title and Use of Project Facilities

1. [Contractor] shall have the right to the use of Project Facilities in accordance with the provisions of this Agreement.
2. [Contractor] shall sell the whole or any part of the Project Facilities, save and except to improve quality of the service delivered via further partnerships with like-minded organizations offering unique services as also set forth and permitted under this Agreement.
3. [Contractor] shall not, without the prior written approval of [Municipality], use the Project Facilities for any purpose other than for the purpose of the Project and purposes incidental or ancillary thereto.
4. [Contractor] may collect the user charges from the individual households or establishments within the Assigned Area for the service provided by them and/or may authorize such payments to be collected directly by the wastepickers; and shall be directly accountable to the local citizens for providing the service. The (Contractor) shall have the right to sort and sell the recyclable waste and retain the income from its sale.

3.6 Peaceful Possession

[Municipality] hereby warrants that [Contractor] shall, subject to complying with the terms and conditions of this Agreement, remain in peaceful possession of the Project Facilities during the Contract Period. In the event the [Contractor] is obstructed by any person claiming any right, title or interest in or over the Project Facilities or any part thereof or in the event of any enforcement action including any attachment, appointment of receiver or liquidator being initiated by any person claiming to have any interest in/ charge on the Project Facilities or any part thereof, [Municipality] shall if called upon by the [Contractor], defend such claims and proceeding and also keep the [Contractor] indemnified against any consequential loss or damages which [Contractor] may suffer, on account of any such claim of right, title, interest or charge.

4 Status of [Contractor]

1. [Contractor] shall not be under the management of the [Municipality], but shall work autonomously and independently.
2. [Contractor] being an autonomous body shall have the right to determine its internal structure and hire staff in accordance with this Agreement with a view to increasing the scope of work and effectiveness from time to time. [Contractor] shall also prepare its own budget and raise resources as and when required.

3. The employees and or/members of [Contractor] shall not have any relation or ties with or claim on employment in the [Municipality]. They shall therefore report to the management of [Contractor] and not to any worker or official of the [Municipality].
4. [Contractor] shall seek guidance and assistance of [Municipality] whenever it is required for achieving the objectives of this Agreement, and [Municipality] shall respond expeditiously.

5. Scope of the Agreement

5.1 Primary Collection of MSW

1. [Contractor] shall bear the responsibility of organizing collection of waste from households, shops, offices, commercial establishments, institutions in the Assigned Area in Ward through wastepickers, and transporting through Vehicles to locations specified by the [Municipality].
2. [Municipality] shall bear the responsibility of collecting waste from gardens, construction waste, bio-medical waste and shall undertake road sweeping through its own staff/ employees or other contractors.

5.2 Transportation of MSW [ONLY IF VALID]

1. [Municipality] shall provide [Contractor] with the vehicles for transportation of the collected MSW to the specified locations OR for door-to-door collection. The details of the number of vehicles provided each year during the Contract Period including the spare vehicles to be utilized during breakdown is given in **Schedule B**.
2. (The vehicles may prominently carry the [Contractor] logo and be painted in colours specified by [Contractor] so that they are easily identifiable.
3. [Contractor] shall not utilize the vehicles for any other purpose other than as mentioned under this Agreement.
4. [Municipality] shall be responsible for registering the vehicles with the concerned transport authorities and for paying the requisite taxes.
5. [Municipality] shall provide security for the vehicles parked only at the spaces provided by [Municipality] for this purpose.
6. [Municipality] shall provide driving training to the proposed 116 vehicle drivers selected by [Contractor]. Any other training and capacity building measures shall be the sole responsibility of [Contractor].
7. [Municipality] shall bear the cost of all the maintenance and repair works of all the vehicles provided by [Municipality] during the Contract Period except if they are damaged due to an accident or mishaps while being wrongly used for purposes other than those specified in the contract.

8. [Municipality] shall make provision for replacement of the vehicles after an estimated 5 to 7 years' usage or earlier, if any court rulings deem this for the range of the [Municipality].
- 5.3 ([Contractor] shall maintain a record of maintenance of the vehicles as per **Schedule E** of this Agreement and submit such record to the respective ward office on a monthly basis. [Municipality] shall have the right to inspect vehicles on a regular basis. In the event, the vehicles are not as per the maintenance standards as specified in the **Schedule E**, then [Municipality] shall inform [Contractor] of the same so the vehicles can be brought to the [Municipality] to carry out such repairs as needed.

5.4 Assigned Area

1. The area assigned to [Contractor] for its operations under this Agreement shall be: [AREA NAMES] all of which fall within the territorial jurisdiction of the [Municipality].
2. Assigning of any additional area to [Contractor] shall be at the sole discretion of [Municipality].
3. Attached hereto at **Schedule A** is a map indicating the Assigned Area. The said information shall be used as a reference for the Parties for this Agreement.

6 Obligations of [ISO rganization]

6.1 Specific Responsibilities of [Contractor]

1. (a) [Contractor] shall work with the [Municipality] to submit within 15 days from the Commencement Date of the Project a plan ("Micro Plan") to [Municipality] in conformity with the scope of work under this Agreement. The Micro Plan shall provide the following details:
 - i. Details of the various routes that it shall adopt to undertake MSW Management. [Contractor] shall depict these distinctly on a map of the Assigned Area provided by [Municipality].
 - ii. Timing for door to door collection and transportation of waste to collection points for each route.
 - iii. Details of employees deployed on each of the route and with each vehicle, type, name of driver where relevant (with their names, identity, driving licenses of driver's etc) or with name of wastepicker responsible for the cycle-rickshaw, e-rickshaw etc.
 - iv. Proposed organizational structure of [Contractor] to implement and manage the project.
 - v. List of all the employees deployed for this Project with name and designation with identity proofs.

2. Within 7 (seven) working days of receipt of the Micro Plan, [Municipality] shall review the same and convey its comments/ observations to [Contractor], including the need, if any, to modify the same. If the comments/ observations require the micro plan to be modified, then [Contractor] shall suitably modify the micro plan and resubmit to [Municipality] for further review.
3. If, within the period stipulated in the preceding sub clause (iii), [Municipality] does not respond to the Micro Plan, then [Contractor] shall be entitled to proceed with the project on the basis of such Micro Plan submitted by it to the [Municipality].
4. [Contractor] shall maintain daily records backed with requisite documents such as proof of service provided, daily attendance muster and other required documents; collection of information, coordination, liaisons, grievance redressal of the citizens, training and any other activities required to fulfill the objects of this Agreement
5. [Contractor] shall bear all expenses towards uniforms, safety gear and waste handling equipment to all the Waste Pickers and drivers.
6. [Contractor] shall maintain an asset register of all the Project Facilities provided by [Municipality].
7. [Contractor] shall provide all reports/ records required for demonstrating Performance Parameters.
8. [Contractor] shall ensure that waste is not spilled on the roads or the space around the garbage containers and all the non-biodegradable waste collection centers are kept clean and neat at all times during the Contract Period.
9. [Contractor] shall ensure that the MSW Management is operational on all calendar days of the year, barring Sundays, January 26th, August 15th, October 2nd and the following holidays :Holi, Deepawali, Id-ul-Fitr, Id-ul-Zuha, Moharram, Dusshera. [Note : Locally significant holidays may be added as needed]
10. [Contractor] shall make arrangements to receive and redress complaints of service users within a reasonable period of time. In case any functionary of the [Municipality] receives such complaints, the same shall be forwarded for action to [Contractor] with complete details of the complainant's name, address, telephone number and specific nature of complaint.
11. [Contractor] shall keep the concerned Medical Health Officer (MHO), Sanitary Inspector (SI), or the respective Ward Officer of the [Municipality] informed about any difficulty arising within the systems set up under this Agreement.
12. [Contractor] shall provide trainings to the Wastepickers for effectively handling waste, its segregation and maintenance of the infrastructure so that it fulfills its obligations under this Agreement as effectively as possible.

13. (Annual budgets and accounts relevant to the work under the contract shall be maintained and they shall be certified and audited annually by a duly certified Chartered Accountant. [Contractor] shall submit such annual budgets and accounts to [Municipality] for its record on a regular basis.
14. [Contractor] shall be responsible for the conduct of the Wastepickers recruited for the implementation of this contract, while on duty. However, this responsibility shall not extend to other free roaming Wastepickers and other waste collectors in the Assigned Area.
15. [Municipality] shall be responsible for outreach and awareness. However, it may request the [Contractor] to assist it if needed, and will share the outreach plan and awareness materials with it.

6.2 General Obligations

1. [Contractor] shall, at its own cost and expenses
 - (a) Investigate study, operate and maintain the Project Facilities
 - (b) Obtain all applicable permits as required by or under the applicable law and be in compliance thereof at all the times during the Contract Period;
2. Shall indemnify [Municipality] in respect of any claims made against it ([Municipality]) in relation to the use of licenses, permits, and/or any intellectual property, used/required for the Project Facilities.
3. Procure and maintain in full force and effect, as necessary appropriate proprietary rights, licenses, agreements and permissions for materials, methods, processes and systems used in or incorporated into the Project.
4. Make efforts to maintain harmony and good industrial relations among the personnel employed in connection with the performance of its obligations under this Agreement and shall be solely responsible for compliance with all labour laws and solely liable for all possible claims and employment related liabilities of its staff employed in relation with the project and hereby indemnifies [Municipality] against any claims, damages, expenses or losses in this regard and that in no case and shall for no purpose shall [Municipality] be treated as employer in this regard.
5. Be responsible for all the health, security, environment and safety aspects of the project at all times during the concession period.
6. Upon receipt of a request thereof, afford access to the Project Facilities to the authorized representatives of [Municipality] for the purpose of ascertaining compliance with the terms, covenants and conditions of this Agreement.
7. Pay all applicable taxes, duties, outgoings, including utility charges relating to the Project Facilities.

8. Ensure that the Project Facility site remains free from all encroachments and take all the necessary steps to remove encroachments, if any.
9. Establish a standard protocol for addressing complaints from persons in the Assigned Area to the satisfaction of the [Municipality].

6.3 No Breach of Obligations

[Contractor] shall not be considered to be in breach of its obligations under this Agreement nor shall it incur or suffer any liability if and to the extent performance of any of its obligations under this Agreement is affected by or on account of any of the following:

1. (a) Force Majeure,
2. (b) [Municipality] default;
3. (c) Compliance with the instructions of any authorized officer of the [Municipality] or the directions of any Government Agency.

[Contractor] shall be in breach of contract if it fails to mobilize the staff during any strike called by it/ or its employees deployed in the Assigned Area.

8 Specific Responsibilities of [Municipality]

In addition to and not in derogation or substitution of any of its other obligations under this Agreement, the [Municipality] shall have the following responsibilities:

8.1 Public Notification regarding primary collection

[Municipality] shall, with [Contractor], create awareness among citizens to segregate their waste. Accordingly, as required by the Solid Waste Management Rules, 2016, [Municipality] may issue public notice duly signed by an appropriate authority of [Municipality] declaring the following:

- (a) That in accordance with the Solid Waste Management Rules, 2016, it is necessary for the generators of waste, viz. citizens and commercial establishments, to segregate their wet and dry waste.
- (b) That the generators of waste shall segregate and store organic / biodegradable waste (commonly called “wet” waste) and non-bio-degradable waste (commonly called “dry” waste) and hazardous waste in at least three separate containers and hand these over to the [Contractor] collectors. Sanitary waste is required to be carefully and completely wrapped and handed over by being placed in the dry waste.
- (c) That hazardous waste shall not be included with the wet or dry waste
- (d) That in cases of non-compliance with the above instructions, [Municipality] may use its legal powers through action or penalties to deal with those generators of waste who do not segregate garbage. Multipurpose squads may be deployed for action against non-compliance.

8.2 Project Facilities

[Municipality] shall provide to [Contractor] the following Project Facilities for the Contract Period for undertaking MSW Management.

1. Vehicles to [Contractor] for MSW Management as per Schedule B of this Agreement.
2. Sheds for Sorting of waste in the neighborhood areas with running water and Electricity, as well as toilets to ensure toilet access per government policies.
3. Office space located within the Assigned Area with water and sanitary facilities.
4. Adequate parking space in the Assigned Area within each 'Ward' for all vehicles made available to [Contractor] under this Agreement. [Municipality] shall provide security arrangements for vehicles only when parked in the parking space designated by [Municipality].
5. A garage space in each 'Ward' close to the parking space for daily washing and routine repairs to the vehicles with running water and electricity facility.

9 Monitoring and Performance Evaluation

9.1 Monitoring of Performance Parameters

1. (a) [Municipality] shall monitor the performance of [Contractor] under this Agreement and is authorized to levy penalties for nonperformance or under performance in accordance with **Schedule D** of this Agreement.
2. The prime objective of such monitoring shall be to ensure that the MSW Management is in accordance with the Performance Parameters and as per the agreed Micro Plan for the Project.
3. [Municipality] may engage resident welfare groups or any locality management association for support in monitoring the activities and to provide regular feedback, monitor compliant resolution and other such information to the to the grievance monitoring cell.
4. The monitoring of the Performance Parameters and overall work supervision of [Contractor] shall be carried by the Ward officer of the respective Ward.
5. Visual inspection: The foundation of the monitoring mechanism rests on the visual inspection by the [Municipality]. They shall visually inspect the segregation, collection and transportation of MSW.
6. [Municipality] on the occurrence of incidents of street littering by households or commercial establishments, can make reasonable enquiries into the matter and shall approach the households in the neighborhood or the neighboring commercial establishments to further investigate the matter

9.2 Performance monitoring

[Municipality] shall monitor performance of [Contractor] on the following Performance Parameters. Such performance monitoring shall be done for each of the Ward in the Assigned Area by the concerned Ward Officer or any of its designated officers to monitor performance of [Contractor] under this Agreement.

1. (a) Daily 100% coverage shall mean number of days of MSW Management in a month on the designated route as per the Micro Plan. To ensure that door to door waste collection was carried on the designated route as per the Micro Plan, [Contractor] shall obtain a signature on a daily basis from at least 10 (ten) discontinuous households, 5 (five) discontinuous commercial establishments in a pocket of 1650 households and shall submit such records to the respective Ward office on a weekly basis. The respective designated officer from the Ward may on a random basis also undertake checks for conformance of door to door collection of waste and coverage of route. [Contractor] is expected to undertake MSW Management for all the calendar days of the month covering all the users as defined in this Agreement and for the designated route as per the Micro Plan. In the event if any of the designated route is partially covered or not covered then this shall be treated as non-coverage and that day shall not be counted as service rendered.
2. (b) Segregation of waste: [Municipality] shall check for segregated waste at the designated collection points on a daily basis. In the event the waste is not segregated as per MSW Rules 2016, further awareness of the waste generators will be required.
3. The [Contractor] shall keep a record and share with the [Municipality] on a monthly basis the following records:
 - (e) Number of complaints received shall mean complaints received by [Municipality]/ [Contractor] from citizens in the Assigned area with respect to:
 - i. Door to door collection of waste
 - ii. Complaints with respect to timing of waste collection
 - iii. Improper waste deposition at the designated collection points or disposal of waste other than designated collection points
 - iv. Spill-over of waste by [Contractor] employees near the Sorting sheds, parking area, garbage area, designated routes.

[Contractor] shall inform and forward all such complaints to [Municipality] within 24 (twenty four) hours of receipt of the complaints. In the event, [Municipality] receives complaints from citizens, the same shall be forwarded to [Contractor] to resolve the complaints.

9.3 Evaluation of Performance Parameters

Marks for performance shall be assigned by [Municipality] in accordance with **Schedule D**.

The Ward Officer of the respective Ward will be the [Municipality]'s representative for monitoring and evaluating Performance Parameter.

10. Joint Committee

A Joint Committee of 5 (five) members, comprising of 3 (three) members from [Municipality] and 2 (two) members from [Contractor] shall be set up for this Project. The objective of Joint Committee shall be to arrive at amicable decisions in case of any disputes or disagreement with respect to this Project and this Agreement as well as discuss the performance parameters and their compliance.

11. Payment Terms and Mechanism

11.1 Payment Terms

- (a) [Municipality] shall pay an Operation Grant to [Contractor] for the MSW Management in the Assigned Area. The Operation Grant shall be payable on the number of households serviced by [Contractor]
- (b) The Operation Grant payable to [Contractor] shall be computed as under;
Operation grant payable = Operation Grant per household per month

The Operation Grant is inclusive of management of the project and reporting as well as vehicle maintenance

11.2 Payment Mechanism

1. [Contractor] shall create a separate bank account for the receipt of Operation Grant from [Municipality] for this Project and shall provide the details of account as and when required by [Municipality].
2. [Municipality] shall pay to [Contractor] the Operation Grant on a monthly basis for the first 6 (six) months from the COD. The first Operation Grant shall be paid on the COD; the subsequent monthly Operation Grants shall be paid at the beginning of each month after adjusting for the actual work undertaken by [Contractor] in the previous month.
3. [Contractor] may request for payments on quarterly basis any time after 6 months of operations from COD and [Municipality] may approve the same subject to satisfactory performance by [Contractor] under this Agreement.
4. [Contractor] shall submit the invoice for the Operation Grant to the respective Ward office in the Assigned Area. The respective Ward Officer of the Ward shall further validate/ check the invoice as per the Payment Terms and in compliance

with this Agreement and shall arrange for release of the Operation Grant to [Contractor] within 15 days of receipt of the invoice at the Ward office. If the 15th day shall be a public holiday, then it shall be deemed to fall of the next working day.

11.3 Resolution of Billing Disputes

In the event of any disagreement on the billing amounts, both Parties shall promptly engage in resolving it within 15 (fifteen) days from submission of the said invoice. If the dispute remains unresolved upon the expiry of that time, then [Municipality] shall pay 50% (fifty percent) of the invoice amount to [Contractor] on the 16th (sixteenth) day of submission of the invoice, and Parties shall continue their best efforts at resolving the issue at hand.

A pending dispute in respect of any individual invoice shall not adversely affect the disbursement of any subsequent invoices, provided [Contractor] continues to discharge its obligations under this Agreement.

11.4 Primary Collection User Charge [ONLY A SAMPLE, MAY BE MODIFIED IF PAID DIRECTLY TO MUNICIPALITY WHO PAYS TO CONTRACTOR]

1. [Contractor] may collect user charges for daily doorstep collection of waste from the users. The user charge amount will be mutually agreed by the user and [Contractor] or [Contractor and [Municipality] and be revised on an annual basis. The charger for the first year is established to be Rs [xx] per month. [Contractor] shall have the right to collect and retain such user charges for itself.
2. It is hereby clarified that [Municipality] is not liable for payment of any compensation to [Contractor] on account of nonpayment of user charges by any user and no claims for compensation to [Contractor] shall be entertained by [Municipality] on account of user charges during the entire term of the contract.

12 Events of Default

Event of default shall mean either [Contractor]’s event of default or [Municipality]’s event of default or both as the context may admit or require.

12.1 [Contractor] event of default

Any of the following events shall constitute an event of default by the [Contractor] (“[Contractor] event of default”) unless such event has occurred as a result of one or more reasons set out in clause 7.

1. [Contractor] after due reminder and warning in writing, has failed to achieve conditions precedent within 30 (thirty) days;
2. [Contractor] has failed to undertake MSW Management for a continuous period of 4 (three) days or an aggregate period of 7 (seven) days, in one or more of the designated routes, in any month, for reasons solely attributable to [Contractor];

3. [Contractor] is in material breach of any of its obligations under this Agreement and the same has not been remedied for more than 60 (sixty) days;
4. Any representation made or warranty given by [Contractor] under this Agreement is found to be false or misleading;
5. [Contractor] has unlawfully repudiated this Agreement or has otherwise expressed an intention not to be bound by this Agreement;
6. Any other instance explicitly mentioned in this Agreement as having constituted an event of default.

12.2 [Municipality] event of default

Any of the following events shall constitute an event of default by [Municipality] (“[Municipality] event of default”) unless caused by a [Contractor] event of default or a force majeure event:

1. [Municipality] has failed to make any payments due to [Contractor] and more than 45 (forty-five) days have elapsed since such default;
2. [Municipality] is in material breach of any of its obligations under this Agreement and has failed to cure such breach within 60 (sixty) days of receipt of notice thereof issued by the [IS Organization];
3. ([Municipality] has unlawfully repudiated this Agreement or otherwise expressed its intention not to be bound by this Agreement;
4. Any representation made or warranties given by [Municipality] under this Agreement has been found to be false or misleading.

13 Maturation/Termination

This Agreement shall subsist for the Contract Period, and shall thereafter be deemed to have arrived at Maturation, unless terminated earlier in the following circumstances:

13.1 Termination for Non-Performance:

1. (a) If [Municipality] is dissatisfied with the performance of [Contractor] in any particular Ward/ ward and its observations are supported by the recorded Performance Parameters, the Medical Health Officer shall call for a joint meeting with [Contractor] management and their office bearers to identify the reasons for the non-performance. The Parties shall cooperate to resolve the identified issues within the next 3 (three) months.
2. (b) If [Municipality] has fulfilled all its responsibilities and the reason for non-performance is solely and reasonably attributable to [Contractor], then [Municipality] may terminate the arrangement with [Contractor] for that specific Ward/ ward and [Contractor] shall continue its duties with 30 (thirty) percent reduced Operation Grant for the terminated Ward/ ward till such time as

[Municipality] makes alternate arrangements within a period of 2 (two) months.

3. (c) If this Agreement is terminated due to [Contractor] event of default then [Contractor] shall be liable to return 75% of the Operations Grant paid to it in advance for which it has not delivered its services as mentioned under this Agreement.
4. (d) [Contractor] shall without demur hand back possession of all Project Facilities handed over to it by [Municipality] for the purposes of this Project under this Agreement.
5. (e) [Contractor] shall have a corresponding right to call for a joint meeting with [Municipality] functionaries if it is dissatisfied with [Municipality] response or cooperation and parties shall identify the reasons and arrive at and speedily implement decisions to solve the contentious issues.

13.2 Termination due to any event other than a [Contractor] event of default:

If the Agreement is terminated due to any event other than a [Contractor]'s event of default, there shall be a 90 day notice period given to the [Contractor] by [the municipality].

13.3 Termination on default:

1. ([Municipality] or [Contractor] may, without prejudice to any other remedy for breach of contract, on default of any of the terms and conditions contained herein which are not remedied within reasonable time despite written notice calling attention to the breach, may by written notice of 90 (ninety) days terminate the contract, in whole or in part.
2. Following the issue of a termination notice by either Party, the Parties shall promptly take all steps necessary to ensure that
 - i. Until termination, Parties shall fully discharge their respective duties, as far as may be reasonably possible, so as to sustain the operations required under this Agreement; and
 - ii. The payment due up to the date of termination, if any, is duly paid on the date of the termination.
 - iii. [Municipality] shall return the Security Deposit to [Contractor] after deducting any payment due to it under the Agreement.
 - iv. [Contractor] shall hand back possession of all Project Facilities handed over to it by [Municipality] for the purposes of this Project under this agreement.

13.4 Maturation

On maturation of the Agreement after the expiry of the Contract Period, [Contractor] shall peacefully handover all the Project Facilities provided by [Municipality].

[Municipality] shall return the Security Deposit to [Contractor] after deducting any payment due to it under the Agreement.

14 Hand back of Project Facilities

14.1 Ownership

Without prejudice and subject to the Agreement, the ownership of the Project Facilities, including improvements made therein by [Contractor], shall at all times remain that of [Municipality].

14.2 [Contractor]'s Obligations

[Contractor] shall at the end of the Contract Period hand back all the Project Facilities including improvements to [Municipality] free of cost and in good operable condition.

1. (a) At least 4(four) months before the expiry of the Contract Period a joint inspection of the Project Facilities shall be undertaken by the Parties. Within 15 (fifteen) days of such inspection [Municipality] shall prepare and furnish to [Contractor] a list of works/ jobs, if any, to be carried out. [Contractor] shall promptly undertake and complete such works/ jobs at least three months prior to the expiry of the Contract Period and ensure that the Project Facilities continue to meet such requirements until the same are handed back to [Municipality].
2. (b) [Municipality] shall within 15 (fifteen) days of the joint inspection undertake under preceding clause (a) prepare and furnish to the [Contractor] a list of items, if any, with corresponding distinctive descriptions, which are to be handed back to [Municipality].

15 Dispute Resolution

Save where expressly stated to the contrary in this Agreement, any dispute, difference or controversy of whatever nature between the Parties and/or their associates/nominees, howsoever arising under, out of or in relation to this Agreement, at first level shall be referred to the Joint Committee.

In the event the dispute remains unresolved, then the same shall be referred to a [Municipality] Dispute Resolution Committee chaired by the Commissioner of [Municipality] and comprising of the Internal Auditor of [Municipality], the Chief Accounts Officer of [Municipality], the [Contractor] office bearer and one other representative from the [Contractor]. The decision of this Committee shall be final and binding on the Parties.

Pending the resolution of any dispute, the Parties shall continue to perform their respective obligations under this Agreement without prejudice to a final adjustment in accordance with such resolution.

16 Force Majeure

Neither Party shall be held liable for delays and damages caused by its failure to perform or delay in performing its duties under this Agreement, where such failure or delay is caused by heavy rains, fire, war, earthquakes, typhoons, flooding, strikes, acts of terrorism; labor disruptions or any other industrial disturbances, acts of governments or their officials and other recognized events of *force majeure*, the occurrence or consequences of which are unforeseeable and unavoidable and cannot be overcome by due diligence. The affected Party shall notify immediately the other Party without delay, followed by a letter within seven (7) days thereafter, providing detailed information concerning the events and the reasons preventing or delaying the fulfillment in the whole or in part of its obligations under this Agreement. The Parties shall, through consultation, decide whether to suspend or waive certain obligations under this Agreement, depending on the seriousness of the event.

17 Proprietary Rights

[Contractor] acknowledges and agrees that all rights in and to any information, data material, and statistics of any kind that are collected or collated by [Contractor] or any improvements or modifications thereto and derivations there from (together known as the “Proprietary Information”) developed by [Contractor] and used for purposes of implementing this Agreement, shall be provided as and when required by [Municipality]. However, the [Contractor] is the ‘owner’ of the collected data.

18 Confidentiality

Each Party acknowledges that it may, in the course of performing its responsibilities under this Agreement, have access to or acquire information, which is proprietary to or confidential to the other Party or its associates or to third parties to whom the other Party owes a duty of confidentiality. Any and all such information which either Party (“the Receiving Party”) or its employees have acquired or received access to, including without limitation the “Proprietary Information” (as defined in Article 10) shall be deemed to be confidential and proprietary information (“Confidential Information”). The Receiving Party agrees to hold the Confidential Information in strict confidence and not to disclose such information to any third party or to use such information for any purpose whatsoever other than as required under the terms of this Agreement and to advise each of its employees, agents and subcontractors who may have access to or acquire the Confidential Information of their obligations to keep such information confidential.

19 Representation and Warranties

19.1 Representations and warranties of [Contractor]

1. (a) [Contractor] represents and warrants to [Municipality] that: It is duly organized, validity existing and in good standing under the laws of India and it legitimately represents the Informal Sector;

- (b) It has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- (c) It has taken all necessary action under applicable laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;
- (d) It has the financial standing and capacity to undertake the project;
- (e) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- (f) The execution, delivery and performance of this Agreement shall not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the [Contractor]'s memorandum and articles of association or any applicable laws or any covenant, Agreement, understanding, decree or order to which it is a party or by which it or any of its properties or assets are bound or affected;
- (h) It has complied with all applicable laws and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have material adverse effect;
- (i) Subject to the receipt by the [Contractor] from [Municipality] of any amount due under any of the provisions of this Agreement, in the manner and to the extent provided for under the applicable provisions of this Agreement all rights and interests of the [Contractor] in and to the Project Facilities shall pass to and vest in [Municipality] on the termination date free and clear of all encumbrances without any further act or deed on the part of the [Contractor] or [Municipality];
- (j) No representation or warranty by the [Contractor] contained herein or in any other document furnished by it to [Municipality] or to any government agency in relation to applicable permits contains or shall contain any untrue statement of material fact or omits or shall omit to state material fact necessary to make such representation or warranty not misleading;
- (k) No bribe or illegal gratification has been paid or shall be paid in cash or kind by or on behalf of the [Contractor] to any person to procure the contract;
- (l) Without prejudice to any express provision contained in this Agreement, the [Contractor] acknowledges that prior to the execution of this Agreement, the [Contractor] has after a complete and careful examination made an independent evaluation of the project requirements and the information provided by [Municipality], and has determined to its satisfaction the nature and extent of risks and hazards as are likely to arise or may be faced by the [Contractor] in the course of performance of its obligations hereunder.

- (m) The [Contractor] also acknowledges and hereby accepts the risk of inadequacy. Mistake or error in or relating to any of the matters set forth above and hereby confirms that [Municipality] shall not be liable for the same in any manner whatsoever to the [Contractor].

19.2 Representation and warranties of [Municipality]

[Municipality] represents and warrants to the [Contractor] that:

1. (a) [Municipality] has full power and authority to grant the contract;
2. (b) [Municipality] has taken all necessary action to authorize the execution, delivery and performance of this Agreement;
3. (c) This Agreement constitutes [Municipality] legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
4. (d) There are no legal suits or other legal proceedings pending or threatened against [Municipality] in respect of the Project Facilities or the Project.

19.3 Obligations to notify change

In the event that any of the representations or warranties made/given by a Party ceases to be true or stands changed, the Party who had made such representation or given such warranty shall promptly notify the other of the same.

20 Change in Law

If a Change in Law results in a material adverse effect to either Party and if as a consequence of a Change in Law, [Contractor] is obliged to incur additional costs or if [Contractor] enjoys a reduction in the cost and/ or is financially benefited, then, the Joint Committee may modify the terms of the Agreement so as to mitigate the impact of Change in Law.

21 Notices

Any notices/communication required to be given by any of the Parties hereto shall be deemed to be sufficiently given or served, by registered post, courier, e-mail, if served or emailed to the other Party at the addresses first mentioned above. If a notice is sent by e-mail, the said notice is required to be sent again by registered post, acknowledgement due, or by hand delivery, duly acknowledged, for it to have been validly served.

22 Entire Agreement

1. (a) This Agreement, including the attached Schedules, constitutes the entire agreement between the parties hereto with respect to the subject matter of this agreement and supersedes any other prior oral or written communications, representations or statements made by the Parties. This Agreement may not be modified, altered or amended in any manner except by an agreement in writing signed by both the Parties.

2. (b) If any provision in this Agreement becomes invalid or illegal or adjudged unenforceable, the concerned provision shall be deemed to have been severed from this Agreement and the remaining provisions of this Agreement shall not, so far as possible, be affected by the severance. In the place of an invalid provision,

IN WITNESS WHEREOF, the Parties hereto have signed on the day, month and year first above written.

for [MUNICIPALITY]
through its authorized signatory
(PARTY OF THE FIRST PART)

for [Contractor]
through its authorized signatories
(PARTY OF THE SECOND PART)

Appendix B: Sample Communication Materials

Let's Go Zero Waste

Zero Waste is:
Maximizing recycling
Minimizing waste
Reducing consumption
and Ensuring that products are made to be reused, repaired or recycled back into nature or the marketplace

ZERO Waste is Possible, all we need to do is Follow the 'R's':
Reduce
Reuse
Recycle and compost
Refuse
Repair
Responsibility
Reconsider

bharti **Bharti Foundation**

Poster Developed by: Chintan Bharti Foundation Waste Resource Center
Website: www.chintan-india.org E-mail: wrc@chintan-india.org

CHINTAN
Environmental Research and Action Group

Don't Make Anyone a Victim of Your Trash!

Put paper, plastics, metal items, separately from food waste, so your waste collector will not have to put his or her hands in your trash. And hand over broken glass and blades separately so the waste collector does not cut his or her hands, suffer septic injuries and pain.



Segregate Your Waste.

Give Your Waste Collector the Gift of Clean Hands.



An Appeal By:



CHINTAN
ENVIRONMENTAL RESEARCH
AND ACTION GROUP

Inclusive,
Sustainable,
Equitable
Growth for All

C-14, 2nd Floor, Lajpat Nagar III, New Delhi - 110024
T: + 91-11-46574171/72/73 F: +91-11-46574174
W: www.chintan-india.org E: info@chintan-india.org

Call Chintan door-to-door waste collection helpline: **011-4101417**



CHINTAN
Environmental Research
and Action Group

FACT SHEET

Waste Segregation

Segregation as per Solid Waste (Management and Handling) Rules 2000 is now compulsory. Segregation in simple language means separation of waste into DRY AND WET, so that it is easier to handle it later.

Bio-Degradable Waste

(Organic Waste or Kitchen Waste)

- Vegetable
- Fruits
- Flowers
- Leaves from garden
- Wood shavings, pencil shavings

Non-Bio Degradable Waste

- Plastics
- Paper
- Glass
- Metal
- Frooti , and other tetrapacks
- Ponche ka purana kapra
- Aluminium foil

To know if a waste is bio-degradable or not, ask yourself this question: if it is put into a pit and covered, will it become mud or compost?

Why is Segregation important?

Segregation is important because :

- If the waste is not separated properly, it all gets mixed up in landfills. The dangers of this is that they all leak after a period of time, resulting in leachate or toxic soup at the bottom, which can contaminate ground water and release explosive methane gas.
- Methane is a green house gas, which ultimately leads to climate change, extreme climates and droughts. We can see the impact already in the world.
- Segregation protects health. When ragpickers put their hands into the waste to clean it up, it results in cuts that further leads to infections, resulting in

deterioration of a ragpicker's health. Hence, it becomes our responsibility to help these ragpickers by carefully segregating the waste that is generated at our homes.

- When the waste is not separated properly it leads to less recycling because it is not easy to remove materials for recycling. This means many resources are wasted.

How can you segregate?

- Start segregating the waste in your own house now.
- Segregation is one of the easiest practice to follow, it starts in your own kitchen. The waste can be categorized as wet and dry waste.
- Take two separate bins. One, which will have all the wet waste, and the other will have all the dry waste. Initially, begin segregation in your kitchen. Treat all the other waste from the rest of the house as dry waste.

For more information, contact:

Chintan Environmental Research and Action Group C 14, 2nd floor Lajpat Nagar III, New Delhi 110024
Ph: 011-4654171-73 Fax: 011-4654174 Web: www.chintan-india.org Email: wrc@chintan-india.org



Wastepickers

Know your Waste Picker

Waste pickers are the people who actually go through the garbage bins to pick out the things we discard as waste. These wastepickers—women, children and men, are from the lowest rung in the society, are a common sight in most cities and towns around the country. Waste picking is considered the most menial of all activities and it is people who have no other alternative that are generally driven to it. They contribute a great deal to waste management as they scavenge the recyclable matter thereby saving the municipality the cost and time of collecting and transporting this to the dumps.

Some facts about wastepickers

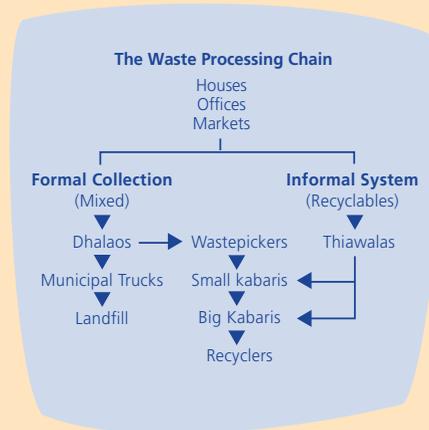
- The waste pickers and kabaris pick up recyclable waste, such as paper, plastics, metals etc. Wastepickers pick up and recycle almost 15-20 % of the garbage and are the backbone of recycling sector in Delhi.
- For every hundred people in Delhi, there is approximately one person who recycles their waste.
- In all they save the municipality at least 6 lakh rupees daily. They save municipal authorities 24% of their expenses by removing waste from the waste stream. A host of industries receives raw material collected by waste pickers, who thus contribute to saving resources
- It is the largest informal sector that is cleaning up the city and saving us from the health hazard on a daily basis.

The Biggest Informal Sector in Solid Waste Management

As we know in Delhi there are three civic agencies to manage the city's waste namely Municipal Corporation of Delhi (MCD), New Delhi Municipal Corporation (NDMC) and Delhi Cantonment Board (DCB).

These are the formal agencies created by the government, but there is also one informal agency doing the same work as these formal agencies. These informal sector workers are the wastepicker community. According to one estimate, they pick 15-20 % of the city's waste thereby saving up to 6-lakh rupees daily for the municipality and the government. But ironically their contribution in keeping the city clean goes unnoticed.

Almost all of the recycling is done through the informal sector, which comprises waste pickers, small buyers, a host of agents and finally the recyclers. The linkage among the workforce could be understood through the following figures:



You can notice from the figure that the waste collected by the formal agencies directly goes to the landfill. The recyclable items collected from the Dhalaos by the waste pickers are used for recycling. The municipal agencies do not segregate the waste before taking them to the landfill. All the waste are mixed up and dumped in the landfill.



Picture 13: Doorstep waste collection at NDMC's Rabinder Nagar

Acknowledgements:

Chintan Environmental Research and Action Group,
Deia De Brito, Solid Waste Collection and Handling (SWaCH),
Savita Hiremath, Solid Waste Management Round Table, (SWMRT), Bengaluru

The scope of this document is limited to the informal sector's involvement in waste management activities. This manual does not intend to provide municipalities' guidance on choosing waste management technologies. Instead, it focuses on how the informal sector can be leveraged in a win- win partnership for cities, their residents, and waste management service providers. This manual provides a step-by-step guide that can be used to develop and implement waste management systems that are inclusive of the informal sector. Including the informal sector is a necessity if cities in contemporary India are to meet their waste management service needs at low costs while providing efficient and optimal services. Including the informal sector should be a priority also because it allows cities to become cleaner by partnering with a particular section of the urban poor, and thereby aiding in poverty alleviation.



एक कदम स्वच्छता की ओर