

Involving waste-pickers to improve door-to-door collection

PPP between Pune Municipal Corporation and SWaCH, a cooperative of self-employed waste-pickers for waste collection, Pune

The Alliance of Indian Waste-pickers (AIW) estimates that there are close to 15 lakh waste-pickers in India who make their living by recovering, sorting and selling recycling materials such as paper, plastic, glass and metal. By reducing, reusing, and recycling municipal waste, they play a vital role in ensuring environmentally sustainable solid waste management practices. Yet, their contribution often goes unrecognized. With little support from local authorities, they often face harassment, suffer from low social and health status, and continue to live and work in unsanitary conditions. Several cities in India are now making efforts towards organizing and integrating waste-pickers in the formal waste management system. Pune is at the forefront of these initiatives, and has been successful in integrating waste-pickers in front-end waste management services. The case study documents the SWaCH-PMC model of door-to-door collection which has been operational in the city since 2008.

1. City Profile

Pune with a population of 31 lakhs is the second largest city in Maharashtra, and is the ninth largest in the country (Census, 2011). The city is located near the western boundaries of the Deccan plateau at the confluence of Mula and Mutha rivers. The origins of Pune can be traced to a small rural agricultural settlement called Punyak in the 8th Century AD which gradually developed into a small town called Kasba-Pune and became the seat of the Peshwas by mid-18th century. Pune later emerged as a prime administrative and educational centre during the British period and since then has remained the prominent educational hub in the western region. Today, the city is also regarded as one of the most preferred corporate destination for software, technology and business processing companies.

1.1. Growth and Urbanization Pattern

Year	Population	Decadal growth Rate	Area (Sq. Km)	Density/ Sq. km
1961	606777		138.94	5204
1971	856105	41.09	139.79	7154
1981	1203363	40.56	147.66	9346
1991	1691430	40.56	166.11	10445
2001	2538473	50.08	243.84	10410
2011	3115431	22.73	243.84	12777

Proximity of Pune to the economic capital Mumbai has influenced the economic growth of Pune for decades. The establishment of Industrial area in Pimpri-Chinchwad in 1953 further gave an impetus to this growth. During the 1990s, Pune started emerging as a strong Information Technology (IT) centre in the region.

As the employment base widened, the city witnessed migration of qualified professionals and also labourers and workers from all across India. As the central part of the city is densely populated, the city grew outwards to accommodate the migrant population.

High end residential enclaves and townships like Magarpatta sprung up along the fringes and the formation of slums also proliferated. The emergence of IT sectors in Wakad and Hinjewadi in the Pimpri Chinchwad municipal limits also influenced spatial growth in Pune and drove development further towards the north-west direction in Balewadi and Baner. Today the city is spread over an area of 244 Sq km with a population density of 128 people per hectare.

1.2. Local Governance Structures

The Pune Municipal Corporation (PMC) is the urban local body responsible for civic administration of the city. PMC was constituted by the Maharashtra State Government on 15 February 1950 under the Bombay Provincial Municipal Corporation (BPMC) Act, 1949. PMC is one of the better established and significantly robust urban local bodies in India and is leading in service delivery and efficiency across several sectors. Some of the leading practices of PMC include processing of municipal solid waste recognized by National Solid Waste Association of India (NSWAI, 2009), property tax reforms recognized by NIUA (NIUA, 2010) and empowerment of slum communities recognized by NIUA (NIUA, 2012). With an annual budget of Rs. 3633 Crore (PMC, 2012), the PMC is also among the financially strongest administrative bodies.

The Corporation is governed by the General Body comprising 152 councillors elected from the seventy six electoral wards and five appointed members. The General Body is headed by the Mayor of the city. This General body is assisted by various committees, the chief being the Standing Committee consisting of 16 councillors selected from the elected officials.

The Municipal Commissioner is the administrative head of PMC. PMC is divided into fifteen administrative wards. Each ward is overseen by an Assistant Municipal Commissioner. The wards are grouped into four zones each led by a Deputy Municipal Commissioner. The zonal governance structure in Pune in line with the 74th Constitutional Amendment and is an important reform that aids better city management and service delivery.

Under section 63 of this act the Municipal Corporation is mandated to provide 25 basic services like maintenance and development of public streets, collection, treatment and disposal of sewage, solid waste management, fire safety, lighting of public spaces, maintenance of public hospitals, control of diseases and medical relief, public vaccination, registration of births and deaths, primary education, water works etc. Other than these, under section 66 the Corporation may provide 42 other services like provisions of gardens and parks, electrification, shelter for destitute and homeless, provision and maintenance of libraries, provision and maintenance of public transportation, provision and maintenance of ambulance, plantation and maintenance of trees along streets etc. (BPMC Act, 1949).

1.3. Organizational Structure of Solid Waste Management Department

The Health and Solid Waste Management Department of PMC is in charge of all functions concerned with municipal waste collection, transportation, treatment and disposal and is headed by a Joint Municipal Commissioner.

The Solid Waste Officer is the technical head of the Department who works closely with the Joint commissioner. At the zonal level, there is one Deputy Municipal Commissioner in charge of all administrative aspects in the zone. The SWM services at the zonal level are monitored by the Medical Officer (SWM). The MO manages a team of sanitary inspectors, investigators and sweepers.

2. Overview of municipal solid waste sector

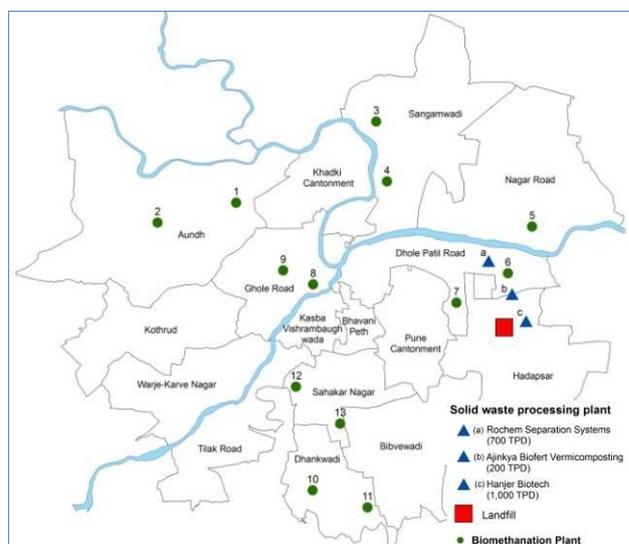
Pune generates about 1500-1600 MT of solid waste per day. Approximately 40% of this waste is collected from households, 25% from bulk generators such as hotels and restaurants, 25% from commercial establishments and another 10% from fruit and vegetable markets. PMC collects bio-medical waste and garden waste separately. 56% households in the city are covered by door-to-door collection service provided by PMC and SWACH. Slum households are largely dependent on community containers for garbage disposal. About 50% of the households in the city segregate waste. The recyclables are collected separately and sold by the waste collectors and the remaining waste is handed over to trucks, locally referred to as *Ghanta trucks* which transport the garbage to one of the seven transfer stations in the city.

85% of the waste generated in Pune is recovered/ processed in one of the processing plants and the remaining mixed/ inert waste is disposed at the landfill on Urali Devachi. Other than the large waste to energy plants at the landfill site and in Hadapsar, PMC also uses smaller, decentralized processing units to process biodegradable solid waste to generate power and compost. The Corporation has installed 13 biomethanation plants and two mechanical composting units in the city; the compost generated is supplied to the municipal gardens and used as manure. PMC has received an ISO 9001 certification for its decentralized waste management system.

Table 3 Waste Processing Plants in Pune

Name of operator/ treatment	Processing Capacity	Output
Hanjer Biotech	1000TPD	Composting, RDF, Pellets and Bio-fuel
Rochem Separation Systems	700 TPD	Electricity (10 MW)
Ajinkya Biofert	200 TPD	Vermi-compost and compost
Disha Waste Management	100 TPD	Vermi-compost and compost
Decentralized Bio Gas Plants (13)	60 TPD	Electricity and compost
Mechanical Composting Units (2)		Compost

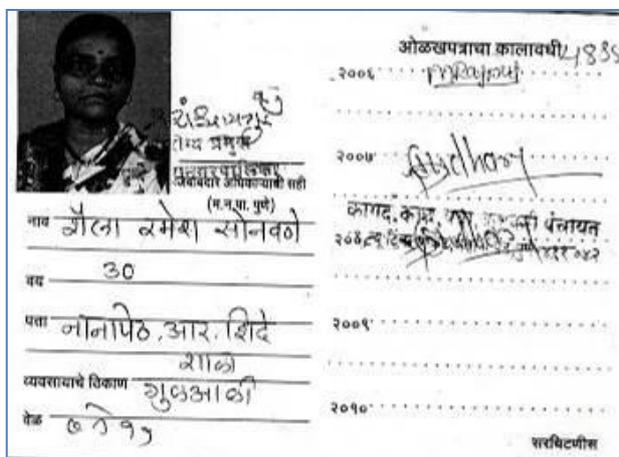
Source: (PMC, 2014)



3. Background

Pune had a limited door-to-door waste collection service prior to 2005. More than 80% households in the city were dependent on community bins for waste disposal. These containers were often not emptied and cleaned regularly and garbage overflowed onto the roads causing nuisance of stray animals and unhygienic conditions. In some areas, garbage was dumped along roads, open plots and in storm water drains and *nallahs*. The mixed waste was collected from the community and open plots by PMC's own staff in a *ghanta* truck and directly disposed at an open dump site. These works were carried out by the Public Health and Conservancy Department when there was no SWM Department within PMC to collect, transport and manage the solid waste efficiently. Waste segregation was not institutionalized, but was being carried out to some extent by the waste pickers who rummaged plastics, glass, paper and other recyclables from the community bins and the open dump sites and sold them to scrap dealers. Their work helped reduce the amount of municipal waste being taken to landfills, thus saving transportation costs for PMC and safeguarding the environment. Yet their contribution often went unrecognized. The waste pickers worked in unsanitary conditions, suffered from poor social and health status, and were often harassed by the police and local authorities.

During early 1990s, the waste pickers in the city decided to organize into a union to get their work recognized, assert their rights and demand for better working conditions. The Kagad Kach Patra Kashtakari Panchayat (KKPKP) was thus formed as a registered trade union of waste pickers and scrap dealers. Today the KKPKP has more than 9000 members who pay an annual fee towards the operational expenses of the organization.



Identity card authorized by PMC. The recognition of waste pickers by PMC was a key step towards mainstreaming them in the municipal solid waste management process.

The KKPKP advocated with the PMC to recognize waste-picking as work and recognize the contributions of the waste pickers in managing solid waste. The PMC agreed to KKPKP's demands and agreed to register the waste pickers. In 1995, PMC became the first urban local body in the country to issue and authorize identity cards to waste pickers to authorize them to collect recyclables and scrap from the municipal waste. In 2002-03, the PMC also extended medical insurance benefits to all registered waste-pickers in its jurisdiction.

Around 2005, the KKPKP approached the PMC to involve waste pickers into the municipal waste management system to comply with the requirements of the municipal solid waste (MSW) rules (management and handling), 2000. With a limited staff and institutional capacity to carry out all the functions mandated by the MSW rules on its own, PMC agreed to partner with KKPKP to establish a door-to-door collection in the city and move towards more sustainable waste management practices.

4. The initiative: PPP between PMC and SWaCH to institutionalize door-to-door collection

In 2005-2006, PMC launched a pilot program for door-to-door collection in partnership with KKP KP and the SNTD Women's University. KKP KP trained 1500 waste pickers in door-to-door collection to provide services to 1.25 Lakh households in exchange of a user fee. The PMC played the role of an enabler and facilitator and provided equipment, infrastructure and management support. The pilot proved to be a success, as it offered a sustainable mechanism for institutionalizing door-to-door collection in Pune and also improved the working conditions for the waste pickers.

The pilot project continued for two years from 2006 to 2008 after which PMC decided to scale up the initiative to cover the whole city. The waste picker members of KKP KP came together to form SWaCH (Solid Waste Collection and Handling or, officially, SWaCH Seva Sahakari Sanstha Maryadit, Pune), a cooperative of self-employed waste pickers to provide front-end waste management services to the citizens of Pune. The managing board of SWaCH comprises waste pickers, representatives of KKP KP and two representatives from PMC. On 24th August 2008, PMC signed a Memorandum of Understanding (MOU) with SWaCH and entered into a public-private-partnership. The MOU authorized SWaCH to collect segregated waste from households and commercial establishments by charging a user fee, and deposit the waste in PMC's secondary bins or designated collection points. The MOU authorized waste collectors to retrieve and sell recyclable waste and retain the earnings.

Today SWaCH provides door-to-door waste collection services to 4 Lakh households in the city and covers 60% of PMC's geographical area. Remaining 40% households are dependent on PMC's ghanta trucks or community bins for disposal. Out of 144 municipal wards, 122 are covered by SWaCH.

1993-1994	•Kagad Kach Patra Kashtakari Panchayat registered as a trade union of waste-pickers
1994-1995	•PMC becomes the first ULBs in the country to officially register waste-pickers through the KKP KP.
2000	•Notification of the MSW (Management and Handling) Rules making door-to-door collection and waste segregation mandatory for ULBs
2005	•KKP KP approached PMC to involve waste pickers in door-to-door collection to comply to MSW Rules
2006-2008	•PMC launched a pilot program for door-to-door collection in 1.25 Lakh households in partnership with KKP KP and SNTD University
2008	•SWaCH is registered as a co-operative of waste pickers. signs a MOU with PMC to provide front end waste management services in the city
2013-2014	•MOU with SWa CH expired, PMC expected to renew MOU in June 2014

Institutionalizing door-to-door waste collection service in Pune by involving waste pickers: a timeline

4.1.Roles and Responsibilities of SWaCH, PMC and Residents

The collaborative partnership between PMC and SWaCH was established on the premise that, SWaCH is not a contracted agency but an equal partner to PMC in implementing a sustainable solid waste management system in the city. SWaCH is responsible for collecting segregated waste from households, commercial establishments and institutes and depositing this waste at designated locations or in PMCs collection vehicles. PMC plays the role of a facilitator in primary waste collection by educating and informing citizens about waste segregation, and asking them to pay a user fee to SWaCH for their services. PMC is solely responsible for secondary waste collection, transportation, processing and disposal. The roles and responsibilities of SWaCH and PMC across the value chain of sustainable solid waste management are presented in the matrix below.

	 Source Segregation	 Door-to-Door Collection	 Waste recycling and resource recovery at local level	 Transporting segregated waste	 Waste Processing	 Disposal
Operations	Residents/ RWAs	SWaCH PMC (in areas where SWaCH is not operational)	SWaCH (through private service contracts with RWAs/ Institutions)	PMC		
Monitoring	RWAs PMC (through enforcing MSW Rules-2000)	SWaCH PMC (in areas where SWaCH is not operational)	SWaCH	PMC		
Financing	-	SWaCH (user charges, operational grant and subsidy of Rs. 5 per slum household by PMC)	SWaCH (Sale of recyclables, service charges paid by RWAs/ institutes for composting, operating bio-gas plants)	PMC (through SWM Cess charged on the property tax)		
IEC Campaigns	PMC and SWaCH			PMC		
Complaints Redressal	RWA and PMC	SWaCH	SWaCH	PMC		
Uniforms, equipment and infrastructure	PMC (Bins for dry and wet waste)	PMC (Uniforms, push carts, brooms)	PMC (Sorting sheds)			
Levying fines and penalties	PMC					

4.2. Operational Model of SWaCH

Currently 2,300 waste pickers are members of SWaCH and provide door-to-door waste collection, housekeeping, facility management and local waste processing services to more than 4 Lakh households and several institutions in the city. A team of two waste collectors collects segregated waste from 300-400 households, offices or commercial establishments in separate bins using manual pushcarts. The waste collectors sort the dry waste in sorting sheds provided by PMC or in areas designated by RWAs and retrieve recyclables such as paper, glass and plastic. They retain the income from the sale of this material. The wet waste and non-recyclable dry waste is handed over to PMC's collection vehicles at designated spots. The waste collectors work for an average of 4 hours a day and are entitled to a weekly holiday. SWaCH makes alternate arrangements in case of absence of a waste collector. The waste pickers collect a monthly user charges ranging from Rs. 10 to Rs. 40 per household for waste collection. The PMC partially subsidizes the cost of collection from slums to the tune of Rs. 5 per household per month. SWaCH members also enter into private service contracts with resident welfare associations (RWAs) and institutions to compost the wet waste on site and provide allied housekeeping services.



A team of 2 waste pickers collects waste from 300-400 households, the recyclables are retrieved and the waste pickers retain the income from their sale.

The PMC-SWaCH partnership has allowed PMC to put in place a simple, transparent and sustainable model of door-to-door waste collection and resource recovery at local level. It has also significantly helped the waste pickers to upgrade their livelihoods and earn a living in a dignified, safe manner without having to rummage into garbage piles and community bins.

I segregate my garbage into dry and wet waste. SWaCH members come and collect it every day. SWaCH is helping us keep our society clean and green!

*Anjali Deodhar, PMC resident
(Source: interview by UMC)*

I used to enter into garbage containers to retrieve whatever scrap I could find. Now I collect garbage from households and get paid. I now earn better and live in dignity.

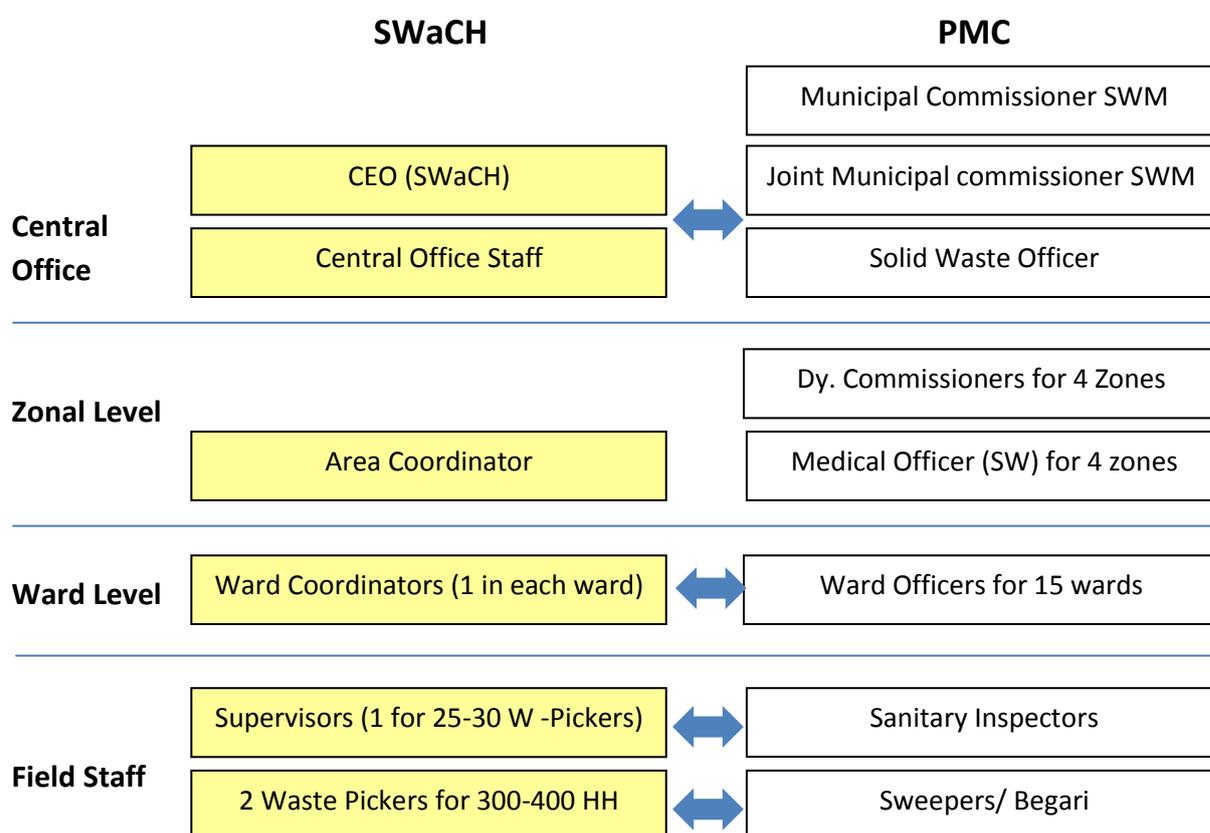
*Anita, SWaCH member
(Source: interview by UMC)*

The user-fee based model based for waste collection is a good model for PMC. We are committed to extending our partnership with SWaCH and will renew our MOU.

*Dr. Ketaki Ghatge, Zonal MO (SWM), PMC
(Source: interview by UMC)*

4.3. Monitoring Framework

SWaCH has established an internal management structure to monitor the day-to-day operations in the field as well as carry out other administrative and managerial functions such as account keeping, data monitoring and reporting, training of waste pickers, coordination with PMC as well as citizens etc. The central office of SWaCH is responsible for the overall operations and management of the organization and comprises an Operations Manager, Data Manager, Outreach Manager, Administrative Manager, Accounts Manager and allied staff who all work under the direction of the CEO. The field staff comprises supervisors and coordinators who manage teams of waste collectors on ground in coordination with the PMC staff. The supervisors and coordinators are largely women from within the waste picking community who have received formal education and are able to perform basic accounting and managerial functions. The office and field staff of SWaCH is employed by the cooperative whereas the waste collectors rely on the user fee and sale of recyclables for their livelihood. SWaCH sends a monthly report to PMC indicating the number of households served and number of waste collectors and other field staff engaged in the collection process in each ward.*² The institutional arrangement for monitoring waste collection in Pune is presented below:



² At the time of documentation of the case study, SWaCH had purged down its central office and field staff since September 2013 after the MOU with PMC expired. The waste collectors continue to service the households for a user fee with minimal monitoring from SWaCH or PMC. The MOU between PMC and SWaCH is going to be renewed in July 2014.

SWaCH has established a direct helpline where citizens can register their complaints about any issues with waste collection service. Complaints registered with PMC are also routed to the SWaCH helpline.

4.4. Financial Sustainability

The SWaCH model for door-to-door waste collection is a sustainable model designed to become financially self-sufficient within a period of five to six years. The waste picker members of SWaCH make their living by collecting user fees from households and by selling the recyclables recovered from garbage. They pay 5% of their monthly earnings to the cooperative towards the cost of management staff, logistics and overheads. Since more than 30% of the total households in Pune are slum households who do not have the capacity to pay user charges, PMC is responsible for partially subsidizing the cost of waste collection from slums. The PMC's financial responsibilities also include providing an operational grant to SWaCH for a period of five years to cover initial management costs and providing welfare benefits to all waste picker members of SWaCH. The financial contribution by SWaCH and PMC (as outlined in the MOU) towards supporting the door-to-door collection service in Pune is provided in the table below:

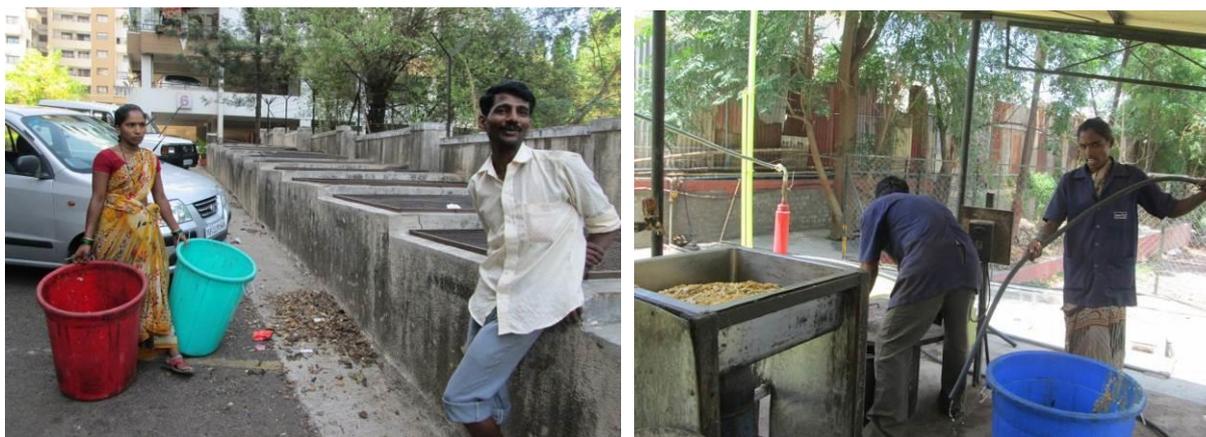
Financial overlay of PMC-SWaCH initiative

	Component	Funding Source	Annual Contribution in INR
SWaCH	Towards supporting livelihood of waste Pickers including 5% towards operational/ management expenses of SWaCH	Collection of User Charges from 4 Lakh households (Rs. 10-40 per household per month)	14,40,00,000
PMC	Operational and administrative expenses of SWaCH including training and community awareness initiatives	Operational Grant by PMC (only for five years)	1,64,00,000
	Cost of waste collection from slum households	Subsidy of Rs. 5 by PMC for 28000 slum households	16,80,000
	Welfare Benefits to waste pickers	Rs. 7000 per waste picker per year	16,10,000
	Expenses towards uniforms, equipment and infrastructure by PMC	-	-

The cost to PMC per household per month amounts to Rs. 4.38 which is significantly lower than the cost of providing door-to-door collection service in any other city in India. The PMC-SWaCH partnership has been operational in Pune for five years. Door to door collection services have never stopped in the city, despite lapses in financial contribution by PMC towards operational and administrative expenses. The model is being largely supported by the citizens paying the user charges directly to waste pickers for the collection services.

5. Promoting decentralized waste management

Under the MOU, PMC has also authorized SWaCH to enter into private service contracts with housing societies, institutions and corporate offices for waste collection, on-site waste processing as well as housekeeping and facility management services. To encourage citizens to treat waste at source, PMC provides a rebate of 5% on property tax to societies, institutes and commercial establishments who compost on site. SWaCH provides complete waste management services to several entities such as the University of Pune, Karve Group of Institutes, housing societies and corporate parks. SWaCH members compost close to 10 tons of waste every day in 80 housing colonies across the city. SWaCH members are trained to operate bio-gas plants, organic waste converters, and provide these services where needed.



SWaCH members managing composting pits at a residential society and bio-gas plant at Karve Institute

6. Results

Key achievements of the SWaCH initiative in the past 5 years of implementation are summarized below:

- The PMC-SWaCH initiative has been able to divert 60 MT of waste away from landfills every day. PMC is committed to make Pune a zero landfill city. Currently 80-85% of the waste generated in the city is being recycled/ processed. PMC has stopped open dumping at Uruli since June 2010.
- With the success of the initiative, PMC started a zero waste campaign in Katraj Ward in collaboration with SWaCH, Janwaani and Cummins India. PMC has now expanded the initiative in 20 prabhags in the city. The initiative involves focused training of waste pickers as well as citizens about waste segregation, handling and management. PMC also provided the waste collectors with necessary infrastructure, including multiple bins for the segregation of waste, raincoats, gloves, soap, pushcarts and cycle rickshaws. The level of segregation in these wards is 60-70% as compared to 45-50% in the rest of the city.
- The SWaCH door-to-door collection model has saved PMC approximately Rs. 15 Crores annually in waste handling and transportation costs and also contributed to saving environmental costs by reducing carbon emissions. PMC is also claiming for Certified Emission Reductions (CERs) (a type of carbon credits) issued by the Clean Development Mechanism (CDM) body.

7. Sustainability

The PMC-SWaCH initiative has been largely successful despite lapses on PMCs part towards disbursement of the operational grant, provision of infrastructure and equipment as well as payment towards welfare benefits of waste collectors. However, PMC's support is critical for the long-term sustainability of the initiative. It is important that PMC clears all the past dues and provide necessary infrastructure such as sorting sheds, equipment, uniforms etc., and works together with the waste cooperative in the future to ensure a cleaner, greener future for the city. In order to scale up the initiative and achieve 100% door-to-door collection, PMC will also have to actively engage with elected officials, citizens and NGOs and spread awareness about segregation and importance of user fee. The PMC is also in the process of developing public health bye-laws which will allow PMC to enforce MSW 2000 rules and penalize defaulting citizens.

8. Lessons Learned

Pune was the first city in India to formally register waste pickers way back in 1995. The organization of waste pickers into a union which later led to the formation of the cooperative is the key to the success of this model which SWaCH refers to as a 'pro-poor public private partnership'. The model has evolved as a result of more than 20 years of consistent dialog and deliberations between the PMC and the KKPKP which is an important learning for ULBs willing to work with waste pickers to improve solid waste management in their cities. The other important learning from the initiative is the insistence on charging user fees from citizens for door-to-door collection. Many ULBs are cautious of asking citizens to pay for municipal services as such tariffs and charges do not always align with political interests. Charging user fee should be viewed as a positive change towards more responsible & sustainable waste management practices as it promotes a direct, accountable relationship between the user and the service provider.

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