Delhi's Waste Conflict

SETH SCHINDLER, FEDERICO DEMARIA, SHASHI B PANDIT

There has been an increased role for the private sector in the various stages of waste management in cities. Delhi has been at the forefront of this shift and this has brought out conflicts over collection and disposal. This article argues that the informal sector should be meaningfully incorporated into an efficient and equitable waste management system that is also environmentally sustainable.

Seth Schindler (*sschindler@clarku.edur*) is at Clark University, US. Federico Demaria (*federico.demaria@uab.cat*) is with the Environmental Science and Technology Institute, Autonomous University of Barcelona and the Centre for Studies in Science Policy, JNU, New Delhi. Shashi B Pandit (*sashi.pandit@gmail.com*) is with the All India Kabadi Mazdoor Mahasangh.

There has been a policy shift in 21st century metropolises regarding solid waste management that involves the privatisation of certain aspects of the system, such as the incineration of waste, but more importantly, it represents a comprehensive and holistic transformation in which the entire system becomes integrated. Delhi has been at the forefront of this shift. While the increased role of the private sector in the various stages of waste management is indeed significant, we argue that this systemic transformation and comprehensive integration of solid waste management needs more attention.

Authorities in Delhi proclaim that waste management is in a state of crisis – waste is commonly dumped in the open illegally and the three existing landfills are over capacity. For example, Delhi's chief minister, Sheila Dikshit, claimed, "The Municipal Corporation of Delhi (MCD) was inefficient and corrupt as was proved by the accumulation of garbage across the city" (*The Hindu,* 2012). This narrative portrays the crisis as a failure of management rather than a public health and urban planning issue. As a result, waste management has become a technical problem to be solved by experts. It is in this context the solution that has gained favour is the integration of the stages of waste processing into a single system. As we will demonstrate, this integrated system includes the collection and transfer of waste generated by households and firms, and finally its ultimate processing (e g, incineration).

Conflict over the Shift

Intense conflict has emerged between the authorities in Delhi and residents who have opposed the privatisation of various stages of waste management. For example, those residing near proposed waste-to-energy plants argue that the plants will emit toxins and result in negative health impacts. We focus on this ecological distribution conflict from the perspective of waste workers[1] in the informal sector (Martinez-Alier 2005; Demaria 2010) who are currently responsible for transferring recyclable materials from the formal waste management system to the informal recycling facilities (Gill 2010; Hayami et al 2006; Agarwal et al 2005).

Indeed, the systemic integration of waste management poses a major threat to the livelihoods of waste workers because they must increasingly compete with private firms for ownership and control over recyclable waste at multiple stages. There are approximately 1,50,000-2,00,000 waste workers in Delhi (Chaturvedi and Gidwani 2011: 131), most of whom belong to vulnerable communities and are unable to find alternative livelihoods (Gill 2010: 27; Agarwal et al 2005). These workers provide environmental services in the form of high level of recycling in working conditions that are extremely hazardous. This gives rise to an important question as to how the waste workers' working conditions can become just, safe and secure in the context of the ongoing integration of Delhi's solid waste management system.

Before we propose how to include waste workers fairly and safely in the integration of solid waste management, it is necessary to explain how policy is currently undergoing a major shift. The conflict over access to waste was set in motion years ago when a sanitation crisis (i e, the cholera and gastroenteritis epidemics in Delhi) was followed by protests and public interest litigations (PILs) which demanded that the state improve solid waste management (Ghosh 2000). The PILs led to the creation of various expert committees, both at the national (GOI 1996; SCI 1998) and city (NEERI 1996; CPCB 1998) levels, whose reports outlined problems and offered prognoses. The Municipal Solid Waste (Management and Handling) Rules, 2000 was an outcome of this process and paved the way for the transformation of waste management. Furthermore, during this period, India began to transform from "a recycling to a throwaway society" (MOUD 2005). As a result of economic

growth, the volume of waste produced in Delhi increased while its composition changed and it became more valuable. Thus, at the time that the state sought new solutions to waste management, it became a profitable business.

The Three Phases

The overhaul of Delhi's waste management unfolded in three distinct phases. The first phase began in 2005 when the Delhi municipalities[2] floated tenders for private firms to collect, segregate, and transport municipal solid waste. Companies were bidding for the waste itself as well as for the fee they would receive from the state for its collection (Chaturvedi and Gidwani 2011). In most contracts, the waste became these firms' private property once it reached the transfer station from which the firms were responsible for moving it to landfills (Gidwani and Reddy 2011). The terms of these contracts distort integrated waste management with the logic of "more waste, more money" because companies are compensated for the amount (in tonnage) of waste they transport to landfills (regardless of whether or not it is recycled). On the contrary, waste workers do not receive any compensation from the state for the waste they collect, so in effect they subsidise the formal system by recycling "for free". By granting private companies the right to operate transfer stations, these contracts reduced the waste workers' access to waste as well as recycling rates (Gidwani and Reddy 2011).

The second phase is a plan to divert waste from Delhi's three landfills (Okhla, Ghazipur and Bhalswa) to waste-to-energy plants. These plants process waste into refuse-derived fuel (RDF) that is incinerated to generate electricity in the process. The first plant in Okhla has the capacity to process 2,500 tonnes of waste per day (TPD) and generate 16 megawatts (MW) of electricity. It has been completed and is under trial, while the second plant in Ghazipur (1,300 TPD, 10 MW) and the third in Narela-Bawana (4,000 TPD, 35 MW) are under construction.

In order to generate electricity, these plants require an uninterrupted supply of waste with high calorific value. Thus, the waste-to-energy plants will compete with waste workers for high-value recyclable waste that can easily be transformed into RDF, such as certain types of paper and plastic (Rand et al 2000). By transporting waste directly from transfer stations to waste-to-energy plants and diverting it from landfills altogether (a planned total capacity of 7,800 TPD out of the 8,000 TPD of waste generated in Delhi), the waste workers' access to waste will be reduced further.

The third phase, which has just begun, extends the reach of private firms to households by granting them the right to door-to-door collection. In one example, the MCD signed a contract with Delhi MSW Solutions, which is itself a subsidiary of Ramky, to manage waste in four of the city's zones (Civil Lines Zone, Rohini, Vasant Kunj and Dwarka/Pappankalan). This contract includes door-to-door collection, transfer and transportation of municipal solid waste, the development of an integrated Municipal Solid Waste Processing Facility (including a waste-to-energy plant) and an Engineered Sanitary Landfill. Thus, the entire waste management chain in these four zones is being integrated under the control of a single firm and waste workers have essentially no access to waste.

In sum, instead of seeking to capitalise on the effectiveness of the informal sector and institutionalising its participation in waste management, the MCD sought to radically transform solid waste management.

The MCD's efforts are directed at processing waste in the final instance – what we call "end-of-pipe" solutions. The cornerstone of this strategy is the construction of waste-to-energy plants. At first glance, this solution appears a magic bullet – no matter how much waste is produced in the future, it can simply be burned. However, waste-to-energy plants will have a ripple effect throughout the formal and informal waste management systems because in order to operate effectively, these plants require an uninterrupted supply of waste with high calorific value. The entire waste management system must therefore be overhauled in order to ensure the smooth flow of high-quality waste from doorsteps to the waste-to-energy plants. The privatisation of door-to-door collection can be interpreted as part of this systemic transformation where the formal system is gradually being disconnected from the informal system and waste workers are prevented from accessing waste throughout the process.

Formal and Informal Systems

We argue that instead of disconnecting the formal and informal waste management systems, they should be further and officially integrated. In addition to improving waste collection, this could improve the working conditions of waste workers by providing them access to protective equipment, healthcare and a pension scheme. Second, it would ensure that Delhi's high recycling rates are maintained. Indeed, in the 1990s, the volume of waste generated began to outpace the formal waste management system's ability to dispose of it but it is clear that policymakers did not fully understand the extent to which waste management depended on the informal sector.

The formal and informal sectors are intricately linked – waste passes through very distinct stages in both the formal and informal systems as it is processed and ultimately either disposed of in a landfill or recycled. Delhi's waste workers transfer waste from the formal system (and from illicit dumping grounds) to informal recycling units. Delinking the formal and informal systems and constructing waste-to-energy plants not only threatens the livelihoods of waste workers but also reduces the percentage of waste that is recycled (and most likely result in increased toxic emission and ash). In synthesis, the privatisation and construction of waste-to-energy plants will integrate the flow of waste; and since both firms and waste workers require access to waste – the former for profits and the latter for livelihoods – they enter into direct competition.

A number of civil society organisations, such as the All India Kabadi Mazdoor Mahasangh (AIKMM) as well as environmental justice organisations such as Hazards Centre, Toxics Watch

Alliance and Global Alliance for Incinerator Alternatives (GAIA) have opposed the transformation of waste management in Delhi by organising demonstrations and filing petitions. While they speak with multiple voices, one consistent demand that runs throughout their opposition is that waste workers must continue to have access to recyclable waste. This demand has targeted various actors such as the MCD, private firms that use violence to guarantee access to waste, and international organisations such as the United Nations. These efforts have been unsuccessful so far in part because waste management is a lucrative activity.

The "end-of-pipe" solutions favoured by Delhi's authorities serve to augment the value of waste; it has therefore gone from being viewed as an inconvenient by-product to being subsumed within circuits of capital and subject to capitalist laws of value. Following Harvey (2003), the process can be seen as an example of accumulation by dispossession, which means there is an inherent necessity of the owners of capital to separate, by force if necessary, labourers (waste workers) from the means of production (waste, transfer stations, etc). Once this process is complete, a small number of waste workers are offered the opportunity to sell their labour for a wage in waste-to-energy plants. Currently, accumulation by dispossession is unfolding in Delhi's streets, transfer stations and landfills; waste in some posh areas is so valuable that private firms are collecting it even though they have not been awarded tenders. Thus, not only are waste workers threatened by a policy shift that limits their access to waste, competition over waste unfolds on a daily basis throughout Delhi.

Conclusions

It remains to be seen whether a truce can be called in Delhi's waste conflict, and the informal sector meaningfully incorporated into an efficient and equitable waste management system that is also environmentally sustainable. This would require segregation at source by the households (recyclable, compostable and disposable materials), and waste collection at doorsteps to be undertaken by waste workers. This would allow them to safely remove recyclable and organic material before transferring the remaining waste to transfer stations. This is not an unrealistic scenario – in Pune, for example, waste workers are organised in a union, the Kagad Kach Patra Kashtakari Panchayat (KKPKP) (6,000 members), that has promoted a waste management cooperative. Solid Waste Collection and Handling (SWACH-COOP) is authorised by the Pune Municipal Corporation to provide services like door-to-door collection to over 3,00,000 workers. The NGOs Toxics Link and Vatavaran have organised local collection systems in 29 residential colonies in Delhi where waste workers collect, segregate and process (e g, compost) waste locally (Talyan et al 2008).

These arrangements empower waste workers and differ markedly from the waste workers' metamorphosis in limited numbers to wage workers with firms such as Jindal Ecopolis or Ramky in the private sector. However, the waste workers are insecure, as many municipal governments prefer contract corporations – in Pimpri-Chinchwad the SWACHCOOP was forced to terminate its agreement with the municipal government after the latter contracted the service of a waste management firm on completely different terms in two of the four wards. This preference for private firms is inexplicable given the fact that with legal recognition and minimal investment, the productivity of the informal sector could be boosted dramatically.

Indeed, the state could compensate waste workers for their services (both collection and high recycling rates) by providing them with space, equipment (e g, bicycles, pushcarts, masks and gloves), and access to healthcare and a pension scheme. Social benefits could be reaped along with environmental ones while the waste crisis is addressed. Organic material (around 50% of the total weight) could be composted or processed in biogas plants as close as possible to the generation point and recyclable materials (around 30%) could be segregated and transferred to the recycling industry while inert and non-recyclable material (around 20%) is disposed in landfills.

Such an inclusive model of decentralised waste management under a zero-waste strategy would eliminate the need for incinerators and minimise pressure on landfills (for examples from around the world see GAIA 2012). Policymakers in alliance with waste workers, residents and NGOs could develop labour-intensive (rather than capital-intensive) solutions based on social justice and environmental sustainability along these lines.

NOTES

1 We use the term "waste workers" to refer broadly to anyone who earns their livelihood in the informal waste sector.

2 Delhi is a city-state (National Capital Territory of Delhi) with three municipalities: Municipal Corporation of Delhi (MCD), New Delhi Municipal Committee (NDMC) and Delhi Cantonment Board (DCB).

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