

# ISAS Special Report

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## ‘Clean India!’ Miles to Go Before We Sweep?

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Everyone from Narendra Modi to the *New York Times* has pointed well-washed fingers at the sorry state of public sanitation and waste management in India. In his Independence Day speech on 15 August 2014, Prime Minister Modi vowed to create a Clean India, a *Swachh Bharat*, in which girls’ school would have usable toilets, the Ganga would be clean, rubbish would be cleared and *pan* stains would not mark the stairwells of public buildings.

People around India and the world applauded. But, warned the *NYT* in an editorial, “this will not be easy”.<sup>2</sup>

As Indians flock to the cities and the middle class expands, the country faces problems that urbanising, consumer-oriented societies have faced for the past 200 years. And India adds two qualities of its own: unheard of population density and caste.

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<sup>2</sup> “India’s Sanitation Needs”, *International New York Times*, 5 September 2014, p. 6.

## Urbanisation

What do you do with the daily food waste of 400 million urban dwellers – their throwaway packaging, old mobile phones, rejected TV sets? The debris from burgeoning construction industries? The faeces and urine of densely packed populations where sewage systems, if they exist, were built for populations a fraction of the current size?

Today, the urban population is about 400 million. Urban sewage systems have to deal with nearly twice as much human waste as a generation ago. Sewers and water management have not kept pace.

India's urban population increases at about 2.5 per cent a year and will be close to 500 million by the next census in 2021.

In the past, rural people went to the fields to defecate. They still do. But studies show that open defecation spreads parasites and diseases that have especially bad effects on children. Such water-borne diseases lead to high rates of death and stunted growth. Intestinal parasites devour nutrition before it can nourish growing bodies.<sup>3</sup>

Until the 1990s, 75 per cent of a much smaller India lived in the countryside: towns and cities contained only about 220 million people. In those days, too, urbanites did not have much to throw away. Wives darned socks; husbands husbanded old newspapers to sell to the *kabaadiwala*, the door-to-door buyer of discarded goods. Households had a "sweeper", a low-caste person who came regularly to sweep floors, clean toilets if there were any and remove unwanted things, from kitchen waste to dead animals.

Plastic arrived in a big way only from the mid-1990s. But by 2012, the Central Pollution Control Board estimated that India threw away 15,000 tonnes of plastic a day or 5.5 million tonnes a year. TV sets became common in the 1990s too; mobile phones flooded the country only ten years ago. And these are merely indicators of the things that a comfortable, consuming society wants continually to throw away.

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<sup>3</sup> Diane Coffey, *et al.*, "Stunting among Children", *Economic and Political Weekly*, 24 August 2014, pp. 68-70.

## Volume

Estimates vary widely, but by one calculation, rubbish collectors in urban India pick up 65 million tonnes of waste a year or 178,000 tonnes a day.<sup>4</sup> In weight, that represents more than 5 million Toyota Corollas a year. If you were parking them bumper-to-bumper, you'd need a car park about the size of the state of Kerala (38,000 square kilometres).

Urban waste, moreover, is often bulky. A tonne of uncrushed tetra-paks takes up more space than a tonne of metal. The need for space to bury waste, or to sort waste into recyclable components, plagues expanding cities. No one wants waste near them, least of all vast areas where waste is sorted, buried and burned.

The estimate of 65 million tonnes of annual collected waste seems fairly realistic when it is measured against estimates for individual cities and towns. Cities that have begun to cope with waste try to measure daily collections at their dumping grounds. (See Table 1).

**Table 1: Daily waste collection estimates for selected places since 2010**

Place	Pop. 2011 census, millions	Average tonnes of waste per day	Source
Mumbai	18.41	7,800	<a href="http://indianexpress.com/article/cities/mumbai/city-of-garbage-hits-a-dead-end/">http://indianexpress.com/article/cities/mumbai/city-of-garbage-hits-a-dead-end/</a>
New Delhi	16.31	7,000	<a href="http://dpcc.delhigovt.nic.in/waste-msw.html">http://dpcc.delhigovt.nic.in/waste-msw.html</a>
Chennai	8.70	4,500	<a href="http://www.chennaicorporation.gov.in/departments/solid-waste-management/index.htm#solid">http://www.chennaicorporation.gov.in/departments/solid-waste-management/index.htm#solid</a>
Kolkata	14.11	4,500	Swapan Das and Bidyut Kr. Bhattacharyya, "Municipal Solid Waste Characteristics and Management in Kolkata, India," <i>International Journal of Emerging Technology and Advanced Engineering</i> , vol. 3, no. 2 (February 2013), pp. 147-52, <a href="http://www.ijetae.com">www.ijetae.com</a> .
Hyderabad	7.75	4,000	<a href="http://www.thehindu.com/news/cities/Hyderabad/contingency-measures-do-little-to-clear-citys-mess/article5674515.ece?homepage=true&amp;css=print">http://www.thehindu.com/news/cities/Hyderabad/contingency-measures-do-little-to-clear-citys-mess/article5674515.ece?homepage=true&amp;css=print</a>
Ahmedabad	6.35	3,900	document given to R. Jeffrey, Oct. 2013 in Ahmedabad – "Solid Waste Management Department. Ahmedabad Municipal Corp"
Surat	4.59	1,400	R. Jeffrey interviews, Oct. 2013
Varanasi	1.44	650	<i>Times of India</i> , 25 May 2014.
Arcot, Tamil Nadu	.07	3	R. Jeffrey, interviews, Nov. 2013.

<sup>4</sup> *Outlook*, 13 October 2014, p. 42, suggests the annual pickup is only about 47 million tonnes. The higher figure comes from *Times of India*, 13 October 2013, quoting AR Rajeev, principal secretary (environment) Maharashtra, at a Confederation of India Industry seminar on waste management. The lower figure seems to come from the *Indian Express*, 22 January 2014, quoting a speech by Dr Amiya Sahu, president of the National Solid Waste Association of India (<http://indianexpress.com/article/cities/mumbai/city-of-garbage-hits-a-dead-end/>).

At the last census in 2011, the country had 53 cities of more than one million people and 412 towns with populations of more than 100,000.

If we estimate (Table 2) that India’s 10 largest cities average 4,000 tonnes of waste a day, that the other 40 cities collect 500 tonnes and that the 400 towns each take up 250 tonnes, we arrive at a figure of 160,000 tonnes a day or about 58 million tonnes a year.

**Table 2: Conservative estimate of daily waste collection in urban India, c. 2013**

	Estimated average tonnes of waste a day	Total estimated tonnes a day	Estimated tonnes a year in millions
10 largest cities	5,000	50,000	18.3
40 large cities	500	20,000	7.3
400 towns above 100,000	250	100,000	36.5
<b>Total</b>	<b>5,750</b>	<b>170,000</b>	<b>62.1</b>

The estimates in Table 2 are conservative.<sup>5</sup> Much waste in urban India is not collected. Freelance scavengers examine it for valuable items, and what they reject is left in the open to rot or disintegrate.

Waste quantities grow as economies and consumers grow. Singapore with a population of about 5 million, or less than one-third the size of New Delhi or Mumbai, generates more waste than either – 8,300 tonnes of accurately measured waste a day.

## Disposal

Methods for dealing with the waste of growing cities are well known. You bury it, burn it or compost it; you pick out useful items and recycle them; and you try to reduce the creation of waste in the first place.

But all of these cost money, need organisation and require citizens to adjust their practices. Such cultural change needs persistent, even-handed supervision and regulation. India faces particular difficulties on all these counts.

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<sup>5</sup> Mufeed Sharholy *et al.*, “Municipal Solid Waste Management in Indian Cities – a Review”, *Waste Management*, vol. 28 (2008), p. 460, assert that “about 90 million t [sic] of solid waste are generated annually as byproducts of industrial, mining, municipal, agricultural and other processes”.

## Government

Local governments are responsible for waste management, but they are the poor relations of India's political structure. The 73<sup>rd</sup> and 74<sup>th</sup> amendments to the Constitution in 1993 were intended to give greater authority to urban and rural local government. However, they remain dependent on state governments for much of their funding and for the legal powers to enforce regulations.

Some problems of administration that Indian cities face are similar to those that confronted nineteenth-century Europe, North America and Australia. In the 1880s, for example, citizens of Melbourne began to recognise the connection between their city's filth and diseases like typhoid and cholera. The government of the colony of Victoria created the Melbourne Metropolitan Board of Works (MMBW) out of more than 50 tiny local government units – a “parliament of the suburbs” – in 1891.<sup>6</sup> The MMBW had the task of providing clean water, sewage and drainage to all its member municipalities. Within 20 years, the infant mortality rate – to give one example – for the Melbourne area fell from more than 170 per thousand live births in the 1880s to 117 by 1905.<sup>7</sup>

Melbourne in the 1890s, however, had a population of less than 500,000 and plenty of surrounding land on which to create a sewage farm. In India in 2011, there are 50 cities with more than a million people, and land is painfully scarce and hotly contested.

Indian cities face problems of local government. To lay a sewage system, create a “scientific landfill” or operate a “complete combustion” incinerator requires planning for wide geographical areas, big investments and predictable volumes of waste. To bring scores of local governments into a common plan is an immense task. The “urban agglomeration” of Chennai consists of eight cities and more than 30 other units of local government.<sup>8</sup>

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<sup>6</sup> Heather Gardner, *The Parliament of the Suburbs: the Melbourne Metropolitan Board of Works* (Canberra: Canberra College of Advanced Education, 1987). See also [http://www.emelbourne.net.au/biogs/E\\_M01028b.htm](http://www.emelbourne.net.au/biogs/E_M01028b.htm) (accessed 12 November 2014). Melbourne reduced 53 local governments to 26 in 1994.

<sup>7</sup> Milton James Lewis, *The People's Health: Public health in Australia, 1788-1950* (London: Praeger, 2003), p. 60.

<sup>8</sup> “Chennai Urban Region”, <http://www.census2011.co.in/census/metropolitan/435-chennai.html> (accessed 10 November 2014). For census purposes, the Chennai agglomeration has more than 90 local units.

At their worst, local governments go to war with each other. In an example from Chennai, one municipality runs a fairly effective waste management programme, including composting and well designed landfill. A neighbouring council engages in poorly planned, often random dumping, including infringing on the better-managed council's territory and facilities. Even in New Delhi, officials of its local governments complain that the Government of India, which has overall control of land use in the Union Territory, refuses to release land that would enable comprehensive waste management centres to be established. Disputes such as these end up in the courts with one unit of government bringing cases against another.

Yet local initiative and support are crucial for effective control of waste. Individual waste-creators – householders, merchants, builders and industrialists – have to see advantages in supporting systematic waste management. And people who make livings from waste have to be part of systems. “Recycling gets done”, says one of the classic books on waste, “not because it is a good thing; it gets done if it is a profitable thing”.<sup>9</sup>

## **Caste and Culture**

Ideas of caste present India with problems that the growing cities of Europe, North America and Australia did not face. It may well have been migrants – Irish, Poles, African-Americans, Italians and others – who dealt with much of the filth of nineteenth and twentieth-century cities; but escape was possible. Usually only a single generation earned its living at the dirtiest end of the waste chain. And waste presented opportunities, as the English saying, “Where there's muck, there's brass [money to be made]”, suggests or the family history of Adam Minter, a son of a scrapyard, illustrates.<sup>10</sup>

In India, that is not the case. The majority of *safai karmacharis* working for local governments or for Indian Railways are Dalits (Scheduled Castes, once called “untouchables”). As anyone who delves into Indian media knows, Dalits face outrageous prejudice and violence, in spite of more than 65 years of “affirmative action”. The Supreme

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<sup>9</sup> William Rathje and Cullen Murphy, *Rubbish! The Archaeology of Garbage* (Tucson: University of Arizona Press, 2001; first published 1992), p. 204.

<sup>10</sup> Adam Minter, *Junkyard Planet: Travels in the Billion-Dollar Trash Trade* (New York: Bloomsbury Press, 2013).

Court recognised in 2014 that 960,000 dry latrines were still being cleaned manually by Dalits.<sup>11</sup>

Visceral beliefs about ritual purity are held by large numbers of Indians, and such beliefs involve distancing oneself from impure and tainted objects as soon as possible. The Hindi word *chhuut* – “the touch of something ritually impure; ritual contamination” – captures such feeling.<sup>12</sup> A Dalit intellectual writes: “Indian culture ... is nothing but caste culture. This culture externalises the responsibility of maintaining cleanliness to a particular caste. It stigmatises work as unclean and workers as untouchables”.<sup>13</sup>

In a popular Ted Talk given in Bangalore, a speaker, masked for anonymity, presents the audience with photos of dirty corners of a modern city. “Where is this?” he asks. The audience offers suggestions. Wrong, wrong. It’s Singapore, he tells them – it’s Little India in Singapore: “When a group of Indians lives in one neighbourhood, we seem to bring down the civic standards”.<sup>14</sup> It’s because, he continues, we always say it is someone else’s job, not ours. (He then shows exemplary local projects that are maintaining clean neighbourhoods in some Indian cities).

The eagerness to get rid of waste wherever is convenient may be a characteristic of urbanising societies everywhere; but the tendency is reinforced by caste. There is in India a perceptible attitude that “someone of lower status deals with muck, and having muck near me makes me uncomfortable at the very least (and maybe ‘impure’)”.

To change such deep feelings will require persistence and example. Having a Prime Minister from a lower caste, who is not *dvijya* or twice-born, who has a remarkably strong personal mandate and who makes Clean India a signature campaign, is an important start. However, his uncomfortable colleagues and subordinates will need practical instruction in broom-

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<sup>11</sup> *Hindu*, 27 March 2014, <http://goo.gl/vzuc1h> (accessed 11 November 2014).

<sup>12</sup> *The Oxford Hindi-English Dictionary*, ed. R. S. McGregor (New Delhi: Oxford University Press, 1993), p. 347. There is a verb construction – *chhuut utaarana* – “to remove the effect of contact with something impure”.

<sup>13</sup> Anand Teltumbde, “No *Swachh Bharat* without Annihilation of Caste”, *Economic and Political Weekly*, 8 November 2014, p. 11.

<sup>14</sup> <http://www.scoopwhoop.com/news/man-walks-on-stage-with-a-mask-on/?ref=social&type=fb&b=0>.

wielding, if photographs in *Outlook* of their initial attempts to set examples are anything to go by.<sup>15</sup>

## **Muck and Brass**

A market research report released in September estimated the “waste management market” in India to be worth USD 13.62 billion by 2025. *Outlook* magazine in a cover story on the “*Swachh Bharat*” or Clean India campaign noted that the new government had promised Rs 1.96 lakh crores (about USD 39 billion) to the campaign, and “NGOs and corporates (many of them foreign) ... have spotted a killing to be made in cleaning up India”.<sup>16</sup>

The waste-management “industry” in India is small by European and North American standards. The market-research report identified 15 “waste management players in [the] Indian market”, but only four of these, of which Ramky of Hyderabad is the largest, appear to deal in all aspects of waste. Five specialise in medical waste and four in electronic waste.<sup>17</sup>

In contrast, companies such as Waste Management, Inc. and Republic Services are among the largest corporations in the USA.<sup>18</sup>

Specialist corporations bringing management and technology to waste control may seem an attractive solution to increasingly desperate local governments. But technical and managerial apparatus are simply one component of effective waste control in Indian cities.

When a local government contracts waste removal to a private company, the livelihoods of municipal workers, informal scavengers and long-time relationships between “sweepers” and the families they serve are threatened. This is not unique to India – contests over valuable waste go on in Western cities. But the stakes are higher and more complicated in India and affect far more people.

Effective management of urban waste in growing towns and cities depends on a difficult chemistry. Local commitment and understanding are essential to achieve the cooperation of

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<sup>15</sup> *Outlook*, 13 October 2014, pp. 44-5.

<sup>16</sup> *Outlook*, 13 October 2014, p. 45.

<sup>17</sup> <http://www.marketresearchreports.com/novonus/waste-management-market-india-2014-2025>.

<sup>18</sup> [http://en.wikipedia.org/wiki/Allied\\_Waste\\_Industries](http://en.wikipedia.org/wiki/Allied_Waste_Industries).



residents and the inclusion of people who derive livings from waste. The efforts of organisations such as SwaCH in parts of Pune and Exnora Green in the Pammal area of Chennai exhibit some of these characteristics.<sup>19</sup>

In addition, the apparatus of local government has to encourage close-to-the-ground participation, yet have clusters of authority large enough to manage big projects – whether scientific landfills, major recycling centres, effective sewage systems or costly “complete combustion” incinerators – that are inescapable components of waste management for huge cities.

A prime minister committed to Clean India will need all his powers of example to shift deeply held ideas that public sanitation is somebody else’s pre-ordained task. There are miles to go before India sweeps.

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<sup>19</sup> For Pammal, <http://www.greenpammal.in/overview.html>. For Pune, Anjor Bhaskar and Poornima Chikramane, “The Story of Waste and Its Reclaimers: Organising Waste Collectors for Better Lives and Livelihoods”, *Indian Journal of Labour Economics*, vol. 55, no. 4 (2012), pp. 595-619.