

Medical garbage and the making of neoliberalism in India

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Abstract

Beginning in the 1980s, as plastic came to infuse daily life in the Indian household, so too did plastic come to infuse India's everyday healthcare. Following these developments, alongside other post-liberalisation regulatory reforms, in 1998 the Government of India published its Bio-Medical Waste (Management and Handling) Rules. In Chennai (formerly Madras), the Rules' implementation has simultaneously, if inadvertently, consolidated and intensified the commoditisation of bio-medical waste. This essay argues that this traffic in medical garbage is not a *product* of neoliberalism in India. Instead, it is through innumerable stories like this one that the 'Indian neoliberal' gains meaning.

Keywords

India, garbage, governmentality, bio-medical waste, Chennai, scrap, securitisation, neoliberalism

India used to be the past. Now it is also the future. The changing status of garbage in India tells one version of this larger story. Whereas garbage used to be a marker of India's supposed backwardness, today, certain forms of garbage—bio-medical waste chief among them—are also taken to announce India's economic arrival.²

The mushrooming of healthcare in India that began in the 1980s also produced significant growth in levels of bio-medical waste produced.³ This was particularly the case given hospitals' simultaneous uptake of plastic disposable medical items as a way to improve clinical hygiene and infection control. Beginning in the 1980s, just as plastic came to infuse daily life in the household, so too did plastic come to infuse daily life in the hospital.⁴ Following these developments, in 1998 the Government of India

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² It is likely that the story of electronic waste (or, 'e-waste') will also be significant.

³ On the growth of healthcare in India, see Rama Baru, 'Privatisation and Corporatisation' in *Seminar* 489 (2000). <http://www.india-seminar.com/2000/489/489%20baru.htm> Accessed 26 Mar. 2012; Ravi Duggal, 'Where are we Today?' in *Seminar* 489 (2000) <http://www.india-seminar.com/2000/489/489%20duggal.htm>, accessed 28 Mar. 2012. Government of India, Central Bureau of Health Intelligence, 2002. Government of India, Central Bureau of Health Intelligence, Directorate General of Health Services, Ministry of Health and Family Welfare. *Health information of India 2000-2001*. <http://cbhidghs.nic.in/Hii2000-01/8.07.htm>, accessed 26 March 2012.

⁴ Robert Edwards and Rachel Kellest, *Life in Plastic: The Impact of Plastics in India* (Goa: The Other India Press, 2000).

published its Bio-Medical Waste (Management and Handling) Rules. After slight amendments, these Rules came into effect across India at the end of 2002. In many ways, this was unremarkable—the publishing of the Rules merely brought India into line with similar measures in many nations across the globe. Like other nations’ bio-medical waste measures, India’s regulations require hospitals to guard against the health risks that medical garbage presents. Hospitals must segregate waste before passing it on to specialist haulers, haulers must deliver it to dedicated common treatment facilities (henceforth CTFs). Finally, the CTFs must autoclave (steam-clean), shred and finally incinerate and/or bury the waste. These regulations design pathways through which the detritus of everyday healthcare travels from ‘cradle’ to ‘grave’.

Nevertheless, despite the significant increase in the amount of bio-medical waste produced in India since the 1980s, the Rules present a bit of a puzzle. Although the publication of India’s bio-medical waste Rules can be read as India merely ‘catching up’ with global regulatory standards, the regulations of other forms of waste have largely been left unattended. Whereas earlier laws guarded against general hazards, India’s post-liberalisation regulations highlight particular forms of post-consumer waste.⁵ In the case of bio-medical waste, the Rules’ commensurability with a set of global regulatory standards is testimony to how the emergence of corporate health care in India has driven the shape of post-liberalisation healthcare regulations.⁶ Given the iconic status of healthcare (and particularly corporate healthcare) within the story of India’s recent economic successes, the Rules flag India’s proliferating bio-medical waste as a problem, but a problem born of a certain kind of arrival.

In contemporary Chennai (formerly Madras), the Rules’ implementation has born strange fruit.⁷ On the one hand, the design and implementation of bio-medical waste regulations resulted in the rolling out of new structures and practices through which bio-medical waste is to be managed. Yet on the other hand, these regulations produced a simultaneous, if arguably unintended, fillip to the economic afterlives of bio-medical waste—in particular to the careers of used, discarded medical plastics within the city’s pre-existing and robust (if also largely illegal) plastic scrap recovery and reprocessing businesses. Seen this way, the traffic in medical garbage is not a *product* of neoliberalism. Instead, it is through innumerable stories like that of medical garbage in Chennai that something that could be called the ‘neoliberal’ gains meaning.

In popular and scholarly usage, ‘neoliberalism’ has emerged as a polyvalent term.⁸ Indeed, as James Ferguson has remarked, the term ‘neoliberalism’ is regularly used to convey meanings that are both overlapping *and* contradictory.⁹ The upshot of this is that invoking the term ‘neoliberalism’ today captures both more and less than the sum of these many meanings. However, once we recognise the polyvalent nature of the term, this polyvalence can be of great use; it invites us to explore the production and maintenance of the multiple, overlapping and contradictory manifestations of neoliberalism today. This matters because, despite the widespread use of the term, for the most part we still lack a textured understanding of how these many overlapping and contradictory ‘neoliberalisms’ have played out—

⁵ E-waste is shaping up to be the next major example.

⁶ Sarah Hodges, “‘It all changed after Apollo’: Madras, Chennai, and the Story of Globalised Healthcare in India”, typescript.

⁷ Chennai’s experience resembles that of others across India. For example, S. Gupta and R. Boojh, ‘Report: Bio-medical Waste Management Practices at Balramput Hospital, Lucknow, India’, in *Waste Management Research* Vol.24 (2006), pp.584-591; C. N. Ray, B.Ahmadi, A. Kumar Singh, ‘Neglect of Hospital Waste Control: A Case Study in Ahmedabad’, in *Economic and Political Weekly* Vol.36, no.2 (2001), pp.105-107; L. K. Verma, S. Mani, N. Sinha, S. Rana, ‘Bio-medical Waste Management in Nursing Homes and Smaller Hospitals in Delhi’, in *Waste Management* Vol.28 (2008), pp.2723-34.

⁸ Sometimes the term ‘neoliberalism’ is used to refer to a specific macroeconomic doctrine. Sometimes it refers to a more general pursuit of economic growth through ‘market-based solutions’ and reworked regulatory structures. At other times it refers to a global zeitgeist of individual and corporate speculative financial strategies and the precarious conditions these strategies create. Finally, the term also functions as a catch-all synonym for contemporary capitalism. See James Ferguson, ‘The Uses of Neoliberalism’, in *Antipode*, Vol.41, no.s1 (2009), pp.170-71. My use of the term in this essay takes its polyvalent character as read.

⁹ Ferguson, ‘The Uses of Neoliberalism’, p.166.

across diverse national and geographical contexts, or across different trades.¹⁰ (Is ‘neoliberalism in India’ the same as ‘neoliberalism in Britain’? Is the neoliberalism that informs the current re-organisation of healthcare the same as that of urban sanitation? If not, what happens when they come together?) What is even less clear is how these neoliberalisms have shaped and been shaped by their imbrication in pre-existing institutions, discourses, and practices.

In this essay, I pursue these questions by charting the interplay between the many neoliberalisms that animate the recent regulatory history of medical garbage in India. This exercise shows two interrelated things. First, that the story of medical garbage in India is an example of the perhaps unsurprising, if widespread, phenomenon of how state attempts to ‘tighten up’ regulatory structures can create opportunities—albeit unintended—for forms of illegal entrepreneurship to thrive. Second, it shows how we might begin to think about the distinct ways in which neoliberalism—in all its polyvalent ‘glory’—is manifest in contemporary India. In particular, the study of the interlinked regulation and commodification of medical garbage in Chennai shows how a neoliberal regulatory rationality both relies on and is undone by its entrepreneurial subjects. In conjunction with hospitals and state-appointed specialist private medical waste haulers, pre-existing cadres of waste pickers and scrap merchants have created new ways to profit from the medical garbage of this urban ‘healthcare hub’. As the remainder of this essay shows, the post-regulation traffic in medical garbage in Chennai relies both on the commodification of material objects as well as the emergence of new revenue streams through the speculative financial strategy of ‘securitisation’.

Surveying the ground: The changing status of garbage in India

In the scholarship on garbage in colonial India, garbage tells a particular story of a modernity both delayed and denied.¹¹ Through this scholarship, we learn of a colonial logic and its decree that litterers are unfit for citizenship. For colonial administrators, garbage in particular and filth in general served as a marker of public disorder and evidence of undisciplined subjects. Belief in the self-evident nature of how litterers are incapable of self-rule not only characterised the colonial governmentality of garbage. Nationalist practice—particularly Gandhi’s—produced its own version of this governmentalising of the self, in which the ability to regulate bodies and public spaces was correlated with the ability for formal political self-rule. In each of these historical and historiographical narratives, garbage serves as an obstacle to the arrival of the modern. Garbage, in other words, is backwardness.

The governmentalising of garbage in nineteenth- and early twentieth-century India is but one example of a broader discourse of government, filth and civic order as it also operated in Britain and other liberal democracies.¹² The difference in the respective Indian and British careers of this discourse of garbage lay in the scale of use to which it was put. In Britain, maintaining a distinction between filth and order created a logic for the sustained growth of the British state throughout the nineteenth century.¹³ The ‘great

¹⁰ For examples of attempting to get to grips with these questions in the Indian context, see Akhil Gupta and K. Sivaramakrishnan (eds), *The State in India after Liberalization: Interdisciplinary Perspectives* (London: Routledge, 2011). Sanjay Ruparelia, Sanjay Reddy, John Harriss and Stuart Corbridge (eds), *Understanding India’s New Political Economy: A Great Transformation?* (London and New York: Routledge, 2011).

¹¹ See Dipesh Chakrabarty, ‘Open Space/Public Place: Garbage, Modernity and India’, in *South Asia* Vol.14, no.1 (1991), pp.15-31; Matthew Gandy, ‘Landscapes of Disaster: Water, Modernity and Urban Fragmentation in Mumbai’, in *Environment and Planning A*, Vol. 40 (2008), pp.108-130; Sudipta Kaviraj, ‘Filth and the Public Sphere: Concepts and Practices about Space in Calcutta’, in *Public Culture* Vol.10, no.1 (1997), pp.83-113; Michael Mann, ‘“Delhi’s Belly”: On the Management of Water, Sewage and Excreta in a Changing Urban Environment during the Nineteenth Century’, in *Studies in History* Vol.23, no.1 (n.s.) (2007), pp.1-31; Vijay Prashad, ‘The Technology of Sanitation in Colonial Delhi’, in *Modern Asian Studies* Vol.35, no.1 (2001), pp.113-155; Awadhendra Sharan, ‘From Source to Sink: “Official” and “Improved” Water in Delhi, 1868-1956’, in *Indian Economic and Social History Review* Vol.48, no.3 (2011), pp.425-62.

¹² B. Campkin and R. Cox, eds. *Dirt: New Geographies of Cleanliness and Contamination* (London: IB Tauris, 2007); W. Cohen and R. Johnson, eds. *Filth: Dirt, Disgust and Modern Life* (Minneapolis: University of Minnesota Press, 2005); P. Stallybrass and A. White, *The Politics and Poetics of Transgression* (Ithaca, NY: Cornell University Press, 1986).

¹³ Christopher Hamlin, *Public Health and Social Justice in the Age of Chadwick: Britain, 1800-1854* (Cambridge: Cambridge University Press, 1998); Thomas Osbourne, ‘Security and Vitality: Drains, Liberalism and Power in the Nineteenth Century’, in *Foucault and Political Reason: Liberalism, Neo-liberalism and Rationalities of Government*, in Andrew Barry, Thomas Osborne and Nikolas Rose (eds.) (Chicago: University of Chicago Press, 1996) pp.99-121.

unwashed' emerged as a problem in need of a solution at precisely the time as washing (and allied activities of self-discipline) became a precondition for the extension of suffrage and political sovereignty. In other words, in Britain (and elsewhere), the presence of urban filth—and filthy urban dwellers—excluded *segments* of a society from political sovereignty. In contrast, in the colonial Indian context, the presence of filth came between political sovereignty and an *entire society*.

Across the globe during the nineteenth and particularly the twentieth century, the volume of garbage produced increased astronomically. Yet the earlier urgency of garbage—as a problem that denoted a troubling traffic between disordered spaces and unruly residents—receded.¹⁴ In Nehruvian India, the earlier pre-eminence of the social contracts under colonial rule between governance, hygiene and health took a back seat to the interlinked modernising projects of science, technology and secular development. Through Indian modernisation, it was claimed, dirt—and the dirty—would disappear as India 'developed'.¹⁵

In the final decades of India's twentieth century, whilst the explosion in the consumption of mass produced goods marked one mode of India's modernisation, many commented that this new arrival did not eradicate India's relentless landscape of rubbish.¹⁶ Instead, it compounded it. As one signboard in an affluent Chennai neighbourhood declared in 2010:

Let not litter
Spoil the glitter

For these commentators, the presence of garbage pointed insistently and repeatedly to the failure of India to modernise fully, *despite* decolonisation and significant economic growth. Garbage, therefore, remains a prompt to revisit a powerful discourse on filth. In this discourse, garbage is a sign of India's blighted civic modern.¹⁷

But this is not the end to the story.

This essay tells a recent tale of garbage in the south Indian city of Chennai in the decade since the state government began to implement the Rules, and during which the city's bio-medical plastic scrap business has significantly scaled up. It is unlike many other studies in which garbage forms the end-point in the series 'production-consumption-waste'.¹⁸ In contrast, in this essay, I take medical garbage in Chennai as the *starting* point in a cycle of production, circulation and revaluation. Rather than focussing on garbage as the discarded, I pursue the garbage that is grasped.¹⁹ Although there is widespread acknowledgement that the Rules have failed in their stated aims, what is significant about medical waste in Chennai is what these regulations have inadvertently *produced*: a governmentality of garbage-as-future.

¹⁴ This coincided with a buoyant expansion of technocratic municipal governance alongside the development of, first, sewerage, and later, landfill sites and garbage export policies. See Matthew Gandy *Recycling and the Politics of Urban Waste* (London: Earthscan, 1994), pp.38-70; Martin Melosi, *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present* (Baltimore: Johns Hopkins Press, 2000), pp.261-280.

¹⁵ Gauri Raje, Garbageman as Reformer. Typed ms. 2008, p.1.

¹⁶ The movement against plastic carrier bags over the past 5-10 years springs out of precisely this commentary. For example, see Toxics Link, New Delhi: <http://toxicslink.org/search/?cx=011346277552360787107%3A7wtozl9bnka&q=plastic&cof=FORID%3A11>, accessed 23/05/2012.

¹⁷ For example, Kaviraj, 'Filth and the Public Sphere'; Roy, *Calcutta: City Requiem*.

¹⁸ These arguments about post-consumer waste in India are very similar to a body of US and European waste-literature, for example, see Richard Girling, *Rubbish! Dirt on Our Hands and Crisis Ahead* (London: Transworld Publishers, 2005); Elizabeth Royte, *Garbage Land: On the Secret Trail of Trash* (New York, Boston and London: Back Bay, 2005); Susan Strasser, *Waste and Want: A Social History of Trash* (New York: Holt, 1999).

¹⁹ In this sense, my work is part of a different set of waste scholarship, exemplified by Kaveri Gill, *Of Poverty and Plastic: Scavenging and Scrap Trading Entrepreneurs in India's Informal Economy* (New Delhi: Oxford University Press, 2010), Catherine Alexander and Joshua Reno (eds), *Economies of Recycling: The Global Transformation of Materials, Values and Social Relations* (London: Zed Books, 2012), and Nicky Gregson and Louise Crewe, *Second-Hand Cultures* (Oxford and New York: Berg, 2003).

. A closer look at the *everyday practices* of bio-medical waste's regulatory regime reveals a dense terrain of multiple temporalities. As 'waste', garbage retains its 'backwardness' and serves a marker of the past. It is both the end of one story (or 'chain') of value and a problem in need of a solution. Stemming from this, the formal *design* of the legislation and regulations reproduces this organic temporality of garbage through a regulatory apparatus of waste *management*. Yet as 'scrap'—licit, illegible and illegal—garbage is the beginning of another story. In this telling, garbage is the future. As practices of 'implementation' and 'compliance', this regulation is partial and incomplete. But, like a course of antibiotics half eaten and left, weak implementation and partial compliance create parallel spaces for opportunistic practices to thrive. Across the globe, precarious livelihoods both cling to and drive new, speculative financial strategies. In Chennai, regulators, waste pickers, and many in between coax new revenue streams from medical waste 'management'. Alongside India's post-liberalisation policies that pursue economic growth, the neoliberal governmentality of medical garbage also dwells in the shadows cast by regulation' in the city's everyday commerce.

The invention of medical garbage and its everyday practices in contemporary Chennai

The spectacular therapeutic successes of modern medicine in the twentieth century were in large part achieved through new regimes of clinical hygiene.²⁰ Yet it remains a great paradox of sanitary reform within medical practice that it was precisely these regimes of cleanliness that produced a proliferation of filth and waste. The emergence and uptake of disposable medical goods from the middle (and particularly the final quarter) of the twentieth century—surgical gloves, plastic syringes, plastic blood and urine bags, plastic tubing—rendered earlier regimes of sterility more exact, but created massive detritus in its wake. Recently, the global urgency of this dynamic has come more sharply into view. Through the spread of good clinical practice, hospitals world-over have come out of step with their immediate urban environments. Municipal sanitation infrastructures of the global south now strain to cope with the management challenges posed by the constant production of significant amounts of potentially infective medical garbage. In Chennai, this steady stream of hospitals' garbage has been enrolled into a new regulatory regime. Nevertheless, this garbage also remains part of the city's pre-existing informal institutions: waste picking and scrap dealing in particular. Through the examination of key transfer points in both medical waste's regulation and its commodification—the hospital, the medical waste treatment facility, and the scrap market—the choreography of medical waste economies and their securitisation comes into view.

Hospitals

Between 2007 and 2010, I visited fourteen hospitals in and around Chennai. These included three government hospitals, four corporate hospitals, two nursing homes, four voluntary hospitals and one 'health city'. In these visits, I met with the hospital directors and senior staff, nurses, housekeeping staff and others. I toured these hospitals' interiors and surrounding compounds. Sometimes I was taken on tours of hospitals and compounds by hospital staff. At other times I roamed around, unaccompanied. The following descriptions of my visits to two of Chennai's most prominent hospitals provide a sense of the range of ways that hospitals engage with the Rules.

One hospital, that I will call 'Central Hospital', is a large government hospital. Reports in local newspapers and by NGOs around the time of the notification of the Rules (in 2001 and 2002) excoriated Central for the waste that covered its compound.²¹ When I visited it almost a decade later, it was clear to see that the hospital had cleaned up its grounds significantly. What was less clear was where exactly the majority of the waste was now going. So I went looking.

²⁰ Nancy Tomes, *The Gospel of Germs: Men, Women and the Microbe in American Life* (Cambridge, MA: Harvard University Press, 1998).

²¹ Citizen Consumer and Civic Action Group, *Hands that Heal and Hands that Harm* (Chennai: CAG, 2001); Citizen Consumer and Civic Action Group, *Status Report: Bio-medical Waste Management Practices in Chennai* (Chennai: CAG, 2002).

On my initial visit, I met the hospital director. In response to my questions, the director explained that the hospital was segregating its waste within the wards and collecting it at a main point from which the government's appointed bio-medical waste management firm then removed it. This firm charged the hospital a fixed rate per kilogram. Following this explanation, I was taken to a rear corner in the hospital's large compound. There, one hospital employee, with clipboard and pen in hand, was overseeing the weighing and storage of the steady stream of bags of bio-medical waste brought out by other hospital employees. After chatting with this hospital worker, I strolled across the rear of the sizable compound to the other corner. There sat an enormous dumpster. Whereas one rear corner housed the hospital's official bio-medical weigh station and storage facility, this other corner housed the hospital's *unofficial* bio-medical waste processing.

I approached a man and a woman who stood near the dumpster and asked them what was inside it. They said it contained the hospital's rubbish. Once a day, they explained, a Chennai City Corporation lorry came to take it away. Another man stopped to talk. He was wheeling out a 100-liter plastic waste bucket filled with plastics and dripping with what looked like blood. He explained that his job was to bring out the waste from a certain ward. When I said that I was interested in bio-medical waste, he pointed with the hand on which he wore a torn surgical glove and explained that the 'Bio-medical Waste Disposal Facility' was located in a different area of the hospital compound. Yet another hospital waste worker joined our conversation. He explained that the hospital used to incinerate and bury waste within the compound, but that this is no longer allowed. Instead, the hospital now sells it to itinerant scrap buyers. Indeed, on the ground adjacent to the dumpster, the many piles of sorted plastic tubing, pumps and other plastic items suggested that much hospital rubbish was destined to find new homes beyond either the official collection point or that dumpster. I asked if I could take a photo of these piles and the woman said no.

A month later I returned. However, rather than walking straight into the hospital compound, I walked across a bridge that overlooked the large dumpster. Below, a man whom I had earlier met was picking through some waste from the dumpster and placing selected plastic items into a large bag. As before, sorted piles of plastic tubing and pumps lay next to the dumpster. Soon, another two people—a man and a woman—approached the dumpster. I had spoken with both of them on our first visit and learned that the man brings waste to the dumpster from the wards. The man had just wheeled out a number of bins containing hospital waste. Together, these two dumped the top layer of waste—what looked like used surgical dressings—into the dumpster. The remainder of the bin contained what looked like empty plastic glucose 'drip' bottles. Two very large gunny sacks lay nearby. They filled the sacks with the remaining plastic bottles. The man wheeled the empty bins back toward the hospital and the woman kept the enormous sacks, now bulging with plastics, to one side of the dumpster.

After I had visited Central Hospital and observed this unofficial, if thriving, medical garbage sorting operation within its compound, an environmentalist colleague in Chennai suggested I look at an online copy of a report on medical waste in the city that had been written a number of years earlier.²² Included in the report was a photograph taken standing from the bridge and offering roughly the same view onto this area. Whereas what I had seen was a thriving, if unofficial, medical garbage sorting centre, the earlier photograph documented the same large dumpster, surrounded by a dense cover of undifferentiated rubbish. Something had changed.

In contrast to Central Hospital, the hospital I will call 'Shiny Hospital' is one of Chennai's most prestigious corporate hospitals. At Shiny Hospital I met with the Housekeeping Department Director. During our meeting, the Director kept handing me paper files and CDs filled with Shiny's reports and encouraged me to download and photocopy it all. The Housekeeping Director explained that housekeeping is crucial for the entire functioning of the hospital. As a 'medical tourism' destination, the

²² Citizen Consumer and Civic Action Group, Status report: Bio-medical waste management practices in Chennai (2002). No page numbers.

hospital is regularly audited by international boards of accreditation. They pay particular attention to infection control practices. As a result, this department produces vast paperwork in anticipation of constant accreditation reviews. The Housekeeping Director finished our meeting by taking me on a brief tour of the hospital to see the waste collection infrastructure. I was told that bio-medical waste collection lorries collect waste from the hospital twice daily. On one of my several subsequent visits to this hospital, the head of the sub-department for garbage collection took me on a further tour and showed me the waste collection points within the hospital as well as the hospital's temporary on-site storage facility.

Nevertheless, as with my visits to Central Hospital, the information I gathered from my visits to Shiny Hospital's housekeeping department sits awkwardly alongside what I learned from a series of subsequent conversations with employees of the firms who must collect and process these hospitals' waste.

Common treatment facilities (CTFs)

As a result of the bio-medical waste Rules, the Tamil Nadu Pollution Control Board—the body responsible for the implementation of the Rules in Chennai—commissioned two waste management firms to collect process the city's bio-medical waste. Based on my hospital contacts, it was easy to make appointments to visit these firms' CTFs and their regional offices. There, I spoke to a range of these firms' employees, including corporate managers, CTF workers, and waste collection drivers.

In these offices, I learnt that all was not well. One manager reeled off the challenges that plagued his typical work-week. First, there was no time nor provision for regular servicing of either the vehicles or the equipment. He needed a spare vehicle, he explained, but his higher-ups would not authorise the expenditure. When one of his haulage lorries broke down, waste collection from hospitals was delayed, sometimes for days. Similarly, the autoclaves and the incinerators at the CTFs developed glitches and sometimes broke down, leading to large backlogs of unprocessed waste. I puzzled, trying to understand how these firms could surmount these challenges and meet their obligations to collect and process Chennai's bio-medical waste.

Trying to fit the pieces of this puzzle together, I told this manager of my visits to Central Hospital and asked what he thought of the piles of sorted plastics that I seen there. He nodded in recognition and explained that it is not simply a question of *kabbadiwallas* (itinerant scrap buyers) visiting hospitals, his drivers were regularly approached by people who ask to buy the contents of their lorries. 'I can pay my drivers only 4,000 rupees per month. Who can blame them if they are tempted to sell?'

But far more than equipment malfunctions or drivers' sales, this manager explained that the largest obstacle to the smooth running of his company was the combination of *doctors'* ingrained attitudes and pre-existing markets for scrap. Using the analogy of how households keep and sell things like newspapers, milk packets and glass bottles to itinerant buyers, this manager explained that long before the bio-medical waste Rules came into force, hospitals had been selling their waste.²³ This manager claimed that, despite the Rules, many hospitals have continued to sell their paper, glass and plastic waste to scrap buyers. Administrators, he claimed, balked at the reversal of a conventional relationship between waste producer and the waste worker who hauls the waste away. He repeated a phrase that he claimed hospital administrators used, despite the new regulations: '*Koppaikkku etirkka kas kotukkanum!?*' ['Why should we pay *you* for *our* trash!?']²⁴ In exasperation, he recounted a recent instance in which a large government hospital had put an open tender in the newspaper for their bio-medical waste—not for *collection*, but for *buyers*. 'What can we do when these fellows behave in this way?!' he asked.

²³ Although this essay is mainly concerned with the sales of used medical plastics, hospitals have long had a role in the sales of some discarded biological material, such as placenta. I discuss this trade in Sarah Hodges, 'Umbilical Cord Blood Banking and its Interruptions: Notes from Chennai, India'. Under review, *Economy and Society*.

²⁴ Were this formal written rather than Chennai spoken Tamil, the transliteration (*sans* diacritics) would read: '*Kuppaikkku etirkkakak kas kutukka ventum?*'

According to him, ‘the problem with doctors’ goes doctors’ assumption that waste should generate revenue for hospitals. Rather, for doctors to comply with the Rules they must abandon a business model that they have relied on heavily since the 1980s (when it accompanied the introduction of new, costlier diagnostic technologies like CT scans): that of a 50% kick-back for all services referred. With waste as with other referrals, he explained, implicitly referring to waste sales post-collection, these doctors want half his profits.

After talking with the managers of the city’s bio-medical waste disposal firms, my visits to their CTF compounds made the already cloudy picture of the Rules’ everyday practices even murkier. One day, I arranged to visit a CTF. After a long journey, I arrived at a remote compound, dominated by a large building that housed a massive autoclave and incinerator. Greeted by the on-site manager, I was shown around and saw the deep pits for medical ‘sharps’ like glass and syringes as well as the long, shallow lined pits for incinerated ash. Returning to the building that housed the incinerator and autoclave, I saw that about a dozen women were sitting round the back, next to opened boxes and half-filled buckets. I asked them what their work was. ‘We are the sorters’, one replied. Another responded with more detail and pointed to the medicine bottles that they were opening up, and showed how they were to empty the contents into a common barrel, and then put the glass bottles into one bucket and their metal rims and lids into another bucket. I looked around and saw lorry-load sized parcels. The on-site manager explained that many different merchants regularly come to buy this and all sorts of other sorted ‘scrap’.

Over the course of interviews with managers and visits to waste processing units, I realised that the puzzle of how these firms can cope under the burden of so much medical garbage is solved because most waste never reaches the CTF, and much of that which does reach is not processed in compliance with the Rules. The Rules are framed as though bio-medical waste has no resale value. The pre-existing regime of value for used, discarded medical plastics has thrived in the Rules’ regulatory blind spots. In short, the CTF itself has come to function not as a waste graveyard, but as a wholesale market for scrap dealers.

Plastic scrap

In attempting to understand where medical plastics went once they had been sold to scrap merchants, I visited three major dumps in and around Chennai. Plastic scrap—the cluster of interconnected practices of the recovery, reprocessing and re-streaming of used, discarded plastics—has grown significantly over the course of the past three decades.²⁵ Scrap work happens throughout the city, but I spent time in four neighbourhoods adjacent to one of the city’s largest dumps. I learnt that the best way to spot medical plastics scrap and scrap merchants is to roam these streets to peer into open doors and to see what rests on verandas. Once I realised what I was looking for, it was easy to recognise the colourful specialist bio-medical waste collection bags that haulage firms provide. As a result, I was able to speak with fifteen people involved in medical plastic scrap recovery and reprocessing. I learned that ‘scrap’ is what much of the juridically designated ‘bio-medical waste’ becomes after it leaves the hospital or the CTF.²⁶

One day, I was driving along the road that borders one side of Chennai’s oldest and largest municipal dump. Before long, opposite the dump I spied a small mound of multi-coloured piles of plastic bags in front of an unassuming, if *pukka*, shop front. When I walked up to the shop, I saw that these were all bio-medical waste bags, clearly printed with Shiny Hospital’s name and corporate logo. There, a man was sorting the bags’ contents into different buckets. I walked toward him, over the bloody linens and broken syringes liberally strewn on the bare cement floor, and asked him what he was doing. He explained that one bucket was for surgical gloves, another was for syringe barrels, another for syringe caps, and another for miscellaneous plastics.

²⁵ See Gill, *Of poverty and plastic*, Edwards and Kellett, *Life in plastic*, pp. 167-195.

²⁶ This is an abridged account. Much of this research felt like a search for the proverbial ‘needle in a haystack’ (no pun intended) and took place over the course of brief visits in 2008 and six months of sustained work in 2009-10.

‘What happens with the buckets then?’ I asked.

‘Then they come and collect it’, he explained.

‘And after that?’ I asked.

‘After that they wash it nicely’, he replied.

‘What actually goes in the dump?!’ my colleague Pritham asked, pointing to the vast sprawling, smouldering site opposite.

‘Oh, there? Hands, arms, that sort of thing’. Looking behind this man into the rest of the shop, Shiny Hospital bio-medical waste bags were visible, piled as high as the structure was tall. In a nearby neighbourhood, I came upon a plastic bag sorting business. This shop held a vast quantity of used, mostly empty, bio-medical waste bags—all of which was printed with the logo of ‘Shiny Hospital’.

Another day, I came upon a plastics scrap workshop. Inside half a dozen women sat on the ground, sorting medical plastics into a row of buckets. Speaking with the owner, I learnt that this business buys scrap and sorts it. The owner then sells it on, including to a shop immediately adjacent. Next door, the owner explained that he buys bags filled with syringes—both from next door as well as from different dealers, including the many small shops nearby that sort the plastics and then bring them the pre-sorted syringes. His workers sat, separating these into buckets for the different components (barrel, plungers, caps, needles). Once sorted, this shop and uses a rice mill to shred the sorted plastic into chips (and sells the needles to a buyer elsewhere). Once shredded, his workers wash the chips and then dry them on the roof in advance of bagging them and selling them on. The buyers for the chips in turn melt the chips made from shredded medical plastics and process them into plastic pellets. Pellet manufacturers sell to plastics manufacturers who mix the reprocessed, high grade medical plastic-derived pellets with ‘virgin’ pellets to manufacture new items.

I was directed to a one-room plastic manufacturing unit a few streets away. This housed three moulding machines. Workers there fed these machines with a mix of pellets—some from reprocessed plastics and others of ‘virgin’ plastics. One man stood running one of these machines. Bright yellow plastic funnels came out the far end. The owner showed me a bright orange plastic fan and explained it had been manufactured the previous day.

A number of points emerge from my travels among scrap merchants. First, is that while many in Chennai’s plastics scrap and reprocessing trade source plastic that is recovered from the area’s large dump, much plastic is brought in from other places, such as the sorting centres and from the hospitals themselves. Second, while much of the trade in plastic scrap and plastic reprocessing includes multiple elements of illegality, there is a taxonomical mismatch between the juridical category of ‘bio-medical waste plastics’ and those used by plastics reprocessors in which ‘plastic is plastic’. When I first went in search of ‘bio-medical plastics’, I had no luck. When I subsequently learned to ask plastic scrap traders about grades of plastic, their answers often inadvertently directed me to medical plastics reprocessing. Scrap dealers were not necessarily withholding information; I was simply asking the wrong questions, using inapt categories.

Third, the manifold commercial possibilities for plastic scrap derive not only from the contemporary ubiquity of plastic, but from its specific material traits. In order to start a plastic scrap sorting business, owners need some money, some space and a few daily wage workers, but relatively little else. Plastics reprocessors need the same, plus a machine (rice mill, melting machine or moulder). In contrast, for paper recovery and reprocessing, there are many who buy paper, but there are only a few pulping operations

across south India; similarly, in glass recovery the recovered glass is almost always sold back to the producers of its contents (e.g., pharmaceutical companies or breweries).²⁷

Finally, unlike general plastic scrap, medical plastic scrap (e.g., tubing or syringe barrels) is a distinct commodity. Used, recovered medical plastic commands a comparatively higher price among plastic scrap buyers and sellers. This is due in part to its high grade. This makes it particularly robust for melting down and manufacturing into new items. Its price is high also because traders can easily and reliably identify the items that are made of this high grade. In plastic scrap and reprocessing, the trader who knows how to sort consistently into a greater number of grades develops the better reputation and, ultimately, can command the highest rates.

In short, the Rules' requirements that hospitals pre-sort medical waste has made the value of this plastic more available. Whereas plastic scrap traders bought plastic before the implementation of the Rules, they report that, over the course of the past decade or so (in other words, since the TNPCB began to implement the Rules), they have expanded their trade in this scrap. Rather than eradicate the open circulation of used, discarded medical items, by rendering these items as 'waste' the Rules themselves have facilitated scrap merchants' extraction of value from this 'waste' that is not, in fact, 'waste' at all.

The securitisation of scrap and the governmentality of non-compliance

Soon after the Rules' inception, a steady stream of criticism issued forth. The central government as well as local newspapers and NGOs condemned Chennai's hospitals for failing to comply with these regulations. They also criticised the corollary failure of the TNPCB to enforce the measures.²⁸ Although the TNPCB officially blamed the hospitals that flouted the Rules, successive regimes of leadership at the TNPCB, as well as District Environmental Engineers (the TNPCB workers tasked with enforcing the Rules) acknowledged the body's failures.²⁹ Indeed, by spending two months reading there in 2010 and meeting dozens of employees who regularly did the same, I learned that the best-run department of the TNPCB is its Library. This houses an extensive and well-catalogued collection including many reports commissioned by the TNPCB that comprehensively document the organisation's innumerable shortcomings.³⁰ Nevertheless, the TNPCB's role in the Rules' everyday practices makes more sense if we focus less on its failures and more on what the Rules produced.³¹

In this view, the regulatory framework for bio-medical waste has been extraordinarily productive; it has created an intricate and lucrative system of securitising bio-medical waste. 'Securitisation', despite being a term usually associated with turn-of-the-century financial practices, goes far to describe the relationships among monetary commerce, material transactions and production and circulation of financial and corporeal risk that lie at the heart of the economic afterlives of medical garbage in Chennai. My use of the term comes with a health warning: to gloss the process of securitisation for medical garbage is wilfully to misread the stated goals of this regulatory framework. In other words, the securitisation of medical garbage in Chennai only makes sense if we regard the bio-medical waste regulatory framework as primarily something that is *not* a means by which used, discarded medical items

²⁷ This information comes from my own research among paper and glass scrap merchants in and around Chennai in 2007 and 2008.

²⁸ *The Hindu*, Chennai's oldest major English-language national daily newspaper, published well over 100 articles on bio-medical waste between 1998 and 2010. Other major dailies followed suit. In 2004, Tamil Nadu was named and shamed by the Central Pollution Control Board as a poorly performing state. Examples of NGO comment include A. Agrawal and R. Singh, *Understanding and Simplifying Bio-Medical Waste Management*, Toxics Link, 2005; Citizen Consumer and Civic Action Group, *Status report: Bio-medical waste management practices in Chennai* (2002).

²⁹ Author interview with Anonymous [Former Chair, Tamil Nadu Pollution Control Board], Chennai, 13 March 2010. Author interview with Anonymous [District Environmental Engineer] Tamil Nadu Pollution Control Board Library, Chennai, 10 March 2010.

³⁰ For example, Consumer Action Group and Toxics Link, *Project report: Audit of bio-medical waste management in government HCIs and centralised bio-medical waste treatment facilities in Chennai*. Submitted to Tamil Nadu Pollution Control Board (2004).

³¹ In tracing out the governmentality of non-compliance as central to the everyday state in India, I follow Ananya Roy, *City Requiem, Calcutta: Gender and the Politics of Poverty* (Minneapolis: University of Minnesota Press, 2003) and Akhil Gupta and Aradhana Sharma, 'Globalization and Postcolonial States', in *Current Anthropology* Vol.47, no.2(2006), pp.277-307.

are disposed. Instead, the securitisation of medical garbage makes sense if we regard the regulatory regime as itself a regime of production, albeit one tremendously well-suited to the availability and malleability of medical plastics.

One of the hallmarks of securitisation is that it renders conventional understandings of commodities, ownership and income streams opaque. In light of this, it is worth quoting one explanation at length. Nicholas Hildyard writes:

Securitisation is a process whereby assets that generate regular streams of income (e.g., loans, corporate bonds, mortgages, export credit debt, care homes, gas pipeline contracts or music rights on songs by rock stars) are sold to a newly created company. This company, called a ‘special purpose vehicle’ (henceforth SPV), is created exclusively in order, first, to buy these assets, and second, to issue derivatives on these assets. In purchasing these derivatives, investors are given the right to the income stream from these assets. The underlying asset remains with the SPV; the buyers of the derivatives have rights only to the ‘receivables’ that the securitised assets generate. By combining risky assets with less risky ones, securitisation has been used magically to transform risky assets into attractive investments. In the process, new capital is raised to expand the businesses that sold the assets to the SPV. In particular, derivatives and securitisation have been used to devise ways to make money by evading or ‘playing’ regulations; by extending the process of commodification; by devising elaborate new financial vehicles through which they have been able either to hide their ‘risks’ or pass them on to less savvy or less informed retail clients, or onto the state, while ring-fencing their own profits from liabilities.³²

In other words, securitisation is a financial strategy that works best for creating new revenue streams based on things like toll roads or mortgages or care homes. The idea is that because it is possible to assume that cars will keep driving onto toll roads, people will continue buying homes with mortgages and the population will continue ageing and needing care, it is possible to sell not simply the revenues from these activities, but also the rights of access to future revenues. In a similar vein, securitisation ‘works’ for medical waste in Chennai because of the Rules. Hospitals there will keep issuing forth medical waste, the TNPCB will keep issuing tenders for its disposal, and the scrap market will continue to support the recovery, reprocessing and revaluation these items.

In the case of Chennai’s medical garbage, the principal assets in question are hospitals’ steady stream of used discarded medical plastics. But there is a secondary asset—that of *access* to these revenue streams. Through the creation of a regulatory system for bio-medical waste, the TNPCB created this corollary asset: the steady stream of value that those who, by winning TNPCB tenders, are given privileged access to hospitals’ used discarded medical plastics. In the implementation of this regulation, and, in particular, by awarding contracts, high ranking officials at the TNPCB are widely rumoured to be able to collect many multiples of their respective annual salaries.³³ By tacit admission of haulage firm managers, haulers pay the TNPCB for the (annually renewable) right to collect bio-medical waste from hospitals. They then either pay hospitals for waste, collect it without charge, or, most commonly, undercharge hospitals for collection.

³² Nicholas Hildyard, ‘A (Crumbling) Wall of Money: Financial Bricolage, Derivatives and Power’. The Corner House, 9 October 2008. <http://www.thecornerhouse.org.uk/resources/results/securitisation%20taxonomy%3A1> pp.4-5, accessed 19 May 2012.

³³ Hard figures for corruption and its profit margins are notoriously difficult to collect or verify. However, in interviews in 2010 with members of diverse groups involved in the implementation and monitoring of this regulatory framework I heard repeated a very similar calculus of payments and collections across the TNPCB and the firms who won these bio-medical waste contracts. This tallies with the findings in S. Guhan and Samuel Paul (eds), *Corruption in India: Agenda for Action* (New Delhi: Vision/Orient, 1997).

Although not all re-sellable medical garbage leaves hospitals via appointed haulers, the Rules changed the scale of the medical garbage trade. Whereas hospitals used to sell to a range of buyers, they now can consolidate transactions and stabilise prices by dealing with the appointed bio-medical waste haulage firm. Itinerant plastic scrap buyers and hospital workers continue to play a marginal role in removing medical plastics from hospitals, but, as medical plastics have become specialised items, these buyers now buy at a higher rate. In turn, they sell on at higher rate to plastic scrap merchants who themselves are now aware of the heightened resale value of this high grade (or ‘virgin’) plastic among plastic scrap reproducers.

Whereas hospitals and clinics had earlier either dumped their waste alongside general municipal waste, or sold some of it as ‘scrap’, the regulatory framework for bio-medical waste has reframed this waste as a ‘bad asset’ for hospitals and clinics. In order to shift this ‘bad asset’ off their books and simultaneously raise revenue from it, hospitals and clinics now collude with the firms who have been awarded the state government’s contracts to collect and dispose of bio-medical waste. In short, the TNPCB, hospitals and waste firms maintain an auditable record of regulatory compliance whilst participating in a parallel and cascading system of buying and selling contracts, gleaning rights and scrap itself.

Conclusion

Scrap—whether as a noun or a verb—is in seemingly limitless supply across the Indian landscape. In its infinitude, scrap, and its constant inaugurations of new cycles of value accumulation, seems to spring, *sui generis*, out of both the Indian landscape and Indian society and culture. One day, a big man in the plastic scrap business gave me an extensive tour of what he deemed to be key neighbourhoods where scrap workers ‘turned dust heaps into gold’. At the end of the day, taking in the expansive views of Chennai available from his rooftop, I gestured to the Indian Oil tanks that dominated the view north. ‘What happens to plastic when all the petrol is gone?’ I asked, reminding us both that plastic is a petroleum product. He replied: ‘You saw all the plastic today. It is what has made India great now, and will keep us here tomorrow. In India, there will always be scrap. The future is India’s’.

In this essay’s tale of the securitisation of bio-medical waste, the Indian state, India’s healthcare industry, and waste workers embrace the conceptual imaginary and practical financial strategies of a polyvalent neoliberalism.³⁴ Nevertheless, for observers of modern India, many elements of the securitisation of medical waste will likely strike familiar a chord—waste-picking and corruption among public servants in particular. Many studies of the regulation of commodity markets sketch out instances in which new regulations inaugurate what we could call the ‘securitisation’ of revenue streams.³⁵ These studies often point to an emergence of what I might call ‘rentier bureaucracy’ in India and elsewhere. Indeed, the very licentiousness that adheres to my deployment of the term ‘securitisation’ raises a question about our assumptions regarding the direction in which ‘global neoliberalism’ travels.

In light of this, we must ask: do neoliberal financial strategies thrive in India thanks to the spread of neoliberalism as global zeitgeist of macro policy and individual mindset? Or, do neoliberal financial strategies like securitisation thrive globally, thanks to the fact that much of the global south is already well versed in time-worn strategies of resistance and accommodation to successive modern regimes—colonialism and modernisation chief among them? During previous centuries, these obfuscatory ‘weapons of the weak’ thrived in the long shadows cast by large powers. Today, it feels like the West looks covetously to India and other ‘emerging markets’—not only for their custom, but also for their customs.

³⁴ Jean Comoroff and John Comaroff, ‘Millennial Capitalism: First Thoughts on a Second Coming’, in *Public Culture* Vol.12, no.2 (2000), pp.295-298.

³⁵ I am thinking here of much of the work of Barbara Harriss-White and Jos Mooij, as well as the history of capital accumulation summarised in C.P. Chandradekhar and Jayati Ghosh, *The Market that Failed: Neoliberal Economic Reforms in India* (New Delhi: Leftword Books, 2009), and the ‘anthropology of the state’ in Akhil Gupta, *Red Tape: Bureaucracy, Structural Violence and Poverty in India* (Durham, NC: Duke University Press, 2012).

