

TAKING DUNG-WORK SERIOUSLY: WOMEN'S SHIT-WORK IN WASTE

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1. INTRODUCTION

In 1989, Patricia Jeffery and her research colleagues published a paper about the significance of animal waste for women's productive and reproductive work called 'Taking dung-work seriously' (DW89). Although the role of dung in the rural economy is now much diminished, the paper itself has stood the test of time.²

Here, by way of a tribute to an intellectual courage which has foregrounded the often hidden background of social life, is a response to DW89 over three decades later. Waste, including waste from all the substitutes for dung, has become one of the fastest-growing sectors of India's now much bigger economy. Yet as we will show, women's work is still shit-work, literally and figuratively. Involving human as well as animal waste, shit-work is defined as in DW89: low status menial work with no control over resources. Waste-work is still invisibilised despite taking place in public space. And the congruence between waste and stigma remains unchanged.

To contextualise our response, first we summarise the lasting significance of DW89.

1.1. Dung Work

In the DW89 paper, cow-dung, a form of waste from the expenditure of animal energy in agriculture and from the production of milk, is conceived as raw material for cooking

¹ With thanks to Gilbert Rodrigo with whom I did the fieldwork and to Hugo Gorringe for very constructive responses to the draft.

² Jeffery R., P. Jeffery and A. Lyon (1989).

(cakes, 'peat'); for agriculture (composted mulch and manure) and for home maintenance and construction (mud 'plaster').

Much labour is applied to this animal 'waste', labour which is overwhelmingly female and non-monetised. When money values were imputed to it, the product of an example of women's dung work mounted to an income stream equivalent to over half a year's agricultural wages.

Further, they argue, dung-work is 'invisibilised': heavy and tiring it takes place in private and public spaces that are female gendered. Despite its drudgery and potential economic value, this female work is regarded as non-economic, ignored by village men and development experts alike.

In DW89, practices of handling dung were mobilised to interrogate concepts in the study of development. First - the tendency for binaries in fundamental concepts of feminist analysis in social science: in this case production and reproduction (though public and private, male and female also suggest themselves). As an input, cow-dung straddles both productive and reproductive work. Second, the category of 'shit-work', meaning low status work that is undervalued by men who actually own the cattle, and undervalued by others who privatise, degrade and encroach upon the common property resources which provide cattle with feed.

The 1989 paper called for further research. To do this, we fast-forward to the present era, researching waste in South rather than North India, in a small town rather than two villages, with a work-force which is male as well as female, in monetised as well as non-monetised waste practices which cover the entire local economy and - despite the importance of cow-waste to Hindutva-blessed agriculture (Smith et al 2020) - in an urban economy in which the cow has a much diminished role.

But in this different context, what is waste?

1.2. *The social meanings of urban waste*

As Valerian Rodrigues explained (2009), Indian society shears itself between those entitled to throw waste into impure, caste-cosmopolitan public space and those obliged to remove it. For the former it is invisibilised, while for the latter, men as well as women, waste is visibly the raw material of their work in the urban economy. While waste behaviour is a material expression of caste relations, these socio-ecological waste-scapes map onto a remarkably differentiated sector in terms of business organisation, assets and ownership. They are not significantly different from the urban economy as a whole. (Appendix 1 and see Harriss-White 2016).

Locally high status, high-caste municipal officials, formally in charge of waste, marginalise waste in their burden of responsibilities, dispute the size and material content of the ‘problem’, do not care to learn the geography of waste in their current posting or to speak to, let alone consult, the municipal waste work-force. Meanwhile for every municipal waste-worker, we estimated through field-work that between 10-15 are deployed in the informal economy. Despite the growing work-force, the town’s waste was hardly under control. By afternoon waste engulfed all open spaces irrespective of property rights—a public-health threat in the course of unprecedentedly rapid development.

The town’s waste is understood incoherently through colloquial labels specific to the workers involved, through local and central government terms of art, through engineering sub-fields and through academic categories. Together these multiple systems of classification render the knowledge-field of waste peculiarly hard to navigate. Further, waste studies have been distinctively focussed on certain kinds of work (e.g. manual scavenging, ragpicking), certain kinds of site and space (e.g. leather streets in Hyderabad, dumpyards, e-waste yards), certain kinds of waste (e.g. plastic, shipbreaking) (Harriss-White 2018). We chose a town.

1.2. *Place, and methods*

The nameless South Indian urban waste economy which I studied through three field visits between 2015 and 2019 is a one-lakh town, spilling over into surrounding villages. A central place for administration, construction, wholesale and retail trade, and its finance, it is a hub for communications, public and private health care, school and college education, religion and culture (from temples, churches, marriage halls to cinemas).

1.2.1. Research design

While DW89 cast the analytical categories of production and reproduction as a problem for the feminist analysis of dung-work, in the research reported here, these spheres were developed as the means to finding analytical order in the urban waste economy. From political ecology and economy, we examined the social relations of urban waste-generation and waste disposal throughout the circuits of capital. The circuits are

- i) production (in this town urban industrial production: the cases of liquor production, rice milling, and garment accessories)
- ii) distribution (the cases of the production and disposal of waste in the distribution of people (Indian Railways) and of commodities (the wholesale vegetable market)),
- iii) waste practices of consumption (involving the municipality and its permanent sanitation work-force, the wage workers in private companies contractualised to the municipality, plus self-employed unregistered waste workers);
- iv) waste in the production of urban labour (the generation and its disposal of human body-waste which, in our case, is often merged with consumption waste);
- v) the circuit of waste-generation in the reproduction of urban society (cases first of waste in liquor consumption without which the waste labour forces themselves would not go to work and second of the production and disposal of waste in

public and private medicine which ensures the health of society).

1.2.2. Case studies

Judgements grounded in experience, were involved both in the selection of the town and in the choices through which over 150 interviews are summarised. As Flyvbjerg (2006) observes in his refutation of five myths about case studies, context-dependent knowledge is as important as theory in public policy and deliberation. And, as in DW89, the former can be used to critique the latter. Case studies do not simply validate theories and accepted generalisations, they also produce surprises. The most memorable surprises in the fieldwork reported here were the agency of animals and the dehumanising as animals of some of the waste-workers by others.

In DW89 case studies were used to engage with the abstract (theories of production and reproduction) as well as concrete questions in development policy and practice (unvalued women's work, the erosion of the commons). Patricia Jeffery's life-work has also confirmed that the case is a lens through which society may be glimpsed.

Here we assemble case studies niched in the circuits of capital and representing different scales and positions – the town, sectors, firms and workers. It is a long way from cow-dung. In what follows, I introduce these five circuits of urban waste production and let waste workers explain their life-worlds. Following DW89 so far as is possible, I focus on what they teach us about substances, organisation and tasks, commodification and earnings, women-men relations at work, and political and social visibility, particularly as they pertain to the biodegradable waste which until recently dominated urban as well as village waste.

2. GENDERED LIVELIHOODS IN WASTE

2.1.Livelihoods in waste created by industrial production

The town is poorly industrialised with a small factory sector operating on non-local raw materials. An alcohol industry uses molasses from sugar cane, water and fossil-fuel energy to generate industrial alcohol and liquid waste - in principle non-toxic and biodegradable, in practice neither. Untreated molasses sludge has been piped to a river-bed from where evaporation solidifies the waste and percolation contaminates the water table, while unattended blockages and leaks pollute nearby *Dalit* farmland and water.³ Both the factory and the village it pollutes have histories of caste conflict. *Dalits* have been evicted from factory land and, according to the Panchayat President, Mrs E., a feisty *Dalit* woman, are being ‘constantly sacked’ from the factory’s casual labour force—down from 50% of it at the start to 12% in 2015, disproportionately concentrated in dealing with the physical tasks of effluent management and paid ‘rock bottom rates’- about Rs 6,000 a month. Mrs E. attributed the pay levels of factory waste-workers not to supply and demand but to caste-based contempt.

Most of the town’s factories, however, are rice mills.

2.1.1.Rice Mills

Substances and Processes: The 50 rice mills ringing the town produce rice from paddy - plus a series of solids as waste: husk, bran, broken-rice and ash, all theoretically biodegradable. Depending on the season, these are recycled, generating value as raw materials and sold through a small army of local wholesalers. Husk is used as fuel on site and dry-season surplus is sold to ‘factories with boilers’ – dyers, distilleries and sugar factories - from which burnt husk ash is abandoned in piles outside the factory compounds, free for farmers in dry seasons. In the monsoon, the mill-owners themselves pay to have damp, decomposing husk ash taken to the town’s dump-yard. Bran

³ Dalit is an identity meaning oppressed (as in the *Dalit* Panthers movement, which is active in the region) and covering several scheduled castes and tribes working in waste. Here we use this overarching concept as used by our respondents.

generates edible oil, soap and paint in a solvent extraction process the waste from which is sold as cattle cake. In the wider region some rice-waste cattle-cake is now even exported to Europe. Black and broken grains are traded long distances to supply an intensive chicken industry. These systematic activities urge caution in taking for granted UN agencies' high estimates of food system loss and waste (FAO 2019).

Men-Women Work Relations and Earnings: While the means of subsistence has been commodified and while household labour rarely involves de-husking grain, while the rice-mill labour force is masculinising, waste work in rice processing remains one of the several tasks of a casual migrant labour force (approximately 10 -15 per mill). Gagged and disempowered by their lack of local language these menial workers get about Rs 6,000 per month on a daily rate, most of which is remitted home. Daily (food) allowances and discretionary perks underwrite their pauperised day-to-day existence. Identifying as *Dalit* on casual contracts, labourers may also be attached by custom (as well as debt) to a mill.

Mill waste is swept by local *Dalit* women in three shifts. There is a big pay gap between them and the men. 'I'm paid Rs 3000 a month' said one of a modern rice mill's three sweepers. The women sweepers are from asset-less labouring households. 'We have no land. My sister's husband works in a labour gang loading and unloading husk and bran on paddy lorries. His pay has gone to piece rate. He gets about Rs 6000 (per month)'.

The women sweepers are *Irular* – a scheduled tribe whose people are feared and despised - constantly being evicted from work-places and camp-sites. (We will learn more from them later.) One explained: 'There used to be more tribal women working on the mill's drying yard but they were laid off when husk-fired driers were installed'. Her throw-away remark confirms how the sun-drying on huge cement yards of moist paddy prior to milling has been female-labour intensive. In recent decades, it has been replaced by capital-intensive technology which displaces not the

costliest labour (as in economic theory) but the labour with lowest social status – low caste women.

Political visibility: The state permits these unregistered workers to survive, not through any interventions in work conditions but through what it provides outside work based on peoples' eligibility as poor citizens. 'The rice ration is vital to keep us alive', said the rice-waste sweeper and this was a comment frequently heard in fieldwork. Subsidised rice from the public distribution system reduces pressure on employers' wage-bills. When, in 2015 the poverty line was Rs 1400 per person and the Minimum Wage for a month was Rs 5000, it was tough to maintain a family with dependents on incomes like those of rice-mill waste-workers without economic transfers.

2.2. Livelihoods in urban circuits of distribution

Between production and consumption lies a complex circuit through which commodities and labour are organised over time and space. These processes of distribution generate waste. Our case studies involve the railway serving the town by distributing people (and cargo) and the marketplace supplying the town with vegetables for consumption and onward distribution throughout the region.

The transport of freight and passengers by rail generates solid and liquid consumption waste as well as human waste, much of it combined at its spaces of generation – dropped on the tracks and strewn at stations. Just as Rodrigues theorised (2009), users of Indian Railways feel entitled to cast their waste and shit into these impure public spaces. 'Even educated people use the station as a dustbin,' complained a Railways Health Inspector. That the two sites, track and station, are managed by different departments of Indian Railways illustrates another general point that waste management has non-trivial co-ordination problems. And the medical department in charge of stations has many other responsibilities, including food standards. Station waste is a chore combining high physical visibility and low social status.

Indian Railways' waste work-force also embodies a dramatic story of neoliberalisation found in other branches of government like hospitals and colleges. From 2008, under orders from the United Progressive Alliance / Congress government, keen on shrinking the state, IR rolled out a nationwide subcontracting of waste management to private companies. With private rates of return on capital of up to 33%, the workforce, laid off by state agencies and re-hired by private companies, experienced a catastrophic pay-crash. From about Rs 15,000 per month with work-related social security entitlements the women's wages plummeted to Rs 210 per day (approximately Rs 5,250 per month - with severely compromised social security rights). To make ends meet, the now semi-formal working shift is lengthened by extra hours spent informally self-employed separating paper, plastic, card and glass, bagging and hauling station waste to sell, un-receipted, to small private wholesalers. The average extra daily income of Rs 50 raises their total monthly earnings to perhaps Rs 6-8,000. Trade unions find the organisation of informal/unregistered workers and workers in fly-by-night private companies much more difficult than in the public sector work-force. While DW89 showed how accounts invisibilise women's domestic waste work, the employment practices of Indian Railways shows how its waste-labour has been made invisible in the public sector of the economy.

2.2.1. Livelihoods in the distribution of commodities: the fruit and vegetable (F&V) markets.

Substances and Organisation: The town has two wholesale markets for vegetables. One is auctioned privately, a site for 10 fruit and veg (F&V) wholesalers and about 400 illegal retailers show-casing their artistry with displays. The second is a less frequented, periodic municipal 'farmers' market', where small traders from surrounding villages sell produce already purchased and so already in the circuit of distribution. Tucked

in suburbs you can also find cramped and makeshift, fly-blown places for meat and fish.

General waste from these marketplaces overflows the municipal skips. F&V waste (currently estimated at as much as 40%⁴ and used as grounds for cold-store and hi-tech infrastructure (Pandya et al 2016)) consists of cuttings, perished perishable F&V, bruised vegetables, vegetables speared by hooks during loading and unloading, vegetable matter used in packaging, and fungi and mushrooms.

Since, regardless of its proportion, the absolute amount of F&V waste far exceeds the capacity of the town's waste-workforce to dispose of it, much marketplace waste is fly-tipped onto common land from lorries supplying F&V on their return journeys to their villages of origin.

Vegetable waste is also generated by the hundreds of 'meals-hotels'⁵ in town. Sometimes a milk-cow is tethered outside a meals-hotel to deal directly with banana leaves. By dusk biodegradable waste forms huge piles on which packs of feral dogs, privately-owned pigs and goats are to be found foraging under streetlights. A common property resource, 'it is truly disgusting' declared a wholesaler.

As we saw for rice so with F&V, a significant amount is recycled as raw material – in this case for informal urban dairies and for pigs. Down confined alleys teeming with chickens and goats, cleaned by water from private hand-pumps, at the back of narrow but deep tiled-roofed terrace-houses complete with storerooms for fodder and recycled plastic milk bottles, are to be found dozens of very small family businesses in byres holding – say – 4 cows and 3 calves.⁶ Cattle feed isn't confined to vegetable

⁴ <https://www.ft.com/content/c1f2856e-a518-11e3-8988-00144feab7de>

⁵ Vegetarian eating places where *sappadu* (a meal with six tastes in lentil and vegetable dishes and rice on a banana leaf) is served at lunch while *tiffin* (a vast and eloquent array of snacks) is served at other times of day.

⁶ Male calves are still reared for ploughing and for slaughter. Tamil Nadu permits cow slaughter but two dairy women told us 'there is no slaughter house here'. Since we saw a slaughter house for cows in action during fieldwork as we walked up the railways line, we affirm DW89's warning about ethnography that 'we do not have to accept our informants' explanations'. While cows and their milk

waste and pasture but is residually commodified, consisting of unwanted ration rice, and waste husk from rice, dhal and gram milling.

Mostly penned in backyards, 500-750 pigs also flourish on food-waste while a further thousand forage and roam the forested peri-urban hills.

Tasks and Agency: F&V – and meat-fish waste - provide the raw material for an extraordinary amount of non-human agency (Kumar et al 2019). Between 10-15 flocks of goats and herds of stray cattle (let loose by poor citizens) feed, even on the burning surface of the dump-yard. ‘Though plastic waste is an ever-present danger, all the cows know very well how to graze this town’ a pig-rearer explained to us.

Human agency in the F&V market is structured by gender – mostly male – and caste – mostly Backward. Few women own either vegetable market resources or the animals reared on vegetable waste. Just 7% of the hundreds of retailers are women. One *Naicker*⁷ clan owns half the wholesale vegetable firms (with portfolios in transport, rabbits, cattle and land). The largest local firm is globalised, exporting okhra, brinjal and ginger by air to Europe and importing garlic and cardamom from China.

Men-Women Work-Relations and Earnings: Urban dairying is gendered: boys and men gather the edible waste, retail the milk, manage grazing and dispose of cow-dung, urine and waste water onto the local peri-urban water-meadows: common land used for pasture. All the other work of cleaning empty bottles, rearing and milking cows and rolling credit and debt is done by women. Rural-urban marriage migrants, they learned the physically hard work of dairying in their villages of origin. ‘If you rear a cow you have to work like a cow’ a dairywoman tells us, grimacing and grinning.

are sacred to Hindus, their inevitable slaughter is profane and being criminalised (Narayan 2019). No wonder the practice of slaughter, legal in Tamil Nadu, is denied by urban backstreets dairy farmers.

⁷ Naickers, originally Telugu speaking warrior castes who had migrated from what is now Andhra Pradesh by the mid 17th century, compete with Mudaliars for dominance in the local urban economy.

Despite low cash input costs, totalling on average Rs 10,000 a month, they explained ‘we hardly break even’. I calculated a monthly net income of about Rs 2,000. Debt penetrates dairying lives. ‘Banks no way! One month’s default and they would confiscate our cattle. ..We would rather live slightly bonded to our loyal consumers than disgraced by the banks’.

Visibility: The petty commodity production of milk faces stiff price competition from adulterated supplies from larger dairies. To avoid inspection, their milk is not branded, their cows are uninsured, they have no collective representation. This backstreet waste-dairy economy depends on cross-subsidies from diversified household income streams. One example involved a store-room with machines for sewing and tailoring. More women’s work.

2.3 The circuit of consumption: livelihoods in consumption waste

Visible waste on verges and spare urban land (whatever its tenurial status) is mostly thrown out as the by-product of consumption. In the 1970s, urban consumption waste was biodegradable and recycled through composting pits auctioned as agricultural manure. Over the last 5 decades of rapid urbanisation the proportion of non-biodegradable consumption waste has risen to equal or exceed biodegradable waste (Ahluwalia and Patel 2018).

This waste is formally the responsibility of the municipality relying on revenue from property and professional taxes, from which it pays a directly-employed labour force of 115 municipal sanitation workers (MSW) - the labour aristocracy of waste. As with Indian Railways - but due to tax evasion which thins the revenue stream - the Municipality is being forced to privatise its work-force incrementally, by 2015-16 auctioning one third of its streets to private bidders. The need for private profit from successfully low bids eats into the wage component. So the company employs debt-bonded, long-distance, migrant-labouring

couples on deteriorating pay, with no benefits except for slum housing outside which piles of segregated materials betray the lengthening working day. Of late, such is the strain on public finance that one ward has been given over for free to tribal collectors.

About half of the urban consumption waste is currently recycled. Alongside the MSW and its private subcontracted company, there are about 50 unregistered buyers and bulkers of card, paper, metal, glass and plastic. This unregistered wholesale system, a fortress of the *Nadar*⁸ caste, supplies a joint family business. In a seven acre depot plus three satellite sites, over 200 raw materials are segregated for re-processing in Chennai by a labour force of 75 local low-caste women and about 50 migrant men from Bihar and Orissa. An unknown sized army of unregistered self-employed collectors collects and sorts waste and supplies this system; some with trikes or bikes, many on foot, some migrants, a few vagrants. Their supplies are supplemented by those of wage-workers on shifts clearing waste in schools, colleges, office complexes, hospitals and the bus and railway stations who work extra hours as self-employed segregators of the waste-piles they are employed gather.

2.3.1.Municipal Sanitation Work

Here we shift the style of this story-telling for a reason Patricia Jeffery may appreciate. The experience of two municipal sanitation workers and trade union leaders needs telling rather as they themselves told it – intertwined with one another. On each field visit, we have met in the CITU⁹ office under posters of Lenin, Mao and local labour leaders. ‘Please use our names. We want the Chief Minister to know’. Illiterate, articulate, militant,

⁸ Nadars, originally said to be toddy tappers, are an upwardly mobile entrepreneurial caste from southern Tamil Nadu.

⁹ The Centre of India Trade Union, founded in 1970, is one of India’s biggest multi-sector trade unions with a current membership of some 6 million workers.

street wise, one *Paraiyar*¹⁰ and one *Arundathiar*¹¹, they wear their gold as a symbol of their pride and the respect they feel they deserve but do not get for work that is an essential service.



It is midday, late September 2019, T and K have eaten but are between shifts, having washed and changed for our meeting behind a fish market shop because the Municipality itself has no changing rooms or washrooms for the labour force cleaning the town... 'Yes, we remove their shit from the drains but while we work we ourselves have to shit on the verges. That is why most of us don't eat or drink until after the first shift. We have to control our bodies.'

Substances, Tasks and Technology: The municipal labour force is responsible for clearing all waste thrown from shops, offices, public buildings and homes onto verges, into drains or heaped in big roadside bins. The town's consumption waste is unknown – estimated by engineering officials at anywhere between 25 and 60 tonnes a day. About half is non-recyclable while another half is non-biodegradable.

'More and more waste is complicated, horrible and jumbled up in drains. It's new - the sanitary napkins, tampons and incontinence pads muddled with used plastic, glass, metals, paper and cardboard and food-waste'. Despite lady 'animators'

¹⁰ Paraiyars are former untouchables now scheduled castes.

¹¹ Arundathiars are scheduled castes, said to be renamed chakkliyans and to have migrated south from Andhra.

whose families have exchanged a Rs 3 lakh bribe for Municipal salaries to teach households to segregate waste, only a quarter of the people of this town comply. There are no fines for those who don't segregate domestic waste.

'We have to collect and segregate by hand. Yes, we now have equipment unlike when you first met us four years ago but it isn't suitable for our work. We're sometimes given masks but they are too hot for our weather. Rubber gloves are supplied once a year but they are flabby so we work without them. Sandals pick up mud and shit and rot like cardboard and galoshes are useless in the monsoon.

'While 20 years back there used to be 250 workers for a quarter of the present waste, the municipality now has difficulty paying 60 women and 55 men. Even with machines there should be at least 300 of us. Our work contracts are becoming extinct. Don't talk about inheriting our jobs: 25 of us have died or retired in the last four years and have not been replaced. Workers and work-loads don't add up – or they do add up and they crush us. Population and infilling means that the material we have to pick up has increased to four times what the municipality calculates. The shifts are growing longer. They are incompatible with housework' To compensate they have been allowed to segregate and sell waste they collect but that lengthens a working day already stretched way beyond official timing.. 'Perhaps we get Rs 30 extra a day.'

'We've also been given so-called ecological battery-operated trucks to carry the waste we collect to the dump-yard. But there are few charging points in the municipal yards, the trucks break down and their skips are too small – half the size of the tractor trailer. We need two circuits to replace what one sweep of waste did before. There is not enough room for a team of 3 – a man and two women - to sit on them and they have no protection from rain/sun.'

Men-Women Work Relations and Earnings: Formally the municipal labour force receives equal pay. But ad hoc and casual

contracts are rapidly increasing in prevalence and these can vary between men and women. Average monthly salaries for women are declining (said to be Rs 15,000 in 2015). Now few exceed Rs 12,000. 'Sure, we also get benefits but they are also deteriorating: a medical card with lots of exemptions (the 6 monthly check-ups have stopped), pensions but increasingly unreliable, taking years to start arriving. We have torn nails (look...), skin allergies, URT infections, urinary infections and our children will have to look after us in old age. This will get worse because we now have to work in competition with unregistered labour working longer hours for far less pay' (reported at Rs 8,000 per month for the men and women working for the private company)..

'We are supposed to work in teams but men control the machinery and they also take more time off. Sometimes we have to substitute for them.' Promised housing, men are now seizing rented accommodation of the municipality for their families and resisting its demolition.

Visibility: By the afternoon the visibility of household waste strewn throughout the town contrasts sharply with the invisibility of the workforce handling it. Local government officials never consult the labour force they pay, relying on the understaffed supervisors who themselves are mostly unfamiliar with the town's layout. We ascertained that officials who are mostly trained engineers know nothing about the unregistered workforce regardless of whether employed by the private subcontracted company – communication with whom is further obstructed by languages - or whether self-employed or wage workers for wholesalers operating in the informal economy.

One trade union, CITU, has trained T and K and has raised the problems of deteriorating terms and conditions, of pay levels and precarity in state-level fora but to no avail. CITU succeeded in organising a protest which wrung from the Municipality a meagre death compensation for a migrant contract waste labourer killed by a tractor-trailer negotiating a pothole. CITU officials

themselves acknowledge that the union is mostly mobilised around sectors other than waste.

2.3.2. Recyclers of Plastic Waste

Substances: Segregated recyclable waste is sold to an ‘apex’ depot where it is crudely transferred to specialist satellite hangars. Plastics, for instance, go for fine grained classifications, underground storage, shredding into chips (when the electricity works) and stacking in gunnies on an old drying yard.

Tasks, labour relations and incomes: A mountain of jumbled plastic objects (including obsolescent TVs and mixies¹² provided free by the government) is dismantled to fill winnowing trays which then feed a production line. Instead of sitting on stools and working on a bench, six local women of all ages and four young migrant men sit cross-legged on the floor in segregated groups picking four each¹³ of 40 kinds of plastic from the trays passed down the line and throwing them in 41 bins: at the end is a special skip for the waste waste which includes bits of metal they have to disentangle from plastic objects and which is thrown to the verge to be collected for the dumpyard. The pace is fast, the waste is dirty, some components (used syringes) are potentially infectious, the work requires intense ‘eye-brain-hand’ concentration and coordination, workers’ bodies are crunched painfully and shifts are 9 hours long, counting toilet breaks.

‘I’ve sat in this position on this concrete for 10 years’ says one woman recycler. ‘Every so often after several weeks we change positions and categories to stop being bored’.

‘As we are all SCs and BCs, we are not under pressure at home to conform..This work gets us out of our homes and gives us incomes’. It is regular, while agricultural work and NREGA is unpredictable. ‘We are paid weekly, and get about Rs 4,800 a

¹² Domestic electric food grinders

¹³ E.g. a woman in position 10 selects plastic thread, water cups, larger cans and toothbrushes

month. There is no paid leave, no sick leave but our employer pays to treat accidents’.

Men are paid much more – Rs 7,200 – justified because their work is considered heavier and dirtier and their shifts extend into the night.

In this part of the waste economy, punishing work conditions and low pay are compensated for by a sense of personal freedom and autonomy. ‘But you don’t age gracefully in this job’.

2.3.3. Consumption Waste Work on the edge of Humanity

With waves of evictions, social oppression and marginalisation, tribal *Irulars* work in rice mills (with paddy still protected by its husk), in brick kilns (often as bonded labour), clearing waste in wedding-halls – and on consumption waste. While in 2015 they were informally allowed by the Municipal Labour force to make a dawn sweep of the town’s heaps of waste before the official round of daily collections moved into gear, by 2019 the MSW was compelled to top up its wage – like the Indian Railway workers – and has turfed them off.

Substances and tasks: ‘My family used to scour the dump-yard, fish and wash in the river and live in a hut nearby’ explains an *Irular* woman. ‘Even though our children didn’t go to school and the dump-yard and its smoke are dangerous, it was a living.’ Sand-mining has messed with the water table and dried up the water in the river (Jeyaranjan 2019). Lately the municipality has cleared part of the dump-yard and, with central government funds from Swachh Bharat, built a go-down for composting. ‘Now, new diggers pack the dump-yard waste to treble the old height and we cannot walk on the top. We have moved back to the forest where we have to make homes of leaves and branches because it is protected land and we can be chased out any time by government. The only *pukka* house on *poromboke* land in our place belongs to Pentecostal missionaries. We stay clear of them.’

Men-Women Work Relations and Earnings: *Irulars* prefer to gather waste in mixed-sex couples – for safety. Murugan explains - ‘in waste there are always new sites like behind the Girls’ College. When thrown off the dumpyard, we used to work very early shifts around the edge of town for three hours as the sun rises and before anyone else arrived to collect glass, milk sachets, cardboard boxes and plastic littered the evening before. We share routes and finds. I had a gunny bag and worked with my son. When our bags got heavy, we would segregate our things and my son would sell them to our wholesaler. There are just two wholesalers in town who allow our people to trade with them. They also lend us gunnies, small loans and sometimes bikes but we get half the price others get elsewhere.’

‘We don’t write or know numbers and are easily fooled. On a good day we might get Rs 200. NREGA also gives us Rs 150.’ (In a good month he might get Rs 4,000, more often 3,000). ‘We all have bank accounts now but others use them for us! Kamala in our village, who has a mobile, helps us get work and pay but it is often delayed.’

‘My wife who worked with me died. Now I feel I’m going blind (yes, I drank alcohol) and I have stomach and back pain. New gangs of outsiders are being brought here and kept by our wholesaler. They’re men with wrist watches and chains who take our routes. They have been agricultural labourers. They have cycles and can search further than we can by foot. I fear them and I can’t work. Most of my family has gone from the village: it is ration rice and sugar which keeps me alive. Without it I am doomed. I have a hut next to my son, who assists a bricklayer, and his family share their ration.’

Visibility: These tribal gatherers are shunned. ‘They are not really humans’, a self-employed female *Paraiyar* waste-collector confided to us. ‘We are treated like animals’ admitted a self-employed *Irular*. *Paraiyars* and people from scheduled tribes

refer to them as ‘beggars’ and ‘drunkards’. Of *Irulars*, they told us ‘a dog is still a dog even if you bathe it.’

There is a difference between feeling like a machine and being treated like - and feeling like - an animal. While the former is due to oppressive work, the latter is due to social discrimination. *Irular* waste gatherers experience both. *Irulars* have a unique permutation of attributes many of which are individually associated with other groups of *Dalits*, *Adivasis*¹⁴ or low-paid workers (Charsley, 1997): their closeness to nature emerging from their past association with rat- and snake-catching, their knowledge of forest habitats and encroachment with makeshift settlements without land titles onto forests sites or hilltops. ‘We have been temporary for three generations’. Their combination of fluent oral expression but extensive lack of formal education (with only a few of their children going to school even today) is unusual among local *Dalits* and *Adivasis*. And the relative independence of their women, and the routine consumption of alcohol by almost every adult, marks them out from the others. But by themselves, none of these attributes is unique to them.

Regardless of whether as cause or as effect of their ‘marginalised humanity’ in the eyes of others, those who most need their entitlements such as ration cards and ST certificates, to gain access to basic utilities, education and employment are by far the least enfranchised as citizens. Being addicted to alcohol which eats into budgets, and unable to afford rice at market rates, the few ration cards available for them have to be circulated between households. Discriminated against, ignored and shunned by others in the waste economy, *Irulars* are not socially excluded so much as socially expelled, and often treated with brutality by the State.

¹⁴ Tribal people considered indigenous to South India. *Kattunaickers* (self-identified as pigmen (rearers) and migrants from Andhra to the north) are one such ‘forest people’. *Irulars* are another.

2.4. Waste livelihoods in the production of labour

The production and reproduction of labour cannot avoid the daily production of human waste – prominent among which are urine, faeces and menstrual waste. Disposing of this waste is literally and figuratively shit-work.

Substances, Organisation and Tasks: While a large literature condemns the persistence of open defecation in India, in this region the abolition of manual scavenging in the early 1990s brought about the abolition of public sector jobs reserved for female manual scavengers. The de-reservation and disinheriting of sanitation work now means these dangerous but comparatively well-paid jobs depend on official patronage and discretion. The municipal labour force is being masculinised and the disposal of ‘wet waste’ in which semi-solid human waste drains from latrines (or is thrown) to be mixed with general consumption waste in open drains and urban gullies is now men’s rather than women’s work.

Where impossible to separate, it is transported with other non-recyclable consumption waste to the dump-yard. There the *Irular* families which survived from sifting the putrid surface that others rejected because of faecal contamination were evicted in 2019. The fetid mass is contained by systematically setting fire to quarters of it week by week, a practice which is illegal. While firing was widely blamed on *Irulars*, they clearly had no interest in increasing the danger of their work-environment and the practice has continued after their eviction.

‘Meals hotels have a bad habit of draining shit directly into the surface mains’ said a local *Paraiyar* politician. But by 2019 half the town’s houses and most public buildings and offices had septic tanks. The *Paraiyar* and *Kattunaicker* owners of two small fleets which took over in 2005 when the Municipality stopped voiding septic tanks as a public service report that many tanks are corruptly built to half the correct size. Very few households or organisations void them regularly – the Rs 1,200 fee is considered an avoidable cost. The *Paraiyar* tanker-owner explained: ‘They

might be cleared once in a generation or when they break down. ..The removal of shit is the last thing people in this town think about'. ..' Some replaced dry latrines 30 years ago, have never been cleaned and are now rock solid'.

There is no infrastructure for the treatment of faecal sludge when it is pumped out, so, operating at night or bribing the police by day, septic tanker crews dump half the town's faeces and toxic sludge in a nearby lake which is turning anoxic and in the river bed deformed by sand-mining.

Labour and Earnings: In local terms, septic tankering is a big business. The portfolio of the *Kattunaicker* owner comprises a fleet of tankers, other trucks, a large piggery and an agency for TV advertising.

While manual scavenging was, and domestic toilet cleaning is, women's work, the septic tank-clearing labour force is entirely male, young, local, *Dalit* or tribal. Voiding large septic tanks is filthy and dangerous work – cleaning labourers knew about suffocation deaths in nearby towns and cities. Daily wages pay small premia to reflect this danger, monthly incomes varying from Rs 7,000-10,000 but with 'no perks', no labour or social security rights. Labour turnover is high. From the *Kattunaicker* tanker-owner: 'This is essential work but there is no social respect. People in the neighbourhood ridicule the wives of my labourers and call their men shit carriers'.

Visibility: 'This is not a progressive occupation. And what with maintenance and competition our profits are declining'. Both the competing fleet-owners have strong political connections outside the town and one is a local politician himself. Monetised connections with the police are essential although 'we pay them to clear their shit! They require us to empty their septic tanks for free, over above the bribes they extort from us' (*Kattunaicker* tanker-owner). Referring to under-payments by officials in the Engineering college, the Fire Station, the *Paraiyar* tanker owner explained 'We are not well educated... We know knowledge is power. We want the next generation to have more power'.

2.5. Waste livelihoods in the reproduction of local urban society

An unhealthy society cannot reproduce in a way that moves towards human development. India's social system reproduces itself through relationships of health and disease that are locked into several dynamic transitions (developing between social classes and sometimes inside a given household): from high to low birth and death rates; from diseases of poverty (and under-nutrition and high infant mortality) to non-communicable diseases of affluence (and diseases of obesity and of lengthening life expectation).

One neglected transition affecting household health and expenditures and urban waste is a liquor transition in which toddy and arrack is replaced by a vastly expanded and socially cosmopolitanised consumption of commercialised and state-regulated alcohol: beer, rum, brandy and whisky.

In our case-study town, drinkers range from lawyers and policemen to construction, brick, timber, sex and waste workers. Commonly dismissed as drunkards by waste-throwers, many waste-workers, women and men, drink before they work in psychological preparation for the offensive sights, substances and smells they know they will encounter. 'Alcoholism is almost normal – such a horrible job handling stinking, maggoty waste' explained a woman municipal worker, who also reckoned Rs 200-250 could be spent daily on an individual's liquor-drinking. Then drinking after work to wind-down physically and emotionally and for pain-relief, addicts' life expectancies are compromised (Human Rights Watch 2014, Harriss-White 2017).

The waste from alcohol is not just costed in wasted and shortened lives, in this town it also generates a guesstimated million bottles a month as raw material for recycling or - if broken (a further hazard on urban streets) – for collection and deposition with waste-waste in the dumpyard. While the tax on alcohol subtracts from the subsidy on PDS rice in poor

households, the health hazards of waste-workers' alcohol consumption are another human subsidy to the state, necessary for the cleanliness of urban public space.

India spends on health one of the lowest proportions of GDP in the world.¹⁵ Its several health systems are some of the most privatised and informalised too (Brhilkova et al 2009). In our case study town there is an allopathic health-care cluster with one large government hospital, six large private ones and about 50 private clinics - all formally registered.

2.5.1 Health-care waste

Substances and Tasks: The waste generated by health institutions is mainly handled as general 'consumption' waste (e.g. food and human waste). The productive-therapeutic aspects of healthcare vary greatly in their generation of waste – operating theatres, maternity and labour wards and diagnostic labs generate most, while paediatrics generates little.

A small proportion of this waste is infectious or otherwise dangerous to health (needles and sharps; plastic syringes; blood transfusion, blood products and bloody waste; soiled cotton and cloth; drug bottles; saline and glucose bottles; body parts). It is termed medical waste and strictly regulated in a separate system of segregation, collection, incineration and burial (Hodges 2017). While the medical waste of the public and larger private hospitals is recorded, segregated and sent for burial – given that the region's incinerator has been closed after a public outcry about its polluting effects on local villages - that of the smaller private hospitals and clinics is segregated inside the campus. However, once outside, its classifications unravel as it enters the system of general consumption waste and heads for unregistered segregation or for the dump-yard.

Medical waste-workers are euphemised as 'housekeepers'.

¹⁵ 4% in 2013 - on a par with Congo and Fiji (IBRD, 2015)

‘My life has always been hard’...We are in S’s tiny ramshackle two-room house with a gaping hole in the roof where tiles have been ripped by monkeys. ‘My son bought the place cheaply from my daughter because my son in law had died there after falling from a tree. I fear harassment, living alone and use this place as a cupboard. I sleep next door, where I watch TV.’ S. is about 50, Muslim, with no education, orphaned early, brought up by relatives and deserted by her husband who left her with three children and without financial support.

In 1990 after years with a petty snack shop and then working as a washerwoman (*dhobi*), S. was recommended to a small private clinic in need of a cleaner and general factotum. Since then, this hospital has grown from 2 to 45 beds, from a focus on childbirth to general medicine, surgery and intensive care, from a single owner to a partnership of three - two of whom are supplementing their work in the public hospital. Many of the skilled paramedical and nursing labour force are retired pensioners from the state health system.

‘Waste is segregated in buckets and housekeepers empty them into metal skips outside. Food waste is then collected by the municipal sanitation workers. Medical waste is packaged and collected separately. Human waste and bedpans are cleaned by a separate labour force of scheduled caste ‘bathroom cleaners’. Our own needs are met by sneaking into the labour ward staff toilets’.

‘After washing soiled material for a year, I then worked as a helper in the operating theatre and the maternity ward before entering and later managing the teams of women housekeepers. As well as cleaning wards and segregating waste, I still work in theatre, I wash equipment and I nurse post-operative patients, washing them, cleaning their teeth and dressing wounds. I work a 7 day week on 12 hour shifts: this work is not compatible with family life or other work at home. Housekeepers cannot supplement this work with side jobs. There is no time for worship. I don’t go to the mosque – it is too exhausting after

work. I also can't afford the cost of cloth to cover my head nor do I want to draw attention to my religion.'

Men-Women Work Relations and Earnings: 'We are essential but we are paid low wages'. Many housekeepers confirmed that men and women were paid equal wages in clinics. In some case men do 'high work' (fans and doors) while women do stooping work collecting 'low waste'.

S. has worked for 20 years on a verbal contract for a monthly salary worth Rs 7,500 in 2019, with an annual festival bonus of Rs 3,000, loans of up to a month's salary (deducted from her pay over 5 monthly instalments) and provident fund that has been paid, S thinks, for the last 10 years. But 'there is no retirement age'. Uniforms, gloves and masks are provided. All leave, for whatever purpose, is discretionary and unpaid, except for illness when S receives free treatment.

Visibility: None of the housekeeping labour is unionised in the town. 'In place of a union, once a month in this clinic there's a staff meeting for grievances: the demands are about shift length, better uniforms, overtime, breaks. About salaries, we talk privately.'

'My relatives ask me why I do a filthy job. I get much mockery for this filthy job. But this hospital is my 'parent-home'.... Okay so it is dirty work but I'm proud of my reputation for being a good cleaner, and I am grateful to my patron.'

'I also suffer for my lack of education. My son taught me my signature. I can't read and don't know English and both are important in the hospital. For drug bottles, other people have described the label to me and now I know their contents. Otherwise doctors and nurses use English and I have made mistakes in my daily work e.g. when someone asked for a lavatory and I took them to the laboratory. I have learned English numbers through the wards: 'Go to ward 14 or 21' etc.' I get used to it.... I learned counting when I worked in a grocer's

shop before I came here. I counted and separated coins in the evening. That is how I came to know numbers.'

This glimpse of private medicine also reveals a very physically strenuous, grindingly poor livelihood with responsibilities incommensurate with her education, which S. makes sense of in terms of patronage, flexibility and discretion. 'In future shit workers will be *Dalit* drop-outs from far-off villages'.

3. CONCLUSIONS

'Why learn about us? India is a country where knowledge can lead to inaction with impunity' said K.

3.1 Rural-Urban Comparisons

Like rural dung in DW89, urban waste has many uses. We found waste as free, common property to be gathered as raw materials - both biodegradable and non-biodegradable - for small scale production (dairying, piggeries, second hand repaired goods), some composting for agriculture and considerable recycling for reprocessing. Unlike DW89, in the town we studied waste is not yet used for fuel/energy. Unlike DW89, waste-waste is a growing category. Half the town's waste goes to landfill. Waste-waste could be reduced, especially if human and animal shit were disposed of separately from other urban consumption waste. At best animal waste is recycled privately on pastures, at worst and mostly it enters the stream of consumption waste.

3.2 Monetisation and commodification

Whereas in DW89, dung was hardly commodified and prices and earnings were imputed, these days urban waste has two pathways of commodification: first, about half the waste material is commodified into fine-grained categories for reprocessing; and second, work gathering and segregating both recyclable and

non-recyclable 'waste-waste' is being commodified through wages paid directly and indirectly from the public fisc, or directly in independent private firms.

Labour is being aggressively commodified in forms ranging from salaries paid from revenue strapped public agencies, through wages in private capitalist enterprises (in turn ranging from corporates to small family firms), to returns to self-employment. Self-employment varies from small-scale independent livelihoods through disguised wage work controlled through debt including 'kind bondage' using for example cycle trailers, to the monetised pickings of destitute vagrants. In this wide range of forms, waste labour is no different from sectors in India's semi-registered capitalist economy.

As a consequence of new public management practises and of more or less neo-liberal cost-cutting by the Indian state, the terms and conditions of work in the public sector of the waste economy have deteriorated markedly: in particular, levels of pay, the increasing length of working day needed to get a subsistence income which is now widely reported to eat into reproductive labour hours, the precarisation of contracts, the extinguishing of rights to work-place equipment and social security benefits. In private companies waste-work is at the least entitled end of a continuum of contractual forms in which 'formal' and 'informal' are at extremes. 'Privatisation is killing us' said a government hospital cleaner.

In the informal waste economy, mechanisation is not reducing the demand for work because the production of waste is increasing at a rate far outstripping that of labour displacement and because the capital-biased technologies introduced are unreliable and often inappropriate. Whether as unregistered wage-workers or as self-employed, the earnings of waste gatherers are half to a third of those of the municipal labour they threaten. Any benefit other than the wage has always been exiguous and discretionary. Many have no work-rights and

receive state-support only through transfers such as PDS rice which are based on citizenship below the poverty line.

3.3 *Gender in the urban waste economy*

While not overwhelmingly female like dung-work and while the male waste work force is considerable and sectors like septic tank voiding are entirely male, the urban waste economy nevertheless appears to be disproportionately feminised. Women get livelihoods from working in a vast range of waste substances, some disgusting, often toxic. Not always *Dalit*, the female workforce in waste is highly differentiated by tasks and niche in the urban waste eco-system, by income, precarity, contact with filth and degree of organisation. Women occupy the kinds of fractured niches that Kapadia has evoked for *Dalit* women's work in general (2017). Local women are often forced to work alongside migrant men whose language they cannot understand.

Despite the entire waste economy being stigmatised, the terms and conditions of women's work are clearly more oppressive than those for men. When men and women work together, the terms subordinate women. Women tend to work harder for longer hours, lower pay, fewer discretionary perks and fewer social entitlements. More so than men, women have to control body functions at work, to meld their bodies to physically punitive tasks, to avoid the threats to health from filthy, toxic and physical dangerous substances and gasses, and to cope with premature ageing and a life cycle shortened by shit-work.

Whereas DW89 reports even rural public space to be gendered, our urban fieldwork found the gendering of space confined to sites of work rather than being expressed in the public domain – except at night when urban public space is male space.

3.4 *Caste and shit work*

DW89 was researched at a time when the changing role of caste in the economy was being hotly debated. While Bêteille could write that ‘caste is no longer an important agent of either placement or social control’ (1997, p450), Cadene and Holmstrom concluded that caste continued to play a major ‘continuity’ role as a social allocator of occupations, even as the economy diversified (1998). In striking ways, waste shows both this continuity and change. In DW89 while some *chamar* and other low caste women used to carry out DW for clean caste Hindus and high status Muslim households, by 1989 DW had become domestic work for women of all castes. By contrast, in our 21st century urban case, waste reproduces the social order and waste-work is deeply, though not completely, embedded in caste. Hierarchies of stigma pervade substances just as they do the identities of workers. Human and animal wastes are most stigmatised, paper and metals are least.

While the municipal workforce faces deteriorating conditions and accelerating contractual ad hocery, it is also cosmopolitanising. Ten per cent are non-*Dalit* ‘only very poor *Naickers* and *Naidus* are willing to do this work.’ Yet a *Dalit* MSW put it this way: ‘Outside work we are called *kuppaikaran* (trashman) and scavengers. This is India! But non-*Dalit* sanitation workers are called municipal staff and they soon take the jobs in lorry driving and supervising’.

The most extreme social stigma is attached to *Irular* tribal people, whom other waste workers do not consider (fully) human and who are subject not so much to social exclusion as to active social expulsion, both in and out of work.

Easier to enter than to exit, the informal waste economy, labour-absorber of last resort, is work for Scheduled Castes and Scheduled Tribes. Educating the next generation is key to mobility but access to schools and colleges faces stigmatising discrimination and exclusion (Rodrigo and Harriss-White 2016).

Deliege’s paradox of marginality developed for ‘untouchables’ covers the low caste informal labour force – socially marginalised

but materially essential. While they work unregistered and without rights to work, rights at work and rights to social security, without them the urban economy would not function and its population would fall sick.

3.5 Development Concepts

3.5.1. Waste as a subfield

In the decades since DW89 reflected on the low status of waste work as a research and policy field - ‘beneath contempt of development specialists’ (Jeffery et al 1989, p 36), a sizeable sub-field has been created.¹⁶ Yet while waste itself has exploded in volume and diversified in composition, it remains of low status both as a zone of policy and practice and as a research sub-field. While shit has its own sub-sub field (Doron and Raja 2015), dung and other biodegradable waste is overlooked in the literatures on urban waste, a neglect we have tried to repair here.¹⁷

In the work of recognition, it does not help that waste is a concept beset by a multitude of classifications – with no consensus on terms. Despite this epistemological incoherence, but as was found in DW89, the trajectories of waste still straddle major conceptual binaries in development thought. The economic relations of waste not ending-up in landfill mesh circuits of capital usually theorised as distinct. While DW89 followed waste in routes transcending production and reproduction, here we see waste generated throughout the circuits of production-distribution-consumption-the production of labour and the reproduction of society. In the circuit of social reproduction we also identified an ‘alcohol transition’ from evidence for a rapid social increase in the consumption of alcohol not just for recreation but as therapy for offensive work conditions.

¹⁶ See the reviews in Harriss-White 2018 and in Doron and Jeffery 2018

¹⁷ See Kumar et al 2019 for a development of the human-animal nexus around urban waste

While male and female work is often mapped onto distinct tasks, in waste the gendered divisions of labour are further structured through gender-diverse couples and teams as work-units, and through other gendered binaries such as wet and dry waste, respectively men's and women's waste material.

Even the concept of shit-work – readily volunteered and recognised in Tamil – developed depths hitherto unappreciated. First, the stuff of shit-work aggregated human and animal shit and animal carcasses, it aggregated faecal substances with other human waste secreted into soiled padding. Second, the mixing of shit with other consumption waste in drains and gullies greatly expands the composition of shit-stuff and its work. Third, shit-work also involves the work of shitting in public spaces, for which municipal workers, forced by the humiliating lack of municipal 'conveniences', are mocked and stigmatised. Yet fourth, while shit-work is low-paid, dirty and low status – as a sector it is not a barrier to accumulation. The state has few difficulties subcontracting this work to private and corporate capital.

The case of waste teaches us that conceptual categories should not be taken for granted and need interrogation.

3.5.2. Development Policy

As in DW89 which took dung seriously, urban waste is an ever-increasing development problem. Waste is launched on a higher growth rate than most economic sectors and one destined to last the entire 21st century (Hoornweg et al 2013). While food loss and waste has excited UN attention the uptake of technologies to reduce it is sparse and slow (FAO 2019). And, despite Swachh Bharat, waste is hardly visible as a policy field for the local state (Doron and Raja 2015; Mander 2019). Solid waste management – a category mistake for the composition that actually exists – is a low status, residual techno-engineering field for high status officials inside state bureaucracies. Since waste

behaviour is an expression of caste norms, policies for waste which privilege technology and ignore the work-conditions and social problems of the workforce reinforce the caste order.

Waste and social inclusion are two substantially separate policy fields, while the social relations of waste are not bound by the classifications of the state. Public policy analysis needs better to understand the (lack of) intersections of policy discourse and actually existing policy practice - in the case considered here, for waste, work, environment, identity and welfare/'inclusion'.

The Indian state requires the informal sector which operates outside its reach to organise the disposal of waste. The local state allows unregistered self-employment for essential activity it chooses not to fund, The state does nothing to discourage the deployment of casual labour in private firms to which it subcontracts waste in order to undercut the costs of municipal labour. And by reducing and precaritising their earnings, it forces municipal workers themselves to prolong their working-day informally to supplement them.

In addition, if in capitulating to tax evasion the state lacks the fiscal resources to pay for waste disposal as a public service, it perpetuates the survival of this low-paid, unregistered labour force through subsidies transferred not through work but through the Public Distribution System's ration books. PDS rice was widely credited as a life-support to waste-workers. While the PDS is being threatened through undebated legislative reform to the Essential Commodities Act, the object of unprecedented farmers' protests in 2020-21, the vital support role of subsidized food is confirmed by Azim Premji University's 2020 pan-Indian field evidence during the Covid-19 epidemic.

APPENDIX 1: DIFFERENTIATED BUSINESS MODELS IN A SMALL-TOWN WASTE ECONOMY, 2015 (with indicative examples)

1. Public sector labour force (UC officials; SC/ST workforce)

i) Large labour force (130+), full rights at work, unionised (e.g. Municipal Sanitation Workers (MSW); ii) small labour force (<5) – variable work rights – some permanently casualised (e.g, Government Liquor shops and glass bottle recycling)

2. Private business (Nadar owners : NAdar and SC/ST workforce)

Registered joint family with 10-500 wage workers – local and migrant (e.g. scrap yards; medical waste; gunny bag depot)

Private companies subcontracted to state (30-300 wage-workers) – local and migrant labour, no union, no work rights, side jobs (e.g. urban consumption waste and ‘municipal’ rubbish; hospital cleaning and security; railway sanitation)

3. Waste ‘departments’ inside big companies (*Dalit* workforce)

Specialised labour (3-40) to clean-up, segregate, pack – disproportionately *Dalit/Adivasi* (e.g. clothing accessories, industrial alcohol, paddy milling, wedding halls, private hospitals, big meals hotels)

4. Own account enterprise (OBCs/ SCs/ STs)

Family labour with 1-2 wage labourers and more or less tied suppliers, some with bikes/vans (e.g. general waste wholesalers; second-hand goods; septic tankers)

5. Self-employed agent (various low castes)

(As in reprocessing; vehicle / two-wheeler scrap; glass bottle recycling)

6. Self-employed – barter (various low castes)

With cart or scooter - (e.g. cloth for plastic kitchenware, iron waste for salt, dates, turmeric, onion and tomatoes)

7. Self-employed individual (SC/ST)

Gathering on foot, with bike or cycle cart (e.g. hundreds in general waste (gathering before and after the MSW), scores on the dump-yard; scores in the vegetable market; clearing up slaughter and sales)

Source: author’s field survey, 2015

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