

Out of Sight, Out of Mind:

The Story of Solid Waste Management in India

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Here are three major threats to the environment:

1. CO₂ emissions from the combustion of fossil fuels
2. Oil spilt into the ocean by huge tankers and
3. The jugaadu, judgemental, intrusive aunty next door (whom you secretly hate)

The third one might seem a little off-track but before you wave us off as wannabe populists who

put fiction before facts, read on about the 99 ways she, and countless others like her, are destroying the environment.

Together, all of us Indians who live in 7,935 towns and cities generate 62 million tonnes of municipal solid waste per annum. Out of that, only 43 million tonnes (MT) of the waste is collected, 11.9 MT is treated and 31 MT is dumped in landfill sites. Over half the public places in

16 Indian states do not manage wastewater and litter. While countries like Sweden are close to becoming 100% waste-free by 2020, we in India are still dumping 90% of recyclable and reusable waste in “landfills”. However, with numerous controversies over garbage dumps and mounting pressure on land resources, India can no longer afford to recklessly exploit the environment in the delusion that it will soon transit from the increasing to the decreasing segment of the environmental Kuznets curve as conclusive data about whether this hypothesis holds in our country does not exist. Moreover, the “first-exploit-and-then-clean” attitude has

been proven to be a failure. We have to act now, especially because every single step of the waste management process is poorly implemented, shoddily coordinated and irresponsibly

ignored. Not only do we think that our duty ends with throwing the trash in the trash can but we stubbornly refuse to discuss the problem staring at us square in the face. Waste management, undoubtedly, is the elephant in the room. Environmental Kuznets curve: The application of Kuznets curve in environmental studies Studies have shown that with our current institutional set-up, waste pickers in 6 major Indian cities have been able to recover just over 20% of recyclable waste from 80,000 people, amounting to 3 million tonnes. Every tonne of recyclable material collected has saved urban local bodies approximately INR 24,500 per annum and has avoided the emission of 721 kg CO₂ per annum. To put this into perspective, upto 99% of waste can be potentially recycled and 80,000 is only 0.006% of our population. India, thus, is also missing out on lucrative money-making prospects- *money saved, after all, is money earned*. The present state of waste management practices in India is the predominant result of our reluctance to act. Though we are fully conscious of the consequence of our actions (or inactions, rather), we choose to be willfully ignorant, conveniently limboing between scientific facts and empirical evidence. This is where Adam Smith’s invisible hand fails. We as individuals are acting in our own self-

interest, collectively damaging the environment. Thus, at every level-right from sorting the waste to dumping it in landfills- the entire process of waste management is festering with inefficiencies and implementation lags, which we've sought to delineate.

The reluctance to act can be seen as the Dominant Strategy Nash Equilibrium of a normal game. Consider two agents in the society, the jugaadu aunty and the inquisitive uncle further down the street who always wants to know if you scored more than the infamous *Sharmaji ka beta*. They have two choices - to act or not to act. It is logical to assume that the cost of acting (say, 15) is more than the immediate perceived benefit from acting (say, 12), as waste management involves perseverant action, but does not give tangible and quick benefits in most cases. Clearly, as seen in the following table, both aunty and uncle choose not to act. Neither of them thinks it's worth their while to take actions to save the environment: they look for all possible ways to freeride, and don't contribute anything from their side. As the outcome, no waste management happens, as is seen in our imperfect world today.

Cost: 15 Benefit: 12		Jugaadu Aunty	
		Acts	Does Not Act
Inquisitive Uncle	Acts	(-3, -3)	(12, -3)
	Does Not Act	(-3, 12)	(0, 0)

This example, although fundamental, portrays the pressing issues regarding waste management: perceived cost is much more than perceived benefit from each individual's point of view. It also highlights the effectiveness of working together as a community. If aunty took the efforts and acted, while uncle gave aunty some money (say, 4), that would have led

to a better outcome: (1, 8). This is clearly better for each of them than the paradigm where none of them act. Thus, we need to reduce costs and increase immediate benefits; or, we need to encourage and motivate people to work together.

TALKING TRASH

The process of waste management begins, of course, with the segregation of waste into various categories like wet and dry or biodegradable and non-biodegradable. A small town in Japan, Kamikatsu, with 1700 inhabitants classifies its trash into 34 different, watertight categories such as aluminium cans and paper cartons. In India, not only is waste segregation poorly organised and unscientifically planned but is rarely practised. Replicating Kamikatsu's waste management breakthrough may be a chimera for India, but efforts in this direction could go a long way. The main, if not the only, obstacle concerning segregation in India is the status quo bias: an inherent cognitive flaw that prevents us from deviating from the prevailing state of affairs. Much like waste, people can also be segregated into three categories: the sluggard (those who are unwilling to act), the bystander (those who want to act but don't know how to), and the defeatist (who acts but gives up very soon). The 'sluggard' is the product of social loafing; being a part of a larger community (group), he thinks that him not performing the action diligently will not impact the overall outcome as he assumes that others in the community are doing it with diligence. This kind of behaviour is induced by lethargy. A solution to this could be adopting a *No Segregation No Collection* policy as has been done in Cebu, a town in the Philippines.

Although a paternalistic approach, dealing with these people with a firm hand can produce quicker results. The downside however, is that the collection process is by itself flawed in our country (ways to improve waste collection are discussed later). The bystander knows what should be done, but does not know *how* to do it. This behaviour can be attributed to a phenomenon called “intention-action gap”. The bystander is cognisant of the importance of segregation and wants to practice it, but is unable to act on his intentions due to individual and contextual constraints. Thus, there is a huge gap between what he would *like* to do and what he *actually* does. This gap can be addressed through improvements in the choice architecture. Two kinds of interventions or “nudges” can be employed to enable behavioural change: Informational nudges to educate and system nudges to improve convenience. A nudge through the dissemination of information has weaker effect as the gap between information and awareness cannot be entirely bridged due to the various psychological barriers that persist (denial, dissonance etc). Thus, rather than intrinsically motivating, external motivation can be internalised through small yet tangible benefits, say, cashbacks for depositing plastic containers/bags with retailers. The defeatist is characterised by depleted ego. He is unable to see the immediate impacts of his action and thus eventually gives up. This can be overcome by establishing a mechanism to appraise individual performance. This will make him feel personally accountable, and incentivise him to take initiatives. A randomised control trial in the Kristiansand region of Norway used personal information and social comparative feedback to motivate

households to reduce waste and increase recycling. The experiment consisted of personal letters to households in the region evaluating their waste management practices. This worked wonders. Individual initiatives shot up, and recycling grew.

Segregation is only the gateway to gain from this process. There are multiple avenues to maximise returns from “waste”, right at the household and community levels. The D-I-Y wave can be harnessed to induce people to couple their creativity and enthusiasm for beautifying their homes for almost free of cost (say, old clothes to doormats or old tyres to flower pots). Additionally, old consumer durables like furniture or even books and music albums with no takers on OLX can be left in the lobby of the apartment or on the curbside so someone who *actually needs* it can take it. The cultural stigma that prevents us from using second-hand goods can be corrected through social facilitation (enhancement of one’s response by the behaviour of other people). Further, technology to make composting of kitchen discard viable is rapidly emerging. Trust bins are a breakthrough in this direction: they give you all the benefits of composting minus the odour and the efforts. Also, for those looking to make some cash, *garage sales* (which are rarely hosted in India) will be a good bang for the buck. These solutions are based on the premise that the human tendency to imitate will motivate others to follow suit.

Having recovered value from most of the refuse generated, the entire process of collection and disposal is now simplified. The need for multiple transfer sites- where segregation formerly took place- is eliminated. The many rag pickers who were employed at these sites, risking their lives and earning meagre amounts can go door-to-door collecting recyclable,

Newspaperwalas do. This will encourage startups in this area, which will give it self-sustainability. We need to look beyond the rudimentary model of “buy, use and dispose” and turn towards a more restorative and regenerative system where resources are retained in the economy for as long as possible. The end-user should become the supplier, setting in motion a reverse supply chain. Reverse logistics, as the new business mantra, can extract maximum value from the existing resources. A combination of traditional regulatory approaches that set specific standards, or economic incentive or market-based policies that rely on market forces to correct producer and consumer behavior, complemented by the right nudges at the right places is what we need right now. Every policy that aims at inculcating waste management practices must necessarily play into the mindset of each individual. Perhaps waste management is the arena for our neighbour aunty to master the art of jugaad.