POLICY BRIEF

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Waste Management in Cities Can Have a Global Impact

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Introduction

The current generation of municipal solid waste (MSW) as estimated by the Central Pollution Control Board (CPCB) of the Government of India is around 62 million tonnes per annum. This works out to be around 133,760 tonnes per day (TPD) of MSW within the country. Out of this, only 91,152 TPD is collected and 25,884 TPD is treated. The waste that is collected but not treated is disposed of in landfills, including unprotected disposal sites, and are source of global atmospheric pollution (in terms of methane and back carbon release) and local air pollution (in terms of dust, fire, and fine particulate matter emissions).

The CPCB also reports that 8% of this MSW generation is made up of plastic waste, and the use of plastics is growing day by day as the infrastructure grows in the country. The type of plastic waste generated is primarily plastic packaging. Figure 1 shows the share of plastic consumption in various sectors within India.

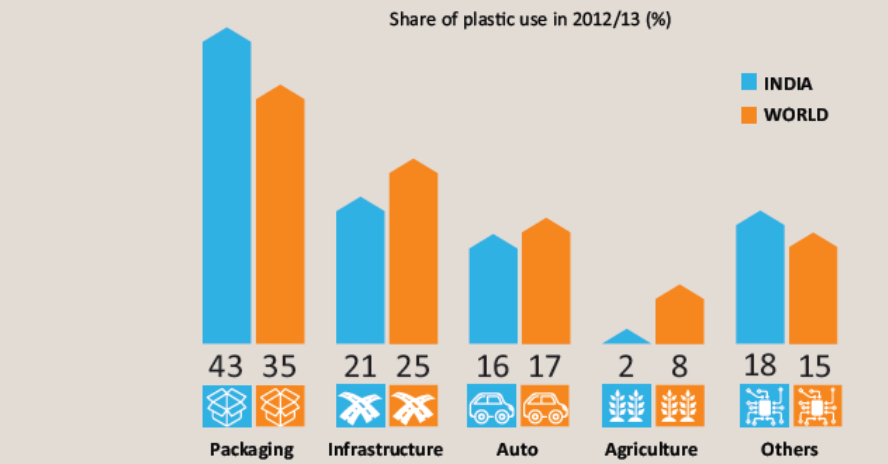

Figure 1: Plastic consumption in various sectors in India (FICCI, 2014).

The statistics clearly show packaging plastics dominating the consumption of plastics across various sectors, both globally and in India. It is this type of plastic consumption that is currently generating so much waste and raising concern at the national and international policy-making levels. (Aravind, 2019) (Venkatesh & Kukreti, 2018) (Banerjee, 2019) Annual projected growth in packaging plastics is shown in Figure 2.

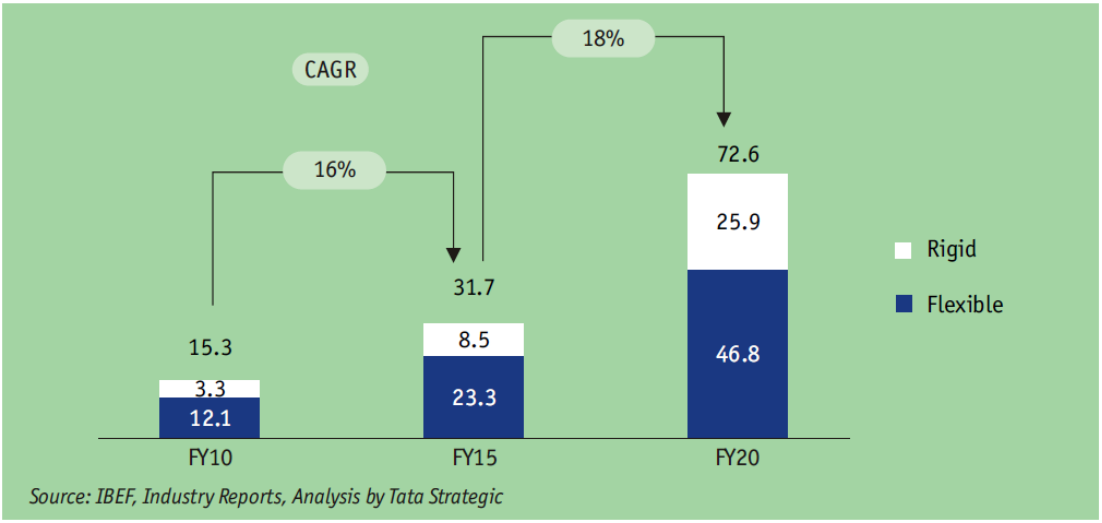

Figure 2: Projected growth in packaging plastics in India (FICCI, 2016).

The figures above clearly indicate that though the present per capita consumption of plastics in low in India, it is expected to grow as much of the urban infrastructure is yet to be established in the country. Infrastructure is one of the key drivers for the Indian economy. Every possible initiative to boost the infrastructure sector with investments of INR 25 lakh crore till 2020 in roads, railways and shipping infrastructure has been undertaken by The Government of India. Plastics play an important role in these sectors through usage in various products like pipes, wires & cables, water proofing membranes and wood PVC composites. As a result of these, higher investments in these sectors will drive the demand for plastics (FICCI, 2017)

The waste plastics among other recyclers is picked up by mostly informal waste pickers and sold to aggregators who further sell it to different recyclers (Medina, 2008). It is reported by CPCB that currently 60% of the total plastic waste is being recycled. The major challenge, however, is segregation and re-aggregation of plastic waste streams such as packaging waste, including laminated plastic. Although recycling is one of the preferred ways to deal with plastic waste in the waste hierarchy, the concern is the heterogeneous properties of unsegregated waste. Furthermore a large component of this waste is littered waste that remains scattered in the urban landscape and therefore uncollected. These result in an unpleasant landscape and choking of drains.

Large component of difficulty arises from these two aspects- first uncollected waste and second unsegregated waste. The improper disposal resulting from these results in ineffective waste management and release of GHGs from landfills at times leading to fire.

In addition, the plastic waste which is not collected – mostly low value, single use or laminated plastics - leaks from collection and recycling system and reaches water bodies or landfills and ultimately reaches coastal waters, and finally oceans, contributing to marine litter either as plastics or micro-plastics.

Regulatory Mechanism

Recognizing and responding to these challenges, the Ministry of Environment, Forests and Climate Change (MoEF&CC) of the Government of India has notified two Rules – Solid Waste Management Rules (2016), and Plastic Waste Management Rules (2016) focusing on poly bags and concept of extended producer responsibility (EPR) to manage plastic wastes within the country.

As per the Rules, managing MSW is the mandate primarily of the Urban Local Bodies (ULBs) across the country. ULBs thus need to devise systems of waste collection where nothing leaks from the waste collection system to become litter in terrestrial environments nor contributing to ocean litter or local or global air pollution. So the ULB action needs to be focused on two fronts:

1. Effective collection of plastic waste from various generators especially low value plastic waste. For this to happen they will have to provide higher monetary incentive to informal waste pickers. This can be done in partnership with manufacturers and producers of such wastes. In Delhi such partnership in evident in East Delhi where manufacturers provide incentive of Rs 5 per Kg to informal sector for picking up multi layered plastics (MLPs). Multi layered plastics are the most commonly found plastic packaging waste. These are a combination of two sheets of plastic enclosing a layer of aluminum. Since these are not purely plastic in nature recycling them is a difficult task. One of the most efficient forms of recycling these is by using them for generating energy in cement kilns. For this purpose, these MLPs are then sent to cement kilns for co-processing.

   As a good practice it is essential that this is replicated and scaled out to other cities as well. On a city level, it is essential that such measures are undertaken to ensure full-fledged and efficient plastic waste management.
2. Effective management of littering can be achieved by better monitoring and empowering citizen groups and resident welfare associations (RWAs) for the same followed to stiff fine and naming and shaming the defaulters. These actions have shown result in some cities like Surat and Indore in India.

   The Swachh Bharat Abhiyan in India ranks cities every year on various parameters of cleanliness and one of these parameters is proper waste management. Cities such as Indore, which is a successive first ranker, have managed to perform well in these rankings.

It has also been observed that citizens in these areas treat these rankings as a matter of personal pride and effectively implement proper waste management.

3. Cities will also have to ensure that waste plastic collected is recycled or upcycled by competent recyclers. The waste which cannot be recycled can either be used to produce fuel oil in pyrolysis process, shredded and used in road laying or co-processed as alternate fuel in the cement kilns if they are in the vicinity. For effective collection and sorting, cities will have to invest in optics based polymer segregation systems so that human error induced in segregation can be avoided and recycled plastic products are not contaminated. While all these measures are built into the Plastic Waste Management Rules of 2016, ULBs and state governments must be robust in ensuring their implementation.

The matter with plastics is not the manufacturing or use of it, but the proper disposal and recycling of it. In India, the problem is largely seen to revolve around inefficient segregation and collection of waste which eventually translates into increased dumping at landfills causing loss of city aesthetic and adding to emissions from landfills.

To create push for recycled products, cities will have to work with manufacturers and regulators to develop standards for recycled products and also ensure their mandatory public procurement. The manufacturers and users of plastic packaging also need to ensure that the waste plastics are easy to recycle and take step to adopt principles of Design for Recycling (DfR) or Design for Environment (DfE) using minimum additives and easy to separate polymers for effective recycling of plastic waste. Lastly, enforcement of already existing rules around plastic waste management will improve the condition by leaps and bounds as it has for some Indian cities already.

Bibliography

Aravind, I. (2019, June 9). *Just how bad is India's plastic problem?*. Retrieved from The Economic Times: https://economictimes.indiatimes.com/news/politics-and-nation/how-india-is-drowning-in-plastic/articleshow/69706090.cms?from=mdr

Banerjee, A. (2019, April 2). *India Is Generating Much More Plastic Waste Than It Reports. Here's Why*. Retrieved from Bloomberg Quint: https://www.bloombergquint.com/global-economics/india-is-generating-much-more-plastic-waste-than-it-reports-heres-why

FICCI. (2014). *A report on plastics industry.* FICCI.

FICCI. (2016). *Plastic Packaging the Sustainable Choice.* FICCI.

FICCI. (2017). *Plastic Industry for Infrastructure.* New Delhi: FICCI.

Medina, M. (2008, October). *The Informal Recycling Sector in the Developing Countries.* Retrieved from India Environmental Portal: http://www.indiaenvironmentportal.org.in/files/44informal_recycling_sectors.pdf

Venkatesh, S., & Kukreti, I. (2018, June 8). *India's plastic consumption increases at over 10 per cent year-on-year*. Retrieved from Down To Earth: https://www.downtoearth.org.in/news/waste/breaching-the-threshold-60748