

CITIES AT CROSSROADS: IN A PLASTIC WORLD

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Prime Minister [Narendra Modi](#) made a dramatic announcement on August 15, 2019, that India would eliminate single-use plastics by 2022. This generated a lot of speculation on whether a ban on single-use plastics was in the offing. Then came another statement on October 2, Gandhi Jayanti, by the PM that single-use plastics (SUPs) will be phased out by 2022, and officials indicated that states will play a major role in ensuring this happens.

SUPs refers to plastics which are used just once, as in disposable packaging and also in items such as plates, cutlery, straws etc. A FICCI study estimates that 43 per cent of India's plastics are used in packaging and much of it is single-use plastic. We also have completely unnecessary single-use plastic entering our homes in the form of covers for invitation cards, magazines, bread wrappers and advertisements.

Single-use plastic is only part of what is truly a massive challenge, and that is the management of all kinds of plastic waste. But it is good to begin with SUPs because its large and growing volume adds enormously to the total plastic waste. The growing volume is, to a great extent, because of rising e-commerce in India with people buying from companies like Amazon and [Flipkart](#) that use single-use plastic for disposable packaging. Both companies have made commitments to phase out their use of single-use plastic, but this is unlikely to happen anytime soon.

Ever since plastic was invented by John W Hyatt in 1869, it has been an integral part of our lives, contributing much to the convenience of modern living because of the flexibility, durability and lightness of this material. Plastics are used not only in airplanes, computers, cars, trucks and other vehicles, but also in our everyday-use items such as refrigerators, air-conditioners, furniture, and casings for electric wires, to name a few.

The problem is that plastic does not decompose naturally and sticks around in the environment for thousands of years. Safe disposal of plastic waste is, therefore, a huge challenge worldwide. For an excellent short introduction to plastics, one can see sciencehistory.org/the-history-and-future-of-plastics.

Close to 20 states in India have imposed a partial or total ban on single-use plastics at one time or another.

Maharashtra, Tamil Nadu, Telangana and Himachal Pradesh opted for complete bans, while others including Madhya Pradesh, Bihar and Odisha have tried partial bans. The bans have, by and large, not been successful because of poor state capacity to enforce.

Plastic carry-bags pose a special problem. Although they are strong, lightweight and useful —

and can be saved, cleaned and reused many times — this is mostly not done because they are available very cheap and are, therefore, not valued (often shops give plastic carry bags for free). They become, effectively, single-use plastics.

A compulsory charge by retail stores on carry-bags has proven most effective in reducing their use without a ban. In Ireland, a minor charge added to every bill saw a 95 per cent reduction in demand for such carry-bags, as most shoppers began bringing in their own reusable grocery-bags.

In India, the Plastics Waste Management Rules 2016 included a clause in Rule 15 which called for explicit pricing of carry-bags. This required vendors to register and pay an annual fee to the urban local bodies. But lobbying by the producers of plastics ensured that this clause was removed by an amendment in 2018 — and that was never put up for public debate, as is mandatory.

In India, plastic producers have been advocating thicker and thicker micron sizes for carry-bags. Also, when there is a ban on carry-bags, it leads to the use of non-woven polypropylene (PP) bags which feel like cloth and are now even being printed to look like cloth: These are actually more dangerous for the environment as their fine fibres rub off and enter global waters as micro-plastics.

Discarded plastic bags create the greatest problems in waste management. Blown by wind into drains, they cause flooding of urban areas. Used as waste-bin liners to dispose of daily food scraps, they find their way into the stomachs of roaming livestock because the animals ingest them to get at the food inside, which ultimately causes their death. All plastic waste is eventually carried by rain, streams and rivers into the oceans.

A Texas-sized great garbage patch of floating plastics swirling in the Pacific first attracted attention in the 1960s. A similar or even greater quantity of sunken plastic, especially discarded fishing gear, called ghost nets, blankets our ocean floors. Both floating and sunken plastics kill riverine and marine life.

We need to build awareness of the damage caused by SUPs and develop consumer consciousness to minimise their use. For example, at airports, we could replace meters of cling-film, used to wrap luggage, with a pretty cloth bag temporarily sealed by machine stitching that can later find alternative uses. In our parties, we could use paper plates and bamboo straws. In our pantries, we could use butter-paper, as in olden times, replacing the millions of bread wrappers needlessly used for a product with a shelf life of one to three days. We should also write to those sending us magazines or invitations or advertising in plastic sleeves to switch to tear-proof paper instead. Finally, plastic throw-aways at parties should be replaced with washable, reusable tableware.

SUPs can potentially be converted by thermo-mechanical recycling into plastic granules for blending into other plastic products, usually irrigation piping for agriculture. But collection of post-consumer waste and recycling poses a major challenge. Especially when packaging comprises layers of different types of polymer. The multi-layer flexible packaging, which is used for chips and other snacks, cannot be made into granules because it contains layers of plastic with different melting points. The Plastic Waste Management Rules of 2016 require creators of such packaging waste to take it back at their cost or pay cities for its management under Extended Manufacturer Responsibility. But there is little compliance.

While it is true that India recycles much more than the industrialised countries through an informal network of waste collectors and segregators (a lot of this is downcycling), a study by

FICCI points out that fast-growing consumption has brought us to a point where consumption has clearly outstripped India's current capacity to recycle plastics.

In a 2017 column (IE, October 25, 'Don't waste the possibilities'), we had pointed out how recycled plastic can be used to strengthen roads. Use of plastics more than doubles or triples road life — it has been approved by the Indian Road Congress and mandated by the National Highway Authority in November 2015 for upto 50 km around every city with a population of over 5,00,000. To date, over 14,000 km of so-called plastic roads have been built which are long-lasting and free of pot-holes. It is only corruption in road contracts that restricts their wider use, as longer-lasting roads means fewer contracts for building and rebuilding poor quality roads.

Another ingenious idea is to replace the use of thermocol with totally biodegradable pith from the shola/sola plant (*Aeschynomene aspera*) — this was used in huge quantities till the 1950s for making sola-topies or pith helmets for colonials and their armies. Today, it is used in Bengali weddings and for Durga Puja decorations. Imagine the rural income generation from steady commercial use of this wild marsh-land reed.

We need many more such innovative ideas and a fundamental change in mindsets to minimise the use of single-use plastic. It is high time we also turn to the larger challenge of plastic waste management if we want to continue to avail of the many advantages offered by plastics in our modern lifestyle.

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