# THE PROBLEM OF PLASTICS

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THE PLASTICS FACTSHEET 1

## Plastics industry and growing consumption of plastic products

Plastics production in India has surged over the past 50 years – from 15 million tonnes (MT) in 1964 to 311 MT in 2014 – and is expected to double again over the next 20 years.[1] The growth rate of the Indian plastics industry is one of the highest in the world: plastics consumption is growing at 16 per cent per annum in the country (compared to 10 per cent annually in China and around 2.5 per cent annually in the UK).

The per capita consumption, however, has been low at 11 kg per annum, compared to the global average of 28 kg. Among developed nations, the US has a per capita consumption of 139 kg per annum, while the EU's is 65 kg.[2] What is alarming is that per capita consumption of plastic products in India is rising – it is expected to go up to 16-20 kg per annum by 2025.

Between 2010 and 2015, the plastics processing industry grew at a compound annual growth rate (CAGR) of 10 per cent in volume – from 8.3 million metric tonnes (MMT) per annum to 13.4 MMT per annum – according to a 2017 study by the Federation of Indian Chambers of Commerce & Industry (FICCI).[3] By 2020, it is expected to grow at a CAGR of around 10.5 per cent to reach 22 MMT per annum.

In plastics, the packaging sector is growing the fastest, having registered a CAGR of 15 per cent between 2010 and 2015.[4] The sector is very dynamic and influences all other industries directly or indirectly. According to the Packaging Industry Association of India, the country's packaging sector was the fifth largest in the world in 2016.

India's annual demand for plastic packaging stands at 20 MMT – out of this, 15 MMT is met by virgin plastics and 5 MMT from recycled plastic materials. It has also been estimated that 45 per cent of the 20 MMT – nearly 9.6 MMT – is consumed immediately and released as waste into the environment and surroundings. The remaining 55 per cent (close to 11.4 MMT) is the growing stock which is used for products with longer life-span, such as batteries or bottles.

### Classification of plastics (Plastic is categorised into seven types):

- PET – Polyethylene terephthalate
- HDPE – High density polyethylene
- LDPE – Low density polyethylene
- PVC – Polyvinyl chloride
- PP – Polypropylene
- PS – Polystyrene
- Others

The plastics industry employs almost 1.6 million people, directly and indirectly. About 3,500 plastic recycling units are estimated to be operating in the organized sector in the country; there are also an estimated additional 4,000 unorganized recycling units, though the data available on these is extremely sketchy.

The large and growing scale of production and consumption points to only one thing – an exponential increase in the generation of plastic wastes in the country in the years to come.

## Plastic waste: The quantum and scale

According to the Central Pollution Control Board's (CPCB) 2015 report on Assessment and Quantification of Plastics Waste Generation in Major Cities, approximately 25,940 tonnes per day (TPD) of plastic waste is generated in India. Of this, around 15,600 TPD (60 per cent) gets recycled, still leaving behind nearly 10,000 tonnes of it every day. Typically, a compactor truck can accommodate 10 tonnes – so it would take 1,000 such trucks every day to transport these 10,000 tonnes. This huge non-recycled bulk is what eventually ends up clogging our drains, rivers and seas, or simply as the litter that we see everywhere around us.

1. https://www.ellenmacarthurfoundation.org/assets/downloads/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf
2. http://www.indiaenvironmentportal.org.in/files/file/Beat%20Plastic%20Pollution.pdf
3,4. http://ficci.in/spdocument/20872/report-Plastic-infrastructure-2017-ficci.pdf

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## What do plastics do to our environment

Most plastics do not biodegrade. Instead, they slowly break down into smaller fragments known as microplastics. Studies suggest that plastic bags and containers made of expanded polystyrene foam (commonly referred to as styrofoam) can take up to thousands of years to decompose, contaminating soil and water in the process.

Plastic waste causes a plethora of problems when it leaks into the environment. To begin with, stranded single use plastics (SUP) create visual pollution. Secondly, they are one of the main causes of urban flooding – plastic items such as discarded carry bags, wrappers, gutkha sachets and packets block waterways and exacerbate natural disasters. By clogging sewers and providing breeding grounds for mosquitoes and pests, plastic bags can increase the transmission of vector-borne diseases like malaria, cholera etc.

High concentrations of plastic materials, particularly plastic bags, have been found blocking the airways and stomachs of hundreds of species of animals. There is evidence that the toxic chemicals added during the manufacture of plastic transfer to animal tissue, eventually entering the human food chain. Styrofoam products, which contain carcinogenic chemicals like styrene and benzene, are highly toxic if ingested, damaging the nervous systems, lungs and reproductive organs. The toxins in styrofoam containers can leach into food and drinks. In poor countries, plastic waste is often burned for heat or cooking, exposing people to toxic emissions. Disposing of plastic waste by burning it in open-air pits releases harmful gases like furan and dioxin.

Among the cities, Delhi, Chennai, Kolkata, Mumbai, Bengaluru, Ahmedabad and Hyderabad rank among the top generators of plastic waste.

Out of the total plastic waste generated, around 94 per cent comprises of thermoplastic content (such as PET, LDPE, HDPE, PVC etc), which is recyclable. The remaining 6 per cent belongs to the family of thermoset and other categories of plastics such as SMC, FRP, multi-layered, thermocol etc, which are non-recyclable.[5] However, as per an assessment done by CSE, only HDPE, PET and PVC plastics are recycled in India today (most of this is down-cycled into lower grade plastic products). PP, PS and LDPE plastics are partially recyclable, but they are usually not recycled due to economic unviability of the process.

As per the 2015 CPCB report mentioned above, approximately 70 per cent of the plastic packaging products in India (polybags, pouches used to pack products like gutkha, paan masala or various kinds of food items, etc) gets converted into plastic waste in a short span – which means they are discarded and disposed of after single use.

The report also says 66 per cent of the plastic waste in India comprises of mixed waste sourced mainly from households and residential localities – different types of plastics mixed together or plastics mixed with other kinds of solid waste. This brings down the recycling capacity for this waste.

The abundance of plastic production in the past two decades has triggered a host of problems in India. Burning plastics is not a viable alternative as it generates harmful toxins; recycling efforts often do not match the sustainability standards. As a result, plastics continue to fill up our drains and dumpsites. It is high time we addressed this issue and re-examined the contaminants which make up this seemingly omnipresent product in our world, and what is it that can be recycled and what is non-recyclable. Only after we do that can we work on a probable solution.

5. https://cpcb.nic.in/uploads/plasticwaste/LCA_Report_15.05.2018.pdf