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Plastic Waste Control in India

Is it Really Happening?

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With the introduction of Plastic Waste Management rules in 2016 (PWM 2016), the Indian government has shown serious intent to curb the pollution problems arising from the growing levels of plastic waste that is not collected and not re-used/recycled. PWM 2016 advocates a further tightening of the rules (e.g. banning plastic bags of less than 50 microns thickness) and also lays the foundation for accountability across the value-chain. As per the existing rules, the manufacture and use of multi-layered plastics, that are hard to recycle, is to be phased out by March 2018. Some central and state government departments have already adopted directives to restrict or ban the use of plastic bags in recent years.

Although these plans may seem simple, their implementation is far from that. There are major challenges still to be overcome to actually implement PWM 2016 and the array of other legislative initiatives at local level.

Challenge 1: Infrastructure investments

Plastics waste contributes significantly to the total municipal solid waste (MSW) generated in India. A Central Pollution Control Board study in 2015 revealed that approximately 25,940 tonnes of plastic waste are generated in India per day, with 60 major cities contributing 4,059 tonnes of plastic waste per day (~8% of MSW).

Lack of adequate infrastructure for segregation and collection is the key reason for inefficient plastic waste disposal. Most municipal corporations still don't have a proper system for collection and segregation of this waste. Besides, in many of the states, the technology and infrastructure needed to dispose of plastic waste in a cost efficient and resource efficient way is not yet available.

Some states have taken the lead in empowering municipalities and also in developing infrastructure at the ground level. The government of India has also committed support to developing waste management infrastructure through programmes like 'Swachh Bharat' (Clean India project) but there is a need for collective efforts from the central/state government and municipalities in developing and using the infrastructure. India's potential MSW investment (capital, operations, and maintenance) for the 20-year period from 2011-12 to 2031-32 has been estimated at ~USD 63.5bn (HPEC report, PwC analysis). The investment potential for plastic waste (8% of MSW) will be ~USD 5.1bn. India still has some way to go to catch up with China in pushing investments in waste management, considering China's waste management investment budget is estimated to be ~USD 40bn for the five years from 2016 to 2020 (China 12th/ 13th five-year plan).

Challenge 2: Legislation enforcement

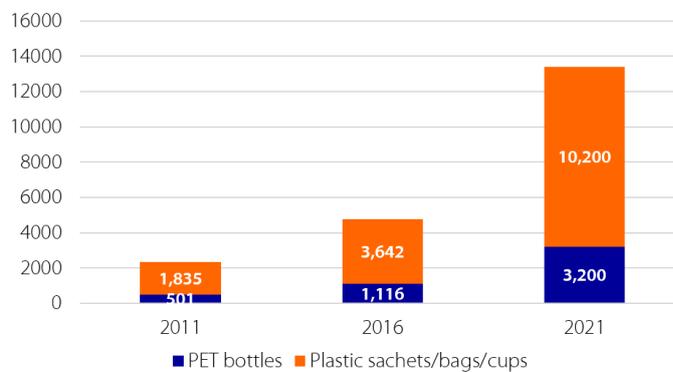
It is a substantial challenge to enforce the various pieces of legislation and other initiatives related to reducing the use of plastic bags and plastic packaging. This is due to a combination of the lack of infrastructure (see above) and challenges regarding substitution (see below). For example, under PWM 2016, primary responsibility for the collection of used multi-layered plastic bags/ packaging is delegated to producers, importers, and brand owners, and they need to establish a system for collecting the plastic waste generated by their products. Many state governments/ municipalities have imposed penalties ranging from INR 5,000 to INR 500,000 (USD 80 to 8,000)

for not obeying rules under PWM 2016. However, despite these penalties, we have not seen a concrete improvement in collection of plastic waste.

Some government departments have stopped using plastic-packaged water and have started using (non-plastic) re-usable tumblers. Media reports also mention that some state governments may ban the use of plastic-packaged water in public. However, this ban will not work commercially. Firstly, the quality of tap water available at public sources is questionable and, in fact, is one of the reasons for a shift towards packaged water. Secondly, substituting PET bottles with other forms of packaging (e.g. glass) will significantly increase the cost and consumer price. India consumes 4.7bn units of plastics (PET bottles – 1.1bn) for water packaging—forecast to be 13.4bn units in 2021 (PET bottles – 3.2bn). This expected massive increase is largely due to the substantial growth of small plastic sachets in rural and semi-urban locations.

Enforcement of these rules is challenging. The use of polythene bags (less than 50 microns) and foam-based products (expanded polystyrene) is still quite visible in most of these states that have regulations/ penalties in place to ban or restrict plastic use.

Figure 1: Consumption trends for water packaging in plastic sachets, bottles, and cups (in million units per year) in India

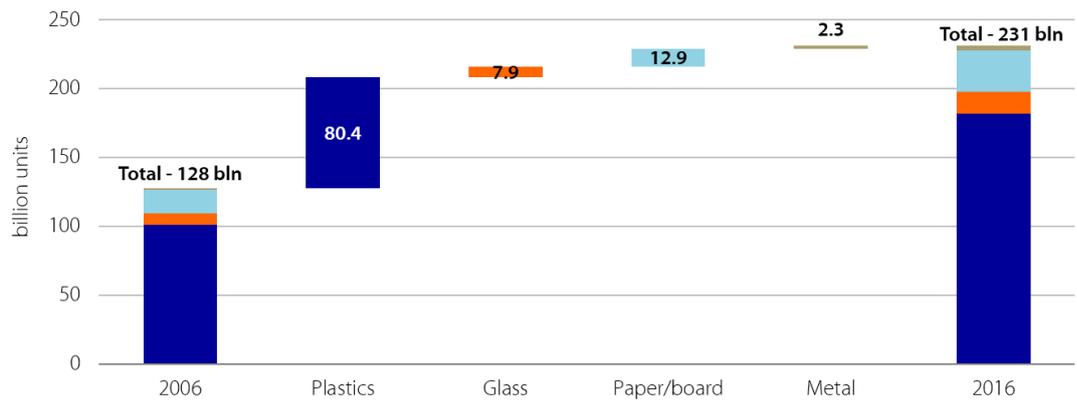


Source: GlobalData, Rabobank analysis 2018

Challenge 3: Substitution with other packaging materials

Banning plastic packaging, in practice, will be a daunting task. The use of plastic packaging is expected to grow in line with the growing demand for processed food and beverages in India. This is driven by an increasing population, GDP, and urbanisation, as food & beverages account for 81% of the plastic packaging used in 2016. In 2021, the Indian plastic packaging market is estimated to grow to approximately 237bn units, from 181bn units in 2016 (CAGR of 5.5%), according to GlobalData. Plastic packaging plays an instrumental role in the packaging of food and beverages in India. Plastics now account for 79% of the total primary packaging used, with the remaining 21% shared between paper, glass, and metal. Plastics packaging contributed 78% (80bn units) to the total incremental consumption in packaging from 2006 to 2016.

Figure 2: Consumer packaging consumption trends in India (in billion units per year) - Incremental consumption for different primary packaging from 2006 to 2016



Source: GlobalData, Rabobank analysis

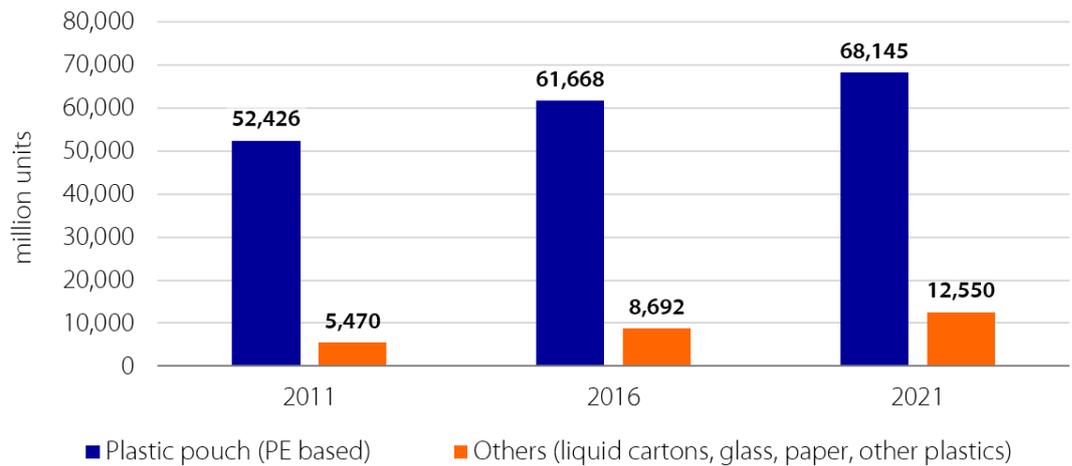
Completely substituting plastic packaging with a different material would be close to impossible for several reasons. First of all, given the dominance of plastic packaging, other packaging materials (paper, glass, metal) are not likely to be able to cater to such an enormous increase in demand—there will likely be limitations in supply.

Secondly, there are technical limitations to substitution. Although it is possible to switch from a PET bottle to a glass bottle or a metal can for carbonated soft drinks, it would be impossible to package freshly-cut salad in anything but plastic.

Thirdly, a blanket ban prohibiting the use of plastic packaging will be difficult because of its impact on food and beverage companies. Plastic packaging has taken a leading role over other [packaging materials](#) due to its benefits in cost, convenience, weight, physical properties, and innovative nature, among other things. A ban would pose an enormous challenge for the processed foods/beverages industry as it would have a direct impact on logistics, production assets, and costs/margins. It would also be inconvenient for consumers. The government of Maharashtra, for example, is planning to force a shift from plastic packaging to glass bottles for liquid products as of April 2018, banning the use of plastic pouches for liquid milk. Packed pouch milk (PE-based) accounts for 87% of the total packaged milk sold in India (70.36bn units in 2016). It's the most cost-competitive, mass-packaged liquid product consumed in India. It will be impossible to replace this packaging because the cost of packaging alternatives will impact demand significantly. As per industry estimates, the milk price to consumers (including processing, packaging, and logistics costs) could increase by a minimum of INR 10 to INR 15 per litre (20% to 25% increase) if the plastic pouch is substituted with other alternatives.

Alternative materials, such as bio-based plastics, although broadly considered to be more sustainable, are currently too expensive for mass adoption and are, with some exemptions, not available on a large scale.

Figure 3: Primary plastic packaging usage in milk in India (in million units per year)



Source: GlobalData, Rabobank analysis

Outlook

Infrastructure developments will remain key to solving India's plastic waste issues. The government's efforts should be directed towards supporting infrastructure and empowering municipalities to improve recycling and also to enhance energy-conversion from non-recyclable plastic waste. The government's intent to invest in waste management is a step in right direction, but there is an urgent need to push the investment further. The government should also promote private investments by providing ecosystem support for sustainable business models in waste management, since financing in this business segment still remains a major challenge.

Enforcement of the rules will be critical in restricting the use of packaging bags which have maximum impact on the environment due to their high volumes (e.g. single use PE-based bags with less than 50 microns). It is sad that even though rules have been drafted to control waste, implementation has not been satisfactory. State governments will have to take an active role in enforcement, with strict penal action taken for non-adherence to the rules.

The ban on non-recyclable multi-layer plastics packaging, due to come into effect in a few months, will also be very challenging to enforce, given the functionalities of such material in shelf-life extensions. Multi-layer plastic packaging has grown significantly in the last decade, in line with the growing demand for processed food in India which is expected to continue for another 10 to 15 years. In our view, implementation within a short period will be very difficult considering the significant and immediate impact on the food industry and consumers. There is a need for engagement between government and industry in order to find ways to implement this change in a planned and phased manner with minimal impact to the food industry.

Substitution, as mentioned earlier, is cost-prohibitive and non-viable from a commercial perspective. Besides, there are challenges from a functional and logistical perspective, and in creating sufficient supply of alternative materials like glass, paper, metals, or plastic packaging produced from recycled or bio-based materials.

Imprint

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