

kNOW “Plastics”

A TSG Series on Pathways to Sustainability

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Introduction to Plastics

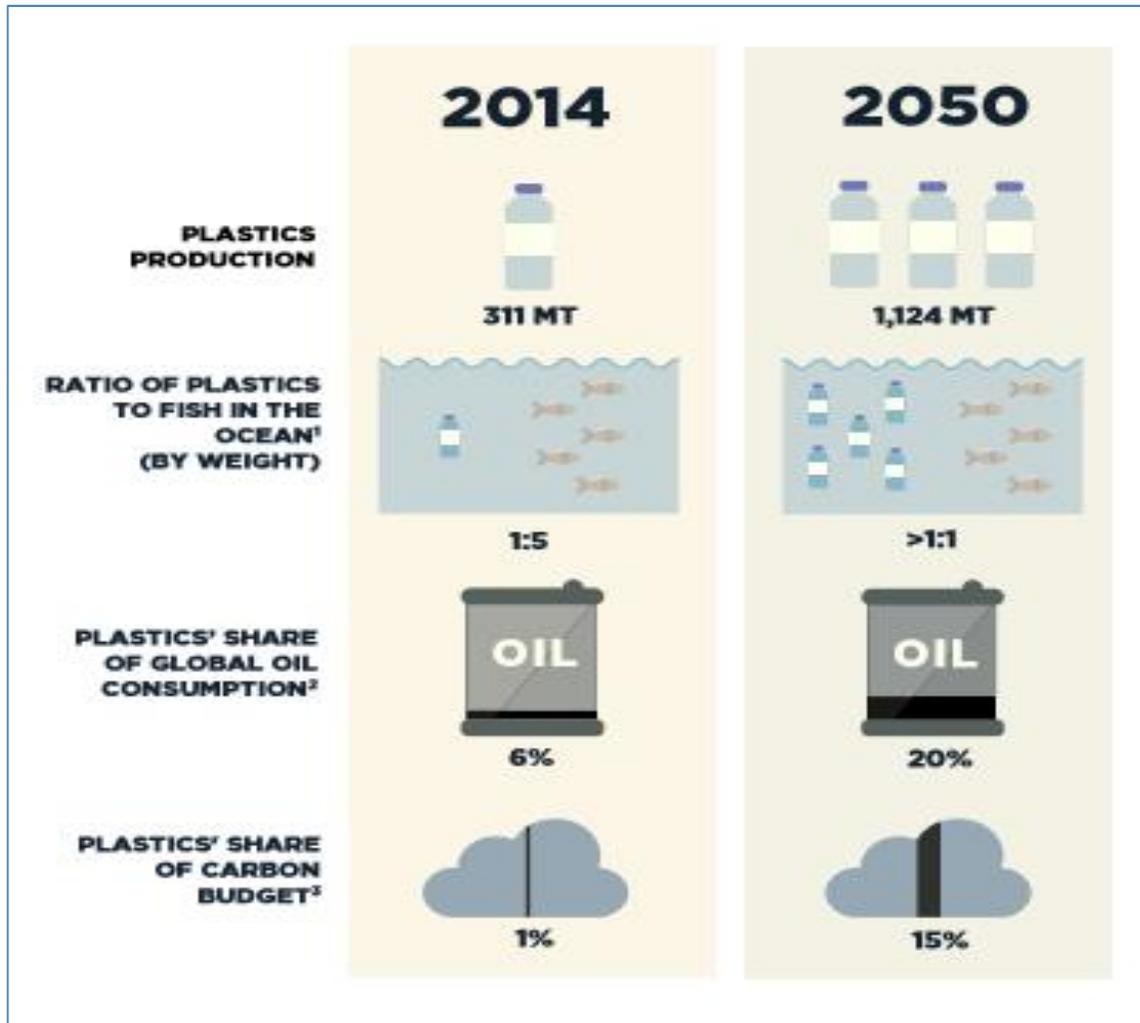
Plastics are synthetic organic polymers classified into 7 types

BIS Classification

Symbol	Scientific Name	Examples of Application	Recyclability	Possible Alternatives*
	Polyethylene Terephthalate	Water Bottles, PET Bottles, Salad trays etc.	Recyclable	
	High Density Polyethylene	Milk and Detergent bags, Carry bags, Container, Shampoo bottles etc.	Recyclable	
	Polyvinyl Chloride	Cables, Pipes, Floorings etc.	Moderately Recyclable	Cables & pipes made of Copper, Iron, Concrete pipes, PE pipes, Cork, rubber, Linoleum, ceramic
	Low Density Polyethylene	Carry bags, Bin Liners, Packaging Films	Moderately Recyclable	Glass, Bags made of Natural Fibres, Steel
	Polypropylene	Medicine bottles, microwavable meal trays, Vehicle Upholstery	Recyclable	
	Polystyrene	Foam packaging, Tea Cups, Ice cream cups, Yoghurt cups	Moderately Recyclable	Natural Fibres, sugarcane bagasse, bamboo straws, reusable containers, glass & metal
	Others	Multi-layer and laminated plastics, Nylon, Melamine, Polycarbonate used in glazing for the aircraft industry	Non Recyclable	Ceramics, Porcelain, Clay, Natural fibres,

* Should be used considering overall sustainability of the materials

Externalities of Global Plastic Volume Growth by 2050*



DID YOU KNOW

Global plastic has grown 20X in last 50 years from 15 million tons to 311 million tons

Source: PlasticsEurope; ICIS Supply and Demand; IEA, World Energy Outlook (2015) (Global GDP projection 2013–2040 and Central 'New Policies' scenario oil demand projection 2014–2040, both assumed to continue to 2050); Ocean Conservancy and McKinsey Center for Business and Environment, Stemming the Tide: Land-based strategies for a plastic-free ocean (2015); J. R. Jambeck et al., Plastic waste inputs from land into the ocean (Science, 13 February 2015); J. Hopewell et al., Plastics recycling: Challenges and opportunities (Philosophical Transactions of the Royal Society B, 2009); IEA, CO2 emissions from fuel combustion (2014); IEA, World Energy Outlook Special Report: Energy and Climate Change (2015); Carbon Tracker Initiative, Unburnable Carbon (2013)

India - An Environmental Issue

DID YOU KNOW

In India , approx. 6 million ton of plastic products are consumed every year. 40% of the total plastic consumption in India is discarded as waste i.e., roughly 6000 tons per day plastic wastes escapes collection.

1. Indiscriminate littering of plastic waste on land makes the land infertile due to its barrier properties. Moreover, burning of plastic generates toxic emissions
2. Lead and Cadmium pigments, commonly used in PE and PP, are toxic & leach out contaminating soil and ground water
3. Sub-standard plastic carry bags, packaging films (<50 μ)etc. pose problem in collection and recycling
4. Non-recyclable plastic such as multilayer, metalized pouches & thermoset plastic pose disposal problems.
5. Garbage mixed with plastics interferes in waste processing and causes problems in landfill operations
6. Recycling industries operating in non-conforming areas pose threat to environment by unsound recycling practices



Good Practices around Plastic Waste Management

Waste Plastic Collection and Reuse



- Community Waste Bank Programme empowers communities to collect and manage their domestic waste. The company supports 141 recycling stations across 42 cities in Brazil, and 45 co-operatives
- Tesco PLC and Eurokey Recycling Ltd convert back-of-store plastic waste, such as pallet and multi-pack wrapping into second life products by working with German packaging producer Papier-Mettler.
- CGPL in partnership with Sahjeevan is implementing a highly ambitious Waste Management Program in and around its vicinity.
- JUSCO has undertaken an initiative to use plastic waste for road construction in Jamshedpur. The initiative, which started out as a pilot project, is now being replicated across the city and so far 48 to 50 km of roads in the city

Engaging Customers



- Coca-Cola Enterprises and Tesco in UK attempted to boost recycling rates with a new online campaign to engage and educate consumers. Tesco customers were directed to a dedicated website for the **Recycling is the Answer** campaign, where they were invited to ‘pledge, play and recycle’.
- Reusable cups are an important component of overall waste reduction strategy for Starbucks. Since 1985, Starbucks rewarded customers with a discount when they bring in personal tumblers. In 2013, they launched a \$1 reusable cup in the U.S. & Canada, and a £1 cup in the UK
- Qantas’ airlines has an on-board announcement system where cabin crew ask customers to help them separate aluminium cans, plastic and paper cups, newspapers and plastic bottles for the cabin rubbish collection service. Each aircraft galley has a dedicated recycling bin, fitted with an identifiable green bag.

Energy from Plastic Wastes



- The airline is partnering with US bio-energy firm Solena Fuels to create the world's first facility in Essex to produce sustainable aviation fuel. The plant will use refuse derived fuel (RDF), produced from municipal solid waste (MSW). The RDF is produced by sorting out the recyclable materials such as plastics, metal cans and glass, and shredding the remaining residue, which is high in biogenic and organic content. This material would otherwise be sent to landfill.
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- As part of the Energy Bag Pilot Program, Dow partnered with the Flexible Packaging Association, Republic Services, Agilyx, Reynolds Consumer Products and the city of Citrus Heights, Calif. to drive a collection pilot program to divert non-recycled plastics from landfills to synthetic crude oil for fuel.



What Can we do to Minimize Waste Plastics?

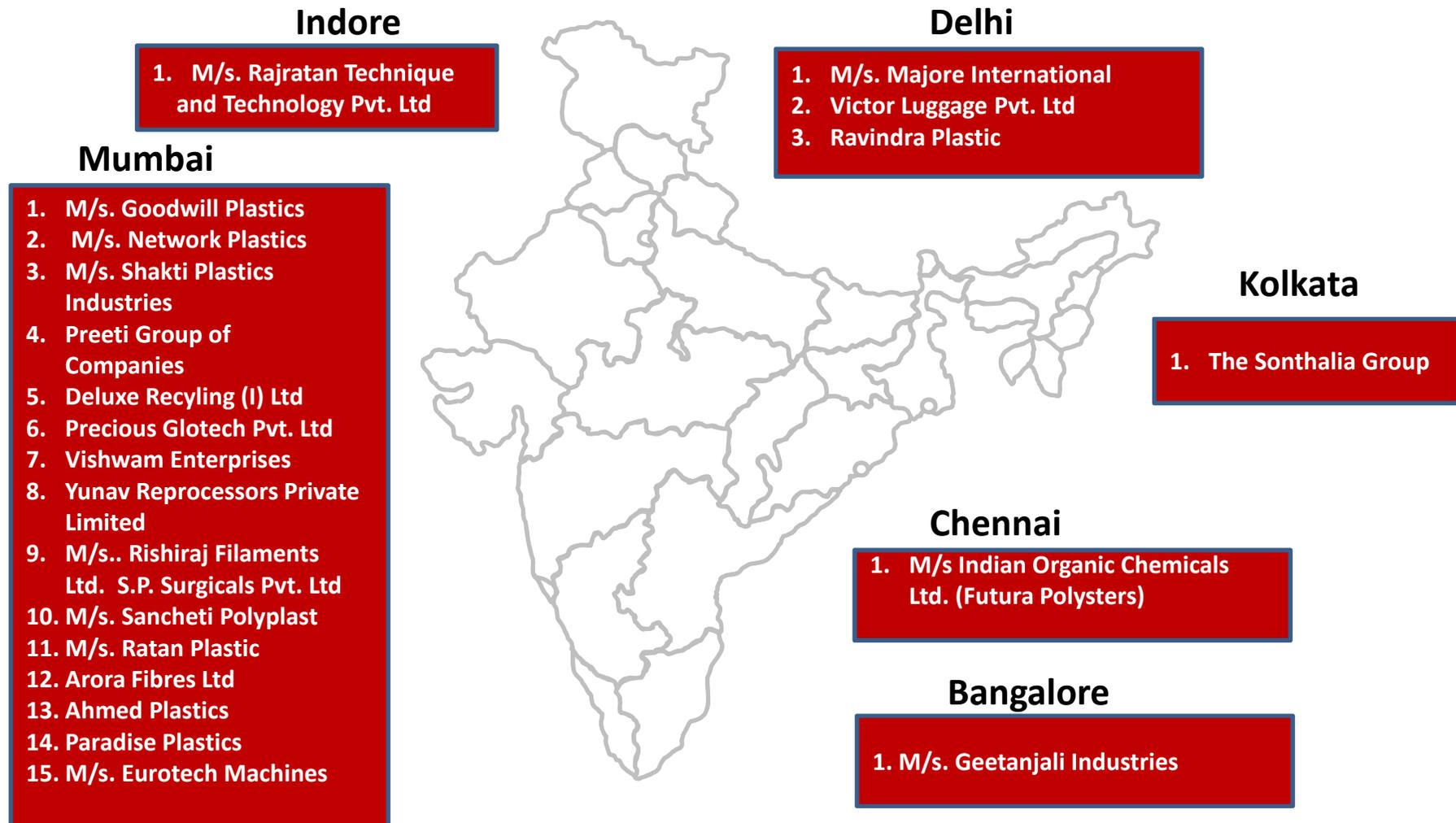
Actions that can be taken by companies

✓ Plastic Strategy	<ul style="list-style-type: none">❑ Start by measuring your plastic footprint and identification of types of plastics used.❑ Replace plastic by sustainable materials .❑ Design products with the end in mind❑ Define clear metrics (KPIs) and processes to track progress
✓ Supplier Engagement	<ul style="list-style-type: none">❑ Order supplies with minimal plastic packaging❑ Use recyclable and renewable materials to the extent possible❑ Send back plastic pallets / bags to suppliers
✓ Employee Engagement	<ul style="list-style-type: none">❑ Encourage employees to use stainless steel or glass bottle for drinks❑ Make them familiar with the triangle-shaped recycling symbol on the bottom of most bottles and containers
✓ Customer Engagement	<ul style="list-style-type: none">❑ Label your plastic products clearly for tracking, public information and recovery purposes❑ Reward your customers with a rebate when they return plastic bags, containers for bulk items, or coffee mugs and cups.❑ Tie up with waste plastic recycler (s) involved in creating value

Possible Actions at Individual Level

- 1 Say no to plastic bags ! Use cloth bags while shopping
- 2 Bring your mug with you to the coffee shop that let you use them, which is a great way to reduce lids, plastic cups and/or plastic-lined cups
- 3 Go digital! No need for plastic DVDs when you can buy your music and videos online
- 4 Give up buying beverages that come in plastic bottles.
- 5 Volunteer for a beach clean up as a part of Tata Engage
- 6 If you must use plastic, try to choose #1 (PETE) or #2 (HDPE), which are the most commonly recycled plastics. Avoid plastic bags and polystyrene foam as both typically have very low recycling rates.
- 7 Wear clothing made from natural (not synthetic) materials.
- 8 Dispose your waste plastic to 'Kabadiwalla' for recycling.

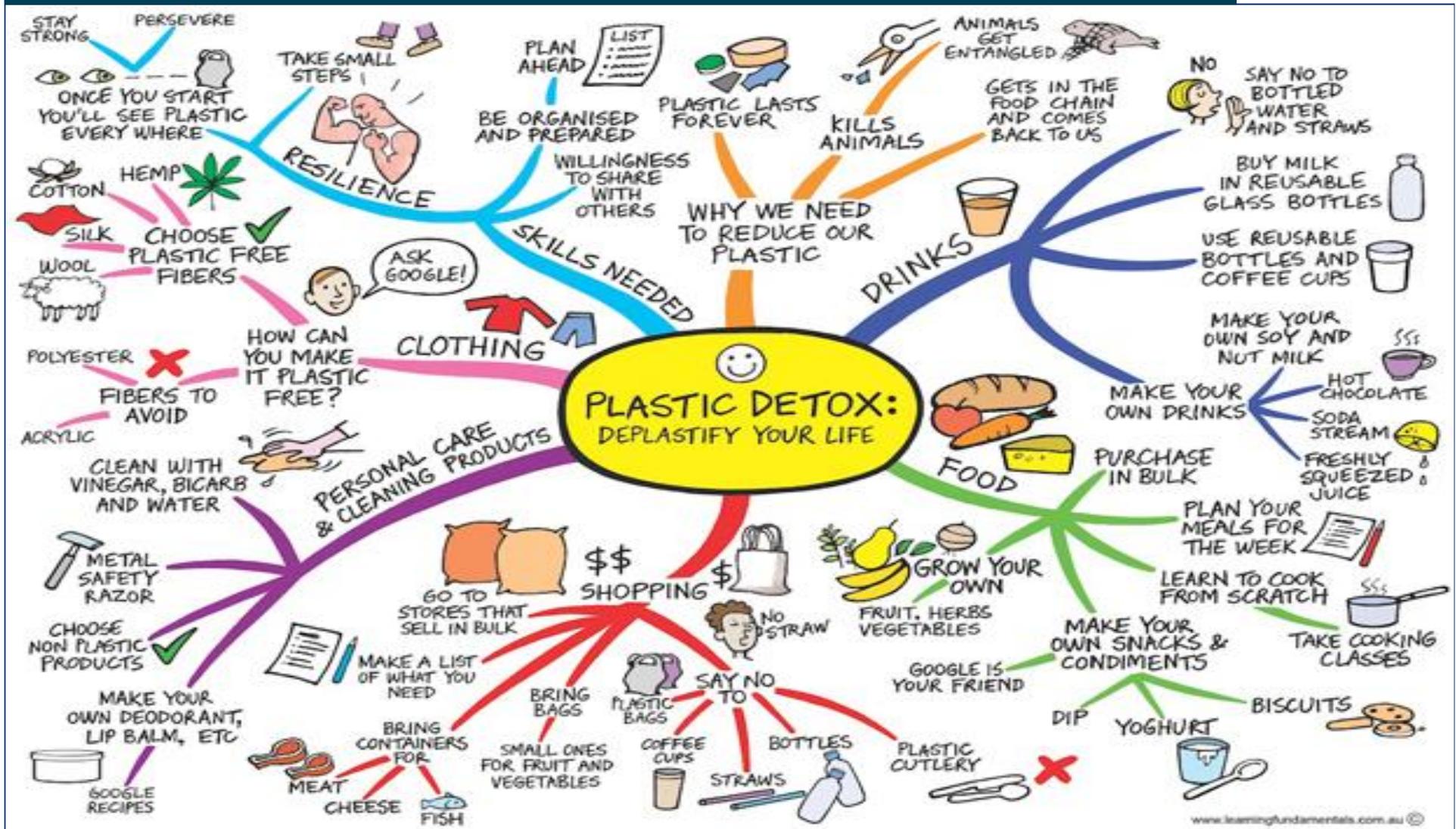
Some Plastic Recyclers



References

1. http://www.cpcb.nic.in/divisionsofheadoffice/pcp/management_plasticwaste.pdf
2. <https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy>
3. http://www.sustainablebrands.com/news_and_views/next_economy/hannah_furlong/report_future_plastics_can_should_be_circular
4. <http://icpeenvi.nic.in/index3.aspx?sslid=860&subsublinkid=220&langid=1&mid=1>
5. http://www.business-standard.com/content/b2b-plastics-polymers/jamshedpur-uses-plastic-waste-to-build-roads-115061700417_1.html
6. www.unep.org

Thank you for your attention !



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ANNEXURE

Plastic Waste Management Rules, 2016



Rule

Increase in the thickness of carry bags and plastic sheets from 40 to 50 micron

Collect back system to be put in place by producers, importers and brand owners of plastic

Phasing out of manufacture and use of non-recyclable multilayered plastic

Responsibility of waste generator will be to segregate, store and dispose wastes

Aim

Increasing the thickness from 40 to 50 micron and stipulation of 50 micron thickness for plastic sheets is likely to increase the cost by about 20%. Hence, the tendency to provide free carry bags will come down and collection by the waste-pickers also increase

The introduction of the collect back system of waste generated from various products by the producers/brand owners of those products will improve the collection of plastic waste, its reuse/ recycle.

Manufacture and use of non-recyclable multilayered plastic if any should be phased out in two years' time

Plastic Waste Management Rules, 2016



Rule

Responsibility of retailers and street vendors



Responsibility of local bodies and Gram Panchayat



Pre- registration fee of minimum INR 4,000/- per month



Reuse of plastic waste

Aim

Retailers or street vendors shall not sell, or provide commodities to consumers in carry bags, or plastic sheet, or multilayered packaging, which are not manufactured and labelled or marked, as prescribed under these rules. Else they will be liable to pay fines, as per bye-laws of local

The local bodies shall be responsible for setting up, operationalisation and co-ordination of the waste management system and for performing associated functions

The introduction to collect fee from the producers, importers of plastic carry bags / multilayered packaging and vendors selling the same, will strengthen the financial status of local authorities and improve Plastic Waste Management System

The options on reuse of plastic in various applications namely, road construction, waste to oil, waste to energy will enhance the recycling of plastic