

Implication of New Plastic Management Rules on Indian Industries – Challenges & Recommendations

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Abstract— Dependency on plastics in Indian Industries has increased many folds in recent years because of their unique characteristics and this stupendous rise in use of plastics means rise in plastic waste generation. There were statutory laws formulated by government but they had loop holes which made implementation difficult. New Law tries to address those gaps and has implemented radical changes with focus on primary ownership of Plastic Waste Management to the Waste Generators, Producers, Brand Owners etc. A detailed component wise comparison between old rule and the amended rule has been done and the implication of those changes on Indian Industry is presented here. Although the new rule is more stringent and comprehensive, there are few challenges in implementing these rules which calls for overhaul of complete solid waste management system. This paper tries to address some of those challenges with a concept based Waste collection & Segregation system.

Keywords— Plastic Waste Management, Waste Collection, Segregation

I. INTRODUCTION

Plastics has proved to be a revolution specially for industries like packaging, infrastructure, agriculture, automotive, healthcare and FMCG segments who use plastic in variant forms in their value chain (A Review of Plastic Waste Management Strategies). Plastics, today have replaced traditional material for packing and carry bags because of their low cost, durability, flexibility, inert nature and easily availability¹. In India, consumption of plastics grew at a CAGR of 16% in the last five years and touched USD 32 Bn in FY 15. The Indian packaging industry constitutes 4% of the global packaging industry. The per capita packaging consumption in India is low at 4.3 kg, compared to developed countries like Germany and Taiwan where it is 42 kg and 19 kg respectively. However, in the coming years Indian packaging industry is expected to grow at 18% p.a. wherein, the flexible packaging is expected to grow at 25 % p.a. and rigid packaging to grow at 15 % p.a.²

As the urbanization increased growth and consumption of plastics also increased and also plastic waste.

The plastics waste is now considered as a detrimental Environmental menace. The main problem with plastic waste as compared to other wastes is the time taken for decomposition. For example, a plastic bottle takes 450-500 years to decompose where as a simple plastic bag might take 200-1000 years.³

II. WHY PLASTIC WASTE MANAGEMENT IS DIFFICULT.

The traditional approach towards Plastic waste management has always been focusing on the end of the pipeline. Focus on segregation of plastic waste that has been collected as part of the municipal waste and treat them by recycling or dumping them on designated landfill sites. This approach heavily depends on the efficiency of the collection & segregation system. In India, this activity is primarily handled by respective municipal corporation whose infrastructure for handling of solid waste is woefully inadequate. Poor littering habit of the general public has aggravated this problem.

With the intension of controlling the usage of plastic bags, different state governments (Bengaluru /Bangalore, Maharashtra, Delhi, Punjab (Chandigarh) Rajasthan, Himachal Pradesh, Goa and West Bengal) authorities had imposed restrictions on use of thin plastic carry bags. It is realized that this restriction on plastic carry bags is not the solution – rather it would encourage use of alternate materials like paper bags etc. creating an increased environmental pollution in the real sense and ultimately leading to the cause of climate change.

Rate of generation of this plastic waste is another issue. For E-waste which is generated at the end of the life cycle of the Electrical & Electronic Equipment (EEE), so one can calculate the amount of E-waste generated by correlating the production rate of these EEE items and their respective life cycle. But in case of plastic waste, it is generated at the point of consumption. For example, once you buy a food item and consume it, the packaging material becomes a Plastic waste. This waste, if only collected through any channel, will be accounted in the overall plastic waste generation quantity or else it will be missed. This makes the calculation of Plastic waste tedious.⁴

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III. COMPARISON OF OLD & NEW REGULATORY RULE

Baseline Regulatory norms did not give any responsibility to the producers, Importers or Brand Owners who use Plastics as their raw materials. Responsibility for development & implementation of effective plastic management was with Local bodies which was a major drawback.

There were major amendments that were made in Plastics Management Rules 2016 which supersede the earlier version. Following are the gist of the changes that were made: ^{5 & 6}

Plastic Waste (Management and Handling) Rules, 2011	Plastic Waste Management Rules, 2016	Likely impact
Application		
Conditions of manufacture of carry bags were exempted for exclusively for export purposes, received by the owner or occupier of the manufacturing unit.	Same. But it doesn't apply to units involved in packaging of gutkha, tobacco and pan masala	Pan masala & gutkha producing companies will incur additional cost who use plastics for their packaging activities
Roles & Definition		
Not Present	New Roles and definitions included. Crucial ones like Brand Owner, Institutional Waste Generator, Producer, Street vendor, Waste generator etc.	With more role clarity better accountability can be defined. Better accountability means better management system
Conditions		
Not Present	Manufacturers and sellers of compostable plastic carry bags shall obtain a certificate from the Central Pollution Control Board before marketing or selling	Authorization means these units also have to comply with the statutory requirements of this rule.
Thickness of carry bags made of virgin or recycled plastic should not be less than 40 microns. Nothing mentioned about Plastic Sheets.	Thickness of carry bags & Plastic Sheets made of virgin or recycled plastic should not be less than 50 microns.	The increasing thickness of plastic carry bags and stipulating 50-micron thickness for plastic sheets will likely increase cost of material Which will in turn reduce the tendency to provide free carry bags. This will also incentivize the waste pickers by generating more revenue.

Responsibility of Gram Panchayat		
Not Present	The role of gram panchayat in rural areas is similar to the role of local bodies in Urban areas.	Plastic Management is still in implementation stage in urban areas. But focusing on plastic management in rural stage from the beginning is going to help as Indian industries are seeing rural sector as the next biggest market.
Responsibility of Waste Generators		
Not Present	Waste Generators including institutional generators, event organizers shall not to litter the plastic waste. They are required to segregate waste, store and handover the waste to authorized agency. Pay user fee as prescribed by bye laws of local bodies.	Earlier there were no specific responsibilities for the event organizers, institutional generators Increasing the scope of waste generators definition, will better the segregation and thereby improve the management of waste.
Responsibility of Producers, Importers & Brand Owners		
Not Present	Producer, Brand Owner need to work out operating model for waste collection system for collecting back the plastic waste generated after the desired use of the product within a period of six months in consultation with local authority / State Urban Development Department and implement with two years thereafter. This plan shall be submitted to the SPCB while applying for Consent to Establish or Operate or Renewal. After 6 months of publication of these rules, no producer manufacture or use any plastic or multilayered packaging for packaging of commodities with registration from concerned SPCB or committees. If CTE/CTO renewed before	The introduction of take back system of waste generated from various products by the Producers/ Brand owners of those products would improve the collection of plastic waste, its reuse/ recycle. This will compel industries to integrate reverse logistics in their operating model. It is no more some order winner criteria but order qualifier criteria. This will also generate business opportunities in the market. For entrepreneurs, this is an opportunity to collaborate with different industries who can outsource their take back system of Plastic waste and dispose it effectively and efficiently.

	the notification of these rules, shall submit such plan within six months from the date of notification and implement with two years thereafter.	
Registration		
Registration was only required for recyclers & manufacturers	Producers are also required to get registered by respective SPCB in Form I. Registration will not be renewed unless action plan given by the producer for Plastic waste management is available.	By registration, producers are also brought under the scope of the rule. For registration, producers have to make action plan, create infrastructure, facilities or engage 3rd party dedicated for effective plastic management.
Responsibility of retailers & street vendors		
The local body shall be responsible for plastic waste management system and for performing the associated functions may seek financial assistance from producers to set up the Waste Management System No carry bags shall be made available free of cost by retailers to consumers. The Municipal authority may by notification determine minimum price of carry bags.	The shopkeepers and street vendors who provide plastic carry bags shall register with local body on payment of plastic waste management fee of minimum INR 48,000 @ rupees four thousand per month. Only the registered shopkeepers or street vendors shall be eligible to provide plastic carry bags for dispensing the commodities The registered shop keepers shall display at prominent place that plastic carry bags are given on payment not to sell Vendors selling or providing commodities to consumer in carry bags or plastic sheet or multilayered packaging, which are not manufactured and labelled or marked, as prescribed under these rules. are liable to pay such fines as specified under the bye-laws of the local bodies.	The imposition of plastic waste management fee on retailers and street vendors will force them to collect cost on carry bags which in turn make the public to either switch over to other bags or reuse of carry bags, reduce the Plastic waste generation. Will strengthen financial status of local authorities and improve Plastic Waste Management System. The rules is silent on the mode of payment of such money collected from pricing of carry bags by the retailers to Municipal authority

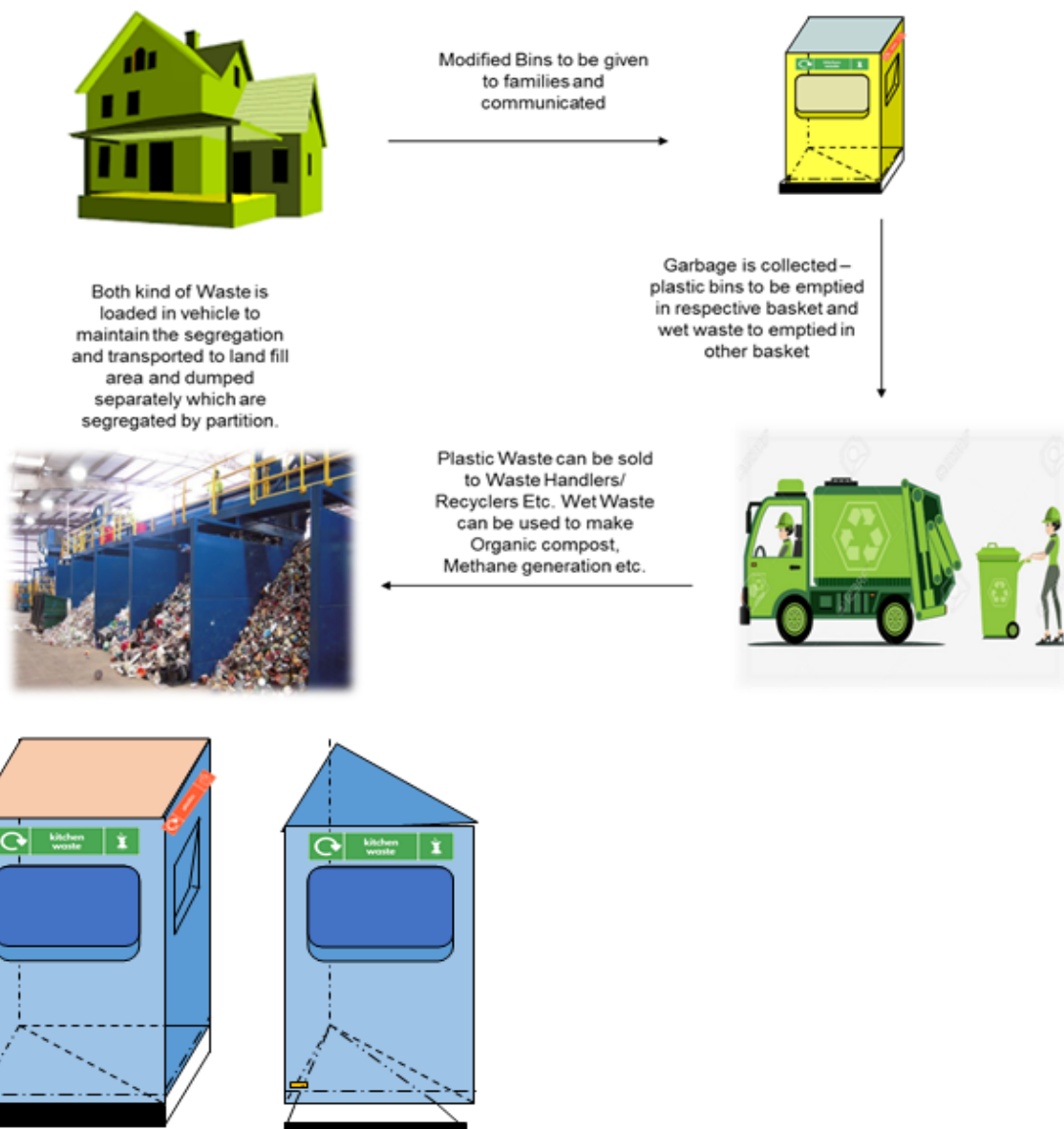
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This way, the waste can be segregated properly and the bins can be maintained as well for hygiene & function. This is also cost effective for the consumer and easily acceptable. The cost of these bins, processing cost and disposal cost can be borne by the producers, brand owners or importers depending on the sale in the respective area.

Due to better segregation, waste plastic, glass & E Waste can be collected in their original form and can be sold to authorized parties for recycling or processing earning these local bodies revenue. This will ensure:

- Better waste segregation at the household level making the waste management effective.
- Consumers will be happy to have colourful, sleek designed dustbins which is free
- Sustainable business model for the Local Municipal authorities/ local bodies/ independent authorized private waste handlers with potential to earn profit from this.



Challenge 2 - Payment of registration fees by street vendors:

As the amended rule speaks about a registration fees from the retailers and street vendors, the major challenge is collection system of this fees from this huge segment. The total number of street vendors in the country is estimated approximately 10 million. They ensure the availability of goods and services at cheaper rates to people. The average earnings of street vendors are low – ranging between INR 40 and 80 per day.⁸ With such regular low income, it will impractical to levy a charge of four thousand rupees per month on them. Collection of the fees will also be an uphill task for local authorities as these are not registered nor fixed shops. This segment is highly price sensitive and in absence of strong enforcement and penalty, they will continue to use cheapest plastic available to give it to consumers to carry the buy. Hence to restrict the distribution of plastic carry bags by these street vendors, price of carry bags can be increased or banning of 40-micron plastic supply will also serve the purpose. This will encourage customers to reuse their carry bags and there reduce consumption of Plastic carry bags.⁹

Challenge 3: Substitute for multilayered plastic specially for food industry:

Packaging consists of various categories of material types like paper board, metals, plastic, wood, glass and other materials. However, 'Plastic Packaging' has the highest share in types of materials used in the packaging industry. Plastics today form the foundation of our “convenience consumer culture”. Globally, Plastics comprise of 42% of packaging with the combination of rigid and flexible plastics in packaging². Hence putting a complete ban on use of multi layered plastic can only be effective if there is viable, sustainable and cost effective substitute for packaging.

Bio-based plastic products are material which is made from biomass and can degrade naturally in a matter of years. The traditional, petroleum based variety accounts for about 99% of world's plastic and much of that will still be decomposing for centuries. The main challenge with making this as a viable solution to the problem is its cost. It is expected that with high volume demand of production and a stress on green chemistry by community, the cost of production will come down and be more attractive and sustainable option vis-à-vis the traditionally produced plastics. Many polymers like PLA (Poly Lactic Acid), PHA (Poly Hydroxyalkanoates), Bio PTT (Poly Trimethyl Terephthalate), Bio PDO (Propanediol) etc. form the upcoming trends.¹⁰

Apart from these new revolutionary plastic substitutes, the more effective way in today's community structure would be to strengthen the solid waste collection & processing system which will ensure that whatever waste is generated is processed and recycled and least amount end up in the landfill. If managed properly, this process can also generate revenue for the process owner. There are several studies & trail projects done to support this.¹¹

V. CONCLUSIONS

With the rise in population and purchasing power, industries are growing and so is consumption. And with this, there is an exponential rise in the waste generation. The major concern lies with plastic which makes the rate of generation much more than rate of decay. The only way to keep the process stable & sustainable is if we can make the rate of decay faster by using Biodegradable packaging material or avoiding plastic waste ending up in layers of landfill. If we want to achieve the latter, Solid waste Management needs a revolutionary change which starts from educating the general public of effects of segregation and giving them user friendly mechanism for proper waste segregation at source.

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