



CII-ITC Centre of Excellence
for Sustainable Development



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Managing Plastic Waste

From the Exemplars of Indian Industry

Case Studies



Managing Plastic Waste From the Exemplars of Indian Industry

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CII-ITC Centre of Excellence for Sustainable Development

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Message



The Indian economy today is at a critical juncture of its growth trajectory – a stage that is characterized by rising demand-supply constraints, fast changing consumer preferences and an increasing stakeholder scrutiny. I sincerely believe, as a rapidly emerging economy, India is expected to grow at a faster rate. The use of plastics is widespread and the benefits of the material are undeniable. Globally, 78 million tonnes of plastics go into packaging applications with a significant portion of these single-use in nature. 43% of plastics consumed in India is used for packaging, a large part of which is used for food and beverage packaging.

The FMCG sector, is the Indian economy's fourth largest sector and a large consumer of plastics as packaging material; the excellent barrier properties of plastic, its flexibility, and toughness make it an indispensable material for packaging. Unfortunately, these are the very properties which lead to the persistence of plastic waste in the environment. However, worldwide awareness coupled with a desire to find solutions to the challenge posed by the externalities of plastic are leading to action towards reducing consumption of plastics and better managing its waste.

India's union government, responding to global concerns focussed on Sanitation and Waste Management through the Swachh Bharat Mission (SBM) back in October 2014. In line with the objectives of this mission, the Ministry of Environment, Forest and Climate Change (MoEFCC) came up with Plastic Waste Management Rules (PWMR), 2016. The legislation was the turning point

with respect to Plastic Waste Management, as the concept of Extended Producer Responsibility (EPR) was integrated into the regulation. This regulation identifies stakeholders including Indian Industry as large consumers of plastic and generators of plastic waste. In 2019, the Indian Prime Minister emphasized the need to actively look for alternatives to the category of single-use plastics.

Indian industry acknowledges and understands the imperative to act on plastic waste and is committed to complying with these regulations. Many companies have taken significant steps both upstream and downstream of the domestic consumer. For, example, they have reoriented CSR strategies, working with communities, municipalities, ULBs to better manage segregation and collection of plastic waste. In actions upstream of the domestic consumers, many companies have initiated reductions in plastic use or mandating an increase in recycled plastics in their packaging.

The report aims to capture and document some initiatives, best practices, instances of collaboration by Indian Industry in the direction described above. We hope the report will be useful and relevant, inspiring to all stakeholders and provide information about the efforts made by Indian businesses.

Mr Shreekant Somany

Chairman, CII National Committee on Environment 2020-21
& Chairman & MD Somany Ceramics Ltd

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Executive Summary

Plastic being a very versatile material, its usefulness and cost effectiveness has resulted in it being omnipresent and widely used in day to day life. Although convenient to use, its disposal has posed a significant threat to the environment. Since plastics were first mass produced about 70 years ago, their production rate has risen twenty-fold and is expected to double over the next two decades.

Globally 8.3 billion tonnes of virgin plastic has been produced to date. Of the total plastics waste generated, 9% is recycled, 12% incinerated and the remaining 79% gets accumulated in landfills or the natural environment. If the current production and waste management trends continue, approximately 12 billion tonnes of plastic waste will be amassed in landfills or the natural environment.¹

As synthetic & conventional plastics (petro-based) are non-biodegradable in nature, they will remain in dump-yards/ landfills for several years, if not collected properly. Indian cities & urban areas, being densely populated, the source segregation of waste for separation of biodegradable/non-biodegradable/recyclable waste has not been effective so far, despite all efforts by Municipal Corporations/Local Bodies. Under the current circumstances, it became imperative for the Government to devise policies to address the menace being created due to the generation of plastic waste and its end disposal and help mitigate the risks it imposes on the environment.

Therefore, the Ministry of Environment, Forest & Climate Change (MoEFCC), Government of India exercising the powers conferred by Executive Summary section 6, 8, and 25 of the Environment

(Protection) Act, 1986, notified the Plastic Waste (Amendment) Rules, 2018 wherein, the concept of “Extended Producer Responsibility” was introduced. As per the said Rules, the Extended Producer Responsibility (EPR) signifies the responsibility of a producer for the environmentally sound management of the product until the end of its life. Here, the Producer is referred to as a person engaged in manufacture or import of carry bags or multi layered packaging or plastic sheets or the like, and includes industries or individuals using plastic sheets or the like or covers made of plastic sheets or multi-layered packaging for packaging or wrapping the commodity.

As a result of introduction of EPR under the Plastic Waste Management Rules, all brand owners and producers were made liable for the end life disposal of the plastic waste being generated due to the presence of their products in the market.

Plastic pollution, which has always been a major global concern, increased during the outbreak of COVID-19 pandemic. In the current scenario, plastic is playing an important role in protecting people from the deadly virus, especially frontline workers. But, plastic face masks, gloves and hand sanitizer bottles, which are some of the common essential items to protect against the virus, have increased the burden of plastic waste, resulting in a massive challenge to the concerned authorities.

Taking into consideration the mammoth challenge of plastic pollution and need for an effective EPR policy that would emphasise on mechanisms to ensure

¹ Geyer, R., Jambeck, J.R., Law, K.L., “Production, use, and fate of all plastics ever made”, Sci Adv. 2017, 3(7).

reduction of plastic waste through design change in packaging and by promoting alternative materials for packaging, certain Indian brands took the responsibility of their plastic waste and proactively worked towards collecting back all the plastic waste generated after the end use by the consumer and brought it back into the 3Rs (reuse, recycle, recover) cycle.

To further strengthen the implementation of EPR, MoEFCC is in the process of finalising the Uniform

Guidelines for EPR which would then enable the implementation of EPR through different suggested models.

This publication is a compilation various initiative taken by different Brands as a part of Plastic Waste Management. These initiatives vary in location, service type, type of partners and degree of partnership—and the brand's willingness to build a culture of Plastic Waste Free societies.



ITC Limited



Mr Sanjiv Puri

Chairman & Managing Director
ITC Ltd.

The problem of solid waste management is one of epic proportions and requires each organ of society and more so, enterprises that are large economic organs of society, to make a meaningful contribution towards this in line with the Hon'ble Prime Minister's path-breaking initiative of Swachh Bharat. We take pride that ITC is a Carbon Positive, Water Positive and Solid Waste Recycling Positive Company for over a decade now. We are committed to sustaining our leadership position as a Solid Waste Recycling Positive Company.

Our flagship initiative, Wellbeing Out of Waste (WOW), seeks to evolve a sustainable and a scalable solution to segregate, collect and promote re-use or recycle solid waste. The benefits of these are already available to 77 lakh citizens of the country and over time, we are going to scale this up and enhance our contribution to the Hon'ble Prime Minister's Vision of Swachh Bharat.

1.1

About the Company

ITC¹ is one of India's leading private sector companies and a diversified conglomerate with businesses spanning Consumer Goods, Hotels, Paperboards and Packaging, Agri-Business and Information Technology. ITC's resolve is to build an exemplary Indian enterprise that would create enduring value for our country. ITC aspires to be an organisation that adopts the credo of putting 'India First' – keeping country before corporation and the institution before the individual.

Leveraging the Company's innovative capacity, enterprise strengths and its presence in rural communities, ITC has designed and implemented large-scale programmes to create sustainable livelihoods, empower local communities, enrich the environment and address the challenges of climate change. It is an acknowledged global exemplar in Triple Bottom Line performance and is the only enterprise in the world of comparable dimensions to be carbon positive (for the last 14 years), water positive (for the last 17 years) and solid waste recycling positive (for the last 12 years).

In order to serve larger national priorities, ITC redefined its vision two decades ago to make societal value creation the bedrock of its business strategy. The need to sustain global competitiveness in economic value creation, whilst simultaneously creating larger societal value, has led to innovation in business models that seek to synergise the building of economic, ecological and social capital as a unified strategy.

ITC has also been at the vanguard of environmental stewardship by pursuing innovative strategies that ensure a low-carbon growth path. In addition to its large-scale Afforestation and Watershed Programmes, the Company's climate change mitigation contribution

is also manifest in greenhouse gas reduction programmes, renewable energy investments, construction of green buildings and so on².

Background on ITC's Experience in Municipal Solid Waste Management (MSWM)

ITC has experimented with multiple models in municipal solid waste management ("MSWM") - Wellbeing Out of Waste ("WOW") programmes for large cities and small towns (e.g. Bengaluru, Hyderabad, Warangal, Muzaffarpur) and MSK (Mission Sunehra Kal) solid waste management programmes for rural areas (e.g. Saharanpur, Munger, Haridwar) and temples. These programmes aim to create a clean and green environment by educating citizens on source segregation and effective recycling of dry waste and creation of livelihoods for waste handlers. **These programmes today cover over 97 lakh citizens, 48 lakh school children and 2,000 corporates across Uttarakhand, Andhra Pradesh, Bihar, Delhi, Karnataka, Maharashtra, Punjab, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal.** Through continuous engagement by means of awareness camps, training of waste collectors and door-to-door propagation drives, about 80-90% waste segregation has been achieved in many of these locations. About 20-30% of the total plastic waste collected through these programmes is low value plastic which is a mixture of multi-layered plastic and thin poly films which presently do not go for direct recycling and are currently being sent to cement plants, where they are used as an alternate fuel replacing pet coke. **In 2018-19, more than 54,000 tonnes of dry waste was sustainably managed including 7,400 tonnes of multi-layered plastics and thin poly films.**

¹ <https://www.itcportal.com/>

² More details are available at <https://www.itcportal.com/sustainability/index.aspx>

In addition to WOW, another programme under ITC's Mission Sunehra Kal (MSK) which deals with both dry and wet waste has spread to 15 districts of 10 States, including Uttarakhand, Uttar Pradesh, Bihar and West Bengal, covering 2.12 lakh households and collected 12,608 tonnes of waste during the year. This programme focuses on minimising waste to landfill by managing waste at source including home composting, which was practiced by 10,892 households during the year. Under this programme, in 2018-19, 8,462 tonnes of wet waste was composted, 2,383 tonnes of dry waste including plastic waste

recycled, and only 14% of the total waste was sent to landfills. Additionally, a circular economy model of waste management specifically for temples has also been implemented.

In all the areas where ITC's interventions on municipal solid waste are operational, the models necessarily involve partnership with the urban local body for infrastructure and logistics and local NGOs for propagation and outreach and these have been replicated with some local variations across locations.

1.2 Initiatives to minimize plastic waste

1.2.1. “WELLBEING OUT OF WASTE” (WOW) PROGRAMME IN BENGALURU

ITC WOW was launched in Bengaluru in 2013 with operations in 12 wards. Currently, the programme is operational across 64 wards covering over 11 lakh households (HHs). Through continuous engagement by means of awareness building drives, training to waste pickers and door-to-door propagation by local NGO partners viz. E Sree foundation and Samarthanam trust for the disabled, as much as 80-90% segregation

ITC WOW Programme in Bengaluru operational in 64 wards covering over 11 lakh household

of dry and wet waste have been achieved.

The programme focuses on source segregation of waste and works in collaboration with local bodies & NGOs.



Figure 1: Snapshots from WOW operation in Bengaluru



Propagation



Collection



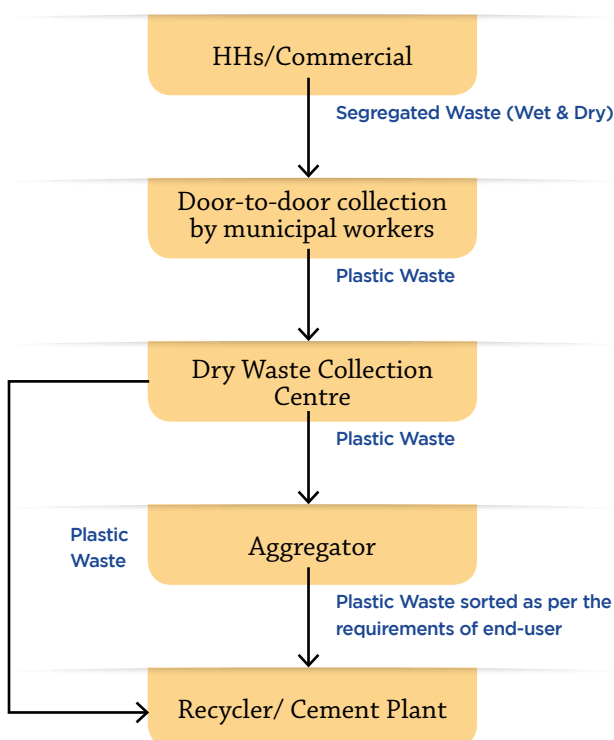
Sorting & Baling



The segregated waste (wet and dry) is collected door to door by municipal waste pickers. The segregated dry waste is then sorted into different streams, and the low value plastics (LVP) primarily the Multi Layered Laminates (MLL) packaging waste, is sold to the Dry Waste Collection Centre (DWCC) attached to every ward. This model not only helps in managing the waste but also provides incentives to the waste pickers as they earn an incentive of INR 2 per kg from selling the LVP/MLL waste. The LVP/MLL waste once collected centrally at DWCC is either directly sent to an authorised cement kiln for energy recovery or first transported to an aggregator and thereafter sent to the cement kiln.

In Bengaluru, the WOW programme is implemented in a partnership model with the city's Municipal Corporation, Bruhat Bengaluru Mahanagara Palike (BBMP). For each ward, the NGO appointed by ITC enters into a memorandum of understanding (MoU) with the BBMP, which entails the latter providing door-to-door collection system, the infrastructure support (land) for setting up the DWCC and the operational costs of utilities (electricity, water etc). The NGO operates each DWCC on a franchisee

Flow-chart of channelization of plastic waste showing movement of plastic waste at various points - Bengaluru



ITC WOW Programme in Muzaffarpur achieved 80% segregation-at-source on daily basis

model, appointing a local entrepreneur to manage and operate the DWCC as an enterprise. Currently 51 DWCC's are operating under the programme in Bengaluru. This model has created sustainable livelihood opportunities for over 5,000 Rag pickers and Municipal waste collectors, the entrepreneur managing the DWCC and the employed labour. Over 28,400 tonnes of Dry waste was collected in 2018-19 under the programme which included 11,550 tonnes of plastic waste, out of which, over 7,750 tonnes was LVP/MLL waste.

The programme in Bengaluru also involves engagement with schools and corporates. These channels are also utilised for collecting LVP/MLL waste.

The following flowchart depicts the movement of plastic waste as per the model.

1.2.2. "WELLBEING OUT OF WASTE" (WOW) PROGRAMME IN MUZAFFARPUR

The "Swachhta Swasthya Samridhi" programme was launched in Muzaffarpur on December 15, 2016. As part of the programme, an MoU was signed between the Centre for Science and Environment (CSE), Muzaffarpur Municipal Corporation (MMC) and ITC Ltd for facilitating better solid waste management in the city.

The model implemented in Muzaffarpur highlights the importance of a three-way segregation system with 100 per cent collection and transportation of segregated waste. As a holistic waste management model, it encourages decentralized waste management— composting or bio-methanation of wet waste and recycling of dry waste. The objective is to make solid waste management financially self-sufficient and ensure zero landfill cities.

Under the programme, volunteers were selected from the city to carry out door-to-door propagation to create awareness on segregation of household waste. The programme witnessed tremendous participation

Door-to-door collection in Muzaffarpur



from the residents with over 80 per cent segregation achieved in all 49 wards on a daily basis.

Waste pickers collect dry waste through door-to-door collection, which is then sorted and sold to the local scrap dealers (dry waste franchise) at the collection centre where it is further segregated into different waste streams for recycling purposes. In 2018-19, over 750 tonnes of dry waste was diverted towards recycling through this programme.

Muzaffarpur became the first city in Bihar to have its own solid waste management by-laws, primarily due to CSE and ITC's efforts. The by-laws were duly reviewed by the elected board and passed by the State Government as part of its "State Policy and Municipal Solid Waste Management Strategy". On account of ITC's programme, Muzaffarpur has been included in the list of smart cities. On February 8, 2019, a 'Forum of Cities that Segregate' was organised in Muzaffarpur with the Urban Development and Housing Department of the State, which was attended by more than 100 urban local bodies from across Bihar and North- East India. The participant ULBs are now taking into consideration the bye laws formulated by Muzaffarpur Local Govt. and adopting the same, for formulation of bye-laws persistent to solid waste management in their respective towns/cities.

1.2.3. ITC-SWaCH Model for Sustainable Management of post-consumer Multi-Layered Packaging (MLP) Waste

ITC is running a Circular Economy based - a First of its kind Multi-Layer Plastic (MLP) Collection and Recycling Programme in Pune. This 360-degree model for valorization of MLP packaging waste in Pune has sustainably managed around 500 MT³ of Multi-Layer Plastic (MLP)/Low Value Plastic (LVP) waste since its launch in June 2019⁴ with most of it getting channelized to the recycling partner for conversion into recycled plastic granules which are further sold to the Industry for manufacturing plastic products, making it truly circular.

The programme is a unique collaboration between the Private Sector, Civil Society and the Government where in ITC and SWaCH are working with the Pune Municipal Corporation (PMC) to create a scalable and sustainable model by incentivizing collection of MLP waste and channelizing it for recycling. ITC has also setup a MLP waste collection hub in Uruli Devachi, Pune, with a capacity to handle 200 MT of MLP waste per month. As a part of this initiative, ITC has created viable recycling options for post-consumer MLP packaging, using the expertise resident within

³ Till January 2020

⁴ Collections started in January 2019 on a pilot basis

Snapshots from the ITC-SWaCH MLP Recovery Facility in Uruli Devachi, Pune



the ITC Life Sciences and Technology Centre for converting multi layered plastics into useful items of consumption. ITC worked with the local recycling partner by extending technical support and sharing best practices for better value realization from recycling MLP.

How does the Model work

- The foundation of the initiative rests on SWaCH's collection system - a network of more than 3,500 waste collectors, who collect source segregated dry and wet waste every day from 8.1 lakh properties across the city.
- As a first step, the model involves introducing a price for MLP waste which creates an incentive

for the waste collectors to collect MLP waste as a separate stream.

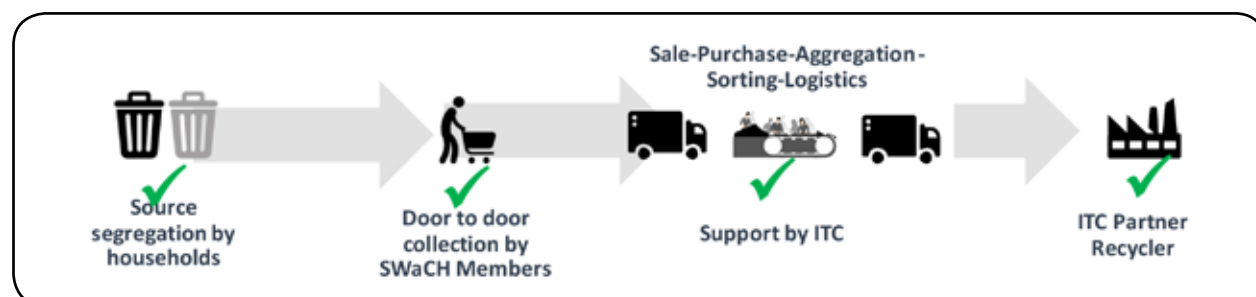
- Next, the entire supply chain is set up to transfer the waste from collection points across the city to an MLP Collection Hub. At the hub, the aggregated MLP waste is further sorted, bailed and shipped to a recycling partner.

What makes the Model unique

- The model enables collection of good quality MLP waste straight from the households where it is generated, which opens up multiple avenues of end uses including recycling.
- The value realization from applications like recycling is made possible because of the fact that waste is segregated at source and it is this value which gets transferred to the waste collector in the form of incremental income which is over and above the proceeds from sale of other recyclables.
- The model also lessens the burden on the municipal waste management system by diverting waste from landfill.

ITC-SWaCH Model has sustainably managed around 500 MT MLP/LVP waste in Pune since its launch (June 2019) covering 13 wards and 1000 waste collectors

Flow of material and activities for ITC-SWaCH Model



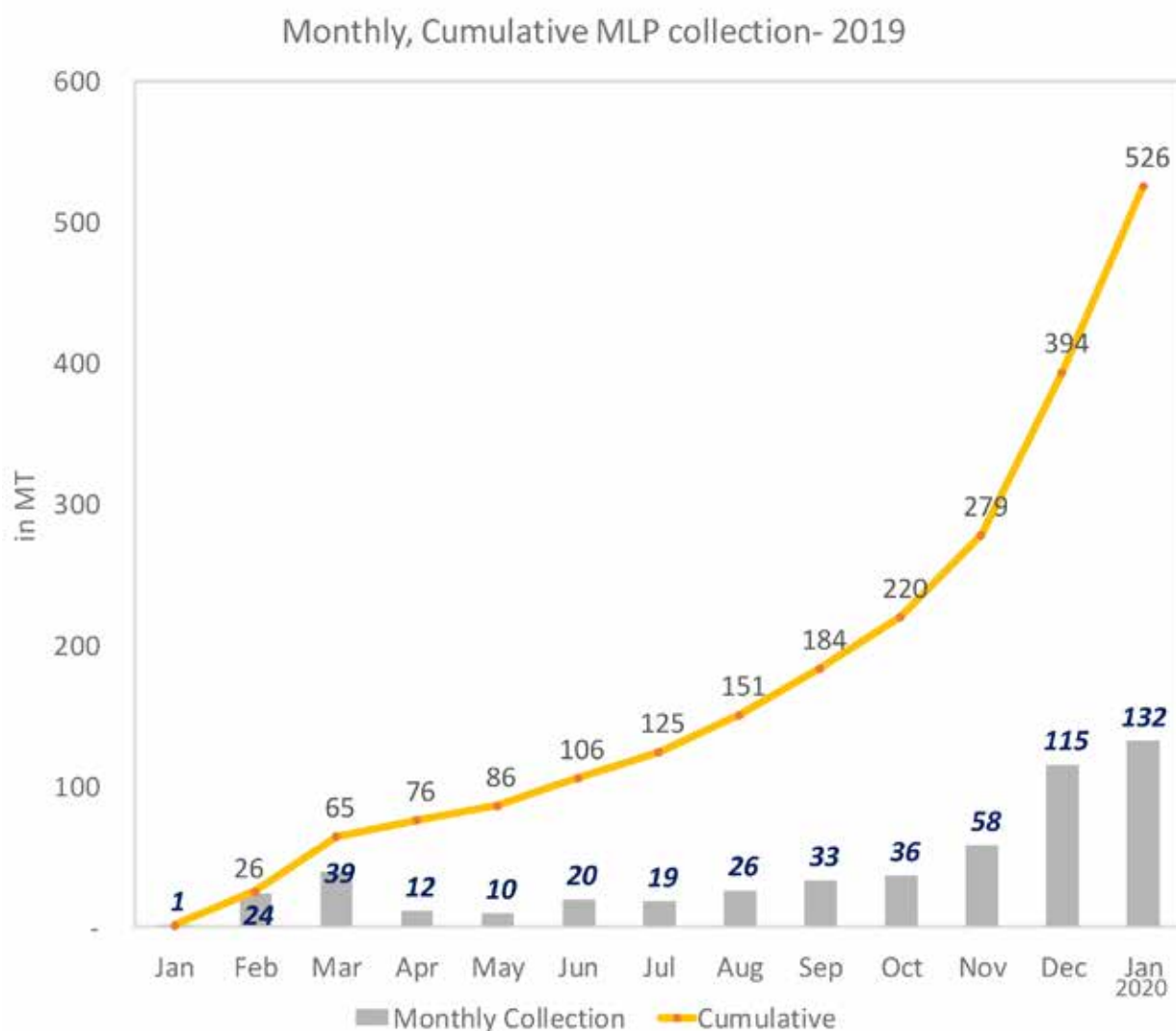
Impact so far

The initiative has scaled up significantly post the launch and currently covers 13 wards with over 1000 waste pickers contributing to the programme. Close to 500 MT (metric tonnes) of MLP waste, which would have ended up in the landfills in the absence of the programme, has been collected till January 2020 and over 70% of this has already been recycled⁵, converted into granules via extrusion for further conversion into various products.

It is estimated that in the coming financial year, the programme will be able to collect and sustainably manage ~2400 MT of MLP waste. With rising scale and efficiencies, the Pune model will become self-sustainable.

According to SWaCH, by channelizing the MLP waste to the programme, waste collectors are earning an incremental livelihood of INR 500 per month on an average with some workers earning as high as INR 9000 per month. In addition to this, additional local livelihood is generated through employment of labour for sorting and bailing and managing local logistics.

The programme also results in direct savings for Pune Municipal Corporation at the rate of INR 3000 per MT on account of avoided transport costs and tipping fee payments. Significant environmental benefits also accrue from the programme on account of waste diverted from ending up in the landfills.



⁵ Remaining 30% was sent to a Pyrolysis and a waste-to-energy plant in Pune.

ITC-SWaCH Model – Impact Summary		
Social Impact	Environmental Impact	Economic Impact
<p>Additional source of livelihood for waste collectors:</p> <p>Average incremental income per worker: INR 500 per month with some workers earning as high INR 9000 per month</p>	<p>Waste diverted from going to landfill:</p> <p>495 MT avoided till January 2020 since inception</p> <p>Avoided emissions from diverting waste from landfill and from replacing virgin plastic with recycled plastic.</p>	<p>Savings to Pune Municipal Corporation</p> <p>INR 14.85 lacs till January 2020 since inception (@INR 3000 per MT)</p>

Future Plans

The current facility has the capacity to process more than 200 MT of MLP waste per month. So far, the initiative has collected over 500 MT in its early phase and is set to expand all across the city and more such hubs will be established in different parts of Pune in collaboration with PMC. Five such decentralised hubs have already been operationalised with support from PMC.

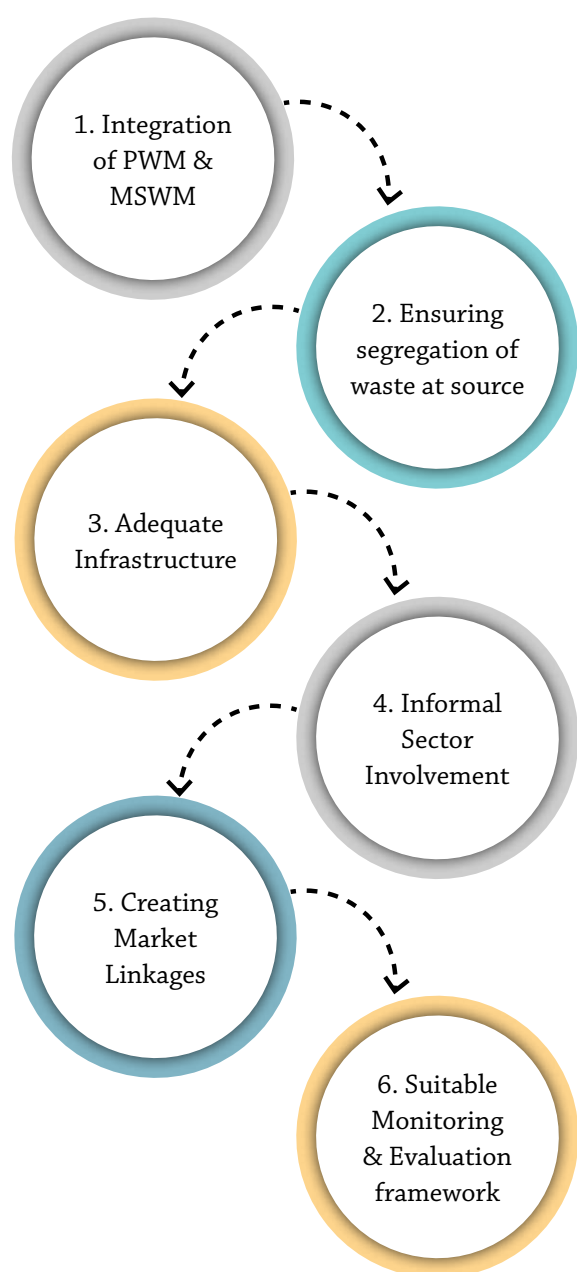
A mobile-app based platform in partnership with Recity and Maharashtra Pollution Control Board is

also under process. This will further enhance the transparency of the model.

Additionally, as an Industry leader, ITC is also evaluating multiple technology providers in partnership with established recyclers for setting up a demo MLP recycling facility at a scale that would be able to process the entire MLP waste of a city like Pune. Leveraging the lessons learned from this model, the Industry will be able to replicate its success across the Country.

1.3 The way forward by ITC

With this experience of working on multiple MSW management models of varying scales and across varied geographies, ITC believes that the following factors are crucial for plastic waste management initiatives to work:



1. Integration of PWM & MSWM

Since both plastic waste and MSW have the same source of origin, ITC's experience leads us to believe that their management should also be viewed in an integrated manner. This will help in efficiently utilising the existing resources (door-to-door-collection by municipal workers) and infrastructure (transportation, storage facilities, land etc.) allocated for MSWM. The role of producers & brand owners will be to support the local bodies in plugging any financial and/or technical gaps that may exist.

2. Ensuring segregation of waste at source

It is a well-established fact that segregation at source underpins a good MSWM model. According to Centre for Science and Environment (CSE):

"Segregation improves collection and processing efficiency. Better segregation mechanisms also ensure livelihood and skill upgradation for the communities engaged in waste handling and collection by building local entrepreneurs.... Utilization of segregated streams for processing, cuts down on the numerous health risks that are otherwise caused due to handling, dumping or burning of garbage."

Implementing source segregation will **require local bodies to put in place adequate infrastructure and robust compliance systems** supported by bye-laws that enable the same. Deploying a source segregation programme for households and subsequent improvement in segregation rates can take 2-3 years and will typically involve⁶:

- Baseline inventorization of relevant data-population profile, ward and household, institutional & commercial establishment

⁶ Centre for Science and Environment. (2018). Model Framework for Segregation. Delhi. Retrieved from <https://www.cseindia.org/model-framework-for-segregation-8603>

mapping, net waste generation, waste characterization, existing infrastructure and capacity (including manpower, funds), existing processing and disposal mechanisms, existing by-laws, informal network of waste collectors, scrap dealers, waste aggregators, disposal channels, scope for partnerships with corporates and NGOs for provision of resources and handholding etc.;

- Door-to-door propagation of households for creating awareness about source segregation- this would require volunteers (~100/1 lakh households) and dissemination of IEC (Information, Education and Communication) material through appropriate channels
- Training of waste collectors for collecting segregated waste; and

- Daily monitoring of segregation levels: following up on segregation levels and addressing challenges with the help of volunteers.

Even after high segregation levels are achieved, sustained efforts through a long enough propagation cycle, to institutionalize the same, is necessary. Continuous monitoring of segregation levels and penalties if required for better enforcement will need to be ensured. Additionally, source-segregation is even more critical in valorising MLP packaging waste, which even though is recyclable is seldom channelized through the existing system. For MLP recycling to be financially viable, a steady supply of graded and clean MLP needs to be available to the recyclers, which in turn can only happen if source-segregation is ensured.

Source segregation is a necessary condition for recovering post-consumer MLP waste successfully at scale

In order to create a financially viable MSWM (and consequently PWM) system, maximum value needs to be realised from each waste stream including wet/organic waste as well as low value plastics (including MLP packaging waste), and the value thus created needs to be distributed amongst the waste collectors/rag-pickers for their socio-economic upliftment and improving their working conditions.

Like efficient management of wet/organic waste has the potential to create an opportunity for industrial level composting and methane recovery, the combined impact of which will be to reduce India's GHG emissions considerably, Similarly, channelizing MLP packaging waste for waste-to-energy or other recycling applications, will entail triple bottom-line benefits for the society as a whole - generation of sustainable livelihood for the waste collector/rag-picker social, diversion of waste from going to landfill and creation of a thriving recycling market.

The fundamental elements required to realise the above are segregation at source and door-to-door collection of waste by ULBs. There is no precedent of a successful EPR mechanism anywhere in the world running at scale in the absence of a sound municipal solid waste management infrastructure that involves door-to-door collection of segregated waste. Source segregation provides a huge opportunity to increase material recovery and the value realised from waste. It also reduces the need for virgin material extraction (and associated environmental costs). If the waste is not segregated at source into dry and wet, then it is likely that MLP packaging waste will get contaminated by wet/food waste etc. which makes recycling unviable.

To ensure that source segregation happens, NGOs will be best placed for conducting training and awareness drives targeted at households and waste collection workers supported by businesses.

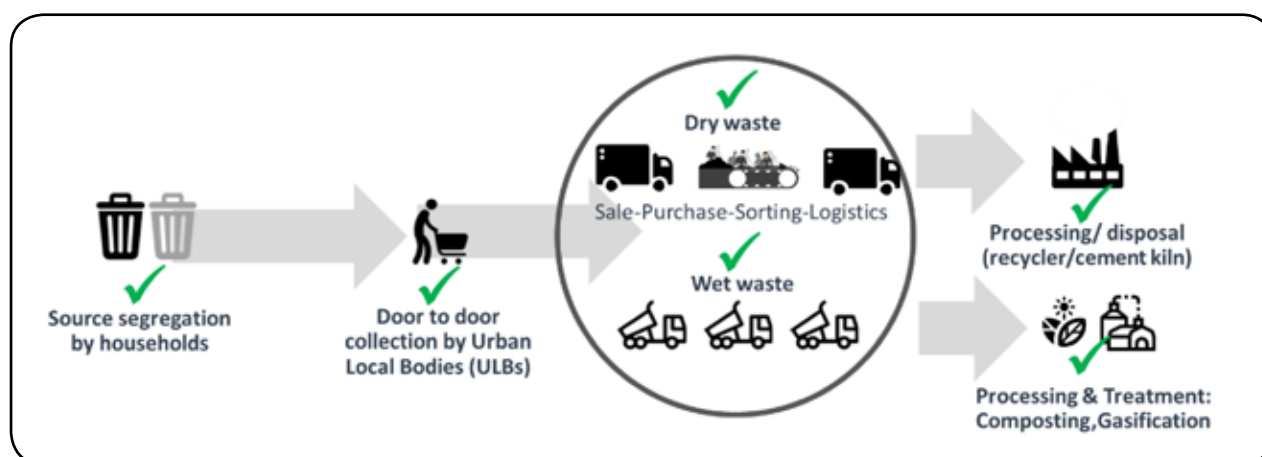


Figure 1: Essential elements of an effective MSWM/ PWM model

3. Adequate Infrastructure

Door to door collection and transportation of segregated waste

Local bodies need to ensure availability of adequate infrastructure for door-to-door collection of segregated waste from households (primary collection), as per PWM Rules. Secondary segregation of the dry waste into further streams can happen at a material recovery facility (MRF) from where channelized for recycling (and the residual inert waste is diverted to landfill). Recyclable dry waste streams can be sold by the waste collector to scrap dealers through informal channels or to the MRF operator, each of whom will further sell to an aggregator or to recycler directly. Developing a positive atmosphere for local entrepreneurs to run such MRFs will add to the social benefits of the model while reinforcing its long-term sustainability.

For the wet waste, based on feasibility, in-situ treatment at the source, decentralized treatment (composting or biomethanation) or centralized treatment (industrial composting) can be opted for, and can be converted into fuel or fertilizer.

Collection and transportation efficiencies will need to be monitored for accountability and process improvement.

Identification of sites for MRFs/ processing facilities

Local bodies have to identify sites and allocate land for building composting/ biomethanation facilities and/ or setting up MRFs. The locations of such facilities

should be located close to the sources of generation to derive the benefits of decentralized transportation and processing.

4. Informal sector involvement

A self-sustaining MSWM system will entail treating waste as a resource and ensuring that there is sufficient transfer of value to the waste collector/rag-picker as opposed to creation of systems that incentivise rent seeking. There exists a large informal sector that efficiently recovers and trades in secondary materials and acts as the backbone of the entire recycling market in India. Any successful model in MSWM will need to ensure the integration of the informal sector in it, by providing them safe and sustainable livelihoods. Informal sector can be leveraged during both collection as well as the sorting phase.

5. Creating market linkages

For a market-driven recycling economy to emerge, there is a need to establish (if not already present) market linkages with buyers of respective waste streams/ end-products of waste processing and treatment, for both dry (recyclables) and wet waste (compost, biogas, bio-CNG).

The financial viability of the model will also depend on and the revenue stream from sale of products & by-products as well as the use of appropriate financial instruments such as user fees for collection, transportation and processing of waste.

There is a need to create a viable market for recycling MLP packaging waste

The waste collector/rag-picker collects and sorts the waste into separate streams, and sells these to an aggregator (local kabadi wala) at a price, who further sells it at a margin to another aggregator or directly to a recycler. This holds true for most recyclable waste streams like paper, glass, aluminium etc. as each participant in this market-driven system has the incentive to engage in these transactions. However, for MLP packaging waste even though it is completely recyclable, the incentives are currently not aligned to ensure that recyclers' supply chain challenges are resolved. By appropriate source segregation, grading and cleaning, MLP recycling becomes financially viable.

Currently, the potential end users for MLP packaging waste include cement plants and large plastic recyclers. Cement plants recover energy by incinerating plastic waste (including MLP packaging waste) and currently charge a processing fee for doing so. The processing fee is over and above the cost of transporting the waste to the cement plant. Ideally, given that the plastic waste acts as a fuel and allows for substitution of coal, the supplier of plastic waste should be compensated based on the calorific value of the plastic waste burnt (by comparing it with an equivalent amount of coal). This value can then be transferred down the value chain all the way to the waste collector and enable creation of a sustainable market mechanism.

Additionally, several large recyclers of plastic waste have expressed interest in paying INR 7-8 per kg for MLP packaging waste that is not contaminated by municipal waste. As the demand for recycled polymer increases over time compared to virgin polymer and given the state of crude oil prices, the market should become more competitive driving up the value of MLP packaging waste. Also, supplying uncontaminated MLP packaging waste will depend on segregation at source.

6. Suitable Monitoring & Evaluation framework

Constant monitoring & evaluation of progress needs to be made against appropriate indicators and course-correction needs to be made as per the feedback. Some of these indicators can be as follows:

An MSWM model in line with the elements described above will entail the following benefits:

- Formalization of informal sector waste collectors, contributing to incremental livelihood generation, skill upgradation and safer work environments for them;
- Potential to create large number of green jobs;
- Composting, gasification and recycling will lead to generation of economic benefits for the local bodies (to cover operations and maintenance costs) and the waste collectors (incremental income);
- Reduction in cost of collection, transportation as well as GHG emissions on account of decentralized treatment of waste;
- Reduction in land requirement for final disposal of waste; and
- Reduction in the environmental costs (related to land, water and air pollution) from landfilling.

Indicators for monitoring MSWM models¹

Operational	Environmental	Financial	Social
<ul style="list-style-type: none"> • % segregation • No: wards covered in a given time period • % collection • Availability of infrastructure to support segregation • Production of compost or biogas • Level of engagement by local residents 	<ul style="list-style-type: none"> • Cleanliness in wards • Diversion of waste from landfills to processing centres • Improvement in health and sanitation 	<ul style="list-style-type: none"> • Time period in which the model will become self-sustainable • Incentives to waste collectors • Profits made by local authorities by products & by-products • Efficiency of user fee collection 	<ul style="list-style-type: none"> • Behavioral changes • No: jobs generated • Improved livelihood support for the informal sector



Hindustan Unilever Limited



Hindustan Unilever Limited



Mr Sanjiv Mehta

Chief Executive Officer
HUL

Unilever has been a purpose-driven company since its inception. Today, our purpose is simple but clear – to make sustainable living commonplace. We believe that this is the most practical way to deliver long-term sustainable growth. The Unilever Sustainable Living Plan, that sets out to decouple our growth from our environmental footprint while increasing our positive social impact, has three big goals:

- Improving health and well-being of more than 1 billion people
- Reduce environmental impact by 1/2
- Enhance livelihoods for millions

The three big goals are supported by commitments and targets, grouped across nine pillars which span our social, economic and environmental performance across the value chain, which are:

- Health & Hygiene
- Improving Nutrition
- Greenhouse Gases
- Water use
- Waste & Packaging
- Sustainable sourcing
- Fairness in the workplace
- Opportunities for Woman
- Inclusive Business

We will continue to work with others to focus on those areas where we can drive the biggest change and support the UN Sustainable Development Goals (SDGs).

2.1 About the Company

Unilever has been a purpose-driven company since its inception. It makes business sense to reduce the risks by securing sustainable sources of supply for raw materials, to cut costs through reducing packaging materials and higher manufacturing efficiencies, and to appeal to more consumers with sustainable, purpose-led brands.

Unilever's approach, which directly supports a number of the UN Sustainable Development Goals, focuses on:

- Taking global climate action and protecting forests
- Championing sustainable agriculture, focused land use and food security
- Recycle more and consume less water and energy within the production processes, having a minimal environmental impact

- Making manufacturing and distribution more eco-efficient
- Advocating public policy to tackle climate change.

The growing challenge of plastic in the environment means it is more urgent than ever to find solutions to reduce, reuse, recycle and recover 'post-consumer' plastic waste. Plastic has become an integral part of our lives. It protects products and makes them easy to dispense or reseal after use. But with that has emerged the enormous and growing problem of plastic waste. It is littering the environment, polluting the seas and killing aquatic life. The problem is that very little plastic packaging is currently recycled or reused. The result is a significant economic loss for society and business. It is for these reasons that Unilever



has singled out plastic packaging as a principal risk for their business in their 2018 Annual Report & Accounts. Urgent action is needed on multiple fronts. As a consumer goods company, Unilever is acutely aware of the causes and consequences of the linear “take-make-dispose” model and is looking forward to changing it.

From a purely business perspective, discarding plastic makes zero sense. Plastic packaging waste represents an \$80-\$120 billion loss to the global economy every year according to the World Economic Forum. A more circular approach is needed, where not only less packaging is used, but it should be such that it can be reused, recycled or composted. In a circular economy, materials are regenerated and constantly

flow around a ‘closed loop’ system, rather than being used a few times and then discarded. It means that the value of materials, including plastics, is not lost by being thrown away. A more circular use of materials means lower costs and less waste. It means new sources of value for customers and consumers, better risk management of raw materials, and improved approach to the supply chain.

The Waste & Packaging pillar of Unilever Sustainable Living Plan contributes primarily to two of the UN Sustainable Development Goals (SDGs): Responsible Consumption & Production (SDG 12) and Life Below Water (SDG 14). And moving away from this linear model of consumption is key to attaining the aforesaid SDGs.

2.2 Initiatives to minimize plastic waste

Plastic Safari Curriculum

End-to-End Plastic Waste Management Prog in partnership with UNDP

Little Good Campaign

Other Initiatives

2.2.1. PLASTIC SAFARI CURRICULUM

In 2018, HUL tied up with Xynteo to develop the 'Plastic Safari curriculum' for school children and housing societies in Dahisar to drive behaviour change. While the pilot has reached nearly 30,000 people so far, the success with housing societies was limited. HUL have taken the learning from this pilot project on board and is currently in discussion with local municipal corporation to create a mechanism whereby citizens can play a more active role.



2.2.2. END-TO-END PLASTIC WASTE MANAGEMENT PROGRAMME IN PARTNERHIP WITH UNDP

HUL has also partnered with UNDP to drive end-to-end plastic waste management programme in Mumbai in two wards. Preparatory arrangements have been made and implementing partners identified. The project is expected to commence shortly.

2.2.3. LITTLE GOOD CAMPAIGN

HUL has recently started 'Start a Little Good campaign' with the aim to bring to people's attention the water and plastic issues existing in India and communicate them in a way that is personal and impactful. The campaign on plastic waste management urges viewers to start a little good by segregating plastic waste, so that it can be recycled. Different models are being adopted to deal with the plastic packaging waste in a responsible way.





2.2.4. OTHER INITIATIVES

- HUL supported a pilot source segregation model in Bangalore, in an apartment complex comprising 504 households. The model involved segregation of dry waste into multiple value streams which go through recycle and recovery routes, thereby making it self-sustainable.

- Building infrastructure takes time and currently it is being built in India. In the meanwhile, it's important to ensure that plastic waste does not enter landfills and the oceans. Therefore, since 2017, HUL has been collecting plastic packaging waste from more than 20 cities including Bangalore, Mumbai, Delhi, Chennai, Hyderabad. Through these projects, HUL has collected almost 5500 tonnes of plastic waste and disposed it off safely through mechanisms such as, use in cement kilns. Their collection partners are primarily NGOs and social entrepreneurs, including Saahas, SampurnEarth, Carpe, Planet Savers, Shakti, Veolia across cities in Maharashtra, Delhi, Chennai, Bangalore, Hyderabad etc.
- Last year, HUL has collected more than 15,000 tonnes of plastic packaging waste in and around Delhi and converted it to energy in an environment-friendly way, in partnership with IL&FS. It's important to note that the plastic waste collected is not just restricted to HUL's premises but consists of waste from other companies as well.
- HUL has tied up with cement manufacturers like ACC, Ultratech Cements etc., to make use of plastic waste in cement manufacturing that substitutes equivalent quantity of fossil fuel, thereby enabling both environment friendly energy recovery from plastics and reduction of conventional fuel usage in the cement plants. Approx. 5500 tonnes of plastic waste has been managed in 2018.

2.3 The way forward by HUL

HUL will continue expanding its footprint across India, by extending its initiatives in more cities, with existing as well as new partners. Continual activities for driving behavioral change would be done through different media.

HUL recognises its role in supporting responsible plastic packaging waste management and have taken several steps to address this. However, it's pertinent to mention that managing plastic waste is a collective

responsibility where apart from the producers, plastic manufacturers, urban local bodies, citizens, state and central govts., need to play their respective roles. In India, the waste collection and segregation mechanism vary from city to city as well as from urban to rural.

Therefore, it's important to build infrastructure and drive behaviour change so that plastic waste is managed responsibly.

PERFETTI



Perfetti Van Melle India



Mr Rajesh Ramakrishnan

Managing Director
Perfetti Van Melle India

PM operates as a socially and environmentally responsible company. We are committed to reducing our impact on the environment. Some areas of focus are reducing energy and water consumption, limiting waste and atmosphere emissions, reducing packaging material and our carbon footprint, adopting renewable energy sources wherever possible and obtaining ISO 14001 certification.

Total ownership along with good housekeeping are key factors to success. We motivate our employees at every level of the organisation to respect the environment and encourage them to apply the same principles in their personal life as well.

We are also fully committed and focused on implementing EPR as mandated under “Plastic Waste Management Rules, 2016 (as amended)”. We played a key role in forming the first of its kind joint initiative taken by five FMCG companies (Perfetti, Nestle, Dabur, PepsiCo and DS Group). This was done for the collection and disposal of MLP waste, where discarded MLP can find its application for purposes such as waste to energy, co-processing in cement kiln, road construction etc.

Our journey on EPR towards post-consumer MLP continues as we have set target for collection and scientific disposal of such waste @ approx. 1550 MT in FY 2019-20

3.1 About the Company

Perfetti Van Melle India Pvt. Ltd. is a fully owned subsidiary of the global conglomerate Perfetti Van Melle, Italy. It is the third largest conglomerate in the confectionery segment, and is headquartered in Lainate, Italy, and Breda, The Netherlands, with global operations in more than 130 countries. Some of the well-known brands include Alpenliebe, Center fresh, Center fruit, Mentos, Creamfills, Fruitella, Happydent, Chocoliebe etc. PVM's first brand "Center fresh" was

launched in 1994.

PVM anticipates the needs of the consumers and accordingly manufactures and markets high quality, innovative confectionery products. Its brands are enjoyed by consumers across all age groups all over the country. The products are available in over 4 million outlets in India. PVM also ensures that, it operates as a socially and environmentally responsible organisation.

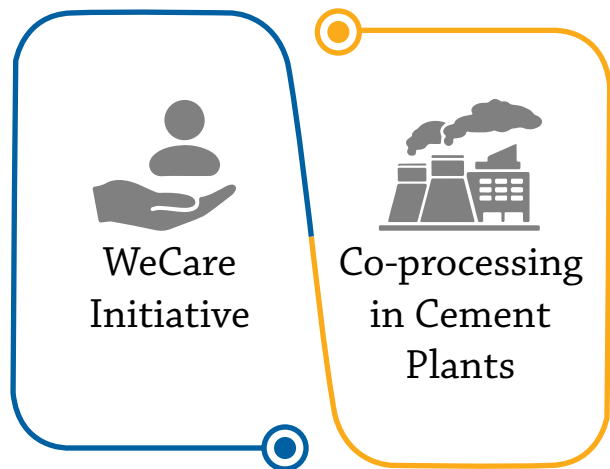


3.2 Initiatives to minimize plastic waste

For PVM India, Multi-Layered Packaging (MLP) being a major packing material, its disruption on account of discontinuation of MLP could have had far reaching impact on its business. Additionally, operation and the lack of alternate packaging material would have further compounded the issue, as it would have led to a compromise with the quality and longevity parameters of the products. This meant that necessary and effective steps were needed to be undertaken to deal with this impending threat, and also to find a viable and workable solution to deal with overarching menace – that plastic waste had created, on urgent basis.

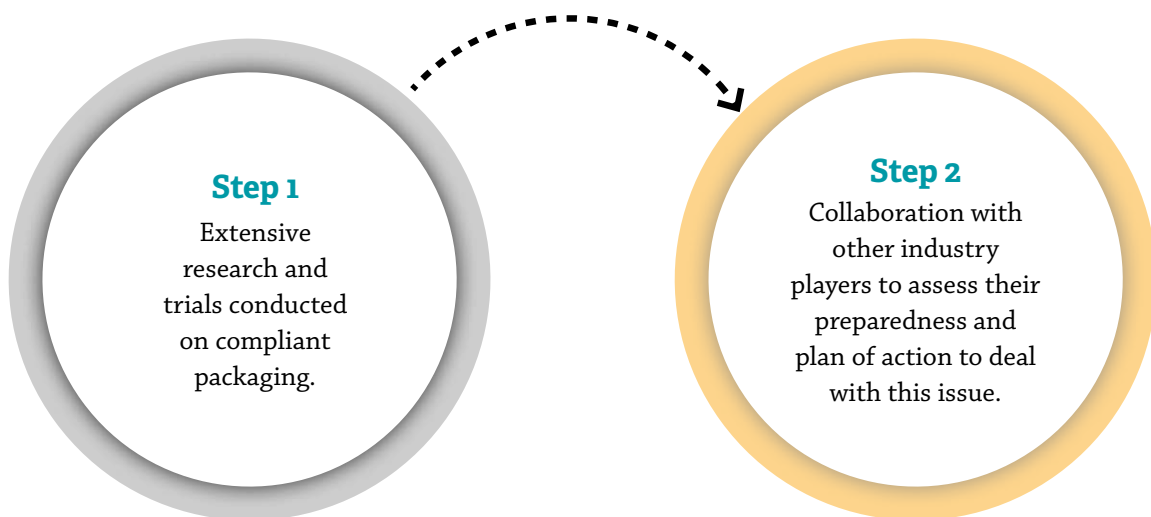
Realizing the gravity of the issue and that immediate steps were required to be taken, two pronged actions were initiated by PVM India to ensure sound management of plastic waste.

PVM seized the opportunity and brought some like-minded companies together to draw action steps (in a time bound manner) and agreed to join hands to deal with issues.



1. WE CARE INITIATIVE BY PVM

With the common objective and reinforced commitments PVM India took efforts to create a consortium of 35 Companies known as “**WE CARE**”.





As part of the consortium created by PVM, following initiatives were taken:

1. A pilot project was launched in the year 2018. Under this pilot project, PVM decided to cover 10% of their annual MLP generated.
2. In partnership with IPCA, a Delhi based NGO, PVM India decided to collect the post-consumer plastic waste and channelized the collected waste to East Delhi Municipal Corporation's electricity
3. During the implementation of the pilot project, PVM made significant efforts to educate hundreds of rag -pickers regarding the need to observe health & hygiene issues related to the waste collection activities. Methods like NUKKAR NATAK, classroom training etc. were deployed to educate rag pickers for the purpose.

plant, for use of MLP as fuel, and to cement plant at other locations for co-processing.

3.3 The way forward by PVM

The journey on collection and disposal of MLP waste, started as Pilot phase by Perfetti Van Melle India (PVM), was scaled up whereby the EPR action was extended to all 29 states of India. Through this, PVM managed to collect and scientifically dispose 20 percent of its post-consumer MLP waste, which amounted to approx. 610 MT of MLP waste. The collected MLP waste was disposed of scientifically and the reduced carbon footprint was equivalent to approx. 1722 MT.

PVM stays committed and poised to continue its EPR journey, whereby a target has been set for collecting approx. 1550 MT post-consumer MLP waste across India in year 2019-20.

Further, PVM aims to do capacity building of the rag-picker's community through an external agency, by conducting education and training programme, including but not limited to the scope of health and hygiene, to be endorsed by the ragpickers during collection of the discarded post-consumer MLP waste.

TATA CONSUMER PRODUCTS



Tata Consumer Products Limited



Mr SUNIL D'SOUZA

CEO & Managing Director
Tata Consumer Products Limited

At Tata Consumer Products, we stand 'For Better'. This reflects our commitment to improvement by pushing boundaries and aiming for better everyday for all our stakeholders. We believe in doing business responsibly and sustainably. Our key focus areas in sustainability span climate change management, sustainable sourcing, water conservation, waste management and empowering communities.

We are proud of our continued leadership position in the most recognised sustainability benchmarks, such as CDP that is concerned with disclosure of a company's environmental impact. The \$96 trillion investor assets backed CDP has recognized Tata Consumer Products as one of the six companies in India rated as 'Climate Change Rising Stars' on the CDP India 2019 A- list. Our Climate change strategy reallocates resources from high carbon activities to low carbon ones such as energy efficiency, emissions reduction and renewable energy.

We are committed to sustainably sourcing all our teas and we encourage our supply chain partners to follow sustainable agricultural practices in the certification of Rainforest Alliance (international markets) and trustea (India). Tata Consumer Products is supporting a thriving and sustainable Malawi tea industry for producers, workers and smallholders through the Malawi 2020 partnership.

Through Project Jalodari, we continue to replenish the water used in our tea packaging centres, and support water, sanitation and hygiene (WASH) programs for hill communities in Paonta Sahib and tea communities in Assam in partnership with Tata Trust. All beverages factories worldwide are now zero waste to landfill. In UK, we joined the UK Plastics Pact to create a circular economy in plastics. It is a priority in India to execute the Extended Producer Responsibility Plan for collection and reprocessing of 100% of plastic packaging waste this year.

As part of the Tata Group, we have always believed in contributing to the community. The Tata Affirmative Action Programme (TAAP) commits Tata companies to exercise positive discrimination in supporting the disadvantaged communities. We aim to support one million community members across our value chain. We provide affordable healthcare to over 100,000 community members annually through Hospitals in Kerala and Assam. Tata Consumer Products is proud to support the Canadian Cancer Society and the breast cancer cause since 2001. We are also proud to support the Improving Lives programme by UNICEF UK and ETP which aims to drive sustainable change for young people living in tea communities in Assam.

We recognise that, ultimately, our success is linked to our ability to create sustainable value for our stakeholders, from customers and investors to the communities in which we operate. Looking ahead, sustainability will continue to be key to the way we do business and engage with communities.

4.1 About the Company

Tata consumer Products is a focused Consumer Products Company. It was formed after a de-merger of the Consumer products business of Tata chemicals into Tata global beverages that was completed in Feb 2020. Tata Consumer is home to key brands such as Tetley, Tata Salt, Tata Sampan, Tata Tea. The products range from beverages like tea, coffee, water, ready-to-drink to pulses, spices and ready-to-eat.

For TCPL, Sustainability is at the heart of its plans for long term success. TCPL has initiated activities for sustainable packaging and waste management and is working with NGOs/ agencies to address Plastic waste Management. TCPL has initiated various projects to manage the plastic waste generated at the manufacturing facilities as well as the waste generated post- consumer usage.

As a responsible “Brand” TCPL understands its responsibility towards Plastic Management Rule, 2016. An action plan has been developed to support TCPL’s Plastic Waste management strategy. The plan represents a framework to establish a take-back system, increase consumer awareness and improve plastic waste management in the state of Rajasthan. A regular consultation and dialogue with key stakeholders will ensure that acceptable, cost-

effective options are utilized in any future actions for plastic waste.

The objective of this action plan is to meet the Extended Producer Responsibility (EPR) by establishing an effective take-back system to collect and recycle/reuse the equivalent amount of plastic waste being generated post-consumer usage in the state of Rajasthan in three-year time frame which would be achieved by:

1. Involving different stakeholders in plastic waste management
2. Environmentally sound management of plastic waste
3. Increasing consumer awareness

In the Year 2019-2020 TCPL (formerly known as Tata Global Beverages) implemented its EPR plan in the State of Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, Karnataka, New Delhi, Andhra Pradesh, West Bengal, Haryana, Orrisa, Telangana etc.

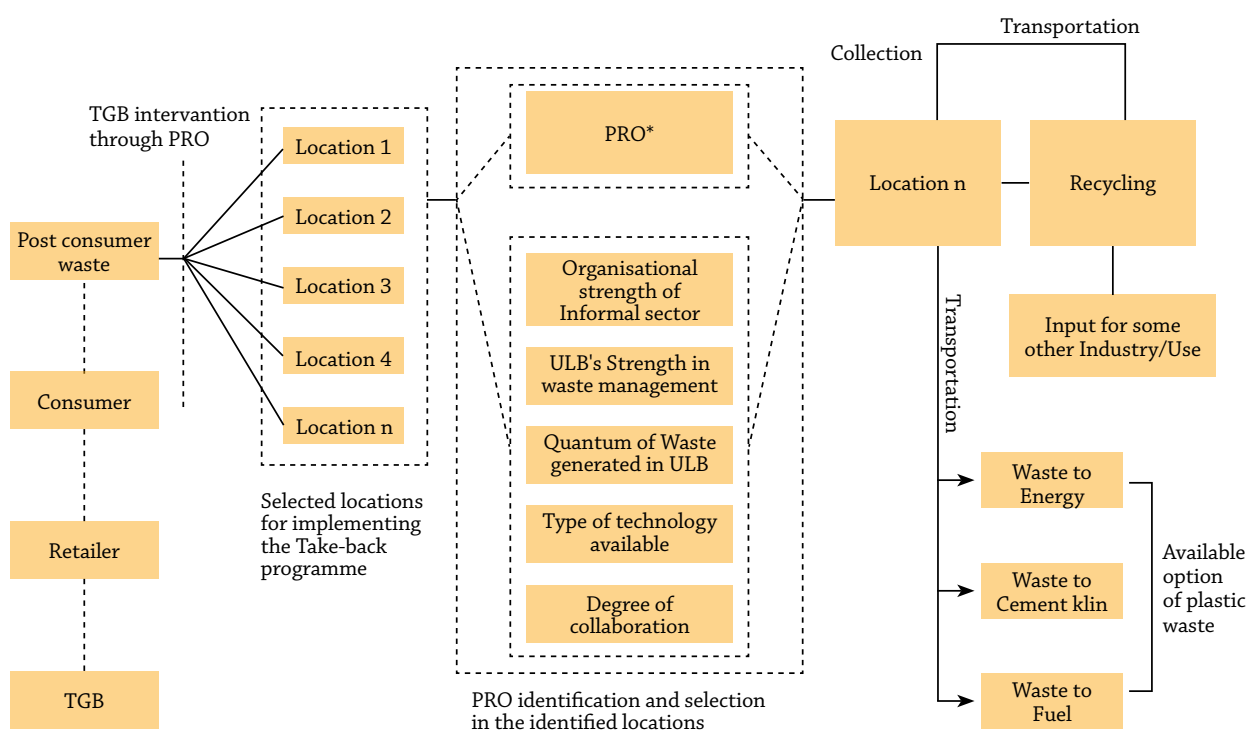
TCPL is engaged with PROs for Implementing their EPR Policy, who have helped to collect back 98% of Plastics against an EPR target of 70% mentioned to them by Central Pollution Control Board (CPCB) for FY19-20. In the year 2020-21, TCPL proposes to collect back 100% of Plastics (Post-Consumer Waste).



4.2 Initiatives to minimize plastic waste

The process flow of the post-consumer plastic waste material through the EPR value chain covering/collaborating with key stakeholders is as below:

*Producer Responsibility Organization



TCPL understands the significance of consumer awareness in achieving an efficient circular economy of plastics. As a part of this the corporate website of TCPL has been updated with a pictorial representation of disposal guidelines of plastic waste associated with TCPL products. Moving a step ahead, TCPL is also incorporating a communication in all of its retail pack artworks.

The communication reads as follows:

TCPL will monitor the total plastic waste collection and disposal quantum annually and quarterly based on the following indicators:

1. TCPL ensures legal due diligence of all statutory clearances by waste management organizations

and waste disposal facilities.

2. TCPL ensures to obtain monthly operations report by waste management organization & waste management facilities.
3. Random quarterly Site visits by TCPL officials to verify & validate the process.
4. System Assurance audit by external third-party organizations

Waste management report is submitted to TCPL board every quarter which highlights the waste management policy and initiatives taken for effective management of waste

Waste Management Project - Impact indicators



Tata Consumer Products Limited keeps in mind the type of beneficiaries that the company is addressing and the kind of awareness which will benefit them the most. The focus is to bring about a sustained behaviour change in the minds of both the waste generators as well as the waste workers through these 2 approaches.

When working with school students and residential societies, the best approach is to explain to them about source segregation of waste as well as engage them in different fun fill activities through which they can learn the impact of segregation of waste at source.

While approaching the waste workers it was realized that most of them are not very aware about personal health & hygiene and safety while working with waste.

The best approach to make an impact on these waste workers' life is to make them understand the long-term problems that are being caused to them as well as their families by not maintaining proper health and hygiene and how they can move towards a healthier and hygienic environment.

In the FY 2019-20, TCPL provided training on waste segregation to waste generators and conducted health & hygiene awareness sessions with waste pickers in 4 states and 10 cities reaching out to about 1000 stakeholders with the help of urban local bodies. As a token of appreciation, Tata consumer products distributed First Aid kits, PPEs and raincoats to waste pickers and steel water bottles, lunchboxes to school students and residents.

4.3 The way forward by TCPL

a. TCPL is connecting with PRO for 2020-21 EPR plan.

There are audits being carried out and are in the process of standardization of the process. This includes better traceability and documentation.

b. Alternatives on Developing Recyclable polymer plastic.

In addition to the EPR implementation, TCPL is also working towards scaling up of recyclable packaging in more than one location for their main stock keeping units.

c. Expansion of the plan to other States

In 2020-21, TCPL would work in 26 states and ensure collection of 100% of plastic waste back.

d. Creating Awareness Programmes for Rag Picker's & School Children

This would be the focus areas as TCPL intends to enlarge the scope of training programmes amongst school children and rag pickers.





TATA

TATA CHEMICALS LIMITED



Tata Chemicals Limited



Ms Rich Arora

Chief Operating Officer
Consumer Product Business
Tata Chemicals Limited

Tata Chemicals Limited as an organisation is driven by our mission, ‘Serving Society through Science’, our firm commitment to be an innovative, sustainable organisation and to empower our communities, pushes us to think of new ways to achieve the balance between our social, environmental and economic goals. As industry leaders, it is important for us to fortify our capabilities, and build on the robust foundation we have laid, to build a future-ready organisation that will continue to meaningfully touch the lives of millions of people. Our goals complement the efforts towards sustainability at a global level, enabling us to become more socially responsible each year. We have taken many steps as a group toward increasing our awareness and developing strategies to address concerns of climate change and energy.

With increased awareness amongst all stakeholders, sustainable packaging technologies are now receiving due recognition and the trend towards recyclable and biodegradable packaging is gaining momentum. There is a push from various regulatory bodies also toward sustainable management of plastic waste.

As a responsible organisation we are working toward development of recyclable packaging to eliminate the use of MLP for Tata salt. In FY 2018-19 we successfully sold close to 5% of our Tata salt in recyclable packaging and as on date we have sold 30% in the last two months of the current financial year. We are continuously improving our operations to scale up the recyclable packaging of Tata Salt.

We have been and are fully committed to work toward collecting and recycling post-consumer plastic waste generated by us all across India. We have already collected and disposed 75% of our MLP material against the target of 20% set by the regulatory body for the first year of EPR implementation. Going forward we will make sure that we continue our efforts to create a positive impact on the environment and society through environment friendly and recyclable packaging for our other range of products.

5.1 About the Company

Tata Chemicals Limited (TCL), established in 1939 is engaged in the business of manufacture, sale and marketing of consumer products, industry chemicals, agri-solutions and nutritional solutions.

The inorganic chemicals business is a specialised manufacturer of soda ash, sodium bicarbonate and allied products, which is supplied to various large, medium and small scale industries ranging from Glass, Detergents, Textile, Food, Animal feed and Pharma industries spread across all India.

The consumer products portfolio comprises of salt, pulses, besan, spices and ready to cook mixes. Through the portfolio, TCL has positively impacted the lives of consumers through iodised Tata Salt. The Tata Sampann umbrella brand focuses on providing everyday nourishing food to consumers such as unpolished high protein dals, low oil absorb besan, and a wide range of uniquely developed spices.

The nutritional solutions business through its umbrella brands NQ and Nx provides an innovative range of prebiotics and healthier alternatives to regular sugar.

One of the pillars of the business over the decades has been caring for the community, and sustainability is at the heart of our business strategy. TCL strongly believes in giving back to society, protecting the environment and staying true to the mission of 'serving society through science'. As a responsible organisation TCL understands their responsibility as a "Producer" as well as a "Brand Owner" in accordance with Plastic Management Rule, 2016. To meet this Extended Producer Responsibility (EPR) TCL developed a three year action plan (2018-2021) to support the Plastic Waste management strategy. The organisation prepared a framework under this plan to establish a plastic waste management system. Under this plan TCL initiated regular consultation and dialogue with key stakeholders to explore acceptable, cost-effective and sustainable options for plastic waste management.

Objectives

The objective of this action plan is to meet the EPR by establishing an effective system to collect and recycle/reuse the equivalent amount of plastic waste being generated post-consumer use of the products in five years of time, which would be achieved by:

1. Involving different stakeholders in plastic waste management
2. Environmentally sound management of plastic waste
3. Spread awareness on plastic waste management among different stakeholder

The EPR model developed, aims to minimize the amount of plastic waste lying on streets and in open dumps and build a sustainable business around recycling and reuse of plastic waste that is either difficult to treat or harmful if left untreated. To implement this EPR plan Tata Chemicals Limited engaged with Central Pollution Control Board (CPCB) authorised Producer Responsible Organizations (PROs).

Following PROs were engaged and given contract to establish take back/collection and recycling programme for plastic waste including non-recyclable multilayer packaging material (MLP) in different states of India:

1. Shakti Plastic Industries: Maharashtra, Haryana, West Bengal and Uttar Pradesh
2. NEPRA Environmental Solutions Pvt. Limited: Gujarat, Madhya Pradesh and Rajasthan
3. Hyderabad Integrated Municipal Solid Waste Limited: Telangana, Andhra Pradesh, Delhi and Tamil Nadu
4. In Punjab TCL worked through Punjab Plastic Waste Management Society which engaged IPCA as PRO for MLP collection and disposal.

With the help of these PROs TCL was able to collect and dispose post-consumer MLP waste from 33 districts of 12 states across India. MLP collected from various states was recycled to manufacture different plastic products, used for co-processing in cement industries, used in road constructions etc.

5.2 Initiatives to minimise plastic waste

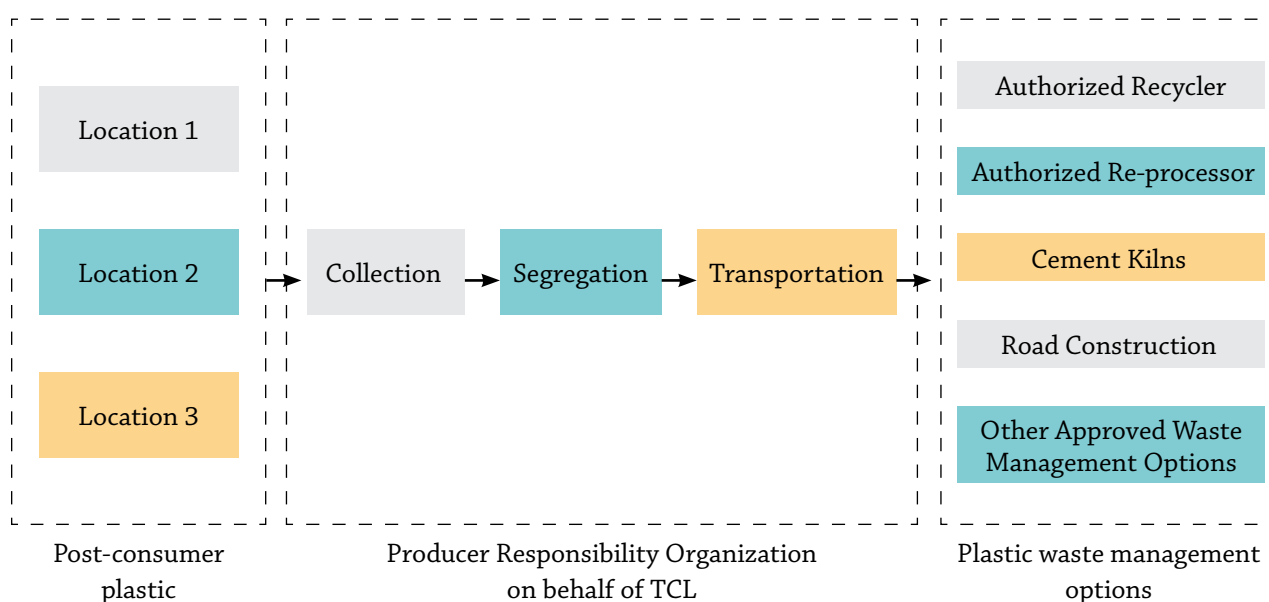
Tata Chemicals extensively worked with PROs in the above mentioned states to collect segregate and recycle MLP, equivalent in volume to the MLP tonnage generated by us in the state. This plastic waste take back programme is structured as follows:

- Registered rag pickers were involved for collection of post-consumer plastic waste from various locations.
- The plastic waste generated post-consumer use was collected and transported to designated community plastic collection centres.
- The plastic waste sent to the common plastic waste collection centre was further segregated into recyclable and non-recyclable plastics.
- The non - recyclable plastics such as MLP were then sent to cement kilns for using as alternate fuel, for pyrolysis to convert it into oil or to the recyclers to convert it into granules to ultimately make pots, crates etc.

Schematic diagram of model adopted for plastic waste collect and disposal is as follows

As an organization TCL was monitoring the total plastic waste collection and disposal on monthly and quarterly basis. Periodic site visits and system assurance audit was done by the TCL officials to verify and validate the process. Along with the disposal and diversion certificate all other supporting documents (delivery challan copies, weighment slips, e-way bills etc.) were collected and verified on a regular basis.

Since it was the first year of EPR implementation the number of CPCB authorized PROs available to implement the EPR were very few. Moreover plastic waste collection and handling was largely managed by the unorganised sector. To address the challenges several consultations were done with key stakeholders playing varied roles in the EPR implementation. Main emphasis was given to the improvement of systems, documentations and tracking mechanism of the whole value chain to ensure that everyone



working across the value chain is benefitted from this initiative.

As a company TCL has been focusing on various sustainability initiatives to reduce the quantum of plastic use. One of these initiatives includes reuse of the HDPE bags used for packaging bulk salt. This has

been part of sustainability efforts for the last 8 years. Today about 80% of the HDPE bags used for primary packaging and transportation are reused.

Some of the images of the project implemented across 12 different states and awareness sessions conducted are shown below.



5.3 The way forward by TCL

This year TCL is planning to increase the collection percentage by increasing our coverage to more number of states. Along with the plastic waste collection, conducting a number of awareness sessions for various stakeholders on the ground in each of the states would be one of the focus areas under EPR.

In addition to the EPR implementation, TCL is also working toward scaling up of recyclable packaging in more locations for other range of products. Projects aiming at optimisation of thickness of packing material without impacting the packing quality is also underway to reduce the quantum of plastic put out in the market.

Various other company-wide initiatives like usage of jumbo bags in place of the standard industry practice of 50Kg bags, material movement in bulkers where loose material is filled and unloaded at the consumption site for large inorganic customers etc. are the other

notable initiatives. TCL believes that this would help in substantially reducing the plastic footprint.





Dabur India Limited



Mr. Mohit Malhotra
Chief Executive Officer
Dabur India Ltd

As a company offering a portfolio of products based on Nature and natural ingredients, Dabur has always sought to operate its business with a strong regard for environmental sustainability. At Dabur, we understand that for companies to sustain their success, they must act in environmentally and socially responsible manner while growing its business economically. Dabur has a proud tradition of innovation, not just in product development but also in Environmental Sustainability. We work to address environmental considerations across the life-cycle of our products, from our agricultural supply chain to how our products are packaged and transported.

At Dabur, we have been taking progressive steps to reduce plastic waste in cities while also raising awareness about plastic waste management. We are fully aware of our responsibility towards preserving nature. Every action at Dabur is a step towards a sustainable future. We are committed to become a Plastic Waste Neutral company by the end of 2020-21 fiscal.

As a Responsible Corporate Citizen, Dabur has always been recognised for its commitment towards sustainability and ecological responsibility. We have taken proactive steps to reduce plastic waste in cities while also raising awareness about plastic waste management. We are fully aware of our responsibility towards preserving nature, and have been the front-runner when it comes to environment protection. A strong Environment strategy, we feel, not only enhances brand reputation but also plays a key role in building consumer loyalty.

6.1 About the Company

Dabur India Ltd. is one of India's leading FMCG Companies with a revenue of over Rs 8,500 Crore and Market Capitalisation of over Rs 72,000 Crore. Building on a legacy of quality and experience for over 135 years, Dabur is today India's most trusted name and the world's largest Ayurvedic and Natural Health Care Company. Dabur India is a world leader in Ayurveda with a portfolio of over 250 Herbal/Ayurvedic products.

Dabur today operates in key consumer products categories like Hair Care, Oral Care, Health Care, Skin Care, Home Care and Foods. The company has a wide distribution network, covering over 6 million retail outlets with a high penetration in both urban and rural markets.

Dabur's products also have huge presence in the overseas markets and are today available in over 100 countries across the globe. Its brands are highly popular in the Middle East, SAARC countries, Africa,

US, Europe and Russia. Dabur's overseas revenue today accounts for nearly 27% of the total turnover. While the company's international business follows the same brand architecture as in India, the products under these brands are completely different and have been tailored to suit the tastes and aspirations of the local populace in the overseas markets.

The company, promoted by the Burman family, started operating in 1884 as an Ayurvedic medicines company. From its humble beginnings in the by lanes of Calcutta, Dabur India Ltd has come a long way today to become one of the biggest Indian-owned consumer goods companies with the largest herbal and natural product portfolio in the world. Overall, Dabur has successfully transformed itself from being a family-run business to become a professionally managed transnational enterprise. What sets Dabur apart from the crowd is its ability to change ahead of others and to always set new standards in corporate governance & innovation.

6.2 Initiatives to minimize plastic waste

Plastic Waste Assessment Study

Immediately after the enforcement of the new PWM Rule 2016, Dabur India Ltd conducted a Plastic Waste Management study for all its manufacturing units in India in order to identify and bridge gaps and barriers to comply with the rules and to develop an effective EPR strategy. An authentic data for EPR liability was obtained after studying all the packaging categories of products qualitatively and quantitatively.

Each product is packaged in a different packaging material ranging from glass bottles, Beverage Cartons, PET/other plastics etc, which form its primary packaging. Also, every product is labelled and packed in a shrink film or mono-cartons etc. and this forms the secondary packaging. In the end, they are dispatched in corrugated boxes which form the tertiary packaging.

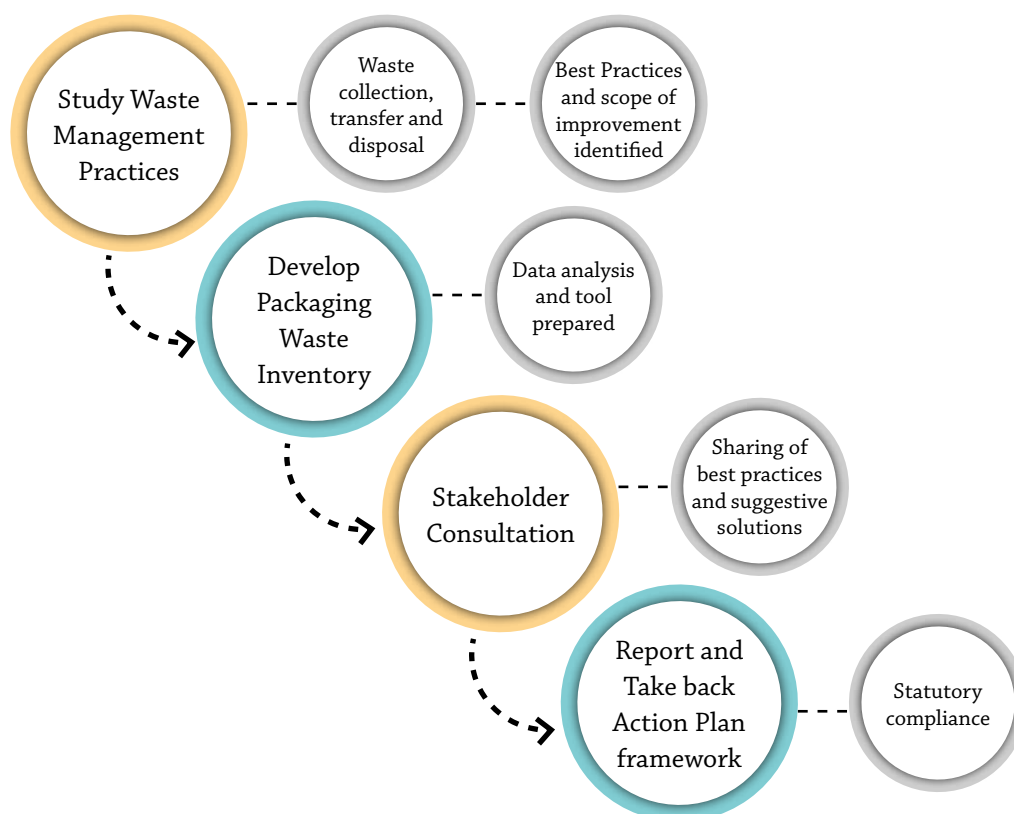


PP Cap (Primary)

HDPE Bottle (Primary)

PVC Sleeve (Secondary)

This way, an entire inventory of packaging was developed and data for EPR liability obtained in a highly authentic way. The plastic consumption for wrapping of each product was also considered.

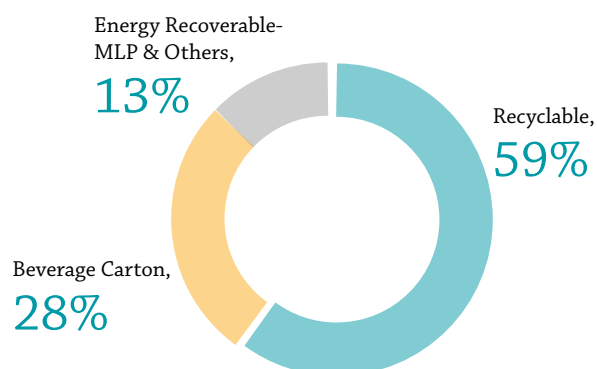


Identifying the End of Life Sustainable Disposal Methods

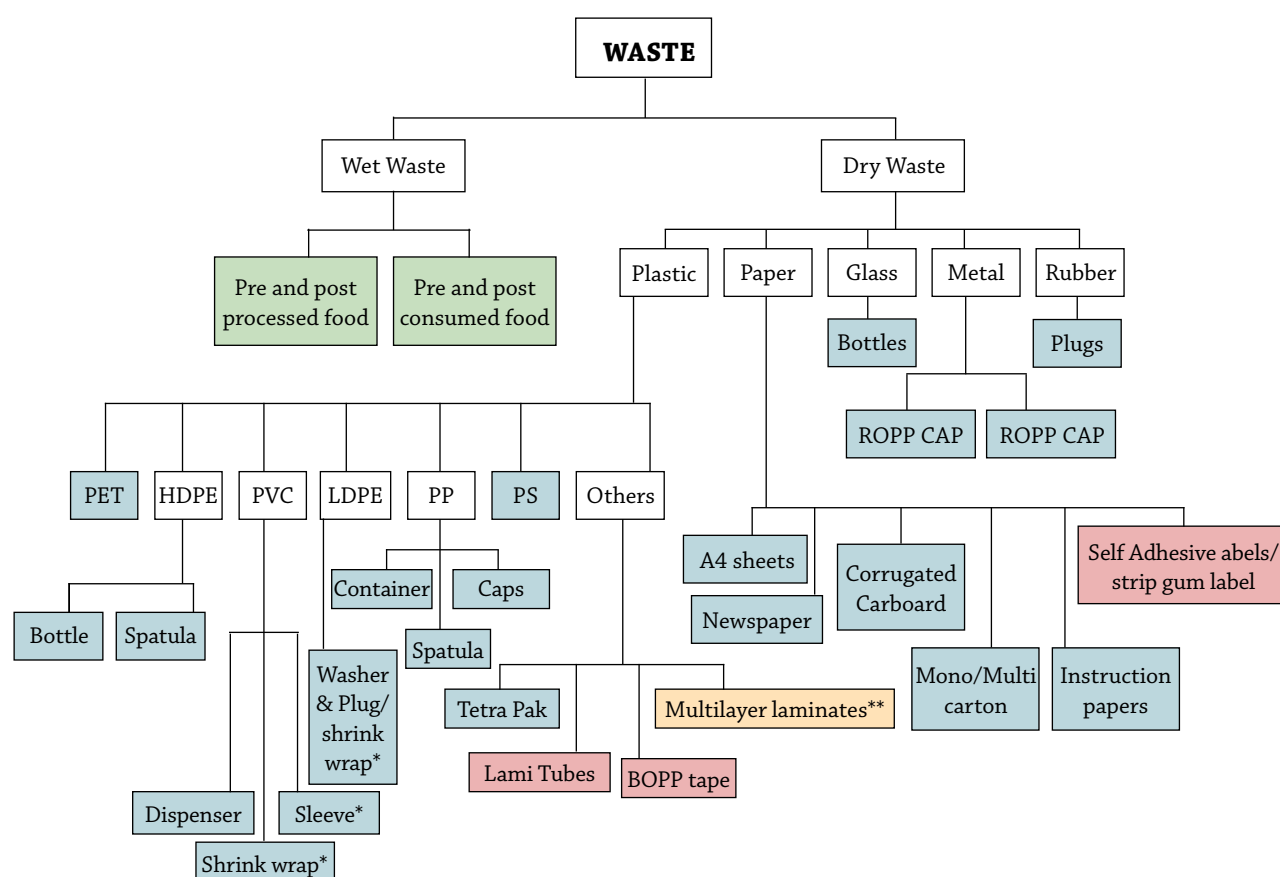
Each of the plastic category and its quantum put into the market was identified. Further, the plastics were categorized into the three major categories and their end of life process identified. The three categories are:

1. Recyclable Plastic – to be sent for recycling
2. Energy Recoverable Plastic – to be sent for co-processing/Plasma Pyrolysis/Waste to Energy etc.
3. Beverage Cartons – to be sent for recycling

Plastic Categories defined for Dabur's EPR



Typical Chart for Waste Management at Dabur India Limited



Flow diagram depicting sustainable options for managing different kinds of packaging waste

LEGEND	
Color	Treatment Category
	Composting
	Recycling
	Co-incineration/RDF
	Recycling/Co-incineration/Road making/RDF

EPR Liability and State Wise EPR Implementation

Dabur products are sold across the country. However, the quantum sold in each state varies, based on demand for individual brands and products. So, the company decided to implement its EPR in different states based on the amount of products sold in each state. To ensure smooth implementation, Dabur decided to roll out its Plastic Waste Management initiative in a phased manner, covering all aspects of its production and sales.

Upstream initiatives

Dabur identifies the importance of EPR in its full essence and has committed itself to undertake several upstream initiatives.

Several initiatives have been taken to reduce the amount of plastic being used in packaging. Plastic minimization and product eco-design to reduce plastic consumption is a continuous exercise in research and development.

Plastic Minimization

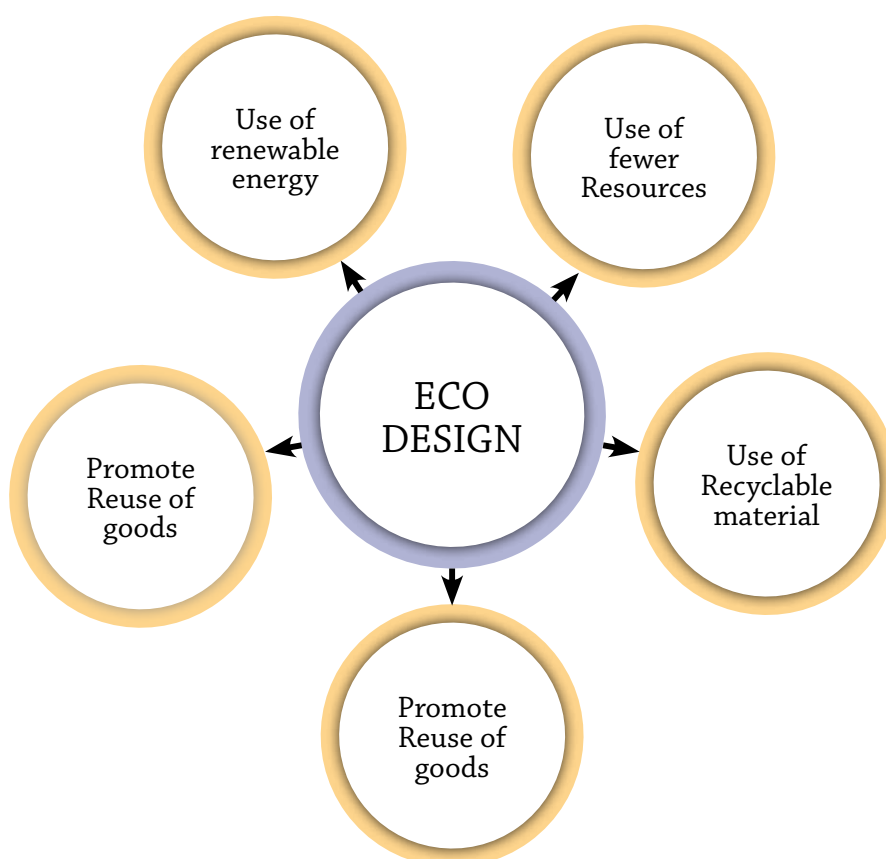
At the Pithampur unit of Dabur, in the direct printing on Shrink Wraps used for packaging Dabur Amla Hair Oil Batch, the use of laminated labels was avoided.

Eco-friendly Plastic Usage

At the Baddi Unit, Dabur is in the process of replacing plastic packaging below 50 micron with compostable plastics since they are easily biodegradable. Research is also underway to develop compostable plastics.

Awareness and Waste Picker Inclusion

As part of its post-consumer waste collection programme, Dabur felt that awareness generation and mass sensitization are key pillars. Also, it was of prime importance to include the waste pickers in the system. As a result, waste pickers were incentivized to pick multi-layer plastics, which they would otherwise tend to ignore. The entire approach was in line with the requirements of PWM Rules, 2016 and its amendments 2018.



Mass awareness and sensitization programmes form an important part to ensure success of any waste management strategy. This was also recognized by Dabur and included in the scope of work while engaging PROs.

Following are some of the awareness initiatives undertaken by Dabur:

- Awareness through posters and banners/flags on waste collection vehicles that could be read by the common public and stay motivated towards proper waste disposal.
- Awareness through messages of the EPR Initiative (MLP collection and energy recovery) on road litter suction machines.
- Awareness and Capacity Building programmes/workshops and street plays for rag pickers and slum-dwellers. This helped us reach out to the poor and also train them on ways of waste management, its segregation and proper disposal. Children were motivated by means of street plays.
- Awareness in Schools through presentations to disseminate information on waste management and segregation at source.
- Awareness during Exhibitions with the PRO/waste management company displaying and exhibiting the initiative and distributing stickers/pamphlets on EPR initiative and plastic waste disposal programme.
- Awareness through Dabur Products by incorporating recycling logos on the product/booklets or guide, going forward.



Dabur's EPR Model

The entire plan has been executed by appointing different waste management companies or NGOs who can be the Producer Responsibility Organisations. The work and mechanism will be planned in the following manner covering all areas and quantum:

Identify and Appoint Waste Management Companies/NGOs/PRO

Calculate EPR Liability

Enter into Agreement with Waste Management Companies/NGO/PRO for different state of implementation

Waste Collection, Segregation, Recovery and Processing by Appointed company

Waste Sustainable Disposal - Recycling, Co-processing in cement kilns and Waste to Energy or Road Making, Pyrolysis.

Key Challenges during Waste Collection

The main challenge was to identify and educate the ragpicker community. This community was not aware of the economics of multi-layer plastics (MLP) and its disposal. Considering this as a challenge, Dabur appointed NGOs/PRO to start educating the ragpickers and incentivising them on MLP waste management in multiple states. As a result of the awareness programme among the ragpickers, huge amount of MLP, along with other types of plastics, has

MLP waste collected from waste pickers and other stakeholders



Use of Suction Machines for road litter collection



been collected and submitted by the waste-pickers. After a successful pilot project, this initiative was expanded to different cities and states across India. The different stakeholders from whom waste is today being collected include:

- Waste Pickers
- Scrap Dealers
- Waste Aggregators
- Dry Waste Collection Centers/Material Recovery Facilities and Municipal Corporations
- Waste generators – Households and Commercial Complexes

The appointed PRO/waste management company executed the waste collection drive using road litter suction machines. The litter from roads, which are majorly thin plastic carry bags and MLPs, were collected.

Outcome

Under the Plastic Waste Management EPR activity, Dabur has collected 3,875 MT of post-consumer Plastic Waste (both recyclable and non-recyclable) direct from the end-users with the help of around 5,000 local ragpickers in approx. 45 Cities/Taluka of six major States and Union Territories in 2018-19 financial year. These six states and cities are as

- Delhi: Najafgarh, Nangloi, Bhalswa Dairy, Shastri Park, Okhla, Samalkha, Khadar, Alipur, Samaypur Badli, Dallupura, Shahbad Dairy & Connaught Place
- Uttar Pradesh: Moradabad, Ghaziabad, Sahibabad, Meerut, Noida, Greater Noida, Mathura, Agra, Kanpur, Lucknow & Gorakhpur
- Uttarakhand: Haridwar & Kashipur
- Maharashtra: Mumbai (Bhandup (W), Mazgaon, Kurla (W), Mankhurd, Mumbai Panvel Rd, Andheri (E), Thane, Malad & Jogeshwari); Dahanu; Satara; Pune and Aurangabad
- Punjab: Mohali, Ludhiana, Dara Bassi, Amritsar, Patiala & Chandigarh
- Tamil Nadu: Pollachi in Coimbatore; Puliangudi & Ramayanpatti in Tirunelveli & Nagercoil in Kanyakumari cities

In the 2019-20 financial year, Dabur has upped this target and is collecting, processing and recycling over 12,110 MT of post-consumer Plastic Waste from 25 states across the country. This would be further increased to over 21,000 MT in 2020-21 financial year, making Dabur a Plastic Waste Neutral organization.

Waste Recovery, Processing and Shredding

The waste collected is recovered and processed/shredded at Material Recovery Facilities and Dry Waste Collection Centres. MLP and energy recoverable waste is shredded, while PET and other Recyclable rigids are baled or grinded/ granulated as required. Beverage cartons are baled and sent to recyclers.

Waste Recycling/Disposal

Energy Recoverable waste/MLP is either sent to cement kilns for co-processing as Refuse Derived Fuel or is sent to Waste-to-Energy Plants. The recyclable PET waste is sent to recyclers for recycling into new products. Beverage Cartons are sent to recyclers where they can be used for making mix boards that can be put to use for manufacturing of roofing sheets, furniture, dustbins etc.

Dabur's commitment towards sustainability and the efforts put in place has resulted in the mitigation of approx. 5,500 MT of CO₂ emissions and saving of 97,000 GJ of energy. Dabur has appointed several PROs to carry out the process of EPR Implementation across the nation in order to attain compliance to Plastic Waste Management Rules.

डाबर का स्वच्छ उत्तराखंड के लिए विशाल प्लास्टिक वेस्ट रीसाइकलिंग अभियान

प्लास्टिक वेस्ट (Plastic Waste) का प्रबंधन (Management)। प्लास्टिक वेस्ट (Plastic Waste) का प्रबंधन (Management)। प्लास्टिक वेस्ट (Plastic Waste) का प्रबंधन (Management)।



डाबरतर्फे महाराष्ट्रात प्लास्टिक कचरा व्यवस्थापन उपक्रम

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कच-खारे	डारने पब्लिशिङ्ग	गुणवत्तायुक्त पुस्तकें	कविता	गाथा केले आहे. हा कथा सुर्वे
कच-कसा	संस्कृत कला	सांख्यिक	निकलाने	(भट्ट-डन्पन्, कागाम, जूने)
व्यसनभाषण	पब्लिशिंग कम्पनी	विशोदाय	लघु	६,००,०००
२०१६, २०१८ (दुसरी) मुद्रा	पब्लिशिंग	गुणवत्तायुक्त प्रकाशने	पुस्तके	पेट, अपोर्न, सुर्वे पब्लिक
	मुद्रा	(पुस्तकी-चरित्र)	कथा	डारने, कागड आणि पोप
		गोदावळीत कागदापोषणे	नै-	डारने, कागड
				ओमिना

एनवायर्नमेंट बचाने के लिए हर किसी की भागीदारी जरूरी

Awareness
प्लास्टिक वेस्ट
रिटाइरिंग अभियान
व इससे जुड़े टारगेट के
बारे में हमसे बात की डॉ.
प्रियांक आर्या और ब्यास
आनंद से।



Find $\frac{dy}{dx}$ | [Solving](#)

पर्यटनिक दृष्टिकोण से, लखनऊ का सबसे ज़बरदस्त और नया जल सरोवर है कि यह इतिहासिक है। इसमें वे पारंपरिक होने के लिए। ऐसे में किसी सार्वजनिक की नहीं बल्कि सार्वजनिक बनाना है। इसे कम से कम इलेक्ट्रिक से लागू करें। यह फिर विचारणीय कि यह जल। पर्यटनिक सेट विचारणीय

...ने जिया

[illegible]

टागोट चढ़ा। भारत सरकार ने 2019-20 में लगभग टागोट में 9,50,000 विद्युतघण्टा (यूनिट) की वृद्धि और उसे विद्युतकार के लिए भेजे। 2020-21 में 9,50,000 विद्युतघण्टा टागोट है। इसे पूरा करने में सरकार की वकील कई एजेंसीयों द्वारा सौंपे हैं।

[illegible][illegible]

का निर्माण करके उसे
 'विजय' कहेंगे।
 का लक्ष्य बंगला है।
 विजय को जीतने
 का उसे मुझ से
 बात करनी है।
 के लिए हाथ के
 एक कगारों को ले
 लाना।
 को ही लाना है।
 को ही लाना है।
 को ही लाना है।

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के निवासके लिए बंद करवाये जायगा।
 जो भी भविष्यमें अवसर मिलेगा
 विद्यालय के अग्रज सब अपने-अपने
 जमाने लिए बंद करवाये जायेंगे।
 बच्चों को देना एक प्रणय है।
 प्रणय का निर्णय करते
 भी अवसरवादी थे। उँ अर्थ है क्या हम
 समझते हैं प्रभुजीका सम्मान ही वह
 प्रणय जो बर्काल है जो है और क्या
 ही प्रणय की चीज है। प्रभु की
 भुलाहट और सम्मान को प्रणय समझ
 के सम्मानका प्रणय करना प्रभु की
 विभूतिमें ही है। प्रभु की विभूति का प्रणय
 करने के लिए यदि प्रणय हो तो प्रभु है
 प्रणय में प्रणय वांछनीय वह प्रणय
 प्रणय के लिए है।
 यह प्रणय ही सब प्रणय के अर्थ
 को और एक प्रणय है सब प्रणय है।
 प्रणय ही प्रणय की अर्थ प्रणय
 प्रणय ही प्रणय का प्रणय प्रणय
 प्रणय ही प्रणय प्रणय के प्रणय

Dabur rolls out plan for making TN plastics-free

DC CORRESPONDENT
COIMBATORE, MAY 30
Corporation

Corporate house Dabur is committed to make Tamil Nadu a plastic-free state by 2021 with its mega plastic waste recycling initiative launched in the state. Announcing its plans to launch its mega plastic waste recycling initiative in the state of Tamil Nadu, it said they will collect around 3,18,000 kg of post-consumer plastic wastes in the year 2019-20 and create 100 jobs in the rich Tamil Nadu. The corporate giant rolled out plastic waste recycling



Dr Priyank Arya, head-Environment, Health & Safety, Dabur India Ltd Corporate (left) and Mr. Byas Anand, head, Corporate Communications, speak in Coimbatore.

plants and communications, Mr. Byas Anand, head, speak in Coimbatore.

through registered NGOs. The company is a registered branch-owner with Central Pollution Control Board (CPCB) since September 2015 and is composed of plastic waste in Madu.

While helping to collect the process plastic waste from the one lakh, Dabur's is now working towards leading awareness and driving the community drive. We have been working with school children and education

ing schools by supplying them with waste bins. Such initiatives, we feel, will go a long way in creating a Swachh Tamil Nadu," Mr. Byas Anand head-operations, Dabur India Ltd. told reporters here on Thursday.

In the current year 2016, the company has targeted collection of 3,18,000 kg of post-consumer plastic waste from all major cities of Tamil Nadu. The company will be setting up 500 local

...सेवना घोषित

डाबर द्वारा प्लास्टिक वेस्ट मैनेजमेंट योजना घोषित
नई दिल्ली, १० सितंबर (आईएनएस) डाबर लिमिटेड द्वारा पत्रकार-वार्ता में घोषणा

■ महाराष्ट्र में 1 साल में 10 लाख प्लास्टिक इकट्ठा करने का लक्ष्य



हावर के प्लास्टिक घेस्ट मीनेजमेंट प्रोजेक्ट की धक्कर-बारात में जानकारी दे रहे हैं।

ये वर्ष 2019 तक नए कपास कटा गया है। दूध से कलहोलाए एवं प्रोसेसिंग सुखर सेतु करी 1000 से अधिक रपटने मेकिमस से सला सेवाये, यहापर ये कीम 16 लाख किलो कपास काय करत पड़ेगा। सित अनुमान है।

जो जमीन है ओले बहालत कि जमीन का काट है।

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6.3 The way forward by DABUR

Moving forward on its commitment towards Environment Sustainability, India's largest Science-based Ayurveda major Dabur has already expanded its mega Plastic Waste recycling initiative to 25 States across the country in the 2019-20 fiscal. This would be further extended to cover all the states and Dabur will ensure that 100% of the post-

consumer plastic waste generated by its packaging across India is collected, processed and recycled by 2020-21. Dabur has targeted to collect nearly 21,000 MT of post-consumer plastic waste by March 2021. It will also innovate on the technology front to curb generation of plastic waste



PEPSICO



PepsiCo India



Mr. Ahmed ElSheikh

President
PepsiCo India

At PepsiCo, we are guided by Winning with Purpose – our fundamental belief that the success of our company is inextricably linked to the sustainability of the world around us. As a company, we have been working to build a world where plastics need not become waste and our sustainable plastics vision is rooted on three pillars: Reducing the amount of plastics we use; Recycling the plastics we have used; and Reinventing our plastic packaging. Today, we have already invested in supporting the recycling of post-consumer plastic packaging in the country. At the same time, we are reducing the quantity of packaging material used by our business and developing alternate solutions. To make sustainable plastic a reality and address the plastic waste challenge, it needs all stakeholders to come together and join hands to change the way society makes, uses, and disposes plastics. Over the years, we have been working actively with the Government, NGOs, implementation partners and individuals to implement on-ground programmes and education drives to spread awareness on plastic waste management. Some of the key projects include Plog Run, Jallos – Clean Coast Drive, Recycloth, Why Waste amongst others. As part of our EPR responsibility, we have been actively working across multiple States to collect, segregate & sustainably manage plastic packaging. Our sustainable packaging goals include making all our packaging RCB (Recyclable, Compostable or Biodegradable) by 2025.”

7.1 About the Company

PepsiCo entered India in 1989 and over the last 30 years has grown into one of the largest convenient food and beverage companies in the country. The PepsiCo ecosystem in India, directly and indirectly employs over 163000. The company is on track to invest 2.1 billion USD in India by 2022, including approx. 109 Million USD for a greenfield food manufacturing plant in Uttar Pradesh. Over the last three decades, PepsiCo in India has also developed a strong backend link with approximately 27,000 farmers in 14 states in the country.

In India, PepsiCo's beverage and food portfolio includes iconic brands like Pepsi, Lay's and Kurkure, in addition to new products such as Pepsi Black, Lay's Maxx and Sting. In-addition, the Company also provides

consumers choices like Quaker Oats, Tropicana juices, Gatorade and Aquafina.

Winning with Purpose

PepsiCo's operations both in India and around the world is guided by its vision to "Be the Global Leader in Convenient Foods and Beverages by Winning with Purpose". The stated business philosophy reflects PepsiCo's ambition to win sustainably in the marketplace.

As part of this vision, PepsiCo has been actively working towards building a more sustainable food system by intensifying its efforts on four critical initiatives: next generation agriculture, achieving a positive water balance and creating a circular future for plastic.



**Next Generation
Agriculture**



**Achieving water
positive balance**



**Creating a
circular future
for plastic**

7.2 Initiatives to minimize plastic waste

Packaging plays an essential role in safely delivering the products to customers and consumers. As a business, PepsiCo designs packaging materials around several critical criteria, including compliance with food safety regulations, freshness and quality of the product, environmental sustainability, affordability, and consumer preferences, including convenience. The packaging is often disposed off improperly after a product has been consumed, and the company recognises the concern that plastics and other wastes are accumulating in the marine environment and on land. These materials have value, and PepsiCo is working on a broad set of solutions to ensure that they do not end up as litter or in a landfill. The following goals make up the company's 2025 packaging sustainability agenda:

1. Strive to design 100 percent of the packaging to be recyclable, compostable or biodegradable,
2. Strive to use 25 percent recycled content in plastic packaging by collaborating with suppliers, helping to increase consumer education, fostering cross-industry and public-private partnerships, and advocating for improved recycling infrastructure and regulatory reform, all of which are required to realize the ambition,
3. PepsiCo will reduce virgin plastic use across the beverage portfolio by 35%
4. In partnership with the PepsiCo Foundation, work to increase recycling rates.

Pepsico Sustainable Plastics Vision

PepsiCo's sustainable plastics vision is to build a world where plastics need never become waste. It aims to achieve that vision by reducing, recycling, and reinventing plastic packaging—and leading change through partnerships. The company's vision is based on three inter-connected strategies:

1. Reduce: Reduce the plastic used

2. Recycle: Support a circular economy for plastics.
3. Reinvent: Improve the packaging and plastic that is used.

Reduce: Reduce The Plastic Used

PepsiCo is working to reduce the plastic use by minimizing plastic used in packaging and by exploring alternative low impact, environmentally friendly packaging materials and delivery mechanisms. To meet consumers' individual needs while delivering high-quality beverages without single-use plastic bottles, it is working to expand the portfolio of options that go Beyond the Bottle. For example:

1. Striving to design all the packaging to achieve the optimum results with the most efficient use of materials possible.
2. Working to ensure 'right size' snack packages using an improved packaging technology.
3. Light weighting of the beverage PET bottles to use less plastic
4. Globally, PepsiCo's acquisition of SodaStream, in early 2019, has brought into the PepsiCo family an alternative means of providing consumers with beverage options prepared at home using reusable bottles. Through the expansion of SodaStream business, an estimated 67 billion plastic bottles will be avoided through 2025.

Recycle: Support a Circular Plastic Economy for Plastics

Increasing recycling rates supports a circular economy by ensuring an end use of each package put into the market, thus preventing waste and protecting the environment. PepsiCo is working and partnering to increase consumer recycling by:

1. Designing packaging that is 100% recyclable, compostable or biodegradable by 2025

2. PepsiCo India has been actively working across multiple states to collect, segregate, & sustainably manage equivalent of 100 percent of the plastic packaging by March 2021. The collection tools for Extended Producer Responsibility includes a combination of dry waste collection centres, collection points, engaging with waste pickers, local aggregators, and scrap dealers, door to door collection, resident welfare associations, societies, and institutions. The project also envisages sensitizing and incentivizing the waste pickers to collect the post-consumer MLP. The activities under the initiative ensures capacity building and training of waste collectors to channelize the present uncollected post-consumer MLP. The project implementation will involve liaison with urban local bodies, policy makers, NGOs, and government bodies to drive awareness on collection and segregation.
3. Investing in Recycling Infrastructure: PepsiCo and The PepsiCo Foundation are accelerating efforts to boost recycling rates across the world to reduce waste and increase the supply of recycled plastic available for packaging. PepsiCo has pledged over \$51 million globally in partnership initiatives, with a specific focus on some of the areas with the poorest infrastructure and highest risk of contributing to plastic pollution. The investments include: The Recycling Partnership, Circulate Capital, Global Plastic Action Partnership, TerraCycle, Alliance to End Plastic Waste, Recycling with Purpose and Recycle Rally.
4. Increasing Use of Recycled Plastic Content in Packaging Materials: In order to further leapfrog plastic recycling and to ensure reduced reliance on virgin material, it is imperative that a circular economy of plastic is established, as against the linear one, which exists today. Globally, PepsiCo is working to increase PET in packaging to reach 25 percent recycled content. However, the existing Indian regulations do not allow use of recycled plastics in the manufacture of Food Contact Materials.
5. PepsiCo targets to reduce 35% of virgin plastic content across the beverage business by 2025, which equates to the elimination of 2.5 million metric tons of cumulative virgin plastic, considering business growth.
6. Investing in Consumer Education: As PepsiCo works to increase the sustainability of packaging, it is important for consumers to understand how and why to properly dispose off used packaging. The company is engaged in many projects to improve communication and education around recycling for the consumers. In 2019-2020, PepsiCo has been creating awareness on plastic waste management through various initiatives -
 - a) **PepsiCo India partnered with Project Mumbai's "Jallosch - Clean Coasts" Drive-** PepsiCo India and Project Mumbai launched Mumbai's biggest clean-up drive Jallosch-Clean Coasts; an initiative to clean 9 beaches and 4 river banks. 5000 volunteers along with popular travel vlogger Shenaz Treasury, PepsiCo employees, corporates among others collected 1.181 MT of plastic trash. PepsiCo India through volunteering employees and deployment of special collection trucks enabled transportation of collected plastic waste through GEM Enviro.





b) PepsiCo launches Plastic waste management programme in Darjeeling- In line with PepsiCo India's commitment to collect more than 800,000 Kgs of MLP across key districts i.e. Kolkata, Darjeeling, Kalimpong and Siliguri in West Bengal, the company launched plastic waste management programme across Darjeeling schools. Over 600 students from 10 schools along with the faculty participated in the dry waste management awareness programme. As part of the programme, workshops will be conducted, education toolkit designed to create awareness in schools and sensitisation of student councils about the different types of plastic and how they can be recycled and recovered. Following a peer-learning methodology, these student councils will further educate their classmates, all done and under the supervision of a teacher, as part of plastic waste collection day

c) Cleanathon at Nagpur- PepsiCo India achieved 100% PET recycling milestone in Maharashtra. PepsiCo India organised 'Nagpur Cleanathon' on achievement of 100% PET recycling milestone in Maharashtra. The Cleanathon was aligned with



Govt of India's 'Swachhta Hi Sewa' campaign, that focusses on plastic waste management in the country through nationwide Shramdaan on October 2, 2019. The company is more encouraged now with the kind of response received from college students to clean the Ambazari lake garden. Such collection drives will go a long way towards creating mass awareness on plastic waste management and making Nagpur cleaner and greener. Nagpur Cleanathon also included Nukkad Natak (street theatre) performances, poster competition, art exhibition and recycling kiosk to showcase the items made of recycled PET.

d) India Plog Run in Delhi NCR- On 150th Birth Anniversary of Mahatma Gandhi, PepsiCo India and United Way India organized Plog Run 2019



in Delhi-NCR across 14 locations. The event saw presence of 100+ volunteers, PepsiCo India employees and senior officials from the ministry including Shri Hardeep Singh Puri, Hon'ble MoS (IC) for Housing and Urban Affairs and Civil Aviation, GoI. Plog Run was appreciated by Hon'ble Prime Minister Shri Narendra Modi through a tweet.

e) PepsiCo launches Plastic waste management programme in Varanasi- PepsiCo and Nepra launched a dry waste management education programme across Varanasi schools. The initiative was aimed at creating awareness and urging students to donate plastic waste which will be collected and repurposed into useful products like school tables and chairs. These products later are to be donated to NGOs working in the city.

f) PepsiCo launches WhyWaste initiative with United Way on Swach Bharat Diwas- "WhyWaste Campaign" is a waste management initiative by PepsiCo India and United Way



Delhi that aims at reducing & reusing plastic and upcycling the non-biodegradable waste

generated at home and/or communities. The key purpose of this initiative was to mobilize the caring power of community members such as school & college students, RWAs, and individuals towards environmental sustainability through the means of conscious upcycling of plastic at home. The initiative saw participation from over 1 lakh people, involving 50 schools & 20 colleges, 15 RWAs and PepsiCo India employees.



Reinvent: Improve Packaging & Plastics

As a top producer of consumer-packaged food & beverages, PepsiCo must continue to innovate and reinvent packaging. The company strives to be on the leading edge of sustainable packaging and will continue to reinvent packaging.

7.3 The way forward by PepsiCo

Partner: Lead Change Through Active Partnerships and Stakeholder Engagement

Underpinning the strategic pillars of sustainable packaging strategy is broad engagement with partners and other stakeholders to collectively drive change. PepsiCo develops partnerships within and across all three pillars: reduce, recycle and reinvent. These partnerships range from consumer awareness

and education programmes to research partnerships around innovative technologies and materials. Additionally, PepsiCo engages with stakeholders such as trade associations, industry coalitions, producer responsibility organizations, policy makers, and community-based organizations globally to advocate for and create a circular economy. The partners are key to inspiring sustainable change in the packaging waste value chain.

Mondelez
International
SNACKING MADE RIGHT



**Mondelez
India Foods
Private Ltd.**



Mr. Deepak Iyer

President & MD
Mondelez

At Mondelez International, our purpose-driven approach to sustainability and well-being is focused on reducing our footprint on the environment and creating a positive impact on society as part of our mission to lead the future of snacking by delivering the right snack, for the right moment, make the right way. Packaging of our products is a key aspect of our sustainability goals – we are on a mission to deliver packaging that delights our consumers, protects our products and is environmentally responsible. Globally we have already eliminated ~65,000 tons of packaging as of end 2019 and are on track to make all our packaging recyclable by 2025. In India, we have made tremendous strides on plastics sustainability – 92.2 % of our packaging is already designed to be recyclable in India across our whole portfolio including packaging from primary to tertiary packaging. We are driving pack optimization and material reduction in our packaging eliminating unnecessary plastics while delivering product safety and quality. We have also invested in waste management and have completed our 100 percent EPR commitment for multi layered packaging in 2019-2020. Mondelez International is part of a number of leading global initiatives focused on tackling plastic waste and pollution and we are actively working in India to partner with industry and government around issues of collection, segregation and recycling of plastic packaging. We will continue to make strides in working locally with our partners, bringing in the best of our global experience and helping create a better future.

8.1 About the Company

Mondelez India Foods Private Limited (formerly Cadbury India Ltd.) has been present in India for over 70 years. The company introduced Cadbury Dairy Milk and Bournvita in India in 1948 and since then has been a leader in the chocolate category in the country. Part of Mondelēz International, the company operates in the chocolate, beverages, biscuits and candy categories in India with brands like Cadbury Dairy Milk, Cadbury Dairy Milk Silk, Cadbury Celebrations, Cadbury Bournville, Cadbury 5 Star, Cadbury Perk,

Cadbury Fuse, Cadbury Gems, Cadbury Bournvita, Cadbury Spready, Tang, Cadbury Oreo, Bournvita Biscuits, Halls and Cadbury Choclairs Gold, etc. Headquartered in Mumbai, the company has sales offices in New Delhi, Mumbai, Kolkata and Chennai and manufacturing facilities at Maharashtra, Madhya Pradesh, Himachal Pradesh, and Andhra Pradesh, in addition to a global Research & Development Technical Centre and Global Business Hub in Maharashtra and a vast distribution network across the country.

8.2 Initiatives to minimize plastic waste

The End-to End Approach

Mondelez India's sustainability goals are an ambitious end-to-end approach to reduce environmental footprint within the scope of operations. At Mondelez India, the waste management principles (Refuse, Reduce, Reuse, Repair, Restore, and Recycle) are followed and partners encouraged to choose solutions that eliminate or minimize any negative impact on environment and health of populations.

Using Less Packaging as a part of the broader commitment to sustainable growth and reducing overall environmental impact, recognized and developed programmes to address the biggest sustainability challenges relevant to its business, including plastics pollution. Mondelez India is reducing the environmental impact of packaging and tackling plastic waste in three key ways:

- Reducing packaging material by optimizing packaging formats, while also minimizing food waste.
- Continue to simplify material choices and use innovative packaging materials to facilitate recycling in existing infrastructure .
- Working in coalitions to support improved infrastructure and greater harmonization of packaging formats, so that more waste is collected and can be recycled.

Plastic Waste Management at Mondelez India

Mondelez India has also moved beyond its fence to tackle the menace of plastic waste through sustainable and scalable initiatives based on the principle of Circular Economy.

These initiatives are aimed at engaging and collaborating with stakeholders at various stages such as source segregation, collection-use and recycling.

Mondelez India's approach towards Plastic waste management is to keep collection of plastic waste product agnostic and geography neutral.

Mondelez and Nepra have been partners since 2018, wherein Mondelez hired Nepra to carry out its EPR in various states across country. Mondelez along with Nepra believe in becoming a Zero waste to Landfill Company. The company aims to make an end-to-end positive impact on the world and the communities where it does business. This is core to who Mondelez is as a company and its commitment to using less energy and water, reducing waste and decreasing emissions.

Nepra, an Ahmedabad based dry waste management company, facilitates sustainable end of life disposal of post-consumer plastic packaging waste. It launched its initiative, EPR Connect helping different stakeholders understand the importance of the system and creating an ecosystem that led to its smooth implementation.

Mondelez India being a brand owner under PWM Rules, 2016 and one of the largest FMCGs in the country has taken up EPR since 2018. The company is committed to being governed ethically and efficiently for long term success. Almost all of Mondelez's products are packaged in plastic of various categories – majorly multi-layered plastic (MLP).

Key Activities done under EPR

1. Take-Back of Post- Consumer Plastic Waste

On behalf of Mondelez, Nepra carried out the Extended Producer Responsibility by collecting and sustainably disposing MLP from following states in India.

The waste was collected from dry waste collection centers of Urban Local Bodies (ULBs), from waste pickers, scrap dealers/aggregators and schools. The collected waste is then channelized to cement plants for co-processing or to waste to energy plants for energy recovery thus ensuring sustainable disposal.

Sr. No.	States
1.	Maharashtra
2.	Gujarat
3.	Madhya Pradesh
4.	Chhattisgarh
5.	Rajasthan
6.	Tamil Nadu
7.	West Bengal
8.	Punjab
9.	Himachal Pradesh
10.	Jammu & Kashmir
11.	Andhra Pradesh
12.	Kerala

Mondelez India has sustainably disposed 4,250 tonnes of post-consumer MLP plastic waste in the past two years, thus achieving the objectives of Plastic Waste Management (PWM) Rules, 2016.



Typical waste collection from a dry waste collection centre by Nepra

Process of EPR through NEPRA

Collection of MLP & Recyclable Plastic from ULBs/various scrap dealers/aggregators/wastepickers

Dispatch of collected MLP as RDF to cement plants/Waste to Energy Plant & of Recyclable Plastic to Recyclers

Sustainable disposal of MLP via Co-processing in cement kilns or energy recovery in Waste to Energy Plant & Recycling of Recyclable Plastic

Documents monitoring & verification before allocation of EPR credits to Mondelez India

Diversion certificate issued to Mondelez India

2. Waste Collection from Mondelez Manufacturing Unit

Mondelez India has taken the initiative of not only accomplishing its EPR Liability but also to fulfill other objectives of PWM Rules. The company partnered with Nepra for collection of MLP waste from its manufacturing unit in Induri, Maharashtra.

The collected waste was channelized to cement plants for co-processing.



Collection of plastic waste from Mondelez's manufacturing unit

3. Collection from Mondelez's Headquarters

Mondelez took up a unique initiative wherein, the employees of the company collected plastic waste such as chocolate wrappers and handed over to Nepra for its sustainable disposal.

The company exhibits all round commitment through such initiatives. It shows how dedicated a company is to not only comply to the said rules but also take a step ahead in achieving the same.



Information, Education, Communication Activities

1. Awareness and Collection from Schools



Students participated in various activities conducted during an awareness session in Kalimpong

On behalf of Mondelez, Nepra also conducted a mass awareness event in Kalimpong, West Bengal, in association with the Municipality, wherein several schools participated in interactive presentations, skits and competitions. The aim is to create awareness in a way that kids are attentive to and participate leading to collection of dry waste from schools acting as a collection point where children get their dry waste from everywhere and deposit it in bins in schools.

Nepra carried out an awareness session and Sensitizing Activities in 2019, for Under-Graduate Students about Efficient and Sustainable practices of Dry Waste Management and its Environmental and Social Impact. The students were fascinated by the expanse of the waste management sector and were inquisitive to know about the career opportunities in it.

2. Awareness Session in Universities



Christ University Students participated in awareness session, Bengaluru

3. Awareness activities amongst Waste pickers



Awareness session being conducted amongst waste pickers in Mount Abu, Rajasthan

One of the key stakeholders of today's waste management sector in the country are the waste pickers. **More than 60% of dry waste is collected by waste pickers in India.** Even after technological interventions in the waste processing mechanism, last-mile waste collection still is dominated by the informal sector and is carried out by rag pickers and municipality workers.

Mondelez's experience suggests that the informal section of the waste management community has a general idea of the materials which have economic value- plastics, E-waste, etc. but they lack detailed knowledge and information about the product. Mondelez has been able to build a value chain for MLP, thus encouraging the waste pickers to collect MLP waste.

Waste pickers are increasingly involved in collection process of plastic waste. Nepra candidly looks to include this marginalized community in order to incentivize them and uplift them in the society.



On behalf of Mondelez, Nepra also trains the waste pickers on different methods of segregation, gives them an understanding on waste collection and ensures that they take safety precautions while waste collection.

4. Value generation from MLP Waste

Mondelez India engaged Nepra in order to supply MLP waste to an NGO named 'Skilled Samaritan' that employs local women from rural communities. The NGO supports women communities who have unique/undiscovered craftsman skills but were never 'artisans' and work closely with them to create 'marketable products'.

The NGO uses the MLP waste to make contemporary pieces of furniture and the products are an absolute 'Wow'.

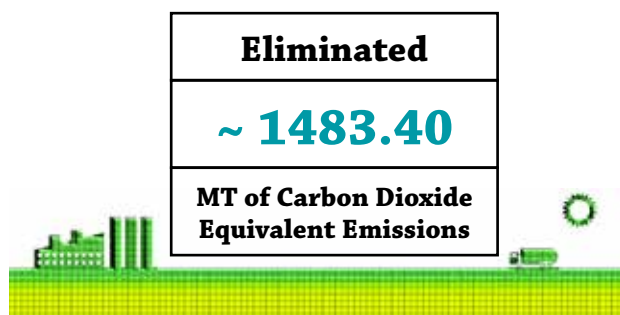
Such efforts by Mondelez India, establish their commitment towards making this World a better place by giving equal importance to all the stakeholders. Mondelez India along with Nepra has facilitated capacity building and is striving to establish circular economy.

The company is working towards reducing its footprint over Earth's natural resources and walking hand in hand with government authorities in aligning the three sectors of Sustainability - Environment, Society and Economy.

8.3 The way forward by Mondelez

The efforts taken by Mondelez by being a part of EPR and focusing on accomplishing its EPR targets have produced beneficial impacts overall – from environmental, social to economical.

CO2 Emission Mitigation and Other Savings

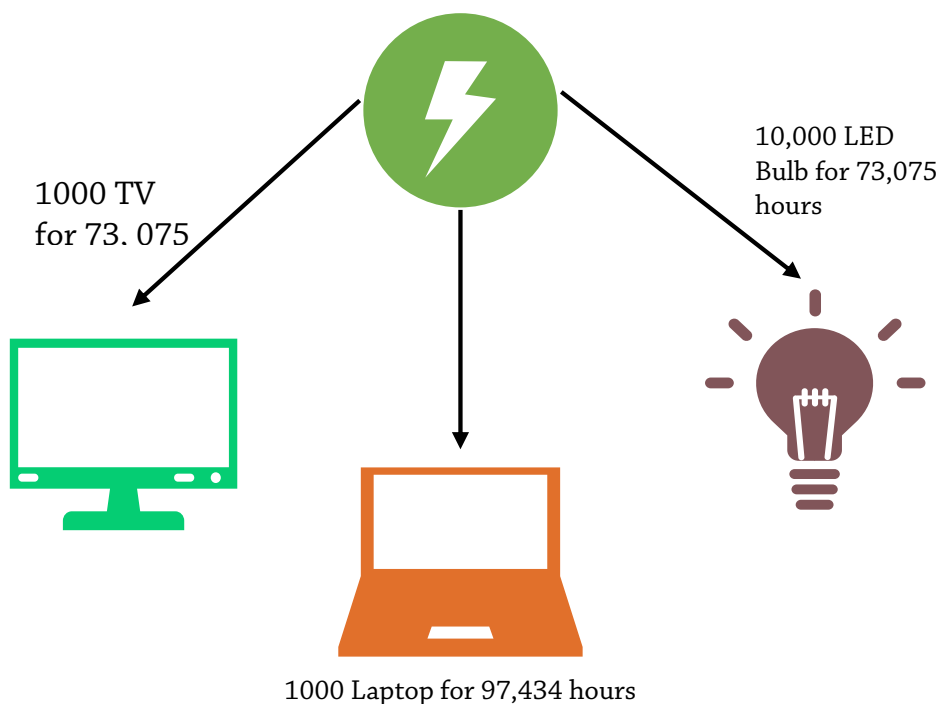


Globally, businesses are moving towards being aligned to Sustainable Development Goals (SDGs) and ESG Compliance. The company's goal is to create value for the world at large and improve the lives of those it impacts. The company aims to advance towards zero net waste by making its packaging 100% recyclable and labeled with recycling information by 2025.

120 kg of Coal is required for 1 Tonne of Cement
 For **each Tonne of Cement** produced =
 120 kg of Coal can be replaced by **120 kg of plastic waste**

*As CV Value of both 'Coal' and 'Plastic Waste' is comparable at ~ 8000 Kcal/kg

Saved ~ 5, 846, 025 KWh of Energy that can be used to either run:





CII-ITC Centre of Excellence for Sustainable Development

CII-ITC Centre of Excellence for Sustainable Development is a not-for-profit, industry-led institution that helps business become sustainable organisations. It is on a mission to catalyse innovative ideas and solutions, in India, and globally, to enable business, and its stakeholders, in sustainable value creation. It's knowledge, action and recognition activities enable companies to be future ready, improve footprints profiles, and advocate policymakers and legislators to improve standards of sustainable business through domestic and global policy interventions.

CESD leverages its role of all-inclusive ecosystem player, partnering industry, government, and civil society. It has been a pioneer of environment management systems, biodiversity mapping, sustainability reporting, integrated reporting, and social & natural capital valuation in India, thus upgrading business in India to sustainable competitiveness.

With two locations in India, CESD operates across the country and has also been active in parts of South and South East Asia, Middle East, and Africa. It has held institutional partnerships and memberships of the United Nations Global Compact, Global Reporting Initiative, International Integrated Reporting Council, Carbon Disclosure Project, development agencies of Canada, the USA, the UK, and Germany.

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