

**SMART
SOLUTIONS
TO PLASTIC
POLLUTION**

A COMPENDIUM OF
SELECT CASE STUDIES



Plastic pollution has become a critical global issue, posing significant risks to our environment, wildlife, and human well-being. As the accumulation of plastic waste reaches alarming levels, it is imperative for governments, organizations, and individuals to proactively address this problem. The time has come to revolutionize how we produce, consume, and dispose of plastic.

At the Tata Group, innovation and sustainability go hand in hand. The deep-rooted commitment towards the well-being of our planet and its habitat, drives our actions. We firmly believe in creating a better future, which is why Tata companies are leading the way in tackling pressing global challenges like plastic pollution. Our diverse range of companies have undertaken several initiatives to minimize plastic waste generation, effectively manage the plastic we use, and promote sustainable practices.

This compendium proudly showcases 11 case studies from various Tata companies, highlighting our unwavering dedication to environmental stewardship and sustainability. Through innovative solutions, collaborations with stakeholders, and fostering behavioral change, Tata companies are actively combating plastic pollution.

These stories serve as inspiring examples of how organizations can play a pivotal role in reducing their plastic footprint and shaping a more sustainable future. Join us as we delve into the endeavors of Tata companies towards combating plastic pollution and paving the way for a more sustainable world.

A Sustainable Approach to Managing Plastic Waste at Construction Sites

Construction sites can lead to a lot of plastic waste generation. Tata Projects, one of India's leading EPC companies is committed to addressing the plastic menace across the value chain.



The New Parliament Building project

So, when the opportunity arose to work on the prestigious New Parliament Building project for the Government of India, Tata Projects put in place a streamlined process for collection, segregation and utilization of plastic waste generated during the course of the project.

- As a first step, awareness was created among project workers regarding collection & proper segregation of single-use plastic at site.
- Plastic waste collection bins made by waste plywood & HVAC duct waste were positioned at multiple locations across the site and office areas.
- Plastic packaging from furniture, personal protective equipment, stone wrappings, PET bottles used during client visits, etc. were collected through designated collection bins.
- Collected plastic waste was then converted into value added products such as T-shirts, benches, temporary barricades, pen stands, carry bags, etc. in partnership with NGO Lakshya, which works to empower the most vulnerable sections of society, particularly underprivileged women.

The initiative not only tackled the issue of plastic waste generation at the Parliament project site but also demonstrated a practical way to eliminate single-use plastics' harmful effects on the environment. More than 800 kg of plastic waste was prevented from reaching landfills through this and other initiatives under the New Parliament Building project.



Tata Consumer Products Limited

Driving Sustainable Packaging: A Plastic Reduction Journey

Being a consumer products company, Tata Consumer Products Limited (TCPL) took cognizance of the need to reduce plastic usage in their product packaging and drive sustainability within their operations. The challenge was to implement initiatives that would effectively reduce plastic consumption while maintaining product integrity and addressing any technological and consumer behavior challenges.

The company initiated a structured project, focused on plastic reduction through multiple strategies such as material reduction, substitution, reengineering and downgauging.

Salt packaging

In the salt category, TCPL transitioned from a non-recyclable structure to a recyclable structure, reducing plastic usage. The portfolio of salt products now stands at an impressive 85% recyclable structure. For salt, they also embraced reusing tertiary packaging, reducing the need to purchase new polypropylene bags from 30% of business requirement to less than 5% currently.

Tea and Pulses packaging

TCPL implemented downgauging techniques, reducing plastic consumption by 50 tonnes annually in the Tea and Pulses portfolios. Additionally, the company successfully removed secondary packaging bags from tea categories for SKUs above 500g, resulting in a further reduction of 80 tonnes of plastic consumption per year.

International brands

In a bid to eliminate plastics, Tetley Tea is transitioning 9 billion teabags to plant-based materials!

Some challenges encountered by the company included the availability of HB BOPP films for beverages and compromising on print effects for shelf presentation in the salt business. Additionally, there were concerns about machinability. However, through strategic problem-solving, the company successfully overcame these challenges.

The implementation of these initiatives is significant in reduction in plastic consumption across the Tata Consumer Products portfolio. For example, Tetley Tea's transition to plant-based materials shall help remove 270 tonnes of traditional plastic from the waste stream.



Trent Limited

Closing the Loop: Trent's Commitment Towards Sustainable Waste Management

When you shop at a Westside or Zudio store, you may not see a lot of plastic packaging. But behind the scenes, the story is quite different. Each piece of clothing procured by Trent – which owns the Westside and Zudio brands – comes to the company in a plastic bag. Trent recognized the pressing issue of plastic waste generated across its stores and warehouses, which was being sold to local scrap recyclers without traceability of the way it was treated or disposed.



Partnership with WiseBin

To ensure that all this clear and relatively clean LDPE plastic is responsibly recycled, Trent partnered with WiseBin, a centralized waste collection and recycling organization. Together they embarked on collecting and recycling plastic waste and other solid wastes from almost 200 stores and 2 large warehouses.

In FY23 alone, 326 tonnes of plastic was collected and recycled through WiseBin.

By effectively tracking and managing the disposal and recycling of plastic waste, Trent has better visibility into its waste management processes, ensuring compliance with environmental regulations and promoting transparency.

Additionally, to promote circularity, Trent has made efforts to procure biodegradable bags, and recycled cardboard and A4 paper from WiseBin.







Tata Steel UK

Reducing and Managing Waste: Tata Steel UK's Journey Towards Sustainable Packaging

At Tata Steel UK's Shotton site, plastic straps and wrapping help safely secure and protect steel coils after they've been galvanised and painted. This helps ensure high-quality steel arrives at the customers' location in perfect condition. At the customers' end, the plastic wrapping and straps are taken off and become waste. Tata Steel UK recognised the need to reduce plastic waste and worked with customers to achieve this.

Types of plastic packaging

Packaging type	Green plastic strapping	Top edge protectors Fluted lengths	Logo print film Blue VCI paper	Blue Corex sheets Black plastic inner bores
Type of Plastic	 PET	 HDPE	 LDPE	 PP

Overall approach

REDUCE

Tata Steel reviewed the purpose of the packaging and rationalized its packing catalogue to avoid over-specification. This reduction-focused approach led them to make several changes, such as reducing the thickness of green strapping, the length of fluted lengths, and the width of logo print film, VCI paper, and blue corex sheets. The company also increased the number of customers using reusable top-edge protectors rather than fluted lengths which are single-use.

REUSE

Tata Steel introduced a return program for top-edge and inner bore protectors, which can be reused up to 50 times. This involved providing storage cages and agreeing to backload from customers.

RECYCLE

Tata Steel introduced baling machines to compact materials for recycling items that cannot be reused. Where customers were geographically closer to Tata Steel UK's packing supplier, they were encouraged to have the packing picked up by the packing supplier directly.

One of the key challenges of the project was to encourage a change among customers through extensive guidance, as they needed to segregate, store and return the plastic waste.

Today, top edge protectors, fluted lengths, blue corex sheets and black plastic inner bores have 100% recycled content. Additionally, 100% requirement of top-edge protectors and 50% requirement of plastic inner bores are met through packing returned by customers leading to a reduction in the annual plastic consumption by up to 130 tonnes every year! The initiative is part of the company's sustainability commitment at its Shotton site, and has accelerated its work towards the goal of zero on-site waste.

TCS

TCS Campuses lead the way in Plastic Waste Management

TCS campuses of Hyderabad and Gandhinagar, the workplace for thousands of associates and vendors, generated a significant volume of waste, with plastic waste being a major concern. At Hyderabad, the challenge lay in the disposal of black and soft plastics – which have a low weight-to-volume ratio, are difficult to recycle due to low thickness and lack of availability of reliable recyclers. At Gandhinagar, it was the disposal of cooling tower films that posed an environmental challenge. Recognizing the need for a sustainable solution, TCS embarked on a remarkable project to tackle these plastic waste streams. The project centered around the core principles of "Reduce" and "Recycle," aiming to minimize plastic waste generation and ensure its environmentally sound disposal.



Hyderabad Campus

In Hyderabad, the project team focused on reducing the use of soft plastics, such as thin film plastics, in the kitchen and canteen operations. Butter paper replaced plastic film wrappings for bakery items, and the use of thin film plastics was completely eliminated in in-house kitchens. Additionally, black plastic waste, previously sent to landfill, was segregated from the mixed waste stream and stored in dedicated areas to be sent for recycling through an approved partner

The Hyderabad campus achieved 100% collection, segregation and disposal of an estimated 700 kg of black plastic waste. By moving away from thin film packaging in its kitchens, the campus avoids 15 kg of thin film waste from being generated every month.

Garima Park, Gandhinagar

At Garima Park, Gandhinagar campus, after careful analysis to check recyclability of cooling tower films, the plastic waste was diverted for recycling through a competent third-party vendor. An on-site shredding machine was deployed to reduce the waste volume and optimize transport related emissions. The campus also implemented additional measures, such as replacing plastic water bottles with glass jars/bottles and waste segregation practices for other daily waste, channeling it for recycling or co-processing. Dry waste was taken to a Material Recovery Facility (MRF) operated by NEPRA, a SPCB authorized waste collection agency. Here, the waste was sorted and further segregated based on type. The recyclable fraction was sold to recyclers, while the non-recyclable waste was channeled to cement plants as Refuse Derived Fuel (RDF) or Alternative Fuel & Raw Material (AFR). This model not only contributed to sustainability but also provided inclusive employment opportunities for women and economically weaker sections.

TCS Garima Park campus diverted 9,000 kg of plastic from the landfill and was recognized by the Gandhinagar Municipal Corporation (GMC) for sending zero organic waste to landfill and utilizing it all to produce organic compost.



Tata Power

Tata Power's Fight Against Plastics: From PVC to Compostable, and Zero-plastic-waste Events

Plastics account for approximately 13% of the Tata Power Maithon Plant's (MPL) annual waste generation. In an effort to implement sustainable business practices, the MPL team initiated a pilot project to replace ordinary plastic sheets, which are typically made from PVC – a highly toxic plastic – with CPCB certified, ISO:17088 compostable plastic sheets. These sheets are used for the important function of protecting critical assets from water or coal dust.

Compostable plastics cannot be recycled along with conventional plastics, nor can they be decomposed in typical landfills due to their temperature requirements. To ensure this, it is necessary to make sure that compostable packaging ends up in a controlled composting facility. Thus, one of the key learnings from this project was the importance of ensuring the availability of a controlled composting facility at the intended location before switching to compostable plastic materials.

Sustainable Events at Corporate Office

Under the project, MPL will require to purchase 2,000 meter of compostable plastic sheets in FY24. At the end of their useful life, these sheets will transform into valuable compost within 180 days.

Meanwhile, at the Tata Power Corporate office, the team took up the challenge of transforming corporate events at the Mumbai headquarters into zero plastic waste gatherings. The team discovered that during these office events and trainings, water bottles, pull-up standees, meeting agenda prints, celebration decorations, and other items make up the majority of the plastic used. PETs (RIC 1) and PVCs (RIC 3) were identified as the most prevalent types of plastics used. A typical office event generates approximately 300 or more plastic bottles and over 20 kg of plastic waste used in pull-up standees.

The project achieved a 100% reduction in the use of plastic water bottles and pull-up standees, replacement of a 312 feet of plastic backdrop banner with LED screen, replaced the use of plastics in decorations with upcycled alternatives.



Achieving New Milestones in Responsible Hospitality:

Eliminating Plastics at IHCL Hotels

In response to changing consumer preferences and a growing demand for sustainable practices, the Indian Hotels Company Limited (IHCL) embarked on a mission to eliminate plastics from its hotels. By replacing plastic water bottles, bathroom amenities, and room keys with biodegradable alternatives, IHCL aimed to enhance the guest experience while meeting evolving expectations for sustainable and eco-friendly practices. This initiative aligned with the company's commitment to responsible and environmentally conscious hospitality.

IHCL implemented a comprehensive two-phased plan to reduce plastics across its hotels.



Phase 1: Reduction in Plastic Water Bottles

IHCL introduced in-house water bottling plants and transitioned from single-use plastic bottles to reusable glass bottles. IHCL collaborated with technology providers, material suppliers, and recycling partners to implement in-house water bottling plants and transition to reusable glass bottles. Some of the challenges faced included technological considerations, ensuring the availability of glass bottles, compliance with regulatory requirements set by the Food Safety and Standards Authority of India (FSSAI), and addressing consumer preferences for plastic usage.

Phase 2: Eliminating plastics from bathroom amenities, amenity packaging and room keys

In phase 2, plastic packaging for bathroom amenities is being addressed through engagement with suppliers and experts specializing in sustainable packaging solutions. Some solutions include use of refillable ceramic dispensers for soap, shampoo, conditioner and bodywash, biodegradable toothbrushes and earplugs, and jute or cotton laundry bags, choosing tea, coffee and snacks with non-plastic packaging, and substituting wooden material for plastics in keycards. Some of the challenges faced were sourcing suitable paper packaging materials that meet quality standards, ensuring compatibility with various amenities, maintaining guest satisfaction, and coordinating the phased implementation across multiple hotels.

Through the process, across both phases, IHCL achieved significant milestones:

100% elimination of plastic straws, avoiding the consumption of two million plastic straws

Across 18 hotels, IHCL saved over 60% of plastic bottle waste compared to the baseline year of FY 2019-20 and prevented the use of 36 tonnes of plastic in FY2023 alone

In FY2024, IHCL aims to save approximately 110 tonnes of plastic waste by replacing plastic bathroom amenity packaging with paper

Taj Exotica Resort & Spa, Andamans was recognized as India's first "Zero Single-Use Plastic Hotel"



JLR

Sustainable Transformation of Car Floor Mats

Jaguar Land Rover (JLR) has embarked on a project to revolutionize the production of floor carpets in their automobiles. Traditionally, these carpets were made from virgin nylon, a durable, carbon emission-intensive plastic fibre. However, as a part of their commitment to achieving Carbon Net Zero status by 2039, JLR recognized the need to reduce carbon emissions associated with the materials used in their products. To reduce reliance on virgin nylon, JLR switched to ECONYL[®] which is produced using ocean plastics and landfill waste. Not only does this reduce plastic pollution by reclaiming plastic waste from the environment, the ECONYL[®] manufacturing process also reduces emissions in production by 90% compared to virgin material.

ECONYL[®]

The creation of ECONYL[®] yarn involves a meticulous six-step closed-loop process. Nylon waste is collected, cleaned, shredded, depolymerized to extract Nylon, polymerized, and transformed into yarn. This process utilizes less water and generates fewer waste products compared to conventional nylon production techniques. The resulting ECONYL[®] yarn possesses the same chemical and performance properties as fossil-based nylon, enabling its use in carpet and clothing production.

Through this transformative initiative, JLR has achieved an impressive 82% reduction in carbon emissions from floor carpets, providing customers with a premium, long-lasting product made from a more environmentally friendly material. ECONYL[®] floor mats were first incorporated into the new Range Rover model launched in 2021, and will also be utilized in future Range Rover, Defender, Discovery, and Jaguar models.



Tata Daewoo

Tata Daewoo's Journey to Minimize Plastic Waste and Foster Recycling

Tata Daewoo faced a challenge in effectively managing and disposing of plastic waste, which posed environmental risks and increased costs. The company recognized the need to enhance its recycling efforts to minimize waste going to landfills and align with the government's Net Zero objective.



Partnership

Tata Daewoo implemented a comprehensive plan to improve the recycling of plastic waste throughout the organization. They focused on collecting and processing various types of plastic debris, including waste from products, packaging, and office equipment. To achieve this, the company partnered with a reputable waste recycling business, Chang Baek Company, which employed techniques like crushing and melting to recycle plastic garbage.

Behavior change

The implementation process involved adopting appropriate measures to enhance waste collection and separation processes, ensuring proper sorting of waste, and raising employee awareness about segregation and waste management procedures. Tata Daewoo prioritized educating its employees on the importance of recycling and waste reduction.

The project yielded significant results, allowing Tata Daewoo to substantially decrease the amount of plastic waste sent to landfills and incineration. Over the years, the company witnessed a positive trend in waste plastic recovery - 4.9 tons in 2020, and a remarkable increase to 6 tons in 2022. Moreover, the recycling efforts resulted in cost savings for Tata Daewoo. By avoiding expenses related to waste treatment, the company saved KRW 6,650,000 during the fiscal year 2021-2022.



Tata Motors

Revolutionizing Automotive Sustainability: Repurposing Ghost Fishing Nets

The world's oceans today are plagued with plastic waste, including discarded fishing nets or ghost nets made primarily of Nylon. In the open ocean, these nets continue to trap everything in their path, endangering marine life. Worldwide NGOs, governments and corporates have taken initiatives to collect these nets from oceans and use them in fashion, textile & sports industry.

The team at Tata Motors Limited (TML) too realized the gravity of this problem and embarked on a groundbreaking project to source and upgrade the material derived from fishing nets for use in structural automobile applications. They focused on developing inner door handle brackets for their Nexon and Altroz models, aiming to create a first-of-its-kind application in India. This innovative initiative presented significant financial, environmental, and social benefits, fostering a sustainable ecosystem-based business model.

Leveraging in-house R&D and external partnerships

Since regenerated materials have issues related to quality and continuous supply, finding an appropriate raw material compounder for developing material from fishnets was one of the main challenges. There was a strong need for in-house R&D, capable and reliable network of feedstock suppliers at the compounder end. Hence, lot of effort was taken in looking for a capable local partner.

Key challenges

Amongst the technical challenges faced, the most important was to upgrade the mechanical and weathering properties of the feedstock material to match the properties of virgin material. Economic prudence dictated that the same moulding tool to be used which was designed for virgin material since developing a new tool for using regenerated Nylon (REG-NYL) had significant cost implications. These challenges were overcome by using glass fibres, minerals, ultraviolet stabilizers, impact modifiers and pigment. The correct choice of additives, its precise proportion and synergic and homogeneous formulation were critical in the development of REG-NYL.



The project was completed in over 18 months.

In addition to address ocean pollution concern, REG- NYL has significantly lower carbon footprint as compared to virgin Nylon thereby saving energy and preventing CO₂ emissions.

Tata Motors received several recognitions for their pioneering efforts, including 'The Economic Times Polymer Award' for 'Excellence in Recycling - Structural Applications' and the 'Most Environmental Best Practice Award' at CII Greenco 2021.

Tata Coffee

Eliminating Single-Use Plastics

One Event at a Time

Community events and gatherings generate a significant amount of single-use plastic waste in the form of items such as plastic spoons, plates, glasses, cups, etc. In rural areas without proper waste management, this plastic waste pollutes the surroundings.

Extent of the problem

Tata Coffee recognized the alarming accumulation of single-use plastic waste in Toopran in the Medak district of Telangana, India. The Toopran Mandal comprises 35 villages, having nearly 13,760 households. On average, the municipality hosts nearly 18 different community events a day. Their calculations suggest that each community event has the potential to generate an average of approximately 22.5 kg of single-use plastic such as plates, glasses, etc., which adds up to nearly 145 tons of plastic waste in a year. To help address the problem, Tata Coffee came up with a very innovative solution to this problem – The Steel Bank!

The Steel Bank

Tata Coffee helped the Toopran municipality procure 2,000 steel tumblers and 1,500 steel plates to create a Steel Bank. The steel bank acts as a lending point for the utilities, upon payment of a nominal deposit which is refundable upon return. After use, these are to be cleaned and returned in due time. The municipality maintains the steel bank, while the company provides monitoring and auditing support.

The main challenges included maintaining hygiene standards for the utensils in stock. To address this, a dedicated resource was appointed to ensure cleanliness and accountability. Community acceptability was also a challenge due to the prerequisite processes of booking, procurement, and return. To overcome this, the initiative was made free of cost, requiring only a refundable nominal deposit. Another challenge was the difficulty remote villages faced in accessing the steel bank on account of transport-related costs. This was addressed through the municipality's support, which agreed to supply the items at a subsidized cost in the municipal vans.

In the financial year 2021-2022, the steel bank supported approximately 192 functions in the municipality, eliminating a total of 99,840 plastic plates and glasses. This equates to 3,994 kg of single-use plastic items being eliminated from the community.

Tata Coffee received a certificate of appreciation from the Toopran municipality, as well as recognition from the Green Body of Telangana forum and the Greater Hyderabad Municipal Corporation. These accolades highlight the project's positive impact on the community and the environment.





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