

## Enabling Circular Economy for Plastics in India: A Pathway to Resource Efficiency

### Introduction:

#### The current scenario of plastics: Globally and in India

Around the world, one million plastic bottles are purchased every minute, while up to five trillion plastic bags are used worldwide every year. In total, half of all plastic produced is designed for single-use purposes. Plastics, including microplastics, are now ubiquitous in our natural environment.<sup>1</sup> A study by the Ellen MacArthur Foundation estimates that, by 2050, the amount of plastic in seas and oceans across the world will weigh more than the fish. It is appalling how plastic toxic polymer has gradually leached into our environment, waterways, air, and food chains, creating irreparable damage to our ecosystems. As per a CPCB report, plastic contributes 8 per cent to the total solid waste produced in India.

While plastic pollution is a burning issue grappling India and the world alike, it is worth noting that plastic is a unique material that is cheap, versatile, lightweight, and resistant and offers many functionalities. It also provides environmental benefits by playing a critical role in maintaining food quality and safety and reducing food waste. The trade-offs between plastics and substitutes (or complete bans) are therefore complex and could create negative knock-on impacts on the environment.

At the intersection of such complexities, circular economy principles offer immense opportunity in improving and effectively managing plastic waste systems while delivering social, economic and environmental benefits holistically. As per estimates, circular economy principles can unlock around 500 billion USD worth of economic value in India by 2030, and 4.5 trillion USD globally. Of this, proper management and recycling of uncollected plastic wastes alone can create 1.4 million new jobs and the potential to add 2 billion USD to India's GDP.<sup>2</sup>

Considering the pros and cons, plastic can be more of a protector than only a polluter provided it is managed properly and complemented by the circular economy strategies in terms of reduction, recycling, and recovery, thereby preventing leakage into the environment. From the implementation perspective, this would require an enabling ecosystem that fosters disruption and innovation. A holistic approach is needed to understanding plastic flows and supply chains, disruptive technologies, enabling public policy, circular business models, innovative financing models, and initiatives led by communities and industry. Collaborations and partnerships would be critical for accelerating the transition towards Circular Plastics Economy in India.

<sup>1</sup> UNEP website

<sup>2</sup> FICCI. Accelerating India's circular economy shift a half-trillion USD opportunity - future-proofing growth in a resource-scarce world

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### Initiatives by Development Alternatives Group:

Development Alternatives (DA) has been leading the discourse and action related to plastic waste management in India. Our efforts in this space are directed towards a ‘transformational’ change. The organisation’s initiatives have been focused on areas including R&D, capacity building, providing innovative solutions in the space of technology advancements, etc.

By adopting a 360-degree approach, DA brings the following with it:

- Robust experience
- Technology solutions
- Innovative approaches
- Extensive stakeholder connections

# BACKGROUND

## TARAGram Yatra in Agra

### Agra City: Waste Context

Agra is world known for its UNESCO world heritage monument of the Taj Mahal. The growing population along with rising tourist inflow leads to higher consumption and waste generation in the city. The primary data from Agra Nagar Nigam indicate that the total municipal solid waste generation in the city is about 850–870 metric tonnes per day (MTPD), which typically contributes to high plastic percentage due to the use of on-the-move food, beverage, and other items.

Therefore, an average value of ~866 MTPD of municipal solid waste from various sources such as households, commercial, market, and street sweeping has been considered to know about the plastic leakage scenario in Agra. As per the estimates, the city generates 100–130 TPD of plastic waste per day.

### Plastic Waste Management in Agra: Investment, Innovation, and Infrastructure

We have been implementing an Integrated Waste Management project titled, Nirmal Agra Project in the city with an aim to set up new waste collection infrastructure, augment existing waste collection infrastructure, improve data capture and reporting, establish, and upgrade existing waste sorting infrastructure, and undertake behavioural change programmes – to address the issue of leakage of plastic waste into the environment.

This project is being undertaken by Technology and Action for Rural Advancement (TARA) – a social enterprise of the Development Alternatives Group – with funding support from the Alliance to End Plastic Waste Inc.

This project is focused on Investment, Innovation, and Infrastructure to help improve plastic waste collection, transportation, segregation, and processing. The waste sector provides livelihood opportunities as well and this project will work towards integrating informal sector workers and improving their socio-economic indicators. Behavioural change programmes are an important component of the project to address the issue of leakage of plastic waste into the environment.

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With this, the Development Alternatives Group aims to increase plastic waste capture in Agra city from 50 per cent to nearly 90 per cent within two years through:

- Setting -up of waste collection and sorting systems
- Setting -up of recycling units for the conversion of recyclable plastic into paver blocks/bricks from multi-layered plastics

With an improved waste collection system in the city, the annual capacity of waste collected will reach up to 9000 metric tonnes out of which 80–90 per cent of the plastic will be recycled. Currently, the project is in its inception phase, where the trial run of vehicles for waste collection from the hotspot area along with trial runs for SLRM centres with 5 TPD capacities are being operationalised.

The *Yatris* in this visit will be immersed in exploring the unique, innovative, and entrepreneurial model initiated in Agra and understanding the challenges from the perspectives of various actors in the plastics value chain. The *Yatra* includes visits to the plastic segregation and recycling sites and technical sessions, engaging local stakeholders, industry, and government to deliberate on the culture and social circumstances of the plastic waste scenario in the city, which may have lessons for a large part of India.

The *Yatris* in this *Yatra* will contribute to the following objectives:

- What is the plastic waste problem in India and why must it be solved?
- What elements would make up a circular economy vision for plastics in India? (i.e., How do the data, policy, business model, technology, community, and behaviour elements combine in a circular economy framework/vision?)
- How can that transition get started? (a transition agenda engaging all relevant actors) - policy, behaviour, business models, community initiatives, and industries
- What are the enablers and barriers to efficiently manage plastic waste, and what works well?
- What leadership can India demonstrate on the technology, policy, community collaborations, and business fronts, to scale the efforts at global levels?

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