

Building a Climate-Safe Circular Economy of Plastic Waste



The climate action journey has seen emerging and developing economies show an urgent need for climate finance. Under a business-as-usual scenario, middle- and low-income countries are expected to account for **66% of global CO2 emissions** by 2030, up from 44% in 1990, as per International Monetary Fund (IMF). In other words, climate change is a global problem, and it requires **coordinated, collective, global solutions**. A study published in the journal **Resources, Conservation and Recycling** estimated that recycling 1 metric ton of LDPE plastic can **save approximately 1.75 MTs of CO2 emissions**.

With India's vision of net-zero carbon emissions by 2070, the public and private sectors are not only prioritizing climate mitigation but also enabling a convergence in the climate adaptation roadmap. There is a very evident infrastructure gap of \$4.5 trillion to meet the climate action targets India has set globally. What changes the game is creating **sustainable business models** in addition to **climate financing**.

A **blend of such a strategic partnership** is taking shape in the form of a **plastic waste recovery and processing project** in various Indian cities, with ownership and accountability from the local administrations. **Alliance to End Plastic Waste** is playing a critical role in bridging gaps through innovative funding mechanisms. Sharing a common vision, **Recity** is shaping this project from ground up to enable a true circular economy by driving the recovery of all kinds of plastic waste and channeling it to recycling and other end-of-life solutions through infrastructure.

With a focus on building resilient and **automated waste processing infrastructure**, this partnership has built project **ParikraM**, which is strengthening India's climate action efforts with an intersectional approach- enabling **social inclusion and livelihoods, economic resilience of the waste workforce and driving carbon reduction**.





PARIKRAM

CLOSING THE LOOP ON PLASTIC WASTE

Parikram, powered by the **Alliance to End Plastic Waste**, supported by the city administrations, and implemented by **Recity**, is a revolution in making Indian cities truly circular. Staying true to its name, the project Parikram aims to create a circular economy by not only recovering plastic waste from various environmentally vulnerable sources like **landfills, oceans, rivers and forests** but also constructing **tech-enabled and compliant Material Recovery Facilities (MRFs)** to ensure these plastics are channeled for recycling and other scientific end-of-life solutions. This is an imperative step to **end the leakage of plastic waste into the environment and assure circularity.**



120,000+ Metric Tonnes (MTs)

Post-consumer plastic waste will be recovered from environmentally vulnerable cities

300+ Green Jobs

Creating new and beneficial employment opportunities

1,000+

Value chain members to be formalized

Recity's in-house technology platform used in the MRFs also manage the operations and maintain real-time records with just a single click - further creating **transparency of processes, visibility of inventory, operational efficiency & optimum resource utilization.**

ParikraM is a **joint effort** to close the loop of plastic waste

**ALLIANCE
TO END
PLASTIC
WASTE** 

Alliance To End Plastic Waste is a team of passionate, experienced, and qualified individuals from across various industries that work to **end plastic waste globally**. The Alliance collaborates with companies that design products, systems & services that use new ways to turn plastic waste into valuable circular solutions.

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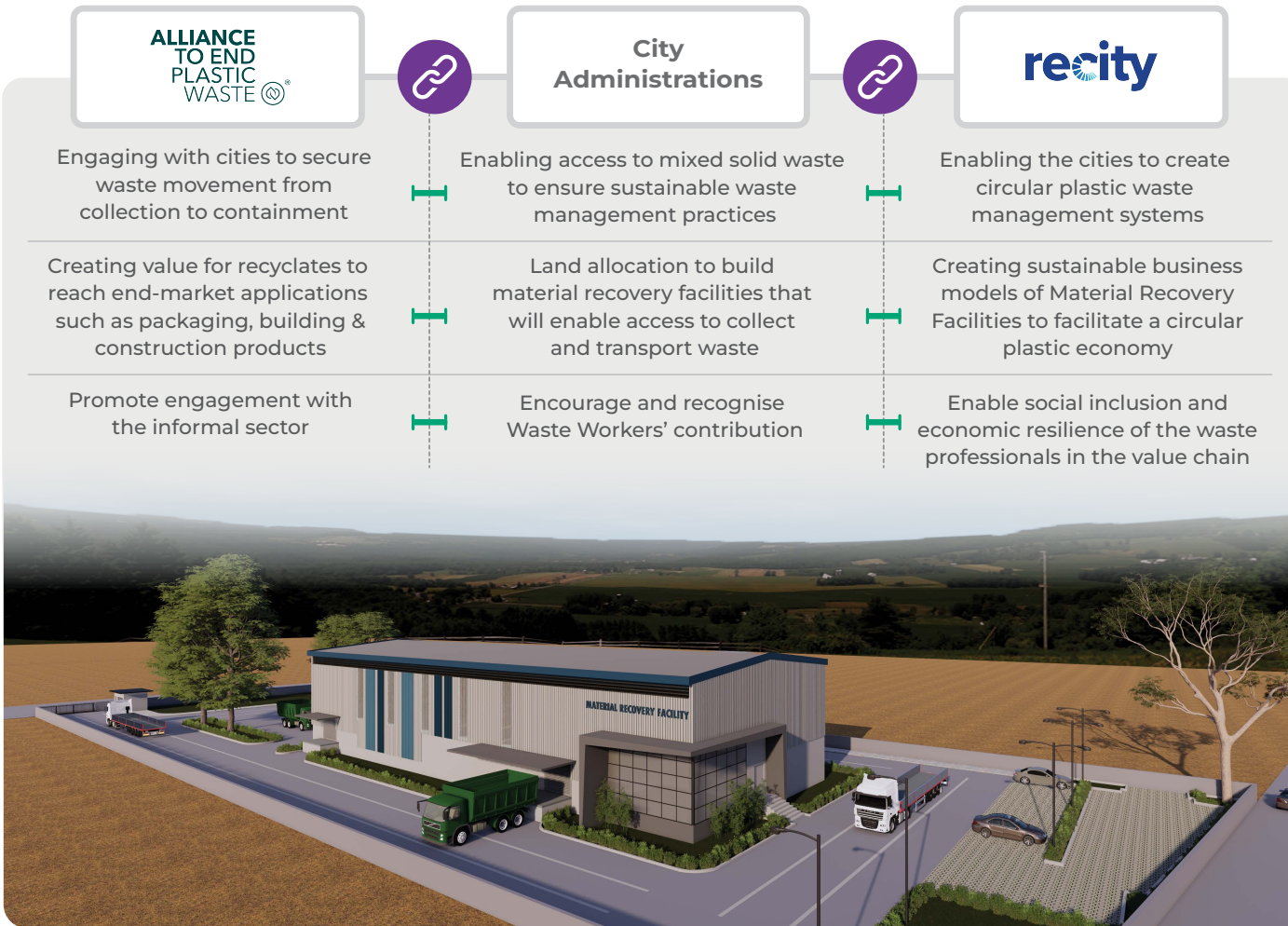
Recity has created a tech-enabled circular economy of **over 55,000 MTs** of plastic waste across **22 cities** by not only enabling participation of over **25,000 waste value chain actors**, but also partnering with global brands & funds, bilaterals, multi-lateral consortiums and recyclers. By forging efficient **public private partnerships** and enabling **infrastructure** for the waste ecosystem, Recity is **reducing carbon footprints, generating plastic credits** and **maximizing the value of plastics** to accelerate circularity.



City administrations have been assisting this project - from **allocation of the land to enabling access for plastic waste in order to set up the Material Recovery Facilities**. All these efforts are contributing towards achieving circularity & sustainability.

2021

Key Synergies between Alliance to End Plastic Waste, City Administrations and Recity



Total of 80 cities studied

- 12 cities were identified by conducting a thorough feasibility study
- 3 cities were then finalized



This led to

1. The analysis of a city's waste management capacity based on the **market's waste generation**.



2. The development of a **contextual Material Recovery Facility Business Model** that will unlock more than **\$36 Million** over **10 years** for the sector.

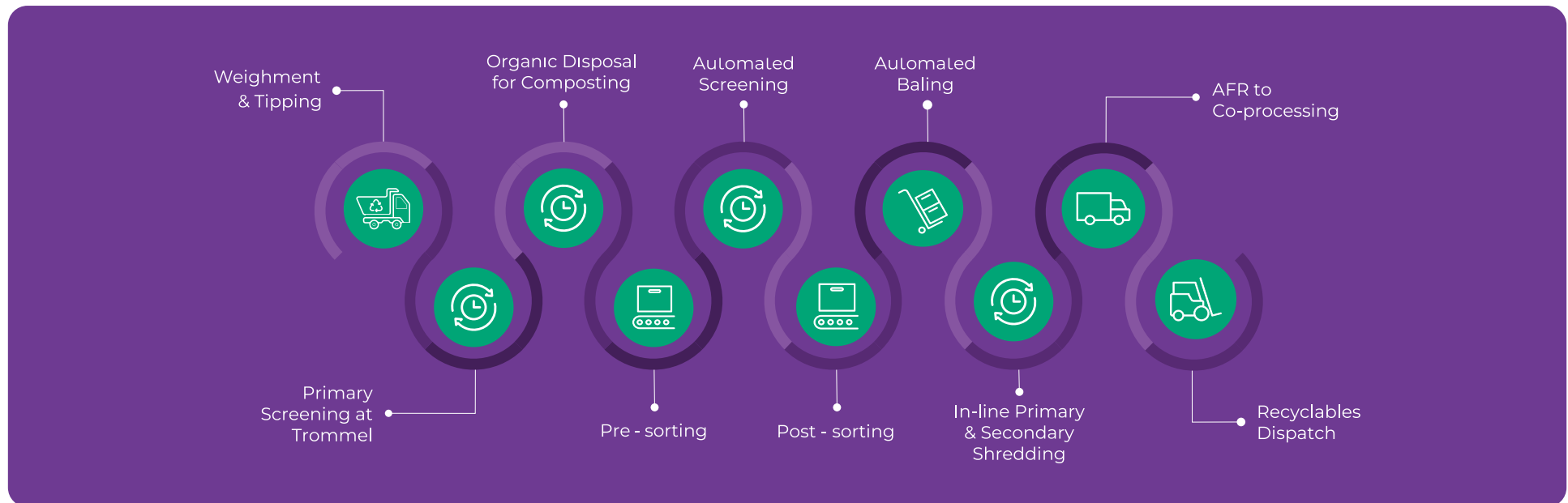
3. Developing an ecosystem of mechanical and chemical **recycling partners**.

2022-23

A path-breaking model for circular economy

India has about 7,935 urban centres, out of which 60-70% of the cities have a population of 0.5 to 1 Million, generating waste in the range of 200-500 TPD.

ParikraM is enabling a path-breaking model that bridges the gap between **mismanaged plastic waste to feedstock** for mechanical and chemical recycling. Recity has specifically designed this model to also tackle the challenge of **mixed Municipal Solid Waste (MSW)** in cities with populations ranging from 0.5 to 1 Million, generating up to 500 Tonnes Per Day (TPD) of MSW and aiming to recover 50 TPD of plastic waste. The MSW that comes in to the facility is processed through the best suitable **technology** which gives **higher resource recovery rate** in a **cost effective manner**. The model has the capabilities to segregate the waste into multiple different fractions which can become feedstock for valorisation streams like **recycling, Alternate Fuel Recovery (AFR) and pyrolysis oil**.



ParikraM ensuring a climate-safe waste ecosystem

Building MRFs under ParikraM is combating climate change through:

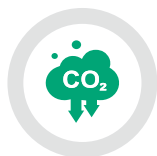
1. Plastic Waste Management: These MRFs provide an organized and centralized system for collecting, sorting, and processing mixed solid waste. They divert significant amounts of plastic waste from landfills and help prevent plastics from ending up in **natural ecosystems, such as rivers and oceans.**

3. Energy Recovery: MRFs facilitate the recovery of energy from non-recyclable plastics, reducing the reliance on fossil fuels. This helps mitigate climate change by **substituting traditional energy sources and reducing greenhouse gas emissions.**

2. Recycling and Resource Recovery: MRFs sort and segregate different types of plastic waste, allowing for efficient recycling processes. This will help **conserve natural resources and reduce the carbon footprint** associated with plastic production by creating feedstock for recycling.

4. Microplastics Mitigation: MRFs can help mitigate the spread of microplastics by implementing **advanced filtration and separation technologies.** These technologies can capture and remove microplastics from waste water, preventing their release into the environment.

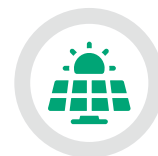
ParikraM's MRFs designed to play a critical role in climate action



Low-carbon Building



Water-efficient Building



Solar panel integration



Energy-efficient Building



Indian Green Building Council (IGBC) Compliant Facility



20% reduction in energy consumption

2023 onwards

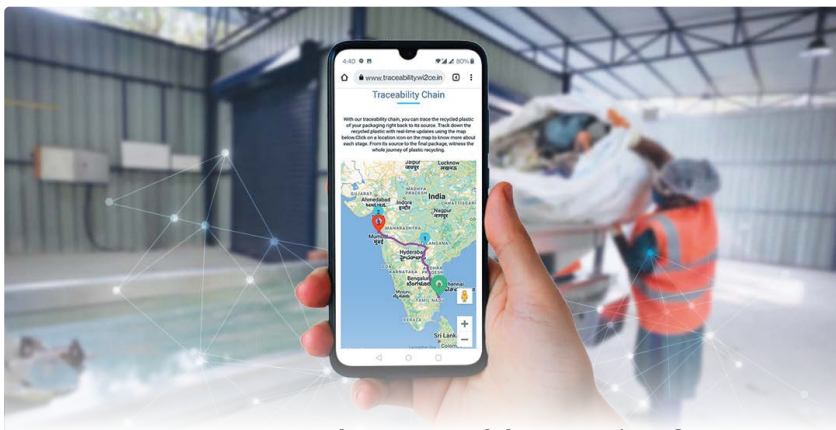
ParikraM's Impact: An intersectional journey over the next decade



Circularity of **120,000+ MTs** of hard-to-recycle plastics through **ethical sourcing**



Formalized employment by providing inclusive occupational benefits



Automated & traceable supply of waste enabling transparency



Revenue-generating, profitable and sustainable business model of Material Recovery Facilities

Scalability of the model

This model is designed as a **cost-effective plug-&-play**. With its success in solving the **mixed municipal waste problem** along with the **mismanaged plastic waste** in the city, the potential for global replication becomes evident. The model has the potential to be customized to suit the unique needs and characteristics of varied cities. Cities that are beginning to segregate can immediately **reduce their dependency on landfills**. This can further allow bandwidth to the city administrations to improve source segregation to accelerate circular economy of plastics.

The metrics of cities per ton and plastic recovered become crucial factors in assessing the potential for replication. With the right implementation strategies and tailored adaptations, this model set by ParikraM has the capability to revolutionize waste management practices **globally, promoting sustainable practices and driving a climate-safe circular economy!**

This model provides unique solutions for multiple ecosystem players, such as -

- 1) **For a funder** looking to conserve oceans, riverine and forest biodiversity, ParikraM enables an efficient and automated waste processing infrastructure in cities.
- 2) **For an Urban Local Body** aiming to segregate waste, ParikraM enables a sustainable and cost-effective model
- 3) **For a chemical & mechanical recycler**, ParikraM enables consistent feedstock for recycling.



Thank You



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