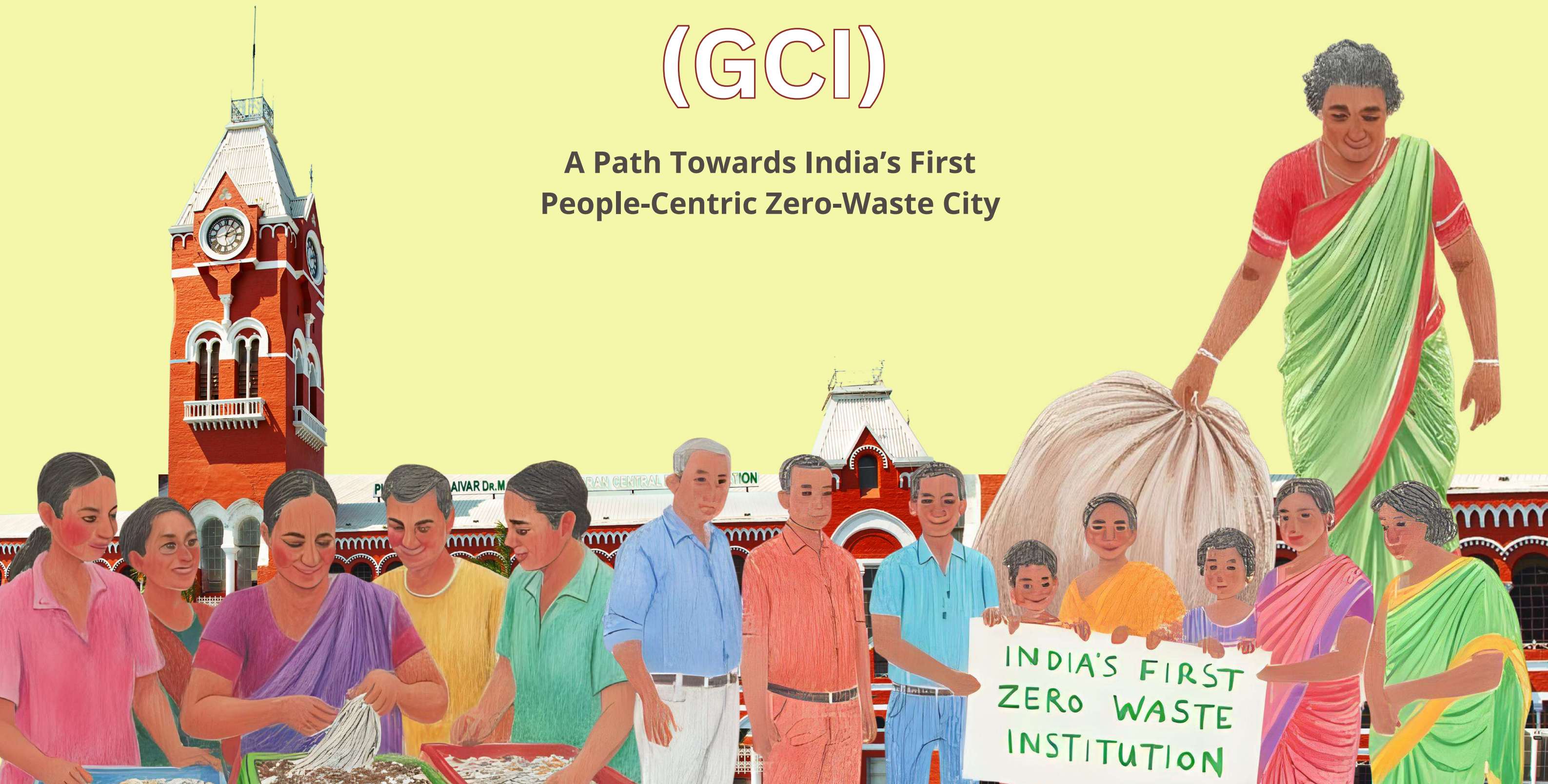


Green Chennai Initiative (GCI)

A Path Towards India's First
People-Centric Zero-Waste City



A Proposal by Federation for North Chennai Residents Welfare Association

Green Chennai Initiative (GCI)

A Path Towards India's First
People-Centric Zero-Waste City

Contents

1

Section 1: The Proposal



2

Section 2: The Roadmap



3

Section 3: The Dangers



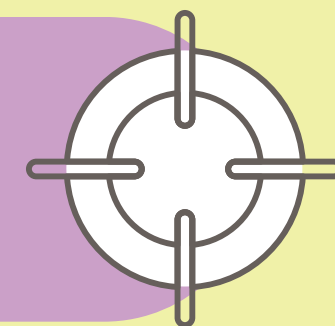
4

Section 4: A New Chapter



5

Section 5: Global Leader



Section 1: The Proposal



“Zeroing In” on “Zero Waste”

1

Zero waste is both a goal and a plan of action. The goal is to ensure resource recovery and protect scarce natural resources by **ending waste disposal in incinerators, dumps, and landfills etc.**



2

The plan encompasses **waste reduction, composting, recycling, reuse, changes in consumption habits, and product redesign.**



3

It is a revolution in the relationship **between waste and people. It is a new way of thinking** that aims to **safeguard the health** and improve the **lives of everyone who produces, handles, works with, or is affected by waste—** in other words, all of us.



Comprehensive Green Chennai Initiative Roadmap



- 1 Zero waste goes *beyond recycling programs and prioritizes the redesign of products*. If it cannot be reused, composted, or recycled, it just should not be produced in the first place!



- 2 Separate collection of waste into “Red, Green and Blue” bins followed by *decentralised processing of organics* is the key to complement the recycling efforts which ensures a stream of clean, high-quality material which in turn enables the *creation of useful products* (compost and biogas) from the largest fraction of municipal waste and also improves the dry waste recycling rate.



- 3 Non-recyclable or *non-biodegradable waste has no place* in the “zero waste” plan and should be *phased out* from production rapidly.



Characteristics of MSW in Chennai

MSW
(Municipal solid waste)
in Chennai
7,600 TPD¹

Biodegradable waste
(5,160 TPD)
68%²



Kitchen Waste



Garden Waste



Soiled Paper



House Sweeping Dust



Coconut Shells etc.

Non-biodegradable
waste (2,280 TPD)
30%



Paper



Glass



Metal Objects



Plastic



Rubber etc.

Domestic hazardous
waste & E-waste
(160 TPD)
2%³



Paint Drums



Pesticide
Cans



CFL/LED bulbs



Used Batteries



Used Needles & Syringes etc

Sector-wise Breakdown

of Waste Generators

- Roughly **68% or about 5,160 tons of garbage** produced in Chennai is from residential areas, including individual homes and apartment complexes. ⁴

- This is followed by **16% or 1,200 tons** of waste from commercial establishments, such as malls, bus stands, markets, and amma canteens, as well as **1,060 tons (14%)** of waste from educational institutions, marriage halls, and **2% (151 tons)** of waste from industries. ⁴



68%
5,160 tons

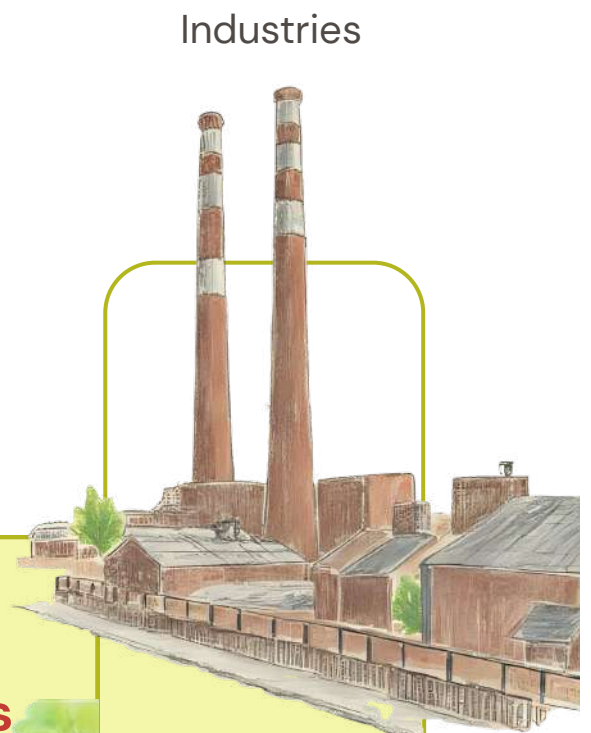
Residential areas, including individual homes & apartment complexes.



Commercial establishments such as malls, bus stands, markets, and amma canteens.



Educational institutions, and marriage halls



2%
151 tons

Sector-wise Waste Management

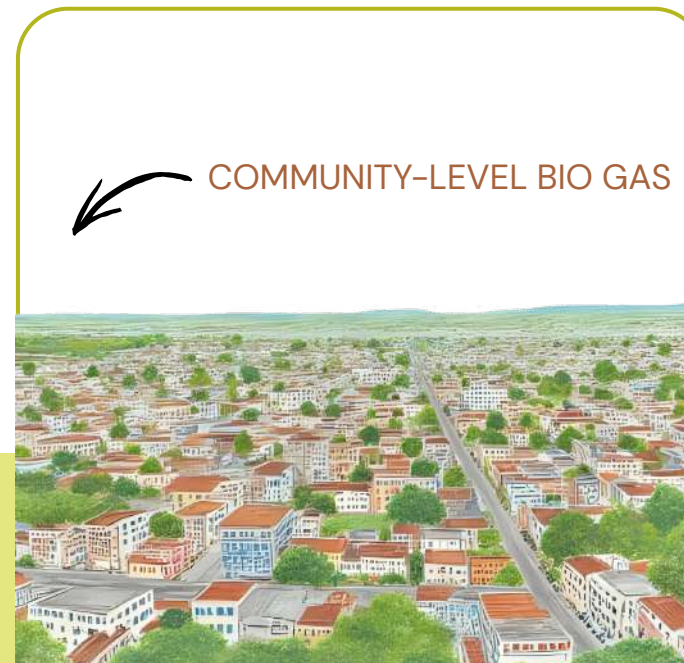
- Zero waste relies on using such *micro-level data for strong community action* to *determine the type of waste management programs* for each of these sectors.

1 RESIDENTIAL



It begins with **residents** actively **participating in the programs** and the government facilitating it with **policy incentives** and **subsidies** for consuming sustainably, minimizing waste, separating discards, and composting at home.

2 COMMUNITY/STREET WARD



This is followed by composting and biogas production at the community/street/ward level.

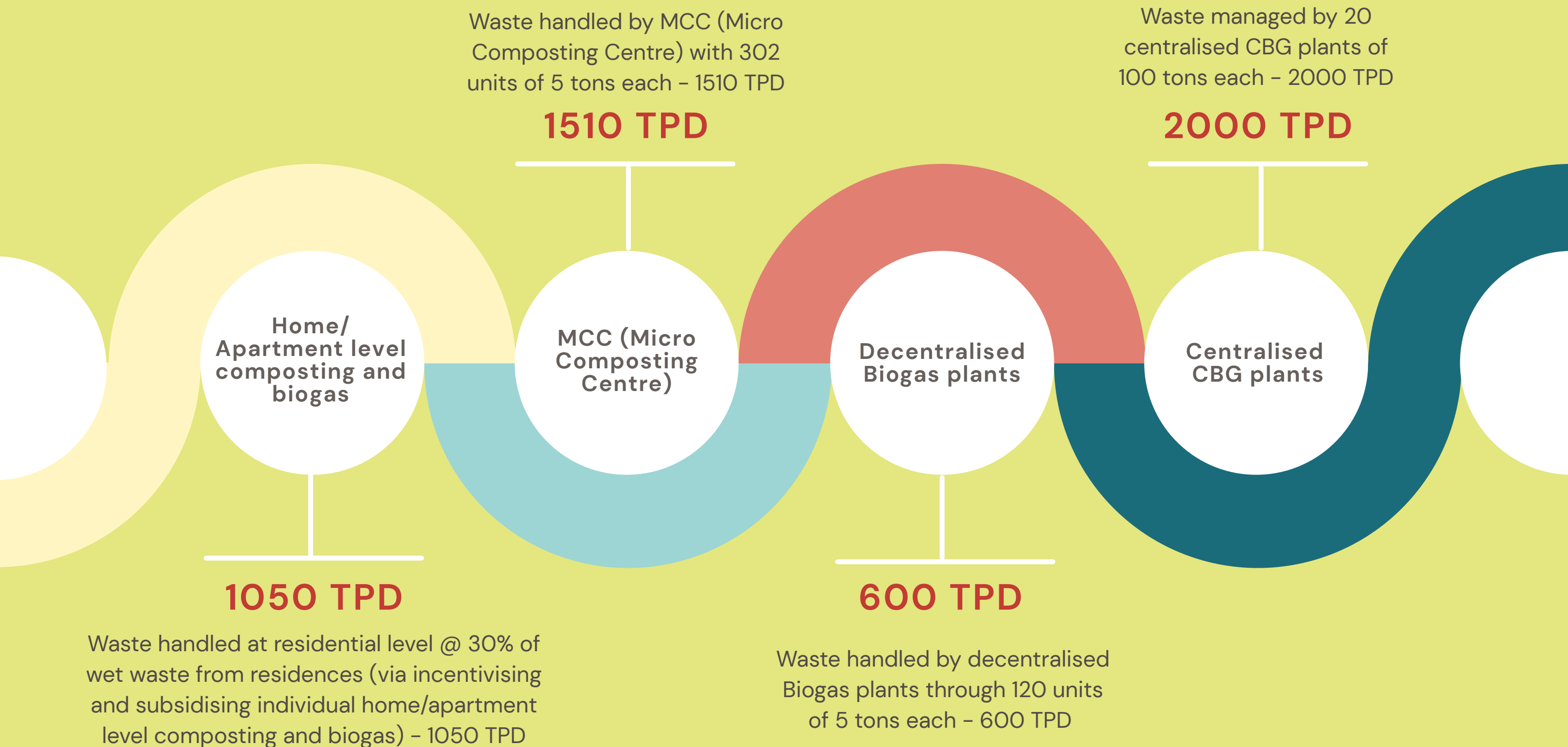
3 HOTELS, HOSPITALS, & FUNCTION HALLS



Followed by larger Compressed Biogas Units to process waste from bulk waste generators, such as hotels, hospitals, and function halls.

Wet Waste Management

at the Core of Green Chennai Initiative



Total wet waste managed – 5,160 TPD

Dry Waste Management

- Once the wet waste management is in place, new opportunities for the efficient management of dry waste emerge.

2300 TPD

Dry waste handling at Dry waste collection, sorting and aggregation facilities with forward linkages to recycling centers through 46 units of 50 tons capacity each - 2300 TPD

160 TPD

Domestic hazardous waste handled through 15 hazardous waste management facilities - 160 TPD



Total dry & domestic waste handled -

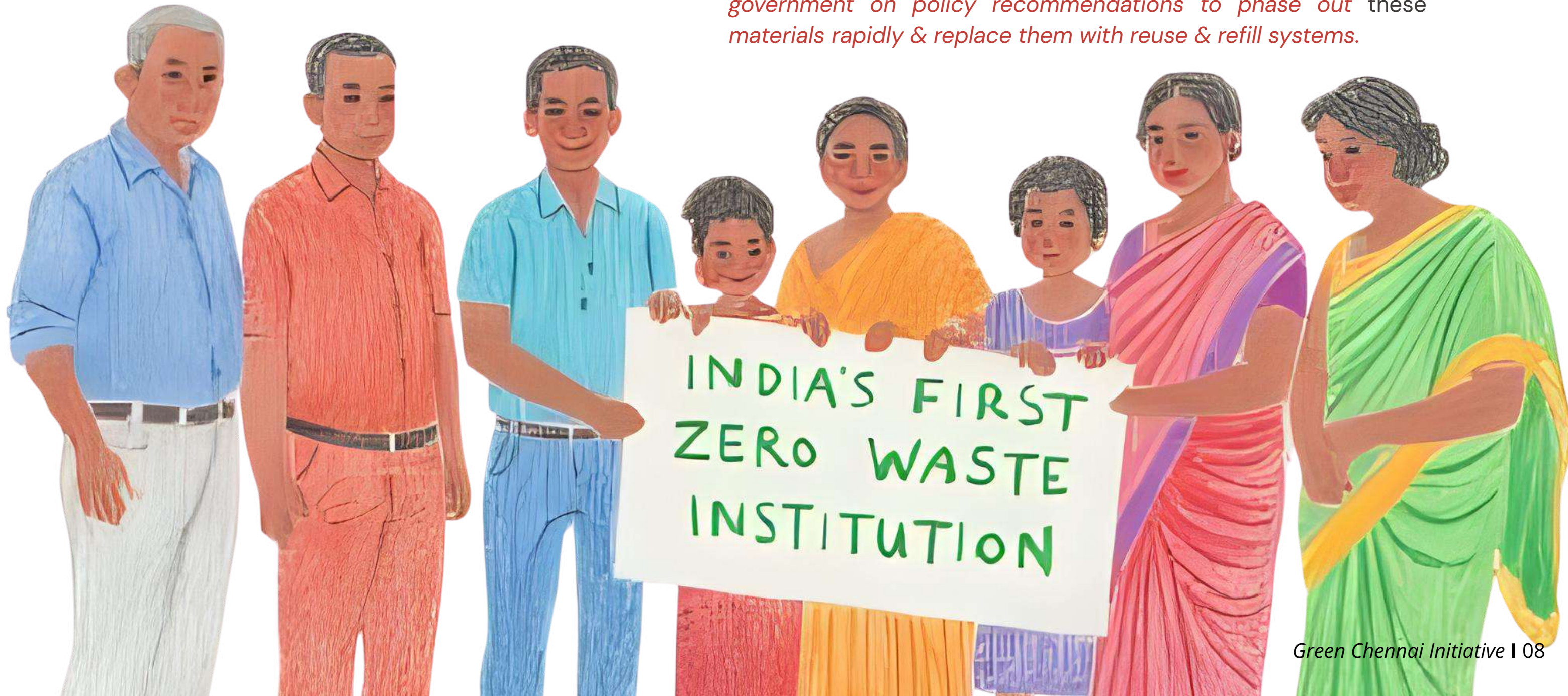
2,460 TPD

"Zero Waste Institute"

- The *residual fraction*—that which is left over because it is either too toxic to be safely recycled or is made out of non-recyclable materials—becomes evident, and *product design mistakes and inefficiencies can be studied and corrected.*

Chennai can show leadership in the establishment of "*Zero Waste Institutes (ZWI)*" that produce research and policies to push businesses and manufacturers to sustainable production processes.

- For example, Materials such as single-use paper cups lined with plastics & the Multi Layered Plastics (to name a few) need to be phased out, & the *ZWI will provide feedback to the industry & the government on policy recommendations to phase out these materials rapidly & replace them with reuse & refill systems.*



Green Jobs & Startups Potential

WET WASTE MANAGEMENT

Job created per MCC unit	8	Total jobs created with 1050 TPD wet waste at residential level	2,100
Total jobs created by 302 MCC centres	2,416	Min no. of Green Startups created	70
Min no. of Green Startups created	100	Jobs created per CBG centre	20
Job created per biogas plant	5	Total jobs created by 20 CBG plants	400
Total jobs created by 120 biogas plants	600	No of Green Startups created	20
Min no. of Green Startups created	40	Min no total new jobs created in wet waste management	5,516
Job created per ton of waste managed at residential level	2	Total no of Green Startups in wet waste management	230

DRY WASTE MANAGEMENT

Job created per MRF facility	15	Jobs created by 15 hazardous waste management facilities	150
Jobs created by 46 MRF facilities	690	No of Green Startups created	10
No of Green Startups created	46	Total new jobs from dry waste	840
Jobs created per hazardous waste management facility	10	Total new start-ups from dry waste	56

Total jobs created by Chennai's ZWI: **6,356**

Total new startups created by Chennai's ZWI: **286**

Other Key Benefits of

GCI Model

1 CLIMATE

1.3 tons of CO2

offset/year and equivalent generation of carbon credits1 (via avoidance)⁵

2 ORGANIC MANURE PRODUCTION

3,39,012

tons of organic manure/year⁶

3 WASTE REDUCTION

Per capita waste reduction of at least

15%⁷

4 DIRECT BENEFITS FOR

2 million people

and overall improvement of⁸ public health for all Chennaites.

5 SAVINGS

Saving 1,000–1,400 rupees per ton of waste handled, translating to a savings of

277–388

crore rupees per year for the GCC⁹



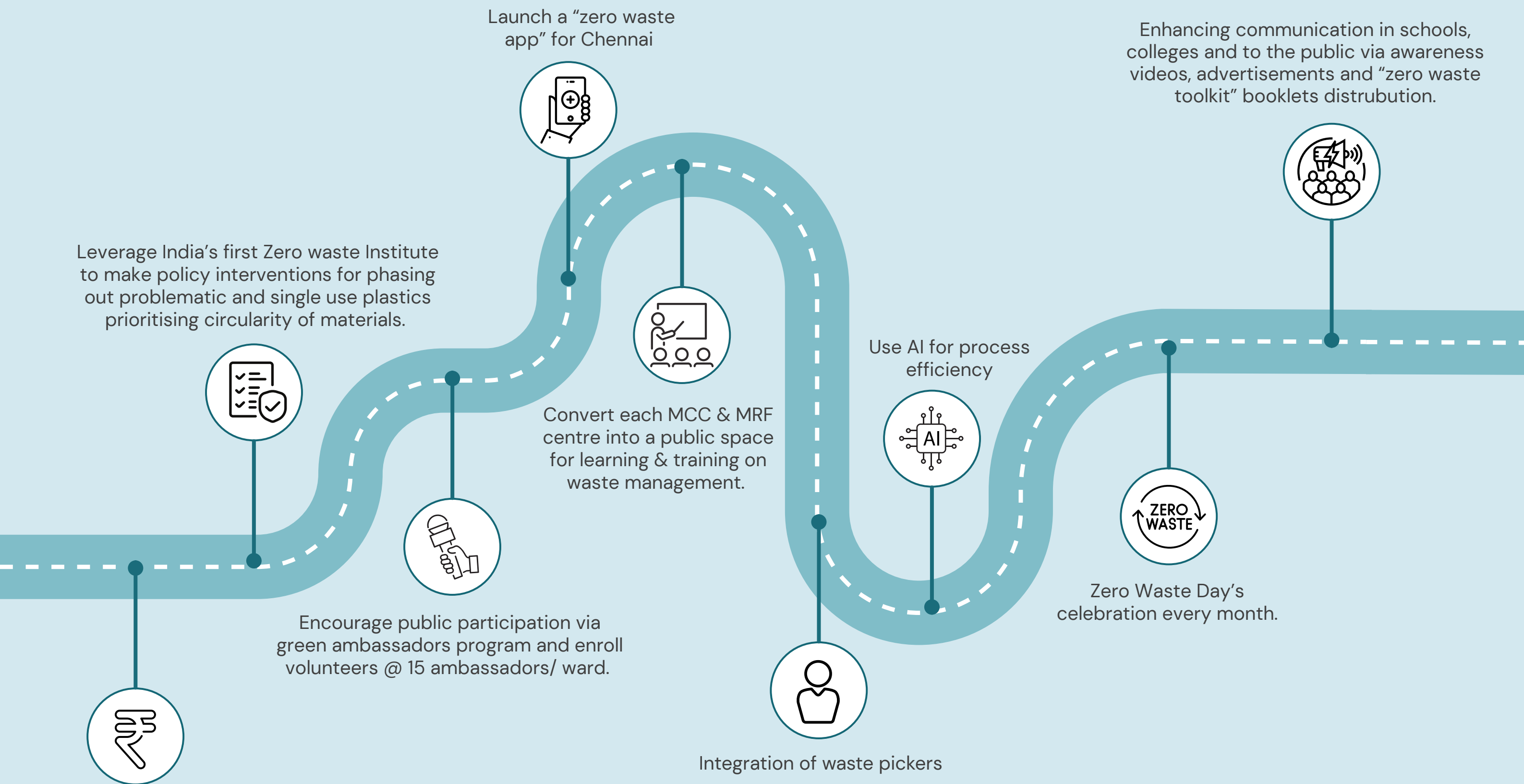
Section 2: The Roadmap



Green Chennai Initiative Principles Fulfilled



India's first Zero Waste City



Tap the funding from EPR, CSR, and various central government schemes such as SWM, Smart cities Mission etc.

Section 3: The Dangers of WTE



Why No to WTE?

- 1 They pollute air, water, and soil by **releasing SO_x, NO_x, PM 2.5, PM 10, HCL, heavy metals, dioxins, furans, etc.**
- 2 Waste burning is primarily responsible for **high PM2.5 chloride** and subsequent haze and fog formation, impacting AQI in Delhi.
- 3 **Health Impacts:** The health impacts of WTE incineration include respiratory problems, asthma, headaches, skin ailments, cancer, & the particular vulnerability of children & the pregnant womb.
- 4 The four WTE incineration plants in Delhi emit CO₂ equivalent to the emissions from approximately **30 lakh passenger cars**. The climate action plans of major cities in India, including Chennai and Mumbai, have clearly recommended against WTE incineration.
- 5 The proposed WTE in Kodungaiyur falls in **an identified wetland** with over 52 species of documented birds.
- 6 Creates a **“lock-in” period of 25 years**, making waste reduction and minimisation goals impossible.



Economic, Legal and Operational Challenges¹¹



Operational Inefficiency: CSIR-NEERI report submitted to the National Green Tribunal (NGT) points out that high moisture content and low calorific value are unsuitable for mass incineration



Economic Burden: the highest setup cost and operational cost compared to any other waste management system for the corporation. Also, it is the costliest electricity generated.



Legal Violations: CPCB, NEERI, NYT – Emission and permit violations.



Compliance Failures: CPCB 2025 – None of the existing 21 WTE plants in India comply with the emission parameters of CPCB. (Including Hyderabad and Delhi WTEs)

Global Rejection¹²

1

Livelihood Disruption: the least job creation and 40 times fewer jobs compared to the “zero waste” program



2

Urban Heat Islands: WTEs create urban heat islands due to the emissions of heat and chemical fumes, exacerbating heat waves.



3

Global Rejection: No new WTE has been built in the US since 1995, and more than half of the WTEs shut down in the last 30 years. All the subsidies and funding for WTEs stopped in the EU because of pollution and climate concerns.



Section 4: A New Chapter



Kodungaiyur- India's First Just Transition Model

in waste management sector

Post-biomining, we propose the following two plans to be established in that dumping ground:

A **multidisciplinary learning center** that includes spaces for a massive library with at least 30,000 books, competitive exam preparation halls, a computer training center, etc.



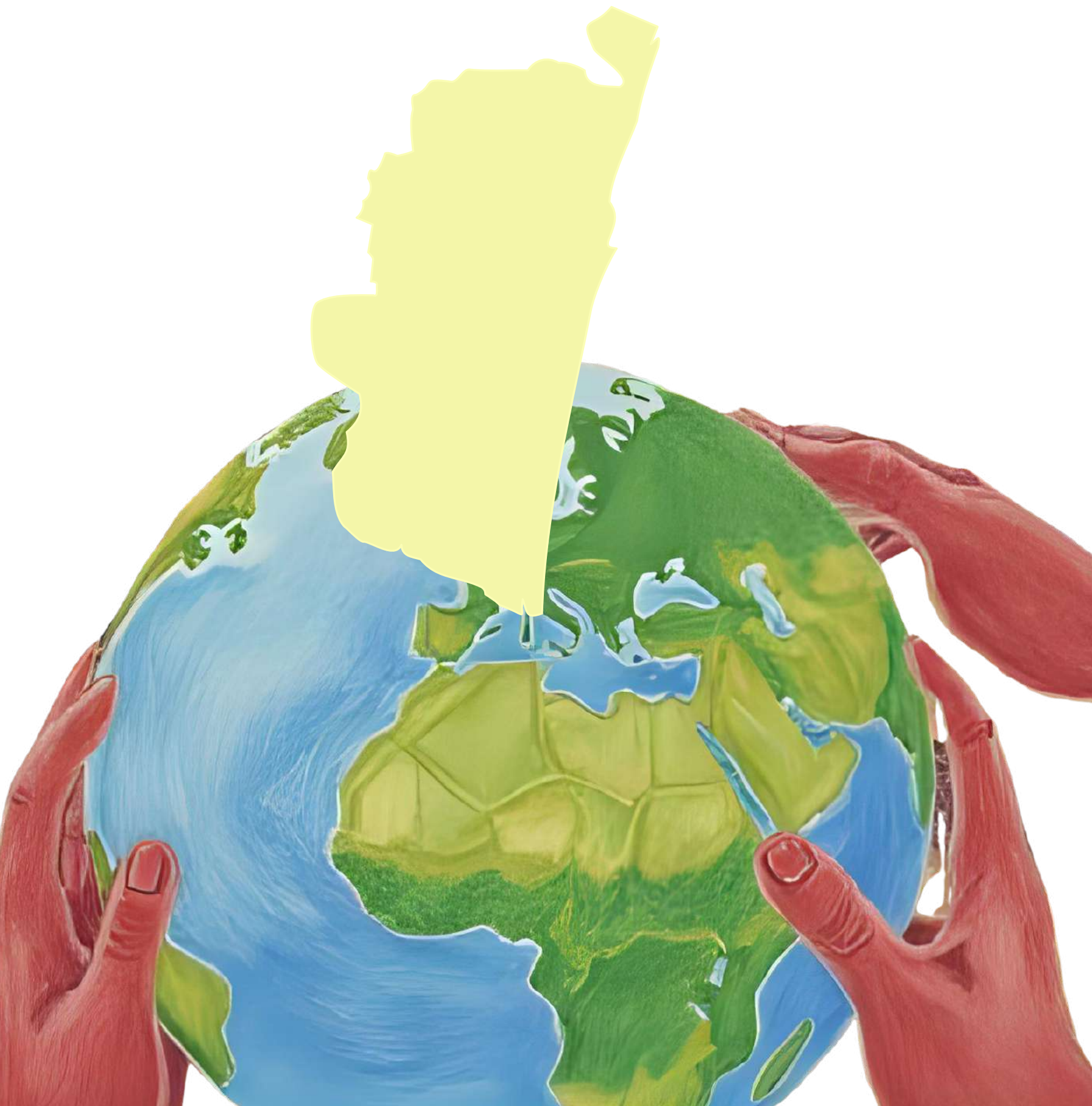
An **Eco-park** with an exclusive bird-watching site.



Section 5- Global Leader



Becoming a Global Leader



This initiative is derived from various proven and successful waste management models, and GCI possesses a national and international scope for replication and emulation.



This initiative aims to take the Greater Chennai Corporation to be one of the pioneers in the global waste management landscape and create a pathway for countries to learn lessons from the GCC.



Similarly, while the GCI aims to attain a net-zero in waste management, the proposed WTE will be a “lock-in” of capital investments for the next 25 years and make waste reduction and minimisation goals impossible.

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