

SulabhEIACP

SPECIAL PUBLICATION
ON

TOWARDS A ZERO WASTE SUSTAINABLE
LIFESTYLES FOR A GREENER FUTURE

Reduce

Use Less, Waste Less
Say No to Plastic Bottles

Reuse

One Item, Many Uses

Recycle

Recycle it all,
No matter how small !



LIFE
Lifestyle for
Environment





Overview:

Zero Waste is a proactive whole-systems framework designed to redesign resource lifecycles so that products and materials remain in use, not in landfills or incinerators. According to the Zero Waste International Alliance (ZWIA), it “conserves all resources through responsible production, consumption, reuse, and recovery... without burning and with no discharges to land, water,



or air that threaten the environment or human health”

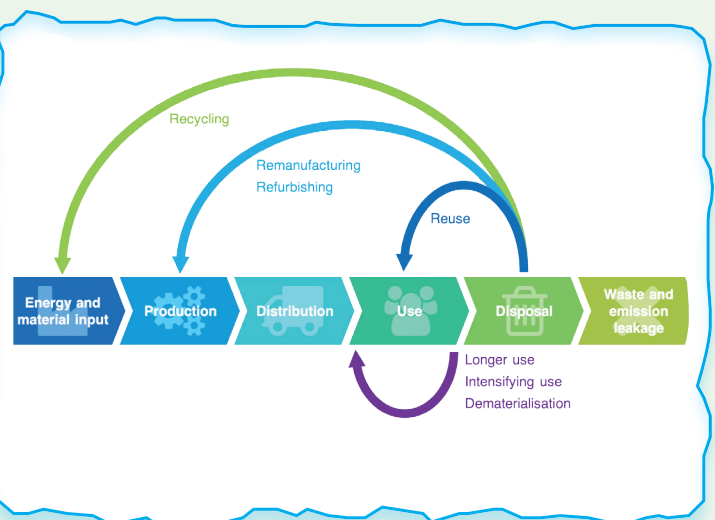
At its core lie the 5Rs—Refuse, Reduce, Reuse, Recycle, and Rot (compost)—formulating a smart hierarchy that prioritizes avoidance and design over disposal. Unlike traditional waste-management systems, Zero Waste emphasizes upstream change: designing out waste in production and packaging so recycling becomes a last resort.

Global definitions converge on a circular economy model—an industrial metabolism that closes loops—supported by policies like Extended Producer Responsibility and community engagement. Such systems foster local infrastructure, green jobs, and reduced emissions—potentially cutting waste-sector emissions by over 80%.

Examples abound: Kamikatsu (Japan) achieves high reuse through rigorous sorting, and cities like Oakland, CA, employ closed-loop local strategies. True Zero Waste isn’t a utopia but an ambitious, actionable strategy—ideally diverting 90% of waste—with continuous improvement rather than total perfection as the goal.

Vision of zero waste in India

The “Zero Waste Vision” in India aspires to transform how society views waste—from a burden to a resource. It aligns with circular economy principles like Reduce, Reuse, Recycle, ensuring





materials are kept in productive use as long as possible. India’s Zero Waste Society emphasizes eliminating landfills and incineration through community education, sustainable packaging, and innovative reuse technologies. Rooted in global Zero Waste philosophy, this vision calls for redesigning resource life cycles so nothing is discarded unless absolutely necessary.

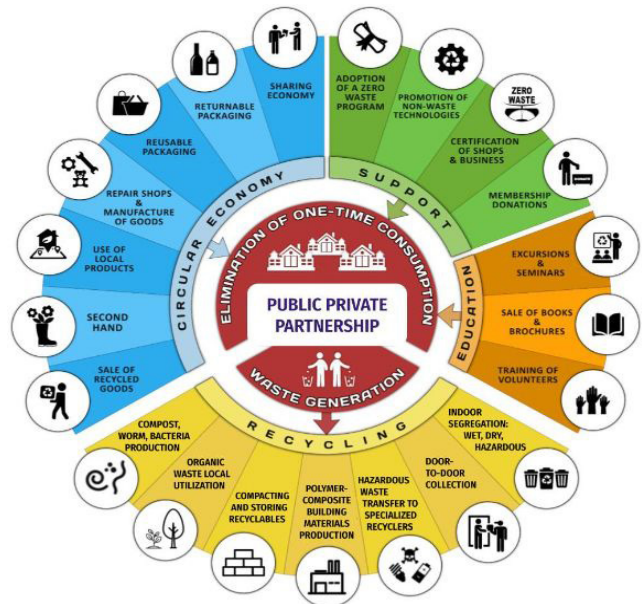
On the ground, non-profits like Thanal advocate decentralized waste systems built on ethics, efficiency, economics, and community engagement. Enterprises such as Saahas Zero Waste empower informal workers and deploy scalable models—aiming to manage over 500 tonnes of waste daily by 2026. Supported by government missions like Swachh Bharat, which enforce source segregation and waste-processing policies, India’s zero-waste initiative weaves together regulation, grassroots action, and enterprise to build a greener, cleaner future.

Zero Waste Matters for India

India generates nearly 62 million tonnes of municipal solid waste annually, yet only about 22– 28% is properly processed—leaving vast amounts dumped, burned, or leaking into rivers and landfills. Zero Waste matters profoundly for India across three key domains:

Environmental Impact

Unchecked waste degrades air, water, and soil. Organic waste emits methane, a potent greenhouse gas, while



plastic and e-waste pollute waterways and harm biodiversity. Transitioning to organic waste treatment and mechanical recycling could dramatically reduce emissions and ecological harm.

Economic Benefits

Implementing circular economy models unlocks economic gains—by 2030, India’s circular strategy could add US \$218 billion annually. Beyond savings on landfill costs, local recycling and composting initiatives, like Pune’s progressive waste-picker partnerships,



reduce municipal expenses and boost municipal performance.

Social Empowerment

The informal sector, comprising over 1.5 million waste workers, often faces unsafe conditions with minimal pay. Programs like Saahas Zero Waste formalize and empower this workforce—providing protective gear, fair wages, and social security, while diverting hundreds of tonnes of waste daily.

Community-driven efforts—from menstrual waste management in Dakshina Kannada to plate-bank schemes in IEST Shibpur—underscore how zero-waste solutions improve lives and foster equity.

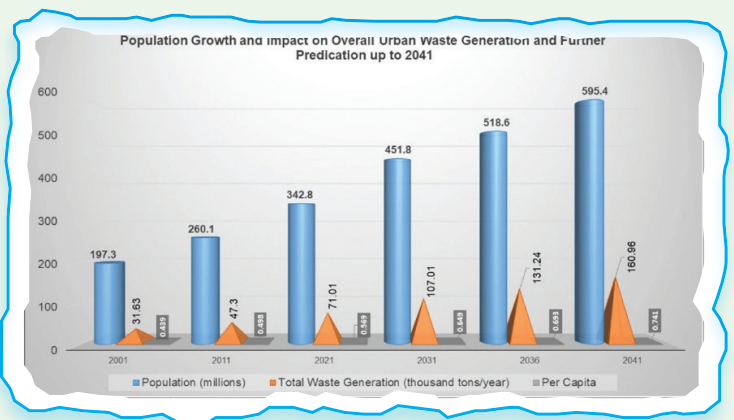
In summary, Zero Waste in India isn't just environmental policy—it's a strategy that marries ecological resilience, economic vitality, and social justice, steering the nation toward healthier, more sustainable futures.

Waste Footprint of the Indian Consumer – Urban vs Rural Perspectives

India's waste footprint varies significantly between urban and rural contexts, driven by consumption patterns, infrastructure, and demographics. Urban residents generate approximately 0.62 kg of municipal solid waste daily—equivalent to 120,000 tonnes each day nationally—while in

rural areas per capita waste is around 0.17 kg/day. This stark contrast stems from denser populations, higher incomes, and elevated consumption of packaged goods in cities.

Urban zones, though benefiting from around 77% waste collection coverage, still leave much untreated—only 19–20% reaches proper treatment facilities. Consequently, organic waste decomposes in landfills releasing



methane, while plastics and e-waste contaminate soil and water—India alone generates ~2 million tonnes of e-waste annually, mainly in cities.

Rural India, though producing less per person, faces significant challenges due to loose infrastructure. Only ~40% of rural waste is collected; much ends up open-burned, improperly buried, or scattered—especially single-use plastics, sachets, and sanitary products—posing environmental and health hazards.

Closing this urban–rural gap calls for targeted strategies: enhancing rural collection systems and decentralized treatment, plus improving source segregation and recycling in cities.



In Odisha alone, the circular economy could create ~1 million jobs by 2030.

Keys to Scaling

| Factor | Impact |
|----------------------------|-----------------------------------------------------------|
| Formal recognition & PPE | Improves health, equity, wages |
| Skill development | Enables new value chains (textiles, MLP) |
| Public-private partnership | Integrates pickers into municipal delivery |
| Social enterprise models | Offer dignified roles, e.g., flowercycling, platform tech |

Government Policies Driving the Zero Waste Agenda

India's zero-waste ambition is propelled by multiple government initiatives:

In Swachh Bharat Mission (SBM) – Phase II (2020–26)

builds on sanitation work by focusing on solid and liquid waste across rural and urban India. It promotes segregation, composting, Material Recovery Facilities

(MRFs), and plastic waste management units, with billions allocated to rural and urban regions.

Mission LIFE (Lifestyle for Environment) encourages citizens to adopt sustainable habits— minimalism, waste reduction, and circular consumption—transforming individual lifestyle choices into national action fostering zero-waste mindsets.

Extended Producer Responsibility (EPR) under the Plastic Waste Management (PWM) Rules (2016, amended 2018, 2022, 2024) makes manufacturers, importers, and brand owners accountable for collecting and recycling packaging waste. Centralized EPR portal hosts 20,000+ entities, targeting 3 million t of waste, with tradable EPR certificates and strict enforcement with penalties.



ZWC Aligns With The Life Mission





Plastic Waste Management (PWM) Rules (2022 & 2024) phase-out harmful packaging, mandate segregation and minimum thickness for bags, register importers, and include compostable plastics. Quarterly reporting and engagement with local bodies are enforced.

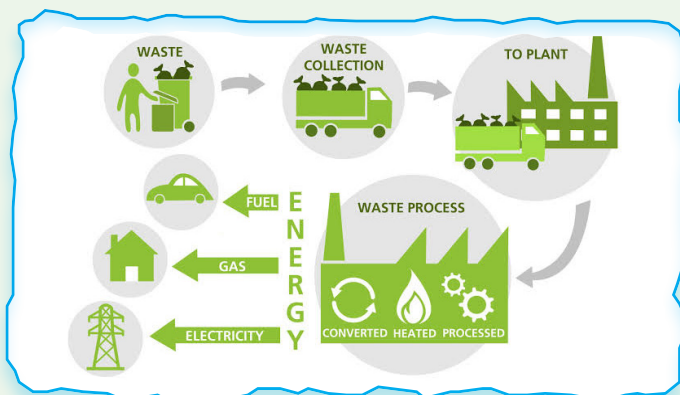
Together, these components—policy, producer duty, local implementation, and citizen behavior—create a multi-pronged framework driving India toward a robust zero-waste future.

Role of Urban Local Bodies and Panchayats in Solid Waste Management

Urban Local Bodies (Municipalities, Corporations)

Planning & Implementation: ULBs must devise city-specific SWM plans—covering door-to-door collection, segregation, storage, transport, processing, and scientific disposal—within six months.

- **Capacity Building:** They train sanitation staff, sweepers, and informal workers (e.g. waste-pickers) in SWM best practices.



- **Infrastructure & Partnerships:** ULBs deploy Material Recovery Facilities, decentralized composting units, MRFs, and even SWM public-private partnerships (e.g., Pune's SWaCH model)
- **Community Engagement:** Through bylaws, spot fines, and awareness programs, ULBs encourage source segregation and civic participation.

Gram Panchayats (Rural Local Bodies)

- **Rural SWM Mandate:** Under Swachh Bharat Mission-Gramin and state amendments (e.g., Tamil Nadu Act), panchayats are legally responsible for "scientific" collection, segregation, transport, and disposal of village waste.
- **Local Infrastructure:** Panchayats develop waste collection points, Material Recovery & Processing Centers, composting/vermicomposting units, and incinerators for sanitary/hazardous waste.
- **Self-Help Group (SHG) Involvement:** Women-led SHGs are mobilized for collection, segregation, composting, and fee collection—earning income and ensuring local accountability.
- **Urban-Rural Linkages:** Some states link panchayats to nearby ULBs' processing facilities—for sludge, plastic waste, and MRFs—to leverage existing infrastructure.





Zero Waste Homes and Communities

India is witnessing a rise in zero-waste homes and communities, where households and residential complexes adopt systemic strategies to eliminate landfill-bound waste.



Household-level Zero Waste

- Shilpa & Nithin (Bengaluru) turned home-organic scraps into compost, growing 50+ vegetable varieties on their terrace and cutting food waste drastically
- In Bengaluru, many residents practice segregation, terrace gardening, DIY composting—even during lockdown—championing a low-waste lifestyle.

Zero-Waste Residential Societies

- Mahindra Eminent in Mumbai segregates daily waste into organic, dry, and biomedical fractions. Compost is used onsite; recyclables

are handed to NGOs—keeping 90% of waste off landfills.

- Delhi-NCR townships like Nirvana Country and Vipul Greens have installed composting facilities, banned single-use plastics, and fund programs employing rag-pickers for segregation.
- Green Terraces (Mumbai) and Eco Habitat (Chennai) reported 90–95% organic waste diversion via in-house composting and greywater reuse systems

Eco-friendly Architectural Projects

- Kachra Mane in Bengaluru repurposed up to 80% of materials from demolition sites, fitted solar panels, rainwater harvesting, and greywater recycling—setting a benchmark in circular design.
- Architect firms like L&Y integrate reclaimed teak, old beams, bamboocrete, rainwater harvesting, and smart waste-management systems.

Community-Centric Village Models

- Rural examples like Aandhi (Rajasthan) and Chhota Narena showcase biogas plants, wetlands and composting systems in village setups.
- Ambikapur (Chhattisgarh) achieved 90% waste segregation and zero landfill status through door-to-door collection by women-led SHGs and decentralized composting



Zero Waste in Schools & Colleges—Building Awareness & Habits

Zero-waste initiatives in schools and colleges are shaping a generation that values sustainability through hands-on learning and behavior change.

School-Level Innovations

- Bhubaneswar government schools implement color-coded bins for wet, dry, and e-waste, ban plastic bottles, and teach students to compost fruit peels and repurpose festival waste into incense and art
- In Delhi, Rise Foundation has introduced cage-composter workshops for government school students, turning horticulture and food scraps into compost while linking climate education to action.
- Linden Montessori, Bengaluru, hosted zero-waste annual events, requiring BYO tiffins, avoiding single-use decorations, and using steel cups and biodegradable plates

College-Driven Campaigns

- Youth clubs in Ahmedabad schools avoid plastic pens and make eco-bricks from discarded bottles, fostering creative reuse
- PESIT and Mount Carmel College in Bengaluru held zero-waste festivals, banning plastics and monitoring compliance
- Khalsa College for Women (Amritsar) and Vivekanand Education Society (Mumbai) adopted segregation,

composting, and recycling—VES diverts all 100 kg/day of its campus waste.

Institutional Support & Programs

Initiatives like BBMP's Zero Waste Campus mandate segregation, composting, and plastic bans; schools like Cambridge Institute and Government PU College, Yelahanka, achieved over 98% landfill diversion and engaged 3,000+ students National eco-efforts via the National Green Corps empower 120,000 school eco-clubs to manage waste and build environmental leadership. By combining practical composting, bans on single-use plastics, zero-waste events, and student-led eco-clubs, educational institutions in India are cultivating lifelong habits and nurturing environmental guardianship in the next generation.

Disposable to Reusable:

Indian consumers are increasingly replacing single-use items with durable alternatives. Reusable bamboo cutlery, cloth grocery bags, safety razors, menstrual cups, and stainless-steel bottles are now mainstream—available even at bulk stores





practicing BYOC (“bring your own container”) policy. Brands like Ecoindian, Ecoposro, and Adrish have popularized refillable, package-free products, fostering mindful purchase habits and reducing plastic dependency

Food Waste Reduction & Composting at Source

Composting at home and community levels is gaining momentum. Startups like Daily Dump from Bengaluru provide composters, workshops, and community outreach, enabling thousands to transform kitchen leftovers into nutrient-



rich soil Low-tech solutions — like bamboo-basket composting — are becoming common in Indian flats, accommodating limited spaces and warm climates. Communities such as Mumbai’s Green Acres Society built on-site composting units, dramatically reducing landfill-bound organic waste and enriching communal gardens.

Indigenous Knowledge and Traditional Practices Supporting Zero Waste

Indigenous communities across India preserve centuries-old wisdom that supports zero-waste living, rooted in respect for nature and resourcefulness:

1. Natural Utensils & Plates

Tribes like the Saora and Kondh in Odisha craft leaf-plates from Sal leaves (“thonnai”), while Naga tribes fashion bamboo cups and bowls biodegradable, reusable, and free from modern plastics.



2. Sustainable harvesting

Sustainable harvesting is the practice of collecting natural resources in a way that does not deplete or permanently



damage them, allowing ecosystems to regenerate. Tribes such as the Gonds, Santhals, and Bhil understand the





zoological park, composting and segregating all its 500 kg/day waste onsite disposal.

Ambikapur, Chhattisgarh

- Women-led decentralization: Since 2015, 470 “Swachhta Didis” collect from households daily; 90% of 50 TPD waste is segregated into >100 categories and sold as recyclables—10% used as fuel by cement factories Economic & health gains: Monthly revenues reach ₹9–10 lakh from recycled materials, alongside reduced stray animal issues and vector-borne diseases Landfill reform: A 15-acre dump

transformed into a botanical park; zero landfill status maintained—earning consistent top cleanliness titles Community initiatives: “Garbage cafe” exchanges plastic for meals, reinforcing public participation in waste segregation .

Panaji, Goa

- While not as extensively documented as Indore and Ambikapur, Panaji has embraced source segregation, ban on single-use plastics, and community composting— supported by ULB initiatives under the Swachh Bharat framework.

| Principle | Explanation |
|---------------------------------------|----------------------------------------------------------------------------------------------------------|
| Decentralized & Segregated Collection | Daily doorstep pickup by trained personnel ensures source segregation and accountability. |
| Local Processing | Composting, biogas, and material recovery facilities reduce transport costs and landfill dependency. |
| Inclusive Economy | Involving vulnerable groups—women, informal waste workers—empowers communities and provides livelihoods. |
| Civic Engagement | Visible public campaigns, enforcement, and pride in cleanliness drive sustained behavioral change. |
| Transformative Use of Landfills | Converting dumps into parks underscores a shift from waste dumps to green assets. |



International Cities on the Zero Waste Path

1. Kamikatsu, Japan

A pioneer town with a Zero Waste Centre where residents sort waste into 45 categories, reuse what's possible, and landfill only diapers or sanitary items. It recovers about 80% of its waste, far exceeding Japan's average 20% recycling rate

2. Capannori, Italy

Europe's first Zero Waste municipality, Capannori introduced Pay-As-You-Throw, door-to-door collection, and strong community outreach. This led to 90% source separation, €2 million saved (2009), and inspired wider European adoption

3. San Francisco, USA

Striving for zero landfill by 2030, the city mandates recycling, composting, and three-stream bin design. Education and infrastructural investment helped achieve 77% diversion, with continued progress above 80%.

4. Singapore

In housing estates like Yuhua, the Pneumatic Waste Conveyance System transports waste via underground vacuum pipes to central points, improving hygiene, reducing vehicle traffic, and facilitating better sorting.

5. Kiel, Germany:

The first certified Zero Waste City under EU guidelines, Kiel aims to reduce residual waste by 50% and per-person waste by 15% by 2035. Their holistic programme spans households, businesses, schools, and events

Core Takeaways for Zero Waste Cities:

- Stringent segregation (e.g., 45 categories in Kamikatsu)
- Economic incentives, such as pay-as-you-throw and bonuses for recyclables
- Innovative infrastructure, like pneumatic waste systems
- Mandated diversion backed by regulations and design codes
- Community engagement & education as foundations for cultural shift

These cities show that combining policy, tech, design, and public



Why These Lessons Matter

- Waste pickers represent frontline climate warriors—without them, cities would release more emissions and pay more to manage waste .
- Models that formalize, protect, and integrate pickers—like Hasiru Dala and SWaCH— advance social justice and environmental effectiveness.
- Replicable frameworks—community-based segregation, cooperatives, municipal partnerships, gender equity—point the way toward inclusive zero-waste systems globally.

In essence, empowering waste pickers is critical for achieving sustainability goals that are equitable, effective, and enduring.

Building a Zero Waste Mindset: Behaviour Change Strategies

Building a Zero Waste Mindset relies on strategic behaviour-change strategies that move people from awareness to sustainable action:

Simplify & Normalize

Use clear visuals and local language to make waste segregation intuitive. In Mira-Bhayandar, CSBC's "Kitchen & Garden Waste" stickers and WhatsApp reminders boosted participation by making tasks easy and engaging. Earth5R's Powai project installed QR-coded bins and offered easy-to-follow

composting demos—making green habits feel doable.

Use Nudges & Rewards

Positive reinforcement matters. In Arunachal's Sangti, a plastic-for-goods barter system aligned environmental action with tangible gains. Public shout-



outs of early adopters amplified peer influence. Gamified challenges among Mumbai societies—like "Greenest Block"—led to 60 % higher recycling rates when tied to rewards like maintenance discounts.

Education Through Engagement

Programs like Waste No More use interactive storytelling and activities in schools to cultivate zero-waste awareness





in students and families . Zero Waste Citizen aligns with Mission LIFE, leveraging social media, webinars, and case studies to inspire middle-class households.

Community-led Action

In Gandhinagar’s Zero Waste Week, 600+ citizens joined stall events, quizzes, and collection vans—creating collective momentum and pride. Groups like Earth5R train local women for composting and upcycling, fusing livelihood with environmental care .



Keys to Success

- Make it Easy: Simple visuals and clear cues
- Make it Rewarding: Swap waste for goods or discounts
- Make it Social: Use public recognition and peer support
- Make it Continuous: Keep nudges, feedback loops, and community ties

When strategies meet human psychology and cultural nuance, cities move from linear waste to habitual circularity—one household at a time, nation-wide.

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