

Innovative practices in SWM and Wastewater Management for Small and Medium Towns

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- India faces significant challenges in managing its growing volumes of solid waste and wastewater. While waste collection rates are high, gaps in treatment and recycling persist, leading to environmental and public health concerns.
- Addressing these challenges requires innovative, sustainable solutions that enhance efficiency, promote resource recovery, and integrate circular economy principles.

From the data of FY 2021-22,



Source: CPCB Guidelines (2021-2022) and CSIRO



Opportunity Areas For Improvement



- Support **community-based waste management** and **integrate smart technologies** for efficient and optimized systems.
- Implement **source segregation** and invest in **advanced recycling technologies** to maximize resource recovery from waste.
- Expand **treatment capacity with advanced technologies**, prioritizing **water reuse** and efficient sludge management.

Innovative Practices to strengthen Solid Waste Management

- As we've seen, India faces significant challenges in managing its growing volumes of solid waste and wastewater. There is an urgent need for effective and sustainable solutions.
- However, innovative solutions are being implemented across the country, demonstrating the potential for real progress.
- The following examples highlight diverse approaches to addressing these challenges, ranging from community-driven initiatives to cutting-edge technological solutions. They offer valuable lessons and inspiration for scaling up effective practices across India. Let's explore some of these inspiring initiatives:"

NAMAKKAL MUNICIPALITY, TAMIL NADU

Zero Garbage Town with Community Participation

- Implemented D2D collection with segregation at the source
- Manufactures vermi-compost from organic waste
- Sells recyclable waste from inorganic waste
- Maintained public spaces through NGOs & voluntary agencies.

1st First municipality in India to privatize solid waste management

BANGALORE, INDIA

TrashCash is a gamified mobile app that incentivizes waste recycling by offering cashback and rewards for waste collection.

- Users request doorstep waste pickup via the app.
- Waste is weighed, and cashback is credited instantly.
- Gamified elements like scratch cards enhance user engagement

AMBIKAPUR, CHHATTISGARH

Garbage café offers reusable cloth bag in exchange of old plastic waste

- 1 kg of plastic waste provides a full meal, and 500 grams earns a breakfast.
- The cafe's tagline is "More the waste, better the taste."
- Supports the poor and homeless with food and shelter.
- Collected plastic waste used for road construction.

VIRAMGAM & MANSAL, GUJARAT

Usage of solar power to run O&M activities at waste management facilities

- Solar power at SWM sites reduces operational electricity costs.
- Solar energy powers waste treatment, processing & maintenance.
- Partnering with renewable energy providers for setup and upkeep lowers the carbon footprint.

NASIK, MAHARASHTRA

A waste-to-energy plant that converts organic waste into biogas and electricity.

- A biogas plant processes 20 tons of organic waste daily.
- The gas is purified and used for cooking in municipal canteens and generating electricity.
- Partnerships with local farmers ensure compost distribution

60% Reduced organic waste sent to landfills

500kgs biogas produced daily, reducing LPG dependency

KOYAMBEDU WHOLESALE VEGETABLE MARKET, CHENNAI

Waste to Energy from segregated organic vegetable market waste

- The market segregates waste at the source.
- Segregated waste is transported to the plant.
- Waste is digested to produce methane.
- The methane is used to power an engine that generates electricity.

2000 units Electricity generated per Day

Excess electricity fed into the Tamil Nadu Electricity Board grid

Innovative Practices to strengthen Waste-Water Management

BECHARAJI, GUJARAT

Supply treated wastewater from waste treatment plants to the Maruti Suzuki factory for industrial reuse

- Set up advanced wastewater treatment for safe industrial use.
- Developed infrastructure to transport treated water to Maruti Suzuki factory.
- Partnerships with industries ensure efficient wastewater reuse.

KODUNGAIYUR, CHENNAI

Circular Economy: Wastewater Reuse In Industries

- First Indian city to recycle sewage for industrial use.
- Reducing reliance on freshwater.
- Treated water replaced 50 MLD of freshwater in industries.
- 20% of the city's sewage was recycled, easing the water crisis.

SURAT, GUJARAT

Smart STPs with IoT-Based Monitoring

- Real-time monitoring of sewage treatment plants using IoT sensors for automated control, leak detection, and quality monitoring
- Improves operational efficiency
- Data-driven, AI-integrated wastewater treatment for better decision-making and resource optimization.

98% Household connected to the sewage network

40% Treated wastewater is reused

BHAVNAGAR, GUJARAT

Sale of Treated wastewater

- Bhavnagar operates four STPs with a total capacity of 144.2 MLD.
- Sells treated wastewater to industries like GSECL and SUMITOMO Chemical.
- BMC is expanding supply to AMS Fine Chemical and Agrosel Industries

6 cr. annually Approx. revenue generated through sale of treated wastewater

enabled industries to reduce their dependency on fresh water

UJJAIN, MADHYA PRADESH

Eco City Project Sustainable Wastewater Management

- Integrates natural wetlands, rainwater harvesting, and decentralized STPs for holistic wastewater management.
- Improves urban sanitation,
- conserves groundwater resources and promotes wastewater reuse.

LOKTAK LAKE, MANIPUR

Floating Wetlands For Water Purification

- "Largest Freshwater Lake in North-Eastern India."
- Uses floating rafts with wetland plants to absorb pollutants from wastewater.
- Improves water quality in polluted rivers and lakes.
- Low-cost, nature-based water treatment restores urban water bodies.