

The integration of electric vehicles (EVs) into household waste collection marks a transformative step under the Swachh Bharat Mission-Urban (SBM-U)

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In the pursuit of a cleaner and greener India, the integration of electric vehicles (EVs) into household waste collection marks a transformative step under the Swachh Bharat Mission-Urban (SBM-U). These zero-emission vehicles represent the future of sustainable urban sanitation—reducing air and noise pollution while efficiently managing daily waste. By replacing traditional fuel-powered garbage trucks, EVs not only cut down on carbon emissions but also align perfectly with the mission's goal of Garbage Free Cities. This innovative synergy between clean mobility and solid waste management is paving the way for a more environmentally responsible future.



Guntur in Andhra Pradesh, has embraced an eco-friendly transformation in waste management by deploying over 200 electric autos for door-to-door garbage collection. This initiative, backed by the United Nations Industrial Development Organization (UNIDO) and the Global Environment Facility (GEF) under the Sustainable Cities Integrated Pilot Approach (SCIAP), replaces conventional diesel-powered trucks with a greener alternative. These electric autos, each equipped with GPS tracking for real-time monitoring, efficiently cover the city's 159.46 square kms. By eliminating the need for over 71,000 litres of diesel annually, the project significantly reduces greenhouse gas emissions—an estimated 21,000 tonnes over a decade—helping to combat climate change and enhance air quality. With lower maintenance costs and a longer operational lifespan than traditional garbage trucks, these vehicles offer a cost-effective solution for municipal waste management. Moreover, the initiative generates employment opportunities and improves service reliability, contributing to overall urban sustainability.

The Greater Chennai Corporation (GCC) has deployed battery-operated electric rickshaws for waste collection across the city. This initiative not only aligns with the vision of eco-friendly development but also addresses critical urban challenges such as air and noise pollution. By replacing diesel-powered vehicles with E-rickshaws that travel approximately 40 kms daily, the city effectively reduces around 41 tons of carbon emissions each day - amounting to an annual reduction of 15,160 tons. These electric vehicles are specifically designed for door-to-door waste collection from households, commercial spaces, and non-residential areas. Equipped with separate bins for segregating wet, dry, and hazardous waste, the E-rickshaws also promote source-level segregation, instilling environmentally conscious practices among the public and enhancing the

efficiency and timeliness of garbage collection. Currently, the GCC operates a robust fleet of 5,478 E-rickshaws, servicing all 15 zones and covering 24,621 streets and over 2.1 million households. This comprehensive system brings multiple advantages: significant environmental gains through zero emissions, reduction in fossil fuel dependency, and lower operation and maintenance costs. The initiative also creates employment for over 6,000 individuals. The integration of audio systems in the E-rickshaws further helps spread awareness about waste segregation through dedicated songs and public information campaigns.



Indore Municipal Corporation has taken a transformative step toward environmental sustainability and operational efficiency by introducing 100 electric vehicles (e-vehicles) for door-to-door waste collection, replacing traditional diesel-powered trucks. This initiative, focuses on core city areas like Rajwada, helps in reduction annual carbon emissions by approximately 24,918 tons and cut down significantly on fuel and maintenance costs. Equipped with real-time GPS tracking through the Integrated Command and Control Center (ICCC), these vehicles will enhance service transparency and monitoring. The switch from diesel vehicles is expected to save the corporation around ₹5.97 crore annually, factoring in fuel, servicing, engine oil, and clutch replacement costs. To power this green fleet sustainably, the corporation has established 20 solar charging stations, each equipped with 10 kW solar panels capable of generating 800–1000 units of green energy daily. These stations can charge 80 to 100 vehicles per day, drastically reducing dependence on conventional electricity sources.

Together, these pioneering efforts by cities like Indore, Guntur, and Chennai illustrate a powerful shift toward cleaner, smarter, and more sustainable urban waste management under the Swachh Bharat Mission-Urban. By embracing electric mobility, renewable energy, and digital technologies, these cities are not only mitigating environmental impacts but also improving operational efficiency and community well-being.

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