Waste Management– Tiruchirappalli, India

# Local Micro-Composting Centres led to No-Bins

## Introduction

Tiruchirappalli, often referred to as Trichy, is a historic city in the state of Tamil Nadu. Located on the banks of the Kaveri River, it serves as a crucial junction in the state. Known for its cultural heritage and educational institutions, Trichy plays a vital role in Tamil Nadu's economy and development. As per census 2011, the Tiruchirappalli city has a population of 847,387 (about 8.5 lakh) and with a population that vast, the city generates mammoth amounts of waste.

## About the project

This study showcases Trichy's innovative waste management strategies, highlighting the city's efforts to manage their Biodegradable waste. Biodegradable waste refers to any organic material that can be broken down by microorganisms, such as bacteria and fungi, into simpler, non-toxic substances within a reasonable time frame. This type of waste typically includes food scraps, garden and lawn clippings, paper, and wood. Proper management of biodegradable waste is essential for reducing landfill use, mitigating greenhouse gas emissions, and producing valuable compost and biogas. One such management strategy of Tiruchirappalli City Municipal Corporation is the use of Micro-composting Centres. Since its inception in 2016 , this project has costed the municipal corporation INR 14 Crore (140 million)

Micro Composting Centre is a decentralised waste processing facility where solid waste collected from a particular ward or housing colony through the primary collection is scientifically processed in that specific locality.


Photograph 1: The micro compost yard at Srirangam in Tiruchi

## Objective

The objective of the project is management of biodegradable waste within the city. Over 27.46 tons of biodegradable waste is collected every day from several wards of the city. To dispose this waste on a daily basis, it was required to be transported to a distant common location, raising cost for secondary transportation. In order to manage the biodegradable waste without shelling out a huge amount on secondary transport and to find solutions to open dumping, micro composting units are set up all across the city. Micro composting scientifically centers process biodegradable waste from a particular colony or housing society collected through primary waste collection within the locality. It is a decentralized waste processing facility which prohibits scope of open dumbing and expenditure on secondary transport.

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## Implementation

The micro composting unit comprises of a waste receiving platform and a secondary segregation arrangement with an organic shredder. Apart from this, it also includes pits to convert shredded biodegradable waste into qualitative manure. Along with this, the micro composting units also have a shredding machine, a conveyor belt and a stabilisation area.

## How it works

First, the shredder shreds the biodegradable waste into the size of 20 to 40 mm, which is placed in the pits.The shredded bio waste is mixed with rice husk and microbial solution and, then placed over a thin layer of cow dung or matured compost in cubical pits. The addition of microbial biomass reduces the volume of the bio waste to one-third within seven days.

The sequence followed in placing the waste in the cubical pits is 1st day - 1st pit, 2nd day - 2nd pit, 3rd day - 3rd pit and so on. To ensure sufficient aeration, mixture in pits is turned every five days. On the 8th day, again the same series of placing waste is followed.

The matured manure is dried, sieved and packed for distribution from each pit on the 42nd day. Whereas the Leachate is collected and utilized for moisturizing the compost pit. The degraded product is kept for three days for stabilization/maturation before packing.

## Learnings and analysis

The entire composting process is monitored daily to maintain the quality of operation. The quality of every batch of compost is also monitored and then sold to the market. The stock register is also minutely observed and maintained.

## Impact and result

The manure produced as the end result is distributed free of cost to the local farmers and public. The seven community bins which were there in the city before the introduction of micro composting centre ran out of use after the installation of micro processing unit. Additionally, the introduction of micro composting centres has led to a significant decrease in both waste transportation and the need for secondary collection vehicles, contributing to a more efficient and environmentally friendly waste management system.

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