DECENTRALIZED SOLID WASTE MANAGEMENT IN MUZAFFARPUR, BIHAR
BACKGROUND
On 15 December 2016, the ‘Swachhta Swasthya Samridhi’ programme was launched in Muzaffarpur under which a Memorandum of Understanding (MoU) was signed between CSE, Muzaffarpur Municipal Corporation (MMC) and ITC Ltd for facilitating better solid waste management in the city. The programme is helping transform Muzaffarpur into a clean city by adopting segregation and processing at source.

STAKEHOLDERS INVOLVED
CSE is working together with Urban Development Department, Bihar, MMC and Well-being Out of Waste Initiative (a CSR initiative by ITC Pvt. Ltd.) to push for and implement decentralised waste management systems in Muzaffarpur city and ensure the model is replicated in different cities of Bihar.

MUZAFFARPUR WASTE STATISTICS
The 49 wards of Muzaffarpur city are divided into ten circles. Each ward consists of 1,500–3,000 houses. As per information provided by MMC, Muzaffarpur generates about 170 metric tone of waste daily, with the daily per capita waste generation being close to 300 grams. As per CSE estimates, the per capita waste generation is between 600–800 grams.

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STEPS FOR DECENTRALISED WASTE MANAGEMENT IN MUZAFFARPUR

BASELINE STUDY
WARD-WISE MAPPING
PROPAGATION
SITE SELECTION AND DEVELOPMENT FOR PROCESSING AND RESOURCE RECOVERY

Pre-implementation stage (6 months)

Channelization of recyclable dry waste to recyclers

COLLECTION AND TRANSPORTATION OF SEGREGATED WASTE TO COMPOSTING SITE

Implementation Stage (6-12 months)

DATA COLLECTION AND EVALUATION
RATING OF THE PROJECT
FEEDBACK AND TROUBLESHOOTING

Monitoring and evaluation stage (18 months)
About 70 volunteers chosen from the city are responsible for door-to-door propagation to educate residents on segregation of waste into wet, dry and domestic hazardous. The volunteers accompany waste collector and check the levels of segregation. Their role is to ensure that over a period of time, segregation becomes a habit of the citizenry. So far, 80 percent of households and commercial establishments in all 49 wards are giving segregated waste.

MMC has provided all 87,000 households in 49 wards with two superior quality plastic bins (green for wet and blue for dry waste). Commercial establishments such as shops majorly generate dry waste and store it in cartons. Any biomedical, sanitary or hazardous waste is handed separately from the wet and dry waste.

The details of the residents of the houses that have received the bins are noted and houses are marked with stickers to keep a track of the progress of segregation. The citizens also receive pamphlets explaining the process of segregation.
MRC has a fleet of 20 tippers with partition, tractors−20 with partition and 30 without partition, 120 tricycles and 50 pushcarts to support collection and transportation of segregated waste to the processing and disposal site. The collection happens daily between 6 AM to 10 AM. About 18 tonnes of wet waste is collected every day from the 49 wards and sent to four aerobic composting facilities. The facility near the MRDA campus has 40 pits, each with a capacity of 1,000 kg, LS college campus has 20 pits, Sikandarpur stadium has 80 pits, whereas the facility at Chandwara has 106 pits. Each facility has a dedicated area for sieving and packing compost, as well as a material recovery centre for storing and bailing dry non-recyclable waste.

Collectors (both formal and informal) are incentivised as they earn about 2,000 INR per month by selling dry recyclable waste to the local scrap dealers (dry waste franchise) at their collection center where it is further segregated into different kinds of waste for recycling purposes. All the low value plastics and multi-layered packaging is stocked at the MRDA facility. This shall be further channelized for co-processing once it achieves a desirable quantity of 8-10 tonnes.
The model of waste management in Muzaffarpur is a unique model—frugal and generating wealth from waste. The programme has witnessed tremendous participation from the residents with over 80 per cent segregation at source achieved on a daily basis. Muzaffarpur has seen incredible improvement in cleanliness along with a decline in litter spots and waste burning. Segregation of waste has also helped in improving the livelihood of the waste collectors. The sale of compost at 5 inr/kg has further helped MMC to make profits from waste. The city also improved its rank in the Swachh Survekhsan 2017 and 2018 (state rankings) and has been included in the list of smart cities. Muzaffarpur has become the first in Bihar to have its own solid waste management bye-laws. As per the direction of Urban Development Department, Bihar, 105 ULBs in Bihar have adopted the Muzaffarpur model of decentralised solid waste management.
Compost packets for sale

Local Madhubani artwork done at the model processing unit near town hall