Introduction

HUDCO’s HSMI organised a training programme on “ZERO-WASTE - Decentralised Solid Waste Management (SWM) from 25th -28th November 2019 at Indore, Madhya Pradesh, INDIA. The participants totalling to 15 nos., were from the State of West Bengal (12),
Madhya Pradesh (1) and Kerala (2), who were officers of State Civil Services, Engineers from State Urban Development Agency (SUDA), Chief Officers of Urban Local Bodies (ULBs), Health Officers of ULBs etc., The City of INDORE has bagged the award of Swachh Survekshan, 2019 from the Union Government of India and ranks 9 amongst the SMART CITIES-a Mission of the Ministry of Housing and Urban Affairs (MHuPA). The objective of the training programme which was conducted by Dr Sukanya Ghosh, GM(P)/Senior Fellow, Centre for Project Development and Management (CPD of HSMI) and supported by Mrs Vijaya R Vasu, JGM(P)/Fellow, CPD was to introduce the participants regarding the importance of Solid Waste Management under Swachh Bharath initiatives of GoI:

- To familiarise with the various types of SWs being generated in the fast developing Indian Cities.
- To introduce to the methods and technological aspects of Decentralised SWM.
- To learn from the city of Indore its Journey towards becoming the cleanest city of India.
- To understand about certain emerging issues with respect to Bio Medical Wastes, E-Wastes etc.,
- To learn about the role of various stakeholders involved in the ecosystem of SWM.
- To understand the nature of Public Private Partnership (PPP) initiatives of Indore.
- To have real time experience through Field Exposure visits in Indore.

The takeaways from this Training Programme would enable the participants to prepare specific and contextual project proposals for their respective States and to place themselves as a notable example in the future Smart/Model Cities and towns of India.
The Participants along with the coordinators and IMC official

WELCOME ADDRESS and INAUGURATION

Shri Rajneesh Kasera, Additional Commissioner, Indore Municipal Corporation was welcomed by the HSMI Team at the venue Lemon Tree Hotel Conference Room, INDORE and thereafter he addressed the participants by giving the first insight of Indore’s Transformation from the erstwhile Plague city to Clean city of India today. Dr Sukanya Ghosh, Course Coordinator presented to the audience, about HUDCO’s role and achievements, as it marches towards its 50th Silver Jubilee Year of Celebrations.

TRAINING SESSIONS
Shri Vivek Tiwari set the tone by introducing all the categories of SWs, and how the initial seed of thought was sown in Indore's soil by the French Urban Planner Patrick Geddes between 1916 to 1918. He explained about the scientific methods by which SWs can be treated and what are the new small innovations done in their campus by involving the Engineering, Research students etc.

Ar Ajay Jain of Eco Pro Environmental Services Ltd, was one amongst the first set of consultants engaged under Smart City by the Ministry of Urban Development, GoI and the Indore Municipal Corporation (IMC). He started with explaining the basic components of SW and why SWs are a must to be efficiently managed in the growing Indian Cities drawing from his vast experience in guiding through his consultancy more than 300 ULBs in DPR preparation. He explained about the Stewardship of the Mayor of Indore, the visionary Municipal Commissioner of Indore as well as how the various consultants stepped in, to arrive at consensus and set the road map in the beginning of Indore's journey. He also narrated how the various small NGOs/ Entrepreneurs were roped in to explain and work along with the citizens in the two wards that were taken up on a pilot basis.
Various aspects of Wet Waste and its composition, classifications, methods of collection and treatment, Composting techniques etc., were explained by Shri Abhijit of EcoPro Environmental Services Ltd.,

SOLID WASTE from Source to Transfer Stations - Exposure on Grounds

The training session included several field exposure visits to learn from the life experiences of the 85 Wards of Indoor Municipality. An introduction to what will be the real life experience from the citizen's doorsteps was narrated by Ms Nishi Goel - Coordinator of Swachh Bharat Mission of IMC (Field professionals by KPMG-IMC's advisors and
The day started with the observance of the D2D collections of wet, dry and hazardous waste from individual homes by IMC.

Be it a low income neighbourhood or High Income families the procedure to collect SW reflects no differentiation and the IMC Van with the lively music “Sabh ki mehanath ka yah phal hai Indhore number one hai” goes Door to Door. There are no street dustbins which accumulates SW with spill overs. A rare sight to see in Indian cities and towns.

The vans have 3 compartments for wet, dry and hazardous and is GIS enabled with maps and monitors, which connects them every second to the Centralised ICT enabled Waste Collection Monitoring Unit.
All the activities to ensure collection from each home are coordinated by the respective NGOs employing youth, who act as friends of the Neighbourhoods. They maintain a register as well as hand drawn route maps to explain to the citizens and drivers on the spot right from 6 AM onwards.

The Centralised ISWM Control Command Centre/GPS Waste Collection Monitoring Unit monitors and controls centrally more than 415 drivers at a time and has employed all local youths less than around 28 years of age. All troubleshootings and replacements are handled by being in constant communication and coordination with the Neighbourhood level NGOs.
The Trainee participants actively listen to the Department Head as to how ICT technology enables smooth functioning of the D2D collection of SWM and record their valuable feedbacks in their office premises.

VISIT TO THE ZERO WASTE TEMPLE PREMISES

No garbage gets out of this famous “Shri Khajrana Ganesh Temple” premises. Maintained spic and span, the temple segregates all the wastes generated and recycles through the IMC Empanelled NGOs.
Temple flowers and garlands get processed to manure by a local vendor - Balaji Marketing located opposite to the temple premises.
KPMG’s role in facilitating the IMC through its advisory support in terms of familiarising the ULB officials with the Smart City/Swatch Bharath guidelines, technology support, legal services for engaging PPP partners, organising campaigns for mobilising CSR funds, documenting every step of progress of IMC in securing the GoI awards every year etc. was shared by Ms Swati Chauhan to the audience.

**GARBAGE TRANSFER STATIONS (GTS)**

The IMC vans that carry the D2D solid waste, transfers the collected load of dry & wet wastes to the GARBAGE TRANSFER STATIONS around 10 in no. located to serve a group of wards. The GTS stations are extremely clean and well maintained with minimal disturbance to the other activities of the city and minimal level of foul smell.
The waste collected in each van is weighed and then allowed to transfer into larger capacity transfer containers of about 9T and 12 T to collect wet and dry wastes separately.
The segregated wastes thus move on, to be further processed and recycled by the respective plants to convert Waste to Wealth.

**BIO METHANATION PLANT**

The plant is set up with the PPP partners i.e., Mahindra and IMC with the initial capacity of 20 Tonnes. Depending on the operational success of this plant, IMC is intending to expand in the future.

The wet wastes from hotels, restaurants etc. that do not treat waste within their premises are collected from Transfer Stations at a price by IMC and fed to this plant.
The plant treats the same, pressurises in the bottling plant and produces Bio-Gas. 16 no. of Indore City Buses run with this fuel at present.

**MATERIAL RECOVERY FACILITY CENTRE**

The city’s dry waste that are transferred to this PPP plant by IMC with NEPRA Resource Management Private Ltd., This is India’s first 300 MT plant spread over 3 acres, which recycles and recover wealth by segregation of dry waste before the non degradable dry wastes are sent to the landfill sites of the City.
Resaleable wastes are segregated by employing a large number of women workforce who were hitherto earning their livelihood as rag pickers. The participants of the training programme had friendly conversations with these women who spend their worklife in an atmosphere of distinct and difficult odour and yet earn their income to support their family. NEPRA takes adequate care of their health issues.
WET WASTE COMPOSTING PLANT

All the City’s Wet Waste reach this location at Devaguradia, vast open land which is around 8 kms from the City Centre where this PPP plant with IMC, processes waste to make manure by chemical additives.
CONSTRUCTION DEMOLITION WASTE RECYCLING PLANT

This plant collects all the construction debris of roads and old buildings and produces after crushing, strengthening etc., paver blocks, fly ash bricks etc.,
RECLAIMED LANDFILL SITE

IMC has reclaimed the earlier landfill sites and transformed to Urban Greeneries by reclaiming and urban afforestation is still on.
The participants had a pleasant evening at this reclaimed piece of land, which distinctly marks the way, that this City of Indore has transformed to be acclaimed as the No 1 ranking ,Swachh Survekshan City of INDIA.
IMC has timed its activities for lifting the garbage from commercial areas and main vehicular roads as well, which happens in shifts during the nights, which was also seen by the participants after 11pm.

**TRAINING FEEDBACK** The participants assembled to give their valuable feedback on the training programme organised by HUDCO’s HSMI.
VALEDICTORY The Training Programme concluded with the Valedictory session by Dr Sukanya Ghosh- Course Coordinator, at the Venue LEMON TREE HOTEL. The participants were given the Training Completion Certificates for the 3 days programme on ZERO WASTE-Decentralised Waste Management at Indore.

With salutations to MOTHER EARTH who is our limitless wealth:

SarvamsahEthyanirithyachalMaathaVishvambharEthi VipulEthi VasundharEthi 1
AnyAni ChAnyavimukAnyabhidhAnavruJhA NAaNyamUni kathayanthi thavAnubhAvam 11

Swami Desikan’s Shri Bhoo Sthuthi

Sarvam SahA- one who overlooks and forgives all that errs; Avani-the protectress of the Universe; AchalA-the resoluteness in her to protect the Universe & its beings; VishvambharA-the bearer of the Universe; VipulA-who is immeasurable; VasundhaRa-one with limitless wealth.
OUR TEAM

TEAM HUDCO’s HSMI -TRAINING

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BHOPAL REGIONAL OFFICE - HUDCO

6. Shri V Thirumavalavanan, ED
7. Shri Ter Singh Patel, Bhopal Regional Office,HUDCO.

INDORE MUNICIPAL CORPORATION - Coordinators/SPEAKERS-Training Session

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SPEAKERS- Training Session

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PPP Partners

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