“WALK THE TALK” LESSONS LEARNT IN SOLID WASTE MANAGEMENT

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2 Cities of Different Size and Scale

• Thoothukudi from Dec 2017 to Dec 2018

• Chennai from Jan 2019 to Jan 2020
# Statistics – Chennai and Thoothukudi

<table>
<thead>
<tr>
<th>Area in Sq Km - 426 sq km</th>
<th>Area in Sq Km - 90 sq km</th>
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</thead>
<tbody>
<tr>
<td>Population - 85 lakhs</td>
<td>Population - 4.5 lakhs</td>
</tr>
<tr>
<td>Households - 21.5 lakhs</td>
<td>Households - 1.39 lakhs</td>
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<tr>
<td>Waste generation - 5250 MT/day (Waste to Landfill -reduced to 4670 MT/day)</td>
<td>Waste Generation - 220 MT (Waste to landfill - reduced to 120 MT/day)</td>
</tr>
<tr>
<td>No of Sanitary Workers - 19126</td>
<td>No of Sanitary Workers - 1100 workers</td>
</tr>
<tr>
<td>Primary Collection - 5218 tricycles + 395 BOV</td>
<td>Primary Collection - 130 Tata Ace Vehicles</td>
</tr>
<tr>
<td>Secondary Collection - 135 HMV, 159 LMV, 114 HMV tippers, 31 LMV tippers, 16 mechanical sweepers, 71 skid steer loaders, 22 front end loaders</td>
<td>No Secondary Collection.</td>
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</tbody>
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The Change We Were Able to Bring In...

In Chennai in the last year, we were able to reduce the volume of garbage reaching the landfill by 580 MT/day.

In Thoothukudi in the project period (ie, 2017 Dec to 2018 Dec) the volume of garbage reaching the dump yard was reduced by 100 MT/day.
4 Principles We Relied on

• There should not be any litter/garbage on the street.

• Waste should be segregated and collected.

• Segregated garbage should not end up in the landfill. It should be processed up to the maximum extent possible.

• There should not be dignity of labour to all those involved in the process.
Local Bodies Should First Clean Up Their Act!!

• Awareness alone can not bring about much changes. Capacity of the local bodies to handle and process garbage should be augmented.

• Thoothukudi has 16 Micro Compost Centres with a capacity of around 80 tonnes per day while Chennai has 139 Compost Centres and other facilities with total capacity of 583 MT per day and 141 Material Recovery facilities.

• It is not only enough for the local body to augment their capacities; but it should also be visible / audible to the public.

• Our drive for segregation at the source received much better response once we were able to respond to complaints of littering in roadside and close to the bin points.

• The drive got accelerated once we started reducing the number of street dumpsters and started on improving garbage vulnerable points.
Micro Compost Centres
Nano Compost Centres
Material Recovery Facilities
Improved Door to Door Collection
Sale of Recyclables

In Thoothukudi city, a volume of around 4450 MT recycled/sold to recyclers and the proceeds of around 1.8 crore distributed among the workers.
MLP bailed and sent to Cement Kilns
Sale of Manure

• It is given free of cost to farmers in Thoothukudi while it is charged Rs.20/ per kg in retail in Chennai.

• 100 tonnes of manure sold in Chennai in the last 6 months while 2850 MT of manure given free of cost to farmers in Tuty. Chennai has also given away around 500 T of manure free of cost to large scale farmers.

• In 7 wards of Thoothukudi Corporation biodegradable waste is directly transported to farmlands where it is being converted to manure by the farmers with their own expenditure.
Innovation - Natural composting
Bulk Waste Generators and Home Composting
Step 1 - Deploying LCVs with segregation tray and separate bins.

Step 2 - Door to Door collection in segregated manner.
Step 3- The collected wet waste feed into conveyor belt to confirm no foreign matters as contaminant.

Step 4- EMO Preparation
Step 5- Shredding through shredder machine, simultaneously adding EMO and put into manure pit.

Step 6- Turning on 15th, 30th, 40th days.
Step 7- Sieving of manure and distribute to residents & farmers at free of cost.
Other streams of Waste which needs Mx

- Garden Waste – A project has been launched to convert garden waste into biofuel which expects to process 400 MT/day.

- C and D waste – A plant is to be constructed to convert C and D waste into cement blocks and to be used in construction – up to 400 MT/day.

- 3 Bio CNG plants with 100 TPD capacity each is also planned for the city.

- Pyrolysis plants of is also planned for the city at a small scale.

- Legacy Waste Biomining – 3 small sites ongoing. Perungudi to be started this year.

- Incinerator – 10 MT pilot plant is working now.
Carrot and Stick : Stick Works Better!!

• While most of the steps taken in both the cities of Chennai and Tuticorin were similar it can be seen the progress in Tuticorin is much better while compared to Chennai. While a major reason for this can be attributed to the complexities attached with a large metropolis and the multiple stakeholders involved; another reason is that the Decentralised Waste Management is still on a persuasion mode in Chennai while Thoothukudi has long since moved in to an enforcement model. And it was able to enforce penalties and fines from a very early stage since it was able to easily pull it’s act together since it was a smaller city.

• Takeaway - Enforcement works better than persuasion and enforcement will give desired results only after the city is able to do the basic job to the satisfaction of the citizens.
Way Forward - Chennai

• Moving in to Battery Operated Vehicles from Tricycles
• Unable to stop Secondary transport due to the traffic and metro nature of the city
• Finding it difficult to remove the bins also of large commercial activity
• Compulsory Segregation - Finding it difficult – Still in the persuading mode
• Separate Stream – MCC’s and MRF’s- - No of MCC’s and No of MRF’s
• Separate Streams - Debris/ Garden Waste/ Clothes/ Glass/ Plastic/ Wood/ Metal
• Awareness Activity
• Fines
• Bulk Waste Generators / Fines
Lessons Learnt

• Local Bodies should clean up their act
• Only after that, enforcement will work
• Fines/ Enforcement works, Persuasion does not
• Scheduled Collection is the way forward.
• It is difficult to remove Bins in commercial areas.
• Polluter should pay – BWG/ Home Composting.
• Polluter should pay – EPR is the way forward.
• Dignity of Labour – to be ensured. Machineries are needed even in MCC’s.
• Facilitate Industries/ Private players.