Role Of Informal Solid Waste Management Sector And Possibilities Of Integration; The Case Of Amritsar City, India

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India’s waste management scenario

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2047</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation</td>
<td>36.5mt</td>
<td>300mt</td>
</tr>
<tr>
<td>G/capita</td>
<td>490gms</td>
<td>945gms</td>
</tr>
</tbody>
</table>

Composition of Urban solid waste in India:
- Organic: 40%
- Recyclable: 20%
- Inert debris: 35%
- Misc: 5%
Informal waste collection

<table>
<thead>
<tr>
<th>City</th>
<th>MT/Day</th>
<th>N.O Ragpickers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>7000</td>
<td>100000</td>
</tr>
<tr>
<td>Mumbai</td>
<td>8000</td>
<td>85000</td>
</tr>
<tr>
<td>Bangalore</td>
<td>2000</td>
<td>35000</td>
</tr>
<tr>
<td>Pune</td>
<td>1000</td>
<td>6000</td>
</tr>
</tbody>
</table>

- Only 30-60% waste collected by Urban Local Bodies
- Waste Collection by Informal Sector estimated at 15-20%
- 1 million urban poor in informal waste management sector.
- Ragpickers are the bottom rung.
- MSW Rules 2000 & SWM initiatives sideline informal sector.
Amritsar City: Quick facts

- Metropolitan City, population 1 million plus.
- Area: 20553 acres.
- Political capital & centre Stage of sikh religion.
- Attracts tourist from all over the globe.
Amritsar City generates 500 tonnes/day. 50-60% collection
Divided into 24 sanitary wards.

Municipal Corporation Amritsar

Collection

Street sweeping

Door to door (very few localities)

Bins/containers

City Dumping site/ other unauthorised dumping sites
Waste Composition

- High generation of organic waste
- 55% moisture content
- 1500 kcal/kg
- Recyclable waste: 75%
Formal waste management issues

- No arrangement for primary collection from residential/commercial areas.
- Source segregation not practiced.
- 2 sanitary workers/1000 population as against requirement of 5.
- Inadequate and improper bins/containers.
- 20% population mostly in slum locations not covered.
- No formally designated transfer points.
- Inadequate transportation process.
- Current dumping site exhausted
- No adherence to MSW rules 2000
- No effort by MCA towards innovative waste management.
- Recent Move towards Incineration based WTE.
Sights at Municipal Containers and illegal dumps

- Usually overflowing with garbage
- Attract stray animals
- Create unhygienic conditions.
Current dumping ground, 8.1 hectares, adjacent to residential areas.
Informal waste Collection

- Consumer
- Improper disposal
- Small scrap dealers (kabariwallas)
- Collected by ULB
- Ragpickers
- Recycling/factory units
- Wholesale dealer/Large scrap dealers
- Landfills/dumping grounds
Informal sector operations

- 3000-3500 ragpickers estimated.
- All recycling takes place in the informal sector.
- 98% of ragpickers are from W. Bengal.
- Items collected based upon recyclable demand.
- Territorial route demarcations.
- Waste collection sources.
- Waste must be sizeable.
- Waste pricing.
- Economic and social vulnerability.
Sorting, storing and disposal of absolute waste takes place within and around living area.
Selling recovered waste to the scrap dealers
Social-Economic Vulnerability
### Major Solid Waste management Options for the city

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incineration based WTE</td>
<td>High moisture content in waste. Expensive &amp; not suited.</td>
</tr>
<tr>
<td>Bio-Methanation</td>
<td>More capital intensive compared to composting/recycling.</td>
</tr>
<tr>
<td>Sanitary Landfill</td>
<td>Initial costs high. But could be suitable with sizeable waste reduction.</td>
</tr>
<tr>
<td>Pelletisation</td>
<td>High moisture content renders it less suitable.</td>
</tr>
<tr>
<td>Composting</td>
<td>Viable option. High generation of organics.</td>
</tr>
<tr>
<td>Recycling</td>
<td>Viable option. 75% waste is recyclable (in some form).</td>
</tr>
</tbody>
</table>
Possibility for Integrated Solid waste management

- Targeting waste reduction and poverty reduction through Integrated Solid waste management.
- Informal waste system be central to any SWM policy.
- MCA act as facilitator to organize waste pickers in micro enterprises into 66 city wards and 24 sanitary divisions.
- Registration of waste pickers (other than children).
- Source segregation to be overseen and made mandatory by MCA Sanitary Inspectors in their divisions.
Possibility for Integrated Solid waste management

- Waste pickers as primary collectors.
- Existing sanitary workers of MCA as secondary collectors
- Designation of waste transfer points and transportation.
- Organic and dry waste segregation.
- Procedure for Organic waste management.
- Procedure for recyclable waste management.
- Dealing with inert debris.
- Proposal for Final disposal of absolute wastes.
Perceived Benefits

- Low cost waste management system.
- Minimize investment on personnel & equipment.
- Creation of jobs & poverty reduction.
- Reduce bulk disposal.
- Effective recovery of recyclables.
- Generating income from waste.
- Reduction of risk to Human Health & Environment.
- Economically viable, socially desirable & environmentally conducive.
THANK YOU