ROADMAP FOR MANAGEMENT OF WASTE IN INDIA

PACKAGING WASTE MANAGEMENT

Good Packaging - Good Living
Identified areas for work

- Packaging waste - Present status
- Packaging waste management – Magnitude
- Packaging waste – Estimates
- Sources of Packaging waste and its management
- Packaging waste Management - A Complex
- Technologies
- Recommendations and suggestions

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Present status (CAG Report)

- No comprehensive data
- Problems caused by ineffective management of waste
- 3 R’s model not replicated
- Pkg waste not part of rules framed for safe disposal
- Negligible segregation of MSW after collection
- Ineffective enforcement of Plastic waste rules
MSW Production-INDIA
- 168 Kg/person/year (Reported figures 1999 study)
- 200 Kg/person/year (2006 estimates)

Total MSW Production - 200 million metric tons/year

- Paper & Board: 6%
- Metal: 2%
- Glass: 2%
- Food/Garden: 42%
- Others: 44%
- Plastics: 4%
## PACKAGING WASTE - Estimates

<table>
<thead>
<tr>
<th>Item</th>
<th>Assessed Pkg % in MSW</th>
<th>Total quantity (x 1000 Metric tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper &amp; Board</td>
<td>6</td>
<td>120000</td>
</tr>
<tr>
<td>Glass</td>
<td>2</td>
<td>4000</td>
</tr>
<tr>
<td>Metals</td>
<td>2</td>
<td>4000</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>4000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>24000</strong></td>
</tr>
<tr>
<td>Plastics</td>
<td>2.5</td>
<td>5000</td>
</tr>
<tr>
<td>Film/laminates</td>
<td>1.5</td>
<td>3000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>32000</strong></td>
</tr>
</tbody>
</table>

**Total Packaging waste - 32 million metric tons/year**
Sources of Packaging waste & its Management

Pkg. Ind. waste

Org Retail

Un org Retail

Household, Kabadiwala

MSW

Packaged Products

PKG WASTE

REUSE

RECYCLE

INCINERATION

LAND FILL

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Packaging waste Management - A Complex

Packaging a strategic tool for development

- Retail:
  - Organised
  - Unorganised
- Packaging industry
- Household kabadiwala
- MSW
- User Industry waste

Packaging from:
- HAZMAT
- Pharma
- Food
- Industrial use
- Fresh food products
- Processed food
- Biomedical use.

Indiscriminate recycling a great concern

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TECHNOLOGIES - to look for

Reduce
Reuse - Concept of LCA
Recycle - Collection systems/emissions
Recover
Recycling rates of various packaging and packaging materials in Japan

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Waste Management Technologies – Present Indian solutions

- Paper ➔ Re-pulping, power generation
- Glass ➔ As cullet in Glass furnaces
- Metals ➔ Recycling, reuse
- Plastics ➔ Reuse, incineration, landfill, recycling,
  Recycling with value addition
  - Plastic woven sacks to Niwar patty (webbings)
  - Milk pouches to Barsati films
  - Plastic waste to plastic foot ware, box strapping
  - PET to rugs, carpets, blankets, luggage, pillows, sofa & chair fills, upholstery, tool handles……
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PACKAGING AND SUSTAINABILITY

4 R’s
• Reduce
• Reuse
• Recycle
• Recover

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