Third Workshop on Enhancing the Regional Distribution of CDM Projects in Asia and the Pacific
18–20 July 2012 • ADB Headquarters, Manila, Philippines

Waste Management
CDM Projects in the Asia & Pacific Region
(Best Practice & Lesson Learned)

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### Waste Management

**CDM Projects in the Asia & Pacific Region**

**Waste Management Registered CDM Projects**

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>Registered CDM Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill Gas Projects</td>
<td>107</td>
</tr>
<tr>
<td>Methane Avoidance Projects</td>
<td>266</td>
</tr>
<tr>
<td>Other CDM Projects</td>
<td>3142</td>
</tr>
<tr>
<td><strong>Total Registered CDM Projects</strong></td>
<td><strong>3515</strong></td>
</tr>
</tbody>
</table>

*As on 1st July 2012, Ref : CDM Pipeline*

**Country**

- **Bangladesh**: 1 Landfill Gas, 1 Methane Avoidance
- **Cambodia**: 4 Methane Avoidance
- **China**: 58 Landfill Gas, 34 Methane Avoidance
- **Fiji**: 1 Landfill Gas
- **India**: 6 Landfill Gas, 26 Methane Avoidance
- **Indonesia**: 7 Landfill Gas, 35 Methane Avoidance
- **Malaysia**: 6 Landfill Gas, 64 Methane Avoidance
- **Nepal**: 3 Methane Avoidance
- **Pakistan**: 2 Landfill Gas
- **Papua New Guinea**: 4 Methane Avoidance
- **Philippines**: 4 Landfill Gas, 39 Methane Avoidance
- **Singapore**: 0 Landfill Gas, 1 Methane Avoidance
- **South Korea**: 4 Landfill Gas
- **Thailand**: 5 Landfill Gas, 49 Methane Avoidance
- **Vietnam**: 3 Landfill Gas, 16 Methane Avoidance

**Type of Waste Management**

<table>
<thead>
<tr>
<th>Type of Waste Management</th>
<th>Registered CDM Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion of MSW</td>
<td>13</td>
</tr>
<tr>
<td>Composting</td>
<td>49</td>
</tr>
<tr>
<td>Domestic Manure</td>
<td>10</td>
</tr>
<tr>
<td>Integrated SWM</td>
<td>1</td>
</tr>
<tr>
<td>Landfill flaring</td>
<td>10</td>
</tr>
<tr>
<td>Landfill power</td>
<td>70</td>
</tr>
<tr>
<td>Manure</td>
<td>57</td>
</tr>
<tr>
<td>Palm oil waste</td>
<td>6</td>
</tr>
<tr>
<td>Waste water</td>
<td>157</td>
</tr>
</tbody>
</table>

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Waste Management CDM Projects – Best Practice Case Study

Project 2778: Composting of Organic Content of Municipal Solid Waste in Lahore
Registration Date: 05 Apr 2010
Annual average CO2 emission Reduction: 108,686 tCO2e
Crediting Period: 05 Apr 10 - 04 Apr 17 (Renewable)
Project: 1000 TPD composting plant (in phases) for waste from Lahore city.
The project has been fully implemented and operational since 31 May 2009.
First and second periodic verification: 05 April 10 - 31 March 12 (underway)
Amount of organic waste treated: 359,628 Ton
GHG emission reduction achieved: 107,945 tCO2e

Waste Management CDM Projects – Best Practice Case Study

Project 0959: SESL 6 MW Municipal Solid Waste Based Power Project at Vijayawada & Guntur, Andhra Pradesh (India)
Registration Date: 15 April 2007
Annual average CO2 emission Reduction: 64,599 tCO2e
Crediting Period: 01 Jan 2004 - 31 Dec 2013 (Fixed)
Project: The project utilizes municipal solid waste (500TPD) available in the cities of Vijayawada and Guntur to produce 6 MW power to export to state grid (APTRANSCO). The export crediting commenced on 01.01.2004.exported 51746.3 MWh to APTRANSCO grid from 2004 to 2007.
CERs Issued: 88,873 (01 Jan 2004 to 31 Dec 2007)
Waste Management Projects – Issues & Challenges

- Planning & Design of SWM System
  - Waste management Strategy
  - Selection of inefficient SWM system

- Institutional Barriers
  - Lack of awareness and willingness of EAs
  - Poor financial health of EAs (Municipalities etc)
  - Low financial returns (IRR) from the SWM projects

- Technological Barriers
  - Availability and Selection of technology
  - Lack of Technical know-how and infrastructure
  - Availability of trained manpower
  - Complex Monitoring System

- Legislative Barriers
  - Poor enforcement of SWM policies and regulations

- Support of local People
  - Very low or no support of local people in SWM program (segregation and collection)
  - Oppose for transportation route and dump sites

- No or very less private participation

- Market Barriers
  - No market available for waste products (e.g. Compost)
  - Lack of incentives and promotion of unorganised sector (recycles and pickers)
Recommendations suggestions for replicating the best practices

- Planning & Design of SWM System
  - Awareness and capacity building at different level on waste management strategy (Institutional / EAs / Local stakeholders) - 3R approach
  - Selection of optimum technology options available
    - Techno-Economical Feasibility
    - Quality and quantity of waste
    - Decentralized SWM system
    - Involvement of multiple stakeholders in decision making

- Implementation & Operation of SWM System
  - Training and awareness of stakeholders (EAs / Operation staff / Local people)
  - Segregation / sorting of waste prior to the collection

- Collection and Transportation system for waste (Dedicated and specially designed vehicles and type of wastes e.g. MSW, e-Waste)
- Monitoring / QA/QC in SW treatment process (e.g. Quality of compost etc)

- Institutional and Legislative
  - Promotion of PPP in SWM system
  - Promotion of recycling industry
  - Providing decent employment in the recycling industry (informal sector - waste pickers, junk dealers and local recyclers)
  - Common policies and instruments based on extended producer responsibilities (Product take-back, Deposit and refund, disposal and recycling fees etc.)

- Market Development
  - Market development of recycled and waste products (compost etc)
  - Incentives (direct or indirect) for use of recycled and waste products