Overview on Waste Management in Thailand

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Presentation Outlines

- Status Quo of Waste Management
  - MSW: Waste Quantities, Compositions, Recovery and Disposal, Problems
  - HW: Waste Quantities, Compositions, Recovery and Disposal, Problems
- National Policy and Plan
- Organizational Roles Related to Waste Management
- Schemes of Waste Management
- Q&A
**STATUS OF WASTE MANAGEMENT**

- **Generated 100%**: 14.72 Million Tons
- **Recyclable Potential 93%**: 12.36 Million Tons
- **Collected 85%**: 11.77 Million Tons
- **Sanitary Disposed 36%**: 3.1 Million Tons
- **Improper Disposed 64%**: 11.77 Million Tons

- **33 Under construction**
- **3 Incinerators**
- **91 Landfills**
- **97 Operated Sites**

**Problems of Non-Waste Separation**

- Co-disposal HW and MSW
- Illegal Dumping/Open Dumping

**From recovery activities:** Garbage Banks, Municipal Collectors, junk shops
Problems of Landfill Operations

No Operational Procedures
No Environmental Controls

Situation on HW Management

Industrial HW
- 1.405 MT
  - Recyclable
    - Solvents
    - Used oils
    - Used lead acid batteries
    - Fluorescent lamps
    - TV/Computer
    - Other WEEE
  - Improper Manage 60%
  - Proper Manage 40%

Household HW
- 0.403 MT
  - Proper Manage 40%
  - Improper Manage 60%
  - Disposal LAO 28%
    (Co-disposal with MSW 1.7%, Secured landfill 7.4%, Incinerators 2.5%, etc. 16.5%)

Infectious W.
- 0.02 MT
  - Hospital Incinerators 65%
  - Private sectors 7%
Problems of Poor Facilities

The Notification of the ministry of industry on Disposal of wastes or unusable materials B.E. 2548 (2005)

- HW means wastes that contain or contaminate with hazardous materials or exhibit the hazardous characteristics including flammable, corrosive, reactive, toxic, or having the specified constituents.
- HW means wastes listed in the Annex.
Hazardous Waste Definition by Thai Laws

Example of Industrial HW

- Spent halogenated solvents: Tetrachloroethylene, Trichloroethylene, Methylene chloride,
- Spent cyanide plating bath solutions from electroplating operations
- Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons
- Wood preservation: Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use Creosote and/or Pentachlorophenol
- Spent filter cartridges from product purification from the product of 1,1-Dimethylhydrazine from Carboxylic acid hydrazine

Hazardous Waste Definition by Thai Laws

Infectious Waste

Regulation of MOPH B.E. 2545 (2002)
The term “infectious waste” includes:
- Body parts or carcasses of human and animal from surgery, autopsies and research
- Sharps, such as needles, blades, syringes, vials, glass wares, slides and cover slides
- Discarded materials contaminated with blood, blood components, body fluids from humans or animals, or discarded live and attenuated vaccines, such as cotton, other cloths and syringes
- Wastes from wards as specified by MOPH
Illegal Dumping of Industrial HW

Hazardous Waste Situation

Social Strategies
- To promote participation between public sectors, private sectors and public awareness to reduce waste and to increase the utilization of organic wastes and recyclable wastes

Economic Strategies
- To promote the investment of private sectors in using clean technology for goods production, waste treatment and disposal management. In addition, taxation might be used (if necessary) as a tool for reducing wastes generated from production process
Legal Strategies

- Establish laws and revise existing laws and regulations as well as emphasize on law enforcement in order to make various steps of waste management more effective

Supportive Strategies

- To support the research and development of appropriate technology for producing environmental friendly products and products made from recycled materials

Policies Proposed to Cabinet in 2005

- Waste separation and utilization
- Share disposal facilities (Cluster)
- Encourage integrated technologies and waste to energy
- Private involvement for investment and operation
Goals

- **MSW Quantities:** To ensure that MSW will be disposed not less than 50% by the year of 2009 and up to 100% by 2017.

- **Number of MSW Facilities:** To increase efficient MSW disposal facilities not less than 50% of all provinces by 2009 (38 provinces) and up to 100% by 2013.

Existing Disposal Facilities in Thailand

Organizational Roles Related to MSW Management

- **Royal Thai Government**
  - Formulate policies, guidelines, programs, regulations and standard

- **Central Governments**
  - Coordinate related works between central and local governments.

- **Regional Governments**

- **Local Governments**
  - Handle waste management within governed area.

Implementation unit

Source: PCD, 2004
Central Governments

1) Pollution Control Department (PCD)
   - Provide recommendations on the technical preparation of MSW Management policy.
   - Develop guidance/guidelines and processes

2) Department of Environmental Quality Promotion (DEQP)
   - Promote and disseminate information pertaining to MSW management.

3) Office of Natural Resources and Environmental Policy and Planning (ONEP)
   - Prepare policies and prospective plans.
   - Administer the Environmental Fund.

4) Department of Local Administration (DOLA)
   - Administer the finances of Local Government Organizations.
   - Provide support for the preparation of Local Development Plans.

5) Public Health Department
   - Issue ministerial regulations to stipulate service charges.
Local Governments

- Handle waste management within governed areas.
- There are 4 categories of local administrative organizations.

1) Municipality
2) Sub-district Administrative Organizations (SAO)
3) Provincial Administrative Organizations (PAO)
4) Special Administrative Areas (Bangkok and Pattaya City)

Associated Laws & Regulations for MSW Management

Waste management is responsibility of local government.

- The Constitution
- Provincial Administrative Organization Act. B.E.2542
- Decentralization to LAO Act. B.E.2542 (A.D.1999)
### Legal obligations on hazardous waste handling

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Key Legislation</th>
<th>Relevance</th>
<th>Authorities</th>
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<tbody>
<tr>
<td>Industrial Waste</td>
<td>Major laws: Factory Act 1942 (FA), Industrial Estates Act 1963 (IEA), Hazardous Substance Act 1992 (HSA)</td>
<td>-Empower MoIn &amp; IEAT to set up and enforce the criteria &amp; rules for controlling the HW management</td>
<td>MoIn, IEAT</td>
</tr>
</tbody>
</table>
|                                 | Relevant Laws: \[Declaration of National Environmental Quality Act 1992 (NEQA)\]  | -Enforce the EIA system required for high pollution 
industry & central treatment facilities as well as 
empower MoIn & IEAT to set up and enforce the 
ambient & emission standards. | MNRE       |
| Infectious Waste (from hospitals or clinics) | Major laws: Public Health Act 1956 (PHA), Determining Planning and Staging of Decentralisation Act 1999 | -Specify the responsibilities to provide proper 
management services including the infectious waste and 
household HW management | MoPH, LAO  |
|                                 | Relevant Laws: NEQA                                                             | -Set up emission standard for HW incinerator as a pollution point source    | MNRE       |
| Laboratory Waste                | Major laws: Factories Act 1945 (FA)                                             | -Empower MoI & IEAT to set up and enforce the criteria & rules for controlling the HW management | MoIn, IEAT  |
|                                 | Relevant Laws: \[\]                                                              | -Set up the certified system for chemical laboratory including the lab waste management | MNRE       |
| Hazardous Waste (from community incl. e-waste) | Major laws: PHA & Decentralization Act for HW, but no specific law for e-waste | -As mentioned above; also refer to the section on imported HW and e-wastes | MoPH, LAO  |
|                                 | Relevant Laws: \[\]                                                              |                                                                  | MNRE        |
Schemes of Waste Management

• Integrated Management System (Non-haz)
  - Source reduction and separation
  - Waste Diversion
    - Composting
    - Energy recovery
    - Material recovery
  - Final Disposal (Sanitary Landfill)

• Disposal Center (Cluster)
  Co-disposal of solid waste for nearby municipalities

Integrated MSW Practices

- Waste Separation
- Composting
- Incineration
- Landfill
Current Practices: Household HW management

Awareness raising

I ncentive

Recycling

Disposal: secured landfill, incineration

Transportation

Drop off or Special Collection Day

Collection to transfer station

Useful Websites

- Pollution Control Department (PCD)
  http://www.pcd.go.th

- Office of Natural Resources and Environmental Policy and Planning (ONEP)
  http://www.onep.go.th

- Department of Environmental Quality Promotion (DEQP)
  http://www.deqp.go.th

- Public Health Department (PHD)
  http://www.anamai.moph.go.th

- Department of Local Administration (DOLA)
  http://www.thailocaladmin.go.th

- Ministry of Natural Resources and Environments (MNRE)
  http://www.mnre.go.th
Useful Websites

- **Department of Industrial Works (DIW)**
  [http://www.diw.go.th](http://www.diw.go.th)
- **Ministry of Industry**
  [http://www.industry.go.th](http://www.industry.go.th)
- **Department of Agriculture (DOA)**
  [http://www.doa.go.th](http://www.doa.go.th)
- **Ministry of Public Health (MOPH)**
  [http://www.moph.go.th](http://www.moph.go.th)
- **Department of Atomic Energy for Peace (OAEP)**
  [http://www.oaep.go.th](http://www.oaep.go.th)

Q & A

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