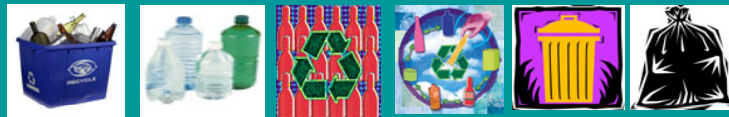




Overview on Waste Management in Thailand



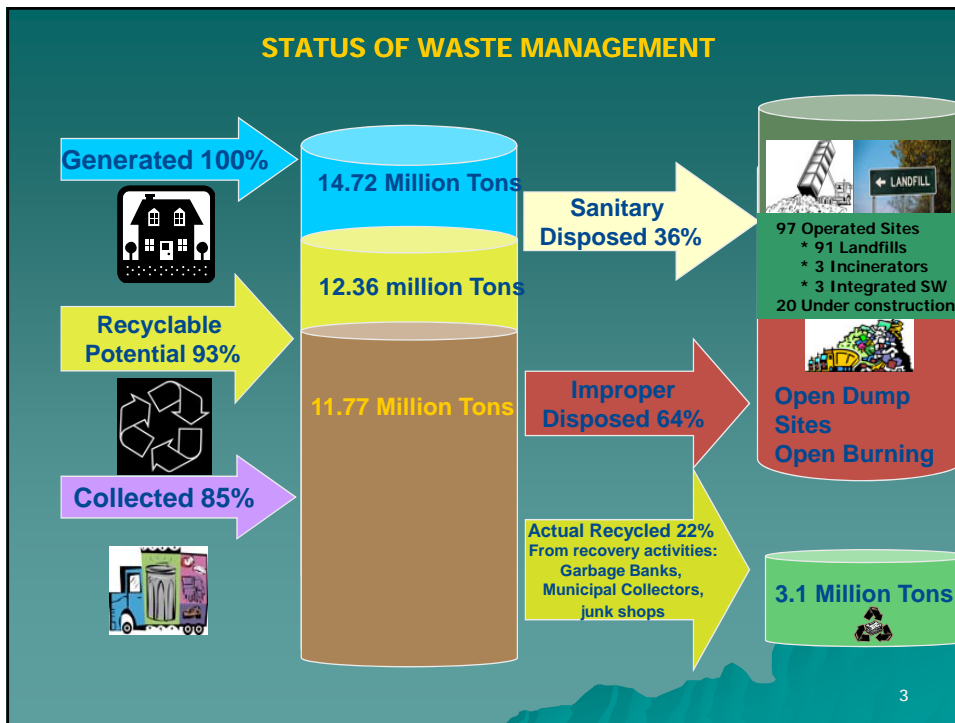
Tawechai Jiaranaikhajorn

Waste and Hazardous Substances Management Bureau

Pollution Control Department (PCD), THAILAND

Presentation Outlines

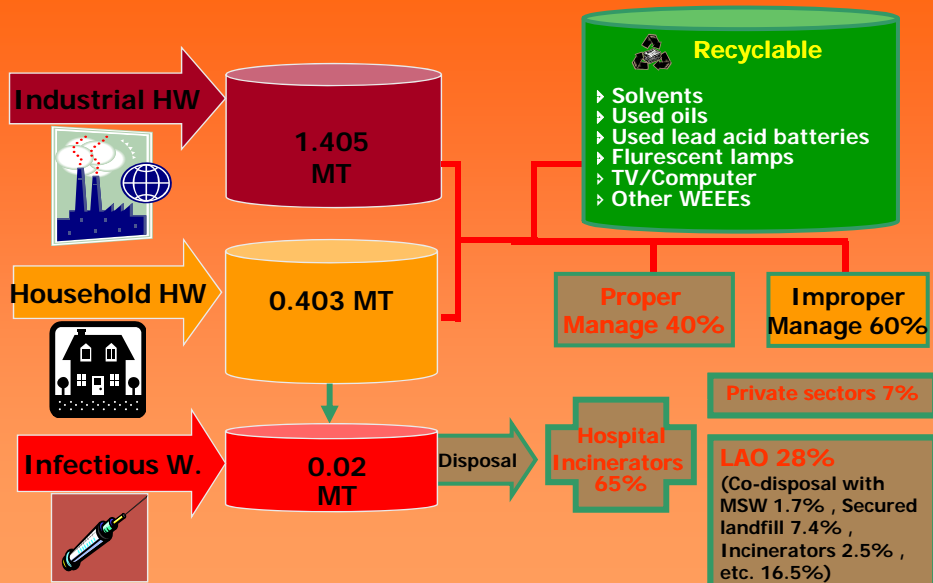
- ◆ Status Quo of Waste Management
 - ◆ MSW: Waste Quantities, Compositions, Recovery and Disposal, Problems
 - ◆ HW: Waste Quantities, Compositions, Recovery and Disposal, Problems
- ◆ National Policy and Plan
- ◆ Organizational Roles Related to Waste Management
- ◆ Schemes of Waste Management
- ◆ Q&A



Problems of Landfill Operations



Situation on HW Management



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Problems of Poor Facilities



Hazardous Waste Definition by Thai Laws

Industrial HW

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



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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

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Hazardous Waste Situation

Illegal Dumping of Industrial HW



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National Policy and Plan

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

National Policy and Plan (Cont.)

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

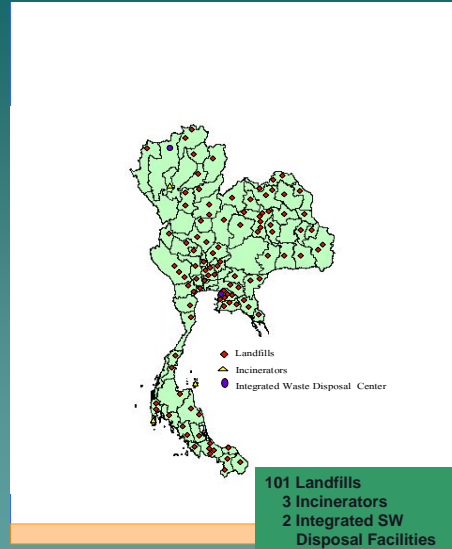


- Waste separation and utilization
- Share disposal facilities (Cluster)
- Encourage integrated technologies and waste to energy
- Private involvement for investment and operation

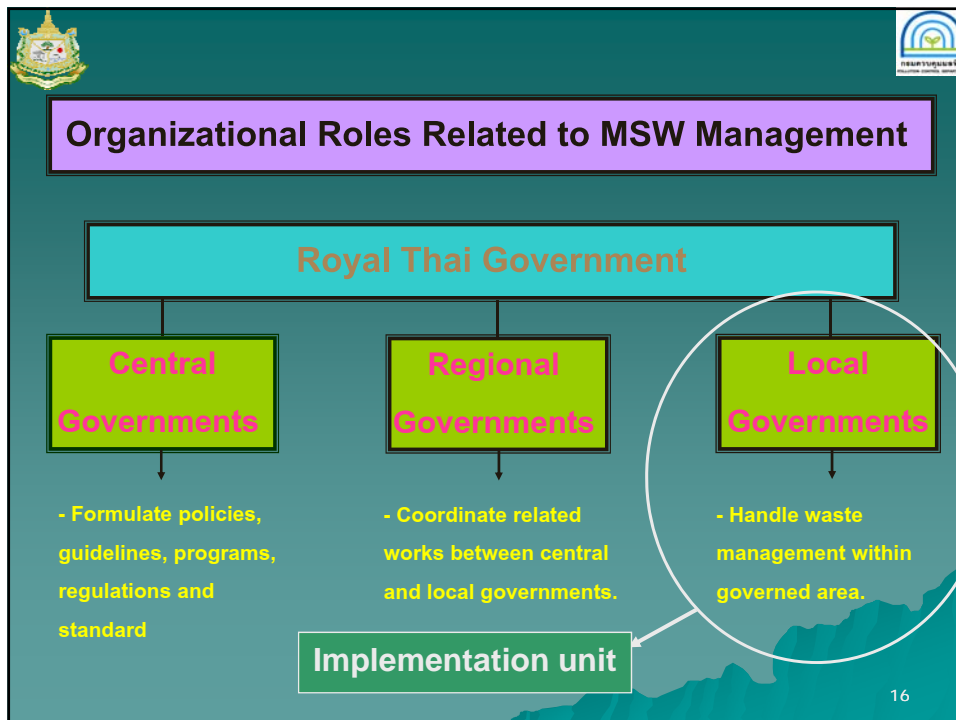
Goals

- ◆ **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



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.

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Central Governments

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.

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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)

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Associated Laws & Regulations for MSW Management

Waste management is responsibility of local government.

- The Constitution
- Public Health Act. B.E.2535 (A.D.1992)
- Enhancement and Conservation of National Environmental Quality Act. B.E.2535 (A.D.1992)
- Municipality Act. B.E.2496 (A.D.1953)
- Sub-District Council & Local Administrative Organizations Act. B.E.2537 (A.D.1994)
- Provincial Administrative Organization Act. B.E.2542
- Decentralization to LAO Act. B.E.2542 (A.D.1999)

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Legal obligations on hazardous waste handling

Waste Type	Key Legislation	Relevance	Authorities
Industrial Waste (Hazardous & Non-Hazardous Waste)	Major laws: Factory Act 1992 (FA), Industrial Estates Act 1992 (IEA), Hazardous Substance Act 1992 (HSA) Relevant Laws: Enhancement and Conservation of National Environmental Quality Act 1992 (NEQA)	-Empower MOIn & IEAT to set up and enforce the criteria & stds for controlling the HW management -Establish the EIA system applied for high pollution industries & central treatment facilities as well as empower MNRE & NEB to set up the ambient & emission stds.	-MoIn, IEAT -MNRE
Infectious Waste (generated from hospitals or clinics)	Major laws: Public Health Act 1992 (PHA), Determining Planning and Staging of Decentralization Act 1999 Relevant Laws: NEQA	-Specify LAO's responsibilities to provide the proper waste management services including the infectious waste and household HW management -Set up emission std. for IW incinerator as a pollution point source	-MoPH, LAO -MNRE

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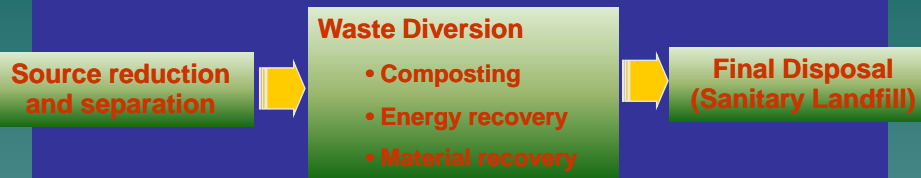
Legal obligations on hazardous waste handling

Waste Type	Key Legislation	Relevance	Authorities
Radioactive Waste	Major laws: Atomic Energy for Peace Act 1961 Amended in 2008 Relevant Laws: -	-Empower OAP and the National Committee on Atomic Energy for Peace to set up and enforce the criteria & stds for controlling the nuclear & radiation material as well as the radioactive waste	-MoST (OAEP)
Laboratory Waste	Major laws: Factory Act 1992 Relevant Laws: -	-Empower MoI & IEAT to set up and enforce the criteria & stds for controlling the HW management -Set up the certified system for chemical laboratory including the lab waste management	-MoIn (DIW)
Hazardous Waste (from community incl. e-waste)	Major laws: PHA & Decentralization Act for PHM, but no specific law for e-waste Relevant Laws: HAS	-As mentioned above -Set up the criteria for controlling the impact of used e-products and e-waste	-MoPH, LAO -MNRE -MoIn

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Schemes of Waste Management

• Integrated Management System (Non-haz)



• Disposal Center (Cluster)

Co-disposal of solid waste for nearby municipalities

Integrated MSW Practices



Waste Separation



Composting



Incineration



Landfill



- ### 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>
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Useful Websites

◆ **Department of Industrial Works (DIW)**

<http://www.diw.go.th>

◆ **Ministry of Industry**

<http://www.industry.go.th>

◆ **Department of Agriculture (DOA)**

<http://www.doa.go.th>

◆ **Ministry of Public Health (MOPH)**

<http://www.moph.go.th>

◆ **Department of Atomic Energy for Peace (OAEP)**

<http://www.oaep.go.th>

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Q & A

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