Solid Waste Management in Thailand: Policy and Implementation

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Situation of municipal solid waste management in Thailand 2016
Community-based waste generation
27.04 m. ton/year
Per capita
1.14 kg/person/day
Country wide
74,073 tons/day

Waste recovery
5.76 m. tons/year
Appropriate sanitary disposed system
9.59 m. tons/year
Improper disposed methods/activities
11.69 m. tons/year
Remaining waste
10.13 million

Waste Composition
Recyclables 30%
Hazardous 3%
Organics 64%
Others 3%

- Plastic 17% (2.5 mt) Plastic bag, foam and other packaging
- Paper 8% (1.1 mt) News paper, magazine, Paper packaging
- Glass 3% (0.4 mt) Glass container and packaging, one-way products
- Metal and aluminum 2% (0.3 mt) packaging and container

Source: Thailand State of Pollution Report 2015

Waste disposal sites in Thailand (2016)
2,801 Overall waste disposal sites in Thailand
Appropriate management system (12%) 319 sites
Appropriate landfill site 287 sites
Incinerator with air pollution treatment system 18 sites
Mechanical and biological treatment system (MBT) 18 sites

Inappropriate management system (88%) 2,474 sites
Dumpsite method 1,730 sites
Inappropriate landfill system 16 sites
Inappropriate incineration (without ventilation treatment system) 71 site
Open spaces and outdoor burning activities 657 site

National Agenda on Waste Management
Road Map on Waste and Hazardous Waste Management
Approved by the National Council for Peace and Order on the 26th August 2014

National Solid Waste Management Master Plan (2016 - 2021)
Approved by the cabinet on the 3rd May 2016

According to the Participatory State Principle
Approved by the cabinet on the 20th September 2016

Principle of SWM Roadmap
- Reduced amount of accumulated waste
- Promoted appropriate MSW and Hazardous Waste Management
- Specific law on SW Management
- Instill National Discipline
The Cabinet approved the plan on the 3rd of May 2016


- Waste generation and collection system
- Waste recovery and disposal
- Law and Regulation
- Public Involvement

- Apply 3R into waste management
- Increase efficiency of waste separation and collection
- Improve improper waste disposal sites.
- Apply integrated technologies i.e. WTE, Biogas, RDF
- Law amendment and development
  - MSW/ WEEE
  - Environmental Law
- Education Program
- Awareness rising
- Capacity building

National Waste Management Master Plan

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Action plan “Thailand Zero Waste”

According to the Participatory State Principle

Action plan goal and target

Goal

- Reduction of MSW in final disposal
- Increasing of household hazardous waste separation
- More industrial waste & infectious waste disposed of properly
- Reduction amount of MSW to be disposed of by 5% (from 2016)
- Household hazardous waste collection centers in Villages/ communities by 100%
- Infectious waste disposed of properly by 85%
- Industrial waste disposed of properly by 70%

Role of related agencies

Regulator

Ministry of Natural Resources and Environment

PCB/ONEP/DEQP

Policy/ Action plan/ Guidelines/ COP/ Information system

Operator

Ministry of Interior

Ministry of Public Health

Local Authority

Hospital

Ministry of Industry

Factory

Ministry of Industry

Industrial waste

Infectious waste

Municipal solid waste

Policy/ Action plan/ Guidelines/ COP/ Information system
Master plan of solid waste management in Thailand 2016-2021
(The government approved the agreement in May)

**Direction**
- **3R Principle: Reduce Reuse Recycle:**
  - Appropriate management, waste centralization, disposal, waste-to-energy

**Solid waste and hazardous waste management measurement**
1. Waste minimization at source
   - Separation & recovery
   - SCP concepts, environmental-friendly production, consumption & services

2. Capacity Enhancement
   - Waste collection, transportation and disposal
   - Waste disposal centre
   - Waste collection and disposal site
   - Law and regulation improvement
   - Law enforcement

3. Management Promotion
   - Public awareness & consciousness building
   - Knowledge enhancement
   - Treatment and disposal technology
   - Database development
   - Management incentives & motivations

**Solid waste management: Driven Mechanisms**

- Waste management Laws
  - Public Sanitary and Oder Act, B.E. 2560
  - The Bill of the Remains of Electronic Appliances and Electronics Equipment Management Act B.E...
  - The Bill of National Waste Management B.E...
  - the Bill on waste minimization and utilization promotion B.E...

- Mechanism of Solid waste management policy supervising.
  - Management mechanisms
  - Economic Instrument
  - Laws and regulations
  - Social Mechanism
  - Supporting

- Linkage Mechanism
  - Committee and sub-committee of Master Plan supervision & implementation
  - Provincial sub-committees for waste management supervision & implementation

**The implementation of 3R Policies Laws and Regulations.**

- **Initiating (draft) strategy on promoting of Reduce Reuse Recycle: 3R**
  - providing the framework guidelines for 3R implementation
  - emphasizing on the minimum amount of waste at sources and the final disposal
  - maximizing the values of natural resources

- **Initiating (draft) Country’s Waste Reduction and Recycling Promotion Act**
  - supporting law and regulation of related agencies
  - enhancing the reference framework for support and applicable guidelines on 3R activities

**Zero Waste Action Plan and Civil State: The Nexus Clean City and Happy People Action Plan.**

- Implementation and action plan under the Civil State approaches
- Up-scale public awareness and participation on waste reduction and waste separation according to 3R principle.

**Ministry of Natural Resources and Environment (MNRE) The Department Core Activities**

- Solid and Hazardous wastes reduction and separation project

16 departmental organizations of MNRE’s 3R operation includes:
- Inter departments wastes separation
- Zero Polystyrene food packaging
- Reducing the amount of wastes for disposal – at sources
- Reducing plastic bags and disposable food containers
3R Activities: The Examples

- End of life product disposal - voluntary project
  - End of life products
    - Donation of aluminum (pull-tab lid) to make prosthetic limbs
    - Green roof project
  - fluorescent tube
  - mobile phone and battery

Public Participation Promotion

Public Participation Promotion & Campaign on waste management in local levels nationwide (76 Provinces)

Country’s Discipline & public participation promotion towards sustainable waste & environmental management programme

Waste Collection & Transportation

Community based waste management activity

- Organic waste for composting, earthworm farming
- Selling the recyclable waste to the recyclable shop
- Collect & let the remaining waste to the disposal site by the local administration

Waste management at source
Reduce

No plastic bag & container promotion: textile bag & wooden basket promotion

Recycle waste bank

Zero bath shop & grocery

- The shop accept only recyclable waste materials as payment for the purchased grocery items

Charitable activities like recyclable waste materials donation for Buddhist

Hazardous waste collection point

Public Involvement
Conclusion
- Country Strategy – local action
- Waste is waste
- Lesson learned – City to City
- Strong Local Authority Involvement
- Waste to energy
- Leader’s Vision

Thank you for your attention