National Policies, Initiatives and Best Practices for Solid Waste Management in Thailand

Dr. Wijarn Simachaya
Permanent Secretary of MONRE, Thailand

ASEAN CONFERENCE ON REDUCING MARINE DEBRIS IN ASEAN REGION
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Land base and sea base waste... from land to the sea
Waste... in island
Waste Management Situation in Thailand 2016

National Municipal Solid Waste

40.02 million tonnes

利用率 kg/person/day

2013 2014 2015

1.54 1.55 1.56

吨/吨

tonnes/day

% % %

处置率

11.69 13.54 22.29

% %

1.15 1.15 1.13

kg/person/day

74,073 tonnes/day

1.05 mil. Tonnes

处置率

吨/吨

% %

11.69 13.54 22.29

% %

1.15 1.15 1.13

吨/吨

74,073 tonnes/day

吨/吨
Waste Management Situation in Thailand

- General Waste: 3%
- Household Hazardous Waste: 3%
- Recyclable Waste: 30%
- Organic Waste: 64%

**Organic Waste 64%**

Composed of:
- Garden waste – flowers, leaves, grass, branches etc.
- Kitchen waste – fruits and vegetables, egg shells, bones etc.

Food waste is part of kitchen waste. It is food which meant for human consumption but discarded for some reason, such as leftover food, expired food, surplus food etc.
Where is garbage going???
23 coastal provinces

2.83 million tons/year
(uncollected & disposed improperly)

Plastic waste (12%) ca. 339,000 tons/yr.

Washed into the sea (15%) ca. 51,000 tons/yr.
Current situation of marine debris

Marine debris in Thai waters

สัดส่วนcobaltic ข้อมูลระหว่างปี 2552-2558
(Fraction of coastal garbages, data of 2009-2015)

- ถุงพลาสติก Plastic bag 16%
- ฝา หรือ จุก Plastic cap 10%
- เชือก Rope 8%
- หลอด Straw 7%
- กระดาษ Paper 6%
- บุหรี่ Cigarette 5%
- ขวดแก้ว Glass bottle 5%
- ภาชนะบรรจุอาหาร Food ware 4%
- ภาชนะบรรจุอาหาร Plate, Spoon or Knife 4%
- ขวดแก้ว Glass bottle 5%
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Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment
THREATS TO WILDLIFE

- **4 Amphibians** became entangled in beverage bottles and debris
- **49 Birds** became entangled in fishing line and nets
- **18 Reptiles** became entangled in crab traps, fishing nets, or plastic bags
- **27 Mammals** became entangled in rope, fishing nets, and other debris
- **97 Invertebrates** became entangled in fishing line, plastic bags, beverage bottles, and other debris
- **46 Fish** became entangled in fishing nets, line, or plastic bags
- **4 Corals & Sponges** became entangled in fishing line or other debris

Ocean Conservancy
oceanconservancy.org/2012data
Roadmap for waste management

Critical situation to Better Environment
The Cabinet approved the plan on the 3rd of May 2016
# National waste management master plan

## Frame Work

1. Encourage citizens, including children, and the private sector to reduce waste at the source by following the 3Rs concept (Reduce, Reuse, Recycle)

2. Establish proper disposal methods for municipal solid waste and household hazardous waste by using centralized facilities for clusters of municipalities emphasizing waste utilization and waste to energy methods

3. All relevant sectors participate in the management of solid and hazardous waste
Strategies on Waste and Hazardous Waste Management

Reduced amount of accumulated waste

Promoted appropriate MSW and Hazardous Waste Management

Specific law on SW Management

Instill National Discipline
Master Plan

**Goals**

1. Municipal solid waste are disposed properly (19.6 millions of tons)

2. All accumulated waste are disposed properly (30.5 millions of tons)

3. All infectious waste are collected and disposed properly (0.05 millions of tons)

4. All hazardous industrial waste management collected and disposed properly (2.06 millions of tons)

5. Local governments have systems for waste separation at the source (households) (3,889 LGs)

6. Household hazardous waste are collected and disposed properly (0.17 millions of tons)

More than 90% (by 2023)

More than 50% (by 2022)

100% (by 2020)

100% (by 2022)

More than 30% (by 2021)

100% (by 2019)

More than 5% (by 2021)

100% (by 2020)
## National waste management master plan

### Potential benefits

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<th>Health</th>
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<td>Reduce significant health issues from improper waste disposal.</td>
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<th>Environment</th>
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<td>Reduce greenhouse gas emission.</td>
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<th>Economy</th>
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<td>Reduce waste treatment facilities footprint.</td>
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<th>Construction cost is reasonable.</th>
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<th>Operation and maintenance level is suitable for local governments.</th>
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<th>Returns (such as recycle waste selling and compost)</th>
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Y Action Plan “Thailand Minimal Wastes”

According to the Participatory State Principle
## “Thailand Minimal Wastes” goals

1. Minimizing wastes by separation at sources.

2. Establishing wastes management database.

3. Establishing measures to handle the improper disposal wastes and hazardous wastes from communities.

4. Establishing management measures for infectious wastes and industrial wastes.
Y Action plan targets

“Thailand Minimal Wastes” targets

1. A 5% reduction of wastes to the disposal sites.

An increase in numbers of waste separation at sources for

- Government agency offices
- Local government offices
- Communities / Villages
- Schools / Nursery schools
- Temples
- Markets
- Restaurants
**“Thailand Minimal Wastes” targets**

- Every local government has its own master plan and waste management database.

- Each province shall have at least an example for best waste management practices.

- Each local government shall have at least an example for best municipal hazardous waste management practices.

- At least $\geq 85\%$ of infectious wastes received proper disposal.

- At least $\geq 70\%$ of industrial wastes received proper disposal.
Zero Waste Action Plan and Civil State:
The Nexus Clean City and Happy People Action Plan (Approved by the cabinet on the 20th September 2016)

Solid waste situation
Solid waste generated 26.85 m. ton
Municipal collection 15.49 m. ton

Government policy
NCPO approve on 26 Aug 2014
NCPO approve 19 Aug. 2014
Gov. approved on 12 May, 2015
Gov. approved on 16 June. 2015
Gov. approved on 3 May 2016
Gov. approved on 20 Sep 2016

Basic principal
3R reduce reuse recycle

Framework
Focus on waste management at source; waste reduction & separation including efficiency waste collection

Goal
Civil state implementation strategy will bring all sector to participate in waste reduction & separation at source which follow eRs principle

Civil state
Government
Private Sector
Civil Society
Education Sector
Religion Sector

Joining hand in hand in proper waste management for better quality of life & environmental friendly towards green & happiness city

Infectious waste 52,147 ton
Industriar hazardous waste 2.06 m. ton

Measure
1. SWM at source
2. SWM inter-media
3. consciousness and sustainable behavior
4. Data base system

100% of totally Community establish the hazardous waste collection center

Reduce 50% of community waste go to disposal site

4.94 m. ton
Sanitary disposed 8.29 m. ton

Vision
Joining hand in hand in proper waste management for better quality of life & environmental friendly towards green & happiness city

Per capita 1.13 kg/day

Hazardous waste situation 0.58 m. ton
generated
Initiatives and Best Practices

Responses and management of marine debris

1. Conduct research and assessment of marine debris, plastic and microplastic.
2. Organize clean-up activities involving public participation in coastal provinces.
3. Implement waste reduction measures in selected pilot areas.
4. Establish marine debris database and knowledge portal.
Clean-up activities

beach

mangrove

coral zone
Reduce using plastic in island
3) Study the impact of marine debris on ecosystems in sand beaches

4) Study the impact of marine debris on special species in Gulf of Thailand/Andaman Sea.

5) Research on micro plastic

1) Study of the amount of waste in river mouth areas

2) Study the impacts of marine debris on ecosystems in coral areas
No Smoke-free

- MOU to solve the problem of cigarette butts littering the country’s beaches

24 beaches in 15 provinces engaged in this project, including Bangsan in Chonburi and Pa-Tong on Phuket Island
No Smoke-free

1. Smoking and disposing of cigarette butts is not permitted in designated beach areas.

2. Smoking is permitted only in designated areas. Cigarette butts must be disposed of in designated containers only. Will be subject to punishment in accordance with the Promotion of Marine and Coastal Resources Management Act, B.E. 2558 (2015)
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.
Starts to stop using plastic cap seals
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
R Activities: The Examples

- Setting-up junk shop entrepreneurship managerial efficiency for waste management
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 management at source
Waste management at source
Waste management at source
Reduce food waste
Waste Collection & Transportation
Waste Collection & Transportation

Improve or change the waste collection & transportation system to support the waste separation activity

- Establish the waste collection point in the community
- Make a schedule date & time for waste collection and separation by garbage truck
Properly Waste Disposal

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
Reduce

No plastic bag & container promotion: textile bag & wooden basket promotion
No plastic food container for the Buddhist ceremony
Making a wreath from recyclable materials or provided a tree as a wreath
Waste separation at home & communitywide
Making a bio-extract liquid from organic waste at home and communitywide
Organic waste composting at home & communitywide
Earthworm farming for organic waste disposal
Recycle waste bank
Zero bath shop & grocery

- The shop accepts only recyclable waste materials as payment for the purchased grocery items.
Charitable activities like recyclable waste materials donation for Buddhist
Reuse materials
Hazardous waste collection point
### Thailand waste management challenges

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<td>Change of government = change of waste management policy.</td>
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<td>Lack of Political will &amp; conflicts of local authorities</td>
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<td>Change of human consumption behavior is hard.</td>
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<td>Many laws and regulations concerning waste management.</td>
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<td>Sophisticated technologies in waste management is usually not an answer.</td>
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Thank You Very Much

MONRE, Thailand