



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



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***Permanent Secretary of MONRE, Thailand***

**ASEAN CONFERENCE ON REDUCING MARINE DEBRIS IN ASEAN REGION**

**๒๒-๒๓ November ๒๐๑๗/ Phuket, Thailand**

# *Land base and sea base waste... from land to the sea*



# Waste... in island





# Waste Management Situation in Thailand ๒๐๑๖

## National Municipal Solid Waste

๒๓.๐๕ million tonnes

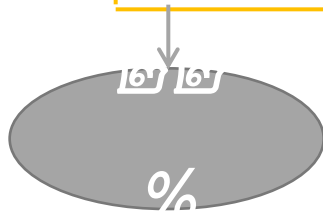


๑.๑๕ kg/person/day

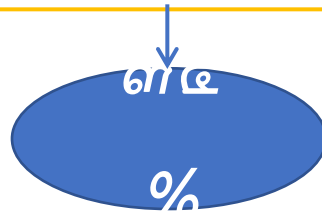
๒๐๑๓	๒๐๑๔	๒๐๑๕
๑.๑๕	๑.๑๑	๑.๑๓

๓/๕, ๐๓/๓

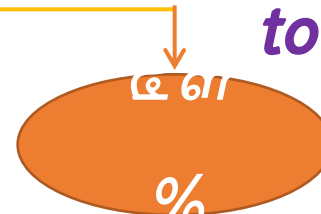
tonnes/day



๕.๓๖ mil.Tonnes Waste

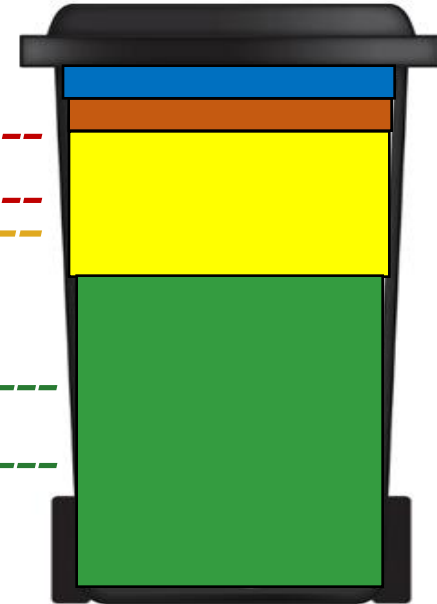


๘.๕๓ mil.Tonnes Disposed properly



๑๑.๖๓ mil.Tonnes Disposed

General Waste ๓ % -----  
 Household Hazardous Waste ๓ % -----  
 Recyclable Waste ๓๐ % -----



**Organic Waste ๖๔ %** -----

Compose 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.

(๒๐๐๔)

# Where is garbage going???



## *Solid waste situation in coastal areas*

**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

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



กรมทรัพยากรทางทะเลและชายฝั่ง กระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม

# 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



**4**

**CORALS & SPONGES**  
BECAME ENTANGLED IN  
FISHING LINE OR  
OTHER DEBRIS



**97**

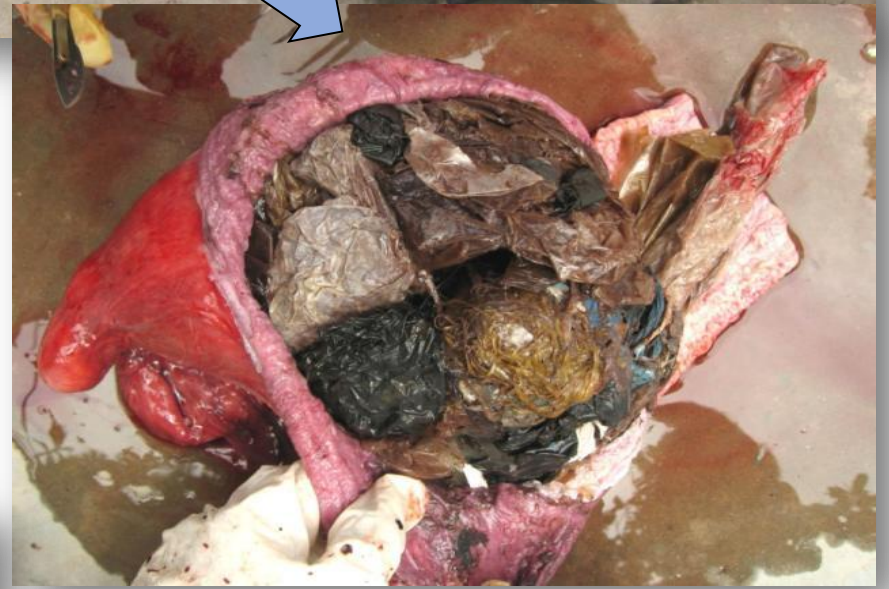
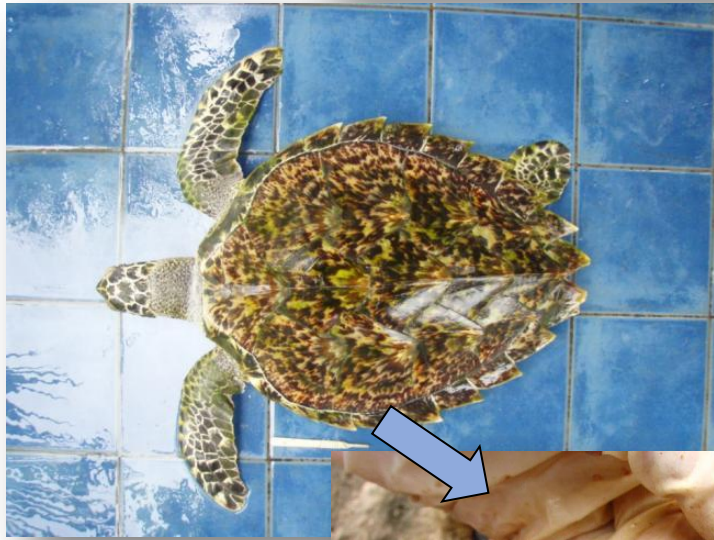
**INVERTEBRATES**  
BECAME ENTANGLED IN  
FISHING LINE, PLASTIC BAGS,  
BEVERAGE BOTTLES,  
AND OTHER DEBRIS

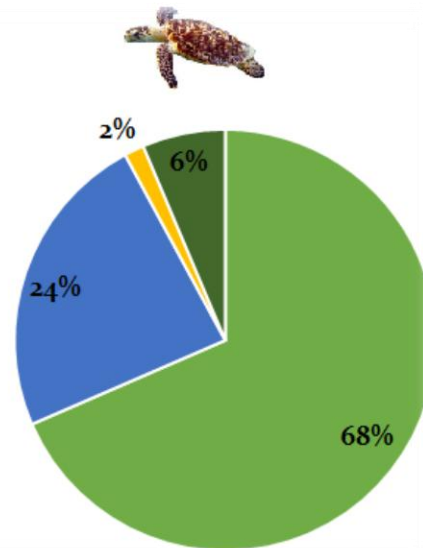
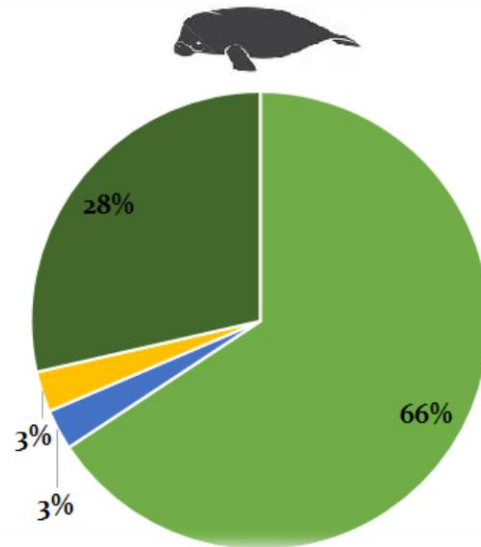
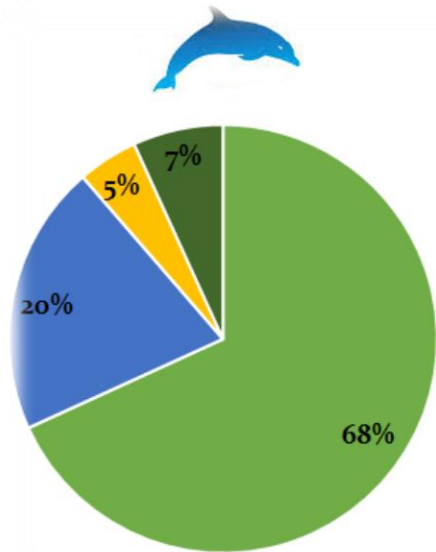


**46**

**FISH**  
BECAME ENTANGLED IN  
FISHING NETS, LINE,  
OR PLASTIC BAGS







**-Fishery tools**   **-Marine debris**   **-Boat/Boat propeller**   **-Others**

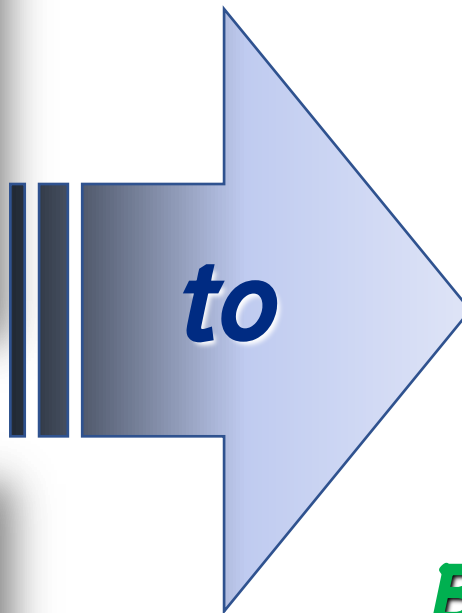
# Roadmap for waste management



***Critical***



***situation***



***Better Environment***

# ***National Solid Waste and Hazardous Waste Management Master Plan***

**୨୦୧୬- ୨୦୨୧**



***The Cabinet approved the plan on the ୩<sup>rd</sup> of May ୨୦୧୬***

# ***National waste management master plan***

## ***Frame Work***

- ၈. Encourage citizens, including children, and the private sector to reduce waste at the source by following the **mRS** concept (Reduce, Reuse, Recycle)*
- ၉. 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*
- ၁၀. **All relevant sectors** participate in the management of solid and hazardous waste*

# Strategies on Waste and Hazardous Waste Management

Reduced amount of accumulated waste

๑



Promoted appropriate MSW and Hazardous Waste Management

๒



Specific law on SW Management

๓



Instill National Discipline

๔



More than 85% (by 2020)

More than 50% (by 2020)

100% (by 2015)

100% (by 2020)

More than 80% (by 2020)

More than 80% (by 2020)

100% (by 2020)

100% (by 2020)

1. municipal solid waste are disposed properly (18.6 millions of tons)

2. Local governments have systems for waste separation at the source (households) (8,448 LGs)

3. All hazardous industrial waste management collected and disposed properly (12.06 millions of tons)

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

5. Household hazardous waste are collected and disposed properly (0.18 millions of tons)

# Master Plan Goals

# ***National waste management master plan***

## ***Potential benefits***

### ***Health***

*Reduce significant health issues from improper waste disposal.*

### ***Environment***

*Reduce greenhouse gas emission.*

### ***Economy***

*Reduce waste treatment facilities footprint.*

*Construction cost is reasonable.*

*Operation and maintenance level is suitable for local governments.*

*Returns (such as recycle waste selling and compost)*

# ๑Y Action plan “Thailand Minimal Wastes”



## ๑Y Action Plan “Thailand Minimal Wastes”

(๒๐๑๕ – ๒๐๑๖)

According to the Participatory State Principle

## **๑ Y Action plan goals**

### ***“Thailand Minimal Wastes” goals***

- ๑. *Minimizing wastes by separation at sources.***
- ๒. *Establishing wastes management database.***
- ๓. *Establishing measures to handle the improper disposal wastes and hazardous wastes from communities.***
- ๔. *Establishing management measures for infectious wastes and industrial wastes.***

# *Y Action plan targets*

## *“Thailand Minimal Wastes” targets*

*๑. A ๕% 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*

# ๑ Y Action plan targets

## *“Thailand Minimal Wastes” targets*

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

๓. *Each provinces shall has at least an example for best waste management practices.*

๔. *Each local government shall has at least an example for best municipal hazardous waste management practices.*

๕. *At least ๘๕% of infectious wastes received proper disposal.*

๖. *At least ๗๐% 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 20<sup>th</sup> September 2016)



approve of agreement under the government on 20 September 2016

## Solid waste situation

Solid waste generated **26.85 m. ton**

Municipal collection **15.49 m. ton**

Municipal 3R benefit **4.94 m. ton**

Sanitary disposed **8.29 m. ton**

Infectious waste **52,147 ton**

Industrail hazardous waste **2.06 m. ton**

Hazardous waste situation **0.58 m. ton**

generated Per capita **1.13 kg/day**

## vision

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

## Government policy

- NCPO approve on 26 Aug 2014 → SWM Roadmap
- NCPO approve 19 Aug. 2014
- Gov. approved on 12 May, 2015
- Gov. approved on 16 June. 2015
- Gov. approved on 3 May 2016 → SWM country master plan
- Gov. approved on 20 Sep 2016 → Zero Waste Master Plan, Zero waste Action Plan

## Basic principal



*Civil state implementation strategy will bring all sector to participate in waste reduction & separation at source which follow 3Rs principle*

4

## Framework

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

## Goal

- Reduce 50% of community waste go to disposal site
- 100% of totally Community establish the hazardous waste collection center
- 70% of industrial waste & 85% of infectious waste was proper dispose increasingly

## Measure

- SWM at source
- SWM inter-media
- consciousness and sustainable behavior
- Data base system

5

6

7

# Initiatives and Best Practices

## Responses and management of marine debris

๑. Conduct **research and assessment** of marine debris, plastic and microplastic.
๒. Organize **clean-up activities** involving public participation in ๒๓ coastal provinces.
๓. Implement **waste reduction measures** in ๓ selected pilot areas.
๔. Establish marine debris **database and knowledge portal**.



# *Clean-up activities*



*beach*



*mangrove*



*coral zone*

# Reduce using plastic in island

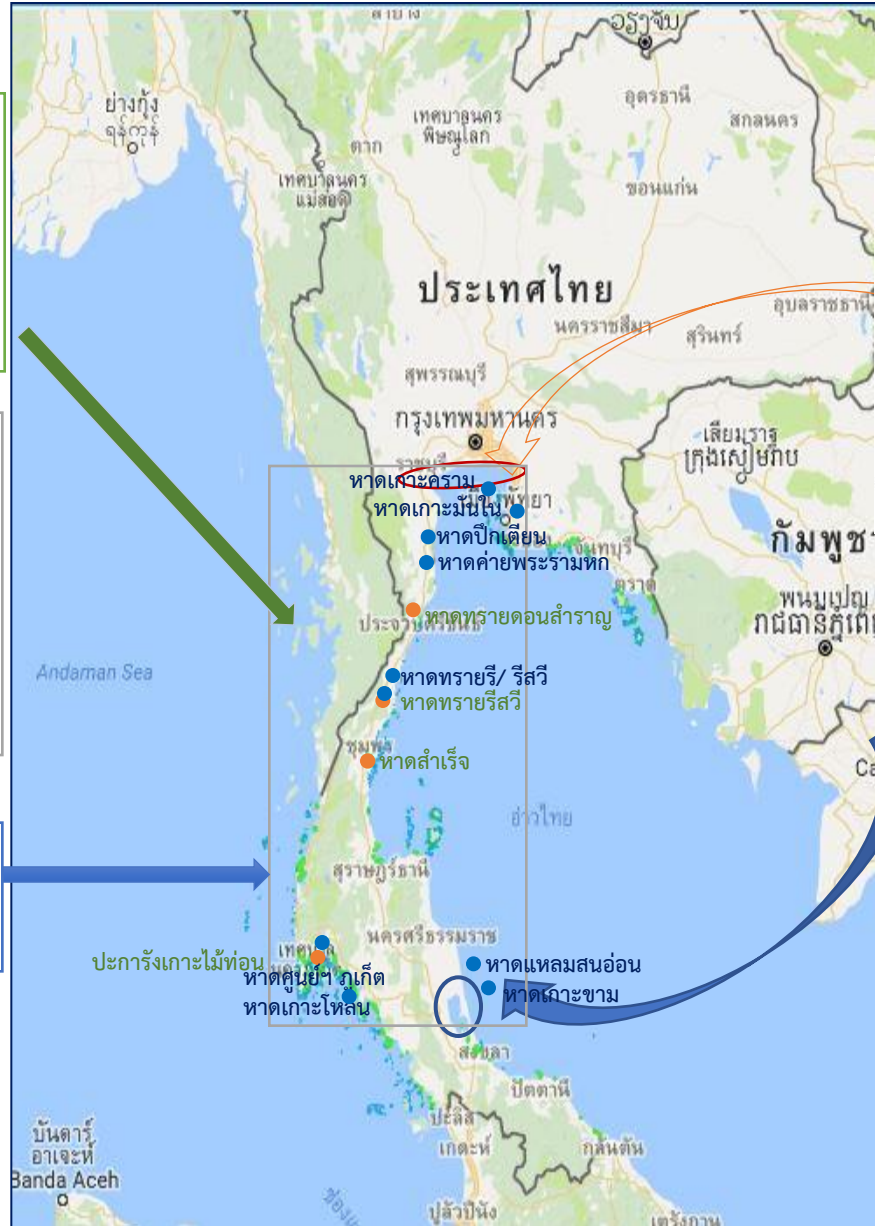


# Database and knowledge portal

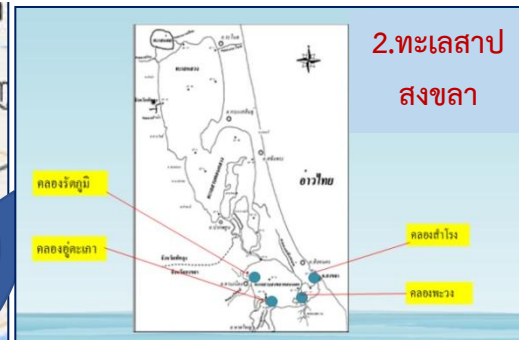
3) Study the impact of marine debris on ecosystems in sand beaches

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

**SPRING NEWS 19** **หาดไหนบ้าง?**  
**ห้ามทิ้ง-ห้ามสูบ** ❌  
 ตามมาตรการคุ้มครองทรัพยากรทางทะเลและชายฝั่งบริเวณชายหาด

**ฝ่าฝืน ปรับ 1 แสน ถูก 1 ปี**  
**ดีด้วย กฎาพันธ์ 61**

<b>ระยอง</b> อ.เมือง หาดแสงจันทร์	<b>จันทบุรี</b> อ.ท่าใหม่ หาดแหลมเสด็จ
<b>ตราด</b> อ.คลองใหญ่ หาดบางชั้น	<b>ชลบุรี</b> อ.เมือง อ.เกาะสีชัง อ.สัตหีบ อ.บางละมุง หาดบึงแสน หาดท่าพึ่ง หาดทรายแก้ว หาดตงตาล พิทยา
<b>เพชรบุรี</b> อ.ชะอำ หาดชะอำ	<b>ประจวบฯ</b> อ.หัวหิน หาดหัวหิน หาดเขาตะเกียบ
<b>ชุมพร</b> อ.เมือง หาดทรายรี	<b>สุราษฎร์ฯ</b> เกาะสมุย เกาะพะงัน หาดนอสุุด หาดโกลนบ้านเก่า
<b>สงขลา</b> อ.เมือง หาดลาภิรมย์	<b>ปัตตานี</b> อ.สายบุรี หาดวาสุกรี
<b>นครศรีฯ</b> อ.ปากพะนิง หาดปลายทราย	

**พังงา**  
อ.เกาะยาว, อ.ตะกั่วป่า  
หาดเกาะไข่นอก  
หาดเกาะไข่นอก  
หาดเขาหลัก

**ภูเก็ต**  
อ.กะทู้  
หาดป่าตอง

**กระบี่**  
เกาะลันตา  
หาดพระเฒ่า  
หาดคลองดาว  
หาดคอกวาง

**ตรัง**  
อ.หาดสำราญ  
หาดสำราญ

**ทพ. จัมมิตชัย มณีธรรม**  
เมื่อเข้าเขตชายหาดปลอดบุหรี่  
24 แห่ง ใน 15 จังหวัดชายฝั่ง

**SMS warning**

**AIS** **true together**

- ห้ามสูบบุหรี่หรือทิ้งก้นบุหรี่ และขยะมูลฝอยในบริเวณชายหาดที่กำหนด
- อนุญาตให้สูบบุหรี่หรือทิ้งก้นบุหรี่ ตลอดจนขยะมูลฝอยในสถานที่ หรือภาชนะที่จัดเตรียมไว้ให้เท่านั้น ผู้ฝ่าฝืนจะมีความผิดตามกฎหมายส่งเสริมการบริหารจัดการทรัพยากรทางทะเลและชายฝั่ง พ.ศ. 2558

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)

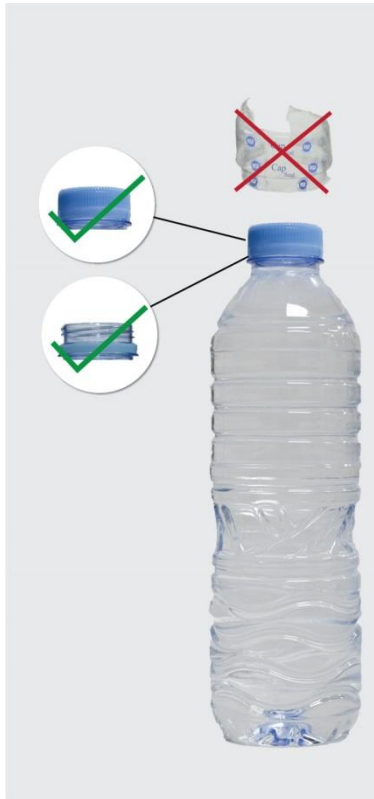
[www.facebook.com/dmcrth](http://www.facebook.com/dmcrth)

# 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



# *enR 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*



## *mR Activities: The Examples*

➤ *Setting-up junk shop entrepreneurship managerial efficiency for waste management*



# 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 management at source



# Waste management at source



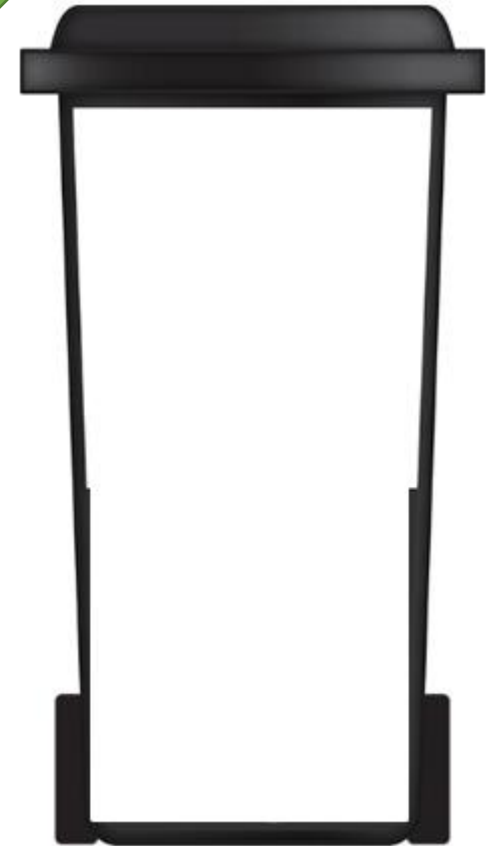
# Waste management at source



**REUSE**  
**REDUCE**  
**RECYCLE**

A green recycling symbol consisting of three arrows forming a triangle.

# 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 accept 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

## Waste management challenges

Change of government = change of waste management policy.

Lack of Political will & conflicts of local authorities

Change of human consumption behavior is hard.

Many laws and regulations concerning waste management.

Sophisticated technologies in waste management is usually not an answer.

***Thank You Very Much***



***MONRE, Thailand***