

เรามุ่งมั่นที่จะทำงานด้วยความโปร่งใส เป็นธรรม เป็นกัม เป็นประโยชน์ต่อประชาชน



# Lesson Learned on **Domestic Wastewater Management** in Thailand

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# Domestic Wastewater

- one of the most serious environment problems
- approximately 15 million m<sup>3</sup>/day of domestic wastewater generated by the population around the country in year 2011



# Domestic/Municipal Wastewater Implementation and Management in Thailand



(2,008) Municipalities

MWW~3.8 M m<sup>3</sup>/d

BMA, Pattaya City

MWW. ~2.7 M m<sup>3</sup>/d

(5,767) LAOs

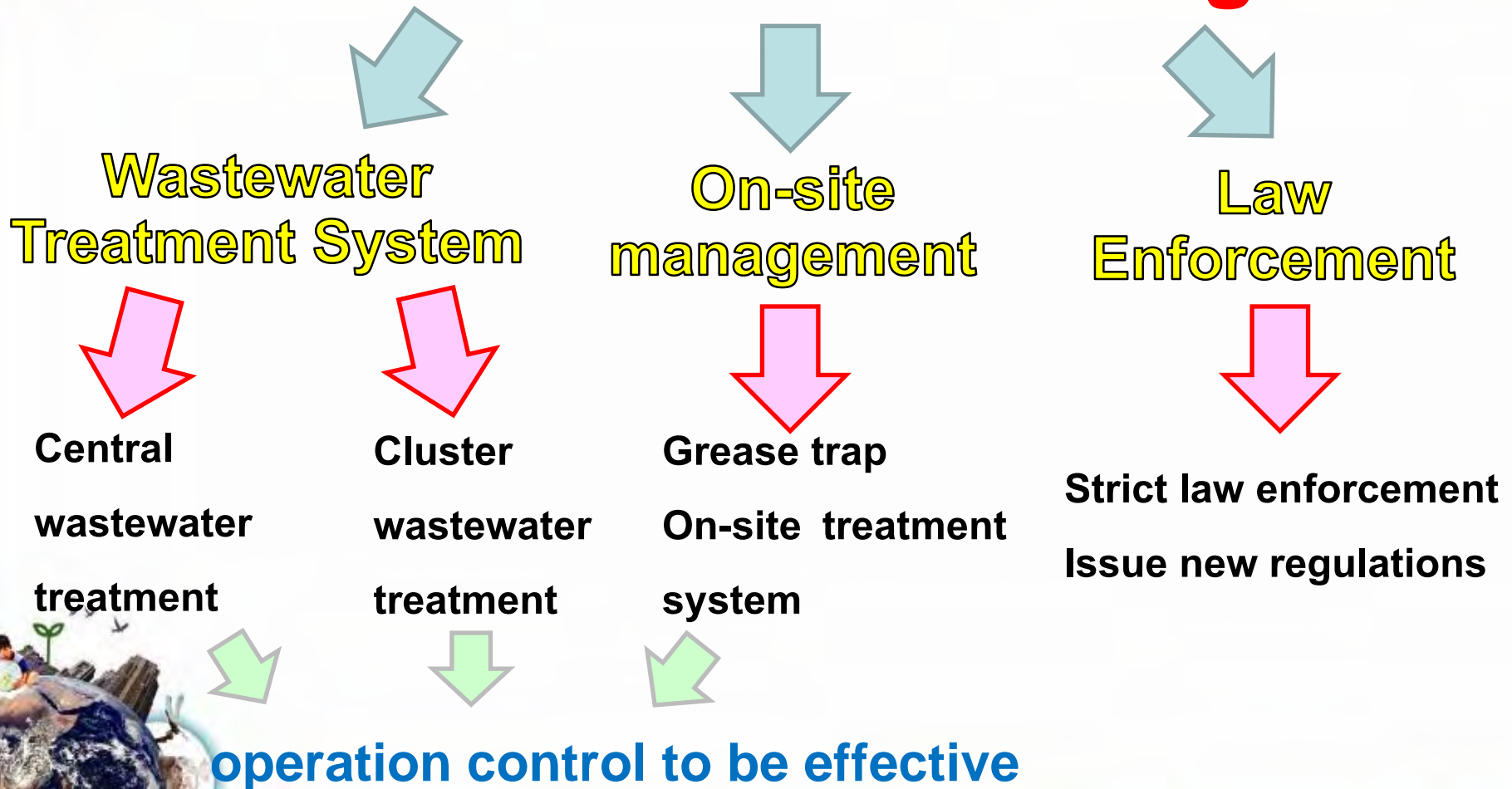
MWW~ 8.5 M m<sup>3</sup>/d

Total MWW~15 M m<sup>3</sup>/d

The treatment capacity  
~ 3.2 M m<sup>3</sup>/d  
(~ 21.3% of total MWW)



# Domestic Wastewater Management



# Central Wastewater Treatment Facilities in Thailand

**Total 101 Plants**

- **Constructed 91 Plants**
- **Under Construction 9 Plants**
- **Delayed 1 Plant**
- **(Samutprakan Province)**



# Types of wastewater treatment technologies in Thailand



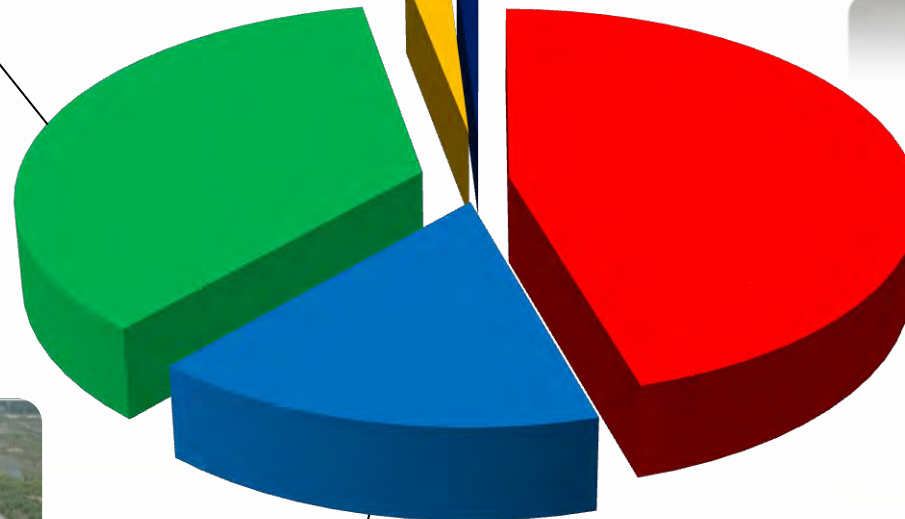
Wetland (2%)

Activated Sludge

(36%)



Rotating Biological  
contactor (1%)



Stabilization Pond  
(45%)

Aerated Lagoon  
(16%)





# The Implementation of Central Wastewater Tariffs

## 8 municipality have enacted tariffs regulations & implement tariffs

- Hat Yai Municipality
- Pattaya City
- Tarae Municipality
- Huakwang Municipality
- Sriracha Municipality
- Sansuk Municipality
- Ban Pae Municipality
- Patong Municipality

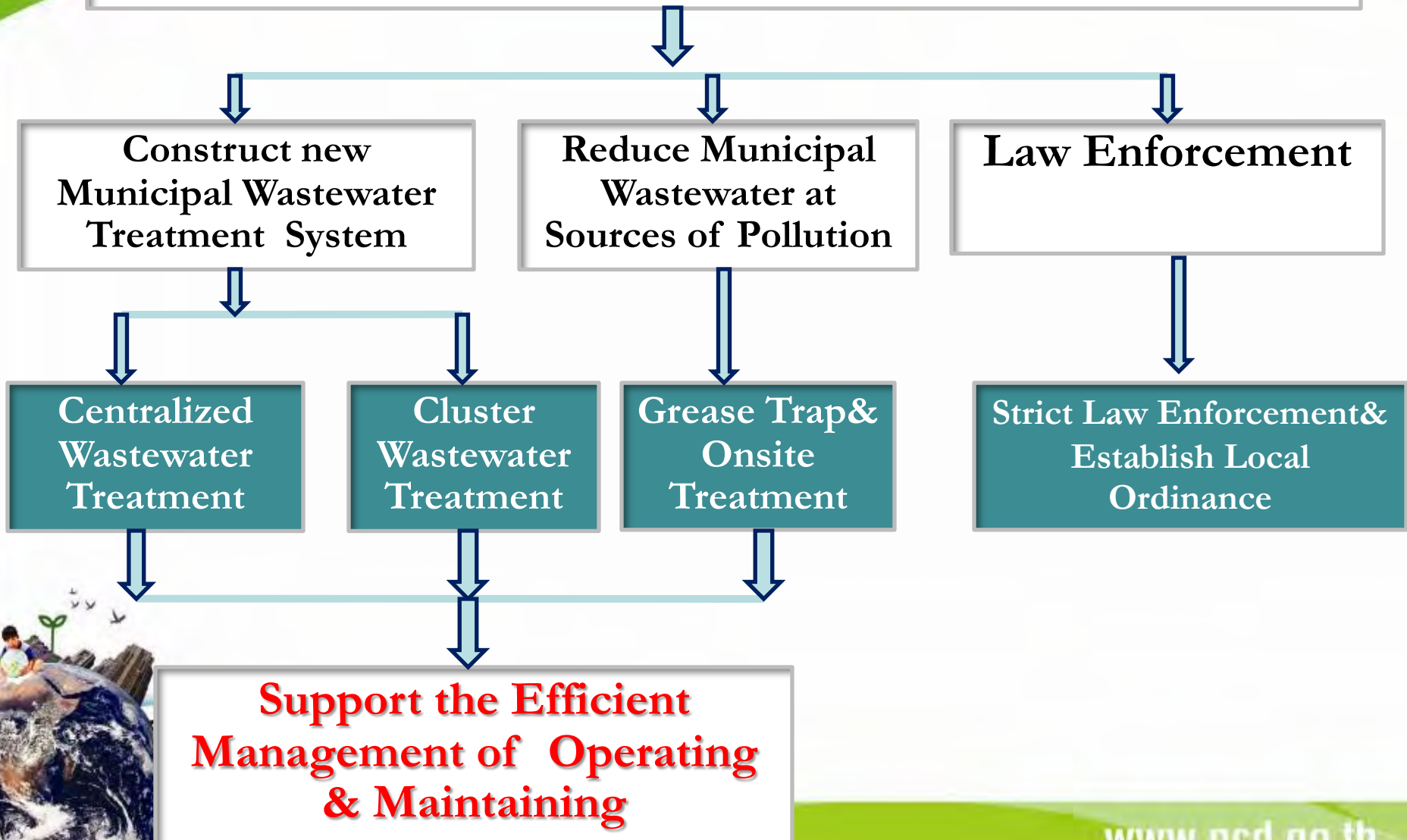
## 4 municipality

in progress

- Karon Municipality
- Maesod Municipality
- Mookdahan Municipality
- Huahin Municipality



# Implementation Policy on Domestic Wastewater Management





# The Implementation of Municipal Sewage Management system (MSMS 2008)

- Developed by using ISO 9000/14000 concept
- Consist of 6 requirements

**Policy**

**Staff**

**Evaluation**

**Planning**

**Implementation**

**Audit**



- Support LAOs to develop their domestic wastewater management system



# The Implementation of Municipal Sewage Management system (MSMS 2008) (Cont.)

- 17 LAOS have implemented MSMS 2008
- currently only 2 LAOS was certified MSMS 2008

**Chiang Rai municipality**

**Phuket municipality**



# Wastewater Collection and Storm Drainage Systems

- The type of collection systems:
  - ❑ Combined Sewer System : drain both rainfalls and wastewater within one system
  - ❑ Separate Sewer System : the sewerage and drainage are collected in separate piping systems
- most of the drainage systems in Thailand are combined system





# Constraints in Domestic Wastewater Management in Thailand

- Many urban communities lack appropriate domestic wastewater facilities and management
- The communities and people still lack understanding in wastewater problems and awareness to protect their own environment
- The local administration organizations are still unable to manage domestic wastewater
- Lack of budget for construction of the new wastewater collection system and wastewater treatment facilities as well as operation and maintenance system
- Limitation of wastewater discharge fee's collection



# Challenges in Domestic Wastewater Management in Thailand

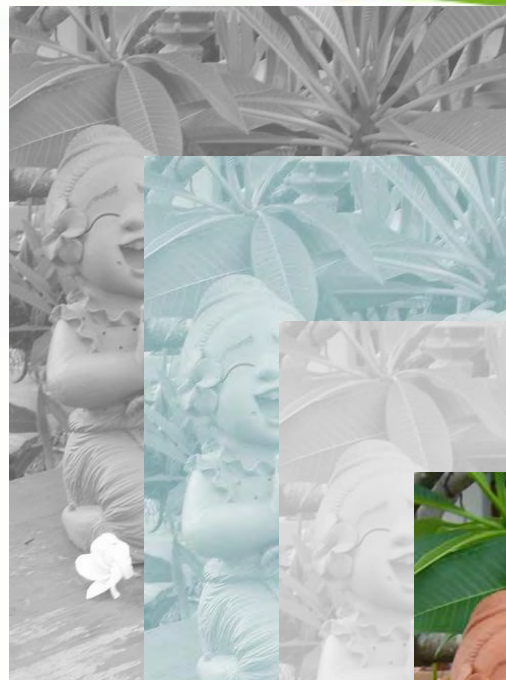
- Propose and assess technically and economically feasible options including identification of types, the separate sewage system, or combined sewer system i.e. Centralized, Cluster and Onsite of wastewater treatment systems
- Technical assistance e.g. software
- The implementation and enforcement of the Effluent Standards from domestic central treatment plant
- Pressure from the public
- Water shortage and climate change
- Water conservation becomes an issue ..... Water re-use and recycle



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