Decentralized Domestic Wastewater Treatment
Nakhon Ratchasima Municipality
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1. Background

- Nakhon Ratchasima is located on Northeastern region of Thailand
- Area of Nakhon Ratchasima Municipality 37.5 km²
- Population 170,000 persons
Centralized Wastewater treatment

- Facilities in Nakhon Ratchasima based on oxidation pond able to treat 70,000 m³ per day
- About 80% of households are connected to this treatment facility.
- The treatment efficiency in oxidation pond is relatively low for BOD.
Decentralized Wastewater treatment

<table>
<thead>
<tr>
<th>No.</th>
<th>Location</th>
<th>Type</th>
<th>Capacity (m³/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Toa Sura</td>
<td>AS</td>
<td>350 m³/d</td>
</tr>
<tr>
<td>2.</td>
<td>Mittapat soi 4 (1)</td>
<td>AS</td>
<td>90 m³/d</td>
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<tr>
<td>3.</td>
<td>Mittapat soi 4 (2)</td>
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<tr>
<td>4.</td>
<td>Tatako (1)</td>
<td>AS</td>
<td>170 m³/d</td>
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<tr>
<td>5.</td>
<td>Tatako (2)</td>
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<td>6.</td>
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<td>7.</td>
<td>Samrongjan</td>
<td>AS</td>
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</table>
2. Management framework for cluster treatment

- Responsible body: construct and operate by Municipality
- Guideline: Decentralized wastewater treatment
- Funding mechanism for installation: Province & Municipality
- Operation: Municipality
3. Technological aspect of cluster treatment

- Technology: complete mix activated sludge
- Sludge Treatment: Sludge bed
- Efficiency BOD removal: 85 - 90 %
- Construction and Operation Cost:
  - Construction cost: 21 MB
  - Operation cost: 20,000 Baht/system
4. Lessons learned from operate

- controlling for many plants of the activated sludge process is difficult
- sludge bulking by filamentous
- Removal of excess sludge
Thank you