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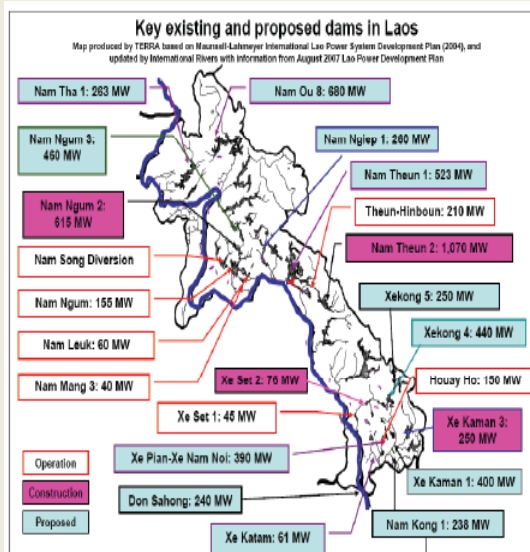
**Current situation and future vision of domestic
wastewater treatment in Lao PDR**

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Content of presentation

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wastewater treatment in Lao PDR**
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 - Placing of decentralized domestic wastewater treatment;
 - Technology feasible for decentralized domestic wastewater treatment in Lao PDR;
 - Management Framework needed for decentralized domestic wastewater treatment in Lao PDR.

General Information



Sources: International River, 2007

Land Area (km ²)	236,800	
Population (2012)	6.3 (UNDP)	
GDP (USD)	7,900 LKP/1USD	10,270,000 mil (2012)
Renewable water resources (m ³)	270 billion	
Total water withdrawal (m ³)	5.7 billion (100%)	
Water use by sectors (2000)	Agriculture (m ³)	4,674 (82%)
	Industry (m ³)	570 (10%)
	Domestic (m ³)	456 (8%)

Sources: MONRE, 2012

Current situation of domestic wastewater treatment in Lao PDR

- They *are poor domestic wastewater treatment and sanitation management in Lao PDR* generally contributes to wastewater pollution especially in the urban areas.
- The major water source:
 - *Water Supply* is available in urban areas and *surface water*
 - *Groundwater is using in* sub-urban and rural areas
- Now, both the surface and ground water quality are already *declining* although still within the acceptable limits.
- Water pollution issues will *become increasingly* important in the near future.

Domestic Wastewater Discharge



Old septic tank spilling stored wastewater



Discharge of washing water due to broken pipe

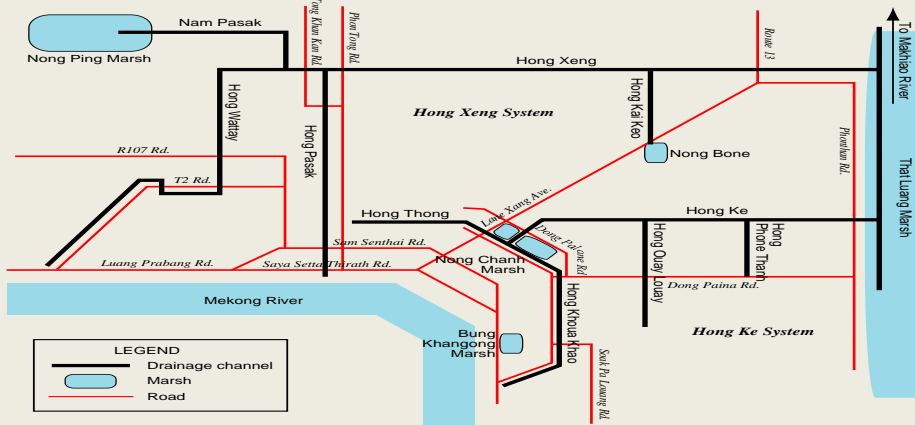


Small pipes discharging gray water from households, hotels and restaurants along the right bank in the upper half of this stretch

Domestic wastewater treatment in Lao PDR

(Example Vientiane capital)

Sources: JICA, 2012



The wastewater from individual households in urban areas has been discharged into open drains along the roads and into natural wetlands in and around the city

Wastewater Treatment in Lao PDR

- The report released in May 2009 on Economic Impacts of wastewater and sanitation in Lao PDR by Water Supply Project (WSP) revealed:
 - Lack of law and regulation of water environment;
 - Poor sanitation, including hygiene, causes at least three million disease episodes and 6 thousand premature deaths annually (1 death per 1000 inhabitants of 6.2 million total populations) ;
 - About 82% of schools does not have sanitation facilities ;
 - About 40% of the population does not have sustainable access to improved water source (47% in rural areas);
 - About 52% of the national population does not have access to 'basic' sanitation (62% in rural areas)

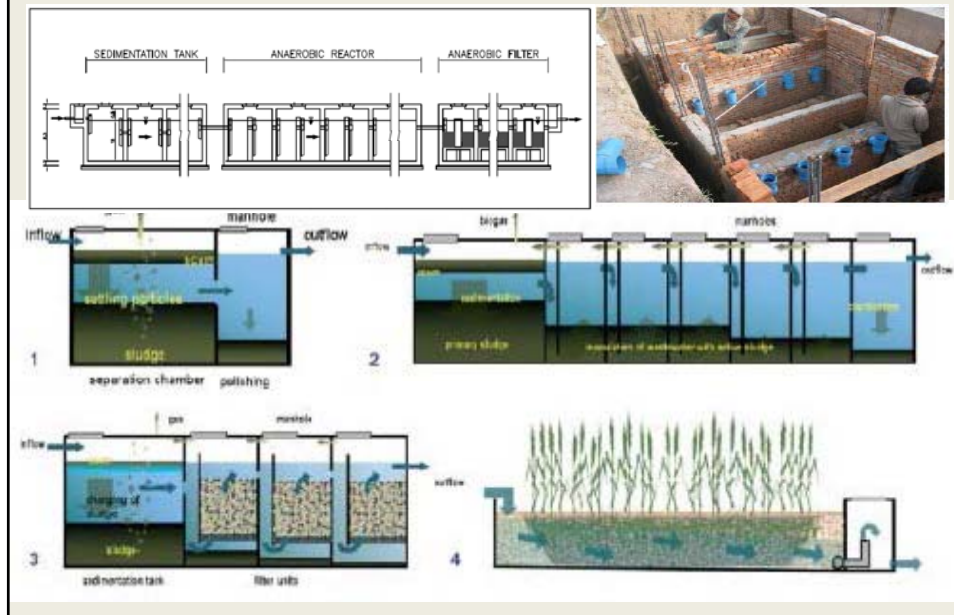
Strategy for future development plan of domestic wastewater treatment

- The strategy for future development plan shall be ***“to support increased access to sustainable wastewater facilities and services in the urban areas of urban areas in Lao PDR”***;
- Taking such situations into account, the concrete framework can be enumerated as below:
 - To conserve the existing water environment in the entire *River basin, in particular functional natural water purification in Marsh and lower reaches of the River*;
 - *To restore the lost water environment in the urban drainage canal system*; for conserving and increasing inhabitable environment of aquatic life along the canal system; and
 - *To treat the wastewater discharged from the urban households in urban areas*, as a dominant source of surface water deterioration, and to improve the water environment in the drainage canal system.

Placing of decentralized domestic wastewater treatment

- Decentralized Wastewater Treatment System (DEWAT) would be one placing to use in Lao PDR:
 - DEWATS is an important component of the Community-Based Sanitation (CBS) framework to improve sanitation conditions in areas with *improper wastewater and sanitation facilities*;
 - DEWATS applications provide *treatment for both domestic and industrial sources*;
 - DEWATS applications provide *treatment for organic wastewater flows from 1-1000 m³ per day*
 - DEWATS applications *do not need sophisticated maintenance*;
 - The system has the *capacity to treat 10 m³ of wastewater per day* which is sufficient to significantly reduce pollution of water and soil by the wastewater effluent.

Technology feasible for decentralized domestic wastewater treatment



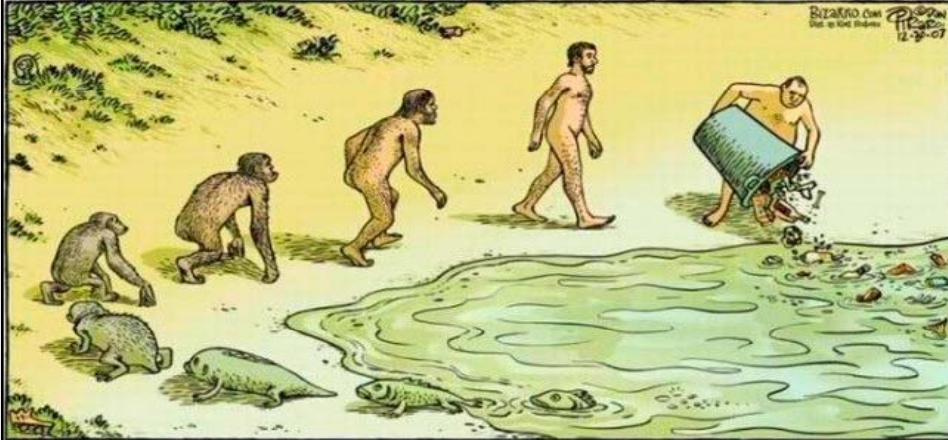
Institutional Framework

- Capacity building for Institutional Management of Environment;
- Development Need for Regulations and Guidelines;
- Necessity of Practicable Water Quality Standards;
- Strengthening/Establishing Implementing/Coordinating Agencies to Integrate the Related Government Agencies and Donors/NGOs;
- Disclosure and Dissemination of Information for Awareness Development.

Management Framework needed for decentralized domestic wastewater treatment

- Early Implementation of the Structural Water Environment Improvement Plan;
- Prevention of Concrete Covering on Drainage Systems;
- Conservation of Marshes/Wetlands;
- Strengthening of Administrative Guidance;
- Strengthening of Maintenance Work and Monitoring Activities for the Drainage Network.

Q & A



Green + Clean = Beautiful