

**MINISTRY OF CONSTRUCTION OF VIETNAM
ADMINISTRATION OF TECHNICAL INFRASTRUCTURE**

**DRAINAGE MANAGEMENT AND
WASTEWATER TREATMENT IN VIETNAM**

Yangon, 2017

**Administration of technical infrastructure
Ministry of Construction**

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CHALLENGES, DIFFICULTIES

1. The capital:

- With the rapid speed of urbanization at present, it is needed about 800 million to 2 billion US dollars yearly to invest in the construction of wastewater treatment system in Vietnam (*Source: ADB*).
- However, the investment capital for construction and rehabilitation of rain water drainage systems, wastewater connection & collection and WWTPs are mostly from the State budget and ODA capital, have not yet been met real demand.

2. Climate change and current technical infrastructure affects urban drainage and flooding

- Peak rainfall intensity (100 mm rainfall per 60 minutes)
- Small sewer; hollow terrain; upstream flood.
- Drainage system is inadequate, embankment and tide control systems have not yet sufficiently invested.
- Relevant technical infrastructure system has not been fully and synchronously invested.
- Design parameters of rainfall data have not been adjusted timely based on climate change scenarios and available update data.

CHALLENGES, DIFFICULTIES

3. Management organization of drainage system

- Organizational and operational structure of the drainage systems is not united in localities: having 10 drainage enterprises, 20 water supply and drainage enterprises, others include urban environment ones in the forms: typically, drainage companies, water supply and drainage companies, urban project companies, urban environmental companies, etc. They are authorized to manage assets, as investor of projects of drainage and urban environmental sanitation, are directly allocated or tendered for management and operation of drainage and wastewater facilities.

4. Human resource training

- There are many training centers for management and operation of water supply systems in Vietnam, but so far, regarding to wastewater sector, there are almost no training institutions that have enough quality to systematically train human resources with skill and high technologies in this field

CHALLENGES, DIFFICULTIES

5. Technology

- WWTPs operate less than 50% of designed capacity.
- 59% of WWTPs currently apply activated sludge technology for treatment.
- 84% of WWTPs in design or construction stage also apply the activated sludge technology.
- Treatment of sludge and odor has not been thoroughly invested.

6. Drainage management and wastewater treatment and in industrial zones.

- Implementation of planning and investment in some industrial zones is not uniform.
- Monitoring of overcoming consequences of environmental pollution in industrial zones by Provincial People's Committee is not effective (*According to the Vietnam Environment Administration, 2014*)

SOLUTIONS

1. Planning and development plan for drainage system:

- Revising the specialized planning of drainage and wastewater treatment in urban center, considering factors related to impacts of climate change on drainage systems.
- Developing and managing flood hazard maps.
- Identifying the role and location of Detention Basin in the priority of rainwater drainage and reducing urban flooding.
- Provincial People's Committees issue and direct implementation of local water drainage regulations.

2. Invest development of drainage systems

- Investing the drainage systems and construction projects, developing the synchronous drainage systems, including construction of a collection and transfer networks and wastewater treatment plants to ensure that wastewater treatment plants may operate with their designed capacity.
- Having a plan to develop and issue roadmaps to collect fee for appropriate wastewater treatment services in order to improve quality of services and enough expense for management and operation of the drainage system in locality and reduce burden on budget.

SOLUTIONS

3. Mechanisms and policies for drainage:

- The priority is given to the allocation of capital sources from the central budget (including ODA capital) for investment in the development of drainage systems in large cities and urban in river basins affected by natural disaster (flood, tide, etc.), causing great impacts on the environment and people's life.
- Socialization of investment, construction, management and operation of drainage system, gradually change the subsidy mechanism to the form of business services according to the market mechanism under the control of the State, creating the attractive environment for investors involved in the drainage sector to develop sustainable drainage system.
- Developing technologies, equipment and materials in drainage sector following the direction of approaching new technologies with environment-friendly.
- Developing human resource.
- Enhancing communication and education, international cooperation, and community awareness.

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