

TECHNICAL INFRASTRUCTURE IN VIETNAM'S URBAN ZONES CHALLENGES AND DEVELOPMENT PROGRAMS

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1. Overview of achievements

In the past 10 years, the rapid development of urban system and the process of urbanization in Vietnam can be seen all over the country. With the attention and direction of the Government, Ministries, Agencies and leaders of local governments of Vietnam together with the financing of international organizations (ADB, WB, . .) and many countries in the world (Japan, Korea, Denmark, Finland...) many technical infrastructure and environment projects have been improved or constructed: transport systems, water supply and drainage, lighting, greening, solid waste collection and treatment... giving a new face to urban zones. The quick development of urban system, including technical infrastructure and environment, has contributed significantly to the industrialization, modernization, gradually enhancing urban quality, improving urban citizen's living conditions, contributing to poverty reduction and laying a firm foundation for urban sustainable development.

2. Reality and challenges

Urban water supply

So far, almost all provincial urban zones (63 provinces) have got investment projects for rehabilitating, upgrading, extending water supply systems. Water supply demand in big urbana zone and industrial zones has on principle been met. Until the end of 2009, the total design capacity of water supply reached 5,9 million m³/day and night. The rate of leakage has been reduced considerably from the average of about 30%. The ratio of water supply of urban dwellers is 73% on average (ranging between 75-90% in big metropolitan cities like Hanoi - 88,5% and Ho Chi Minh City - 87%). The rate of clean water usage is on average 90l /person/day and night. Many projects have been financed by ODA funds and have been operating efficiently.

Although the leakage ratio and thus water charge collection leakage has been reduced from 40% (in 2000) to about 30% (in 2009), it is still high. Investment has been focused only for water stations, water plants, while the distribution system improvement, that is, rehabilitating old network and extending new network, is not yet paid sufficient attention. As a result, the operation capacity of some plants only reaches 77% of design capacity.

Urban drainage

Among the 63 provincial urban areas, 32 areas have got water drainage and sanitation projects funded by ODA capital. Many large-scale projects have been executed in Hanoi, Ho Chi Minh City, Da Nang, Hai Phong and have started to prove their efficiency, such as the drainage project Stage 1 of Hanoi, Hue, Hai Phong, Thu Dau Mot (Binh Duong), Bien Hoa (Dong Nai), waste water treatment projects in the Nhieu Loc – Thi Nghe, Tau Hu – Ben Nghe, Kenh Doi – Kenh Te,... thus contributing to flood reduction in these areas. Before (in 2004) there were almost no waste water treatment plants in urban areas, and now some plants/ stations have been invested and put into operation such as those in Hanoi, Buon Ma Thuot, Ha Long, Da Lat, Da Nang, Hue, Ho Chi Minh City.

However, in all urban zones in Vietnam, there are no separate drainage systems for rain water and waste water. These drainage and sewerage systems have been developed at different time in the past, not complete nor synchronized, many sections of sewers have now been degraded and the capacity of water drainage is low.

Wastewater is almost not treated before being poured directly into the sewers. Untreated waste water, especially from industrial zones, has severely contaminated big rivers such as Dong Nai River, Sai Gon River, Thi Vai River, Day River, Nhue River, To Lich River, Cau River...

Waste water treatment technology is outdated – Waste water system management is inefficient.

The situation of urban flooding is daily concern of metropolitan dwellers (the streets get flooded each time it rains). We can take as examples frequent flooding in Ho Chi Minh City or severe flooding in Hanoi in November 2008.

Urban flooding issues caused by different reasons (heavy rains, river floods, tides, and in particular climate changes.....) have not been solved by any feasible solutions.

Solid waste management

Urban solid waste is getting more and more complicated. Solid waste from agricultural and industrial production, transport, construction, healthcare, handicraft villages and urban households is increasing rapidly in terms of types, amount and toxicity. The total amount of solid waste generated is on average 21.000tons/day. Burial is the most common way with the average amount of 1 burial area per urban zone. 85% of urban areas of local community level are burying waste in an unhygienic way, causing environmental contamination and wasting land.

Solid waste management, in particular: solid waste and water coming from solid waste treatment, environment pollution in urban and suburban areas, and the environment around solid waste treatment areas, is a big concern in several localities.

Solid waste collection and sorting from the source still not yet done, propaganda for reducing, recycling and reuse of solid waste being insufficient.

Vietnam is a big construction site, and construction waste is emerging as a difficult issue (collection, transport and treatment..)

Selecting the site for building solid waste treatment unit is also a difficult problem. Solid waste treatment technology is outdated. There is no criteria for selecting suitable technology.

3. Important strategies / orientation of the Government related to technical infrastructure in recent years.

a) About water supply development:

Orientation for urban water supply until 2025:

- Water source: Management, supervision and conserving water source. Protecting water source, supervising the direct pouring of waste water into the water source. Giving priority to logical surface water, underground water exploitation. Promoting the work of planning water resource exploitation, utilization and conservation.
- Investing, developing and managing water supply systems: Planning urban and inter-regional water supply, investing in the synchronous construction of water sewerage systems with a pipeline network that guarantees the operation of the plant to its design capacity. Giving priority to water leakage prevention projects, upgrading the quality of supply water.
- Technology research and development for materials and spare parts. The newly constructed plants shall apply modern technology and equipment, being highly automated, and energy efficient. Upgrading, rehabilitating current plants in order to reduce leakage ratio, reducing energy cost... Giving priority to research and production of equipment that reduces water consumption and save energy.
- Training and developing human resource; organizing the management work, education and propaganda, international cooperation..

Regarding the program of leakage prevention: (now submitted to the Government for approval)

- The objective of 2015 is to reduce to 25% and of 2025 to 15% (the current leakage and water charge collection leakage ratio is about 30%).
- The main content of the program: Enhancing awareness of the community (considering water a limited resource, being economic in water usage...); Enhancing capability of local authorities and the operating agencies who are in charge of water supply systems (the government's responsibility in water supply development, water usage and protection of water supply works, water sources..); Investing, upgrading the pipeline network, replacing

or installing water meters, purchasing equipment for discovering leakage, repairing work, calling support from ODA funds in leakage prevention...)

b) Regarding water drainage development:

Orientation in urban water drainage development until 2025:

- Planning water drainage systems
- Investing, developing water drainage system: calling for investment capital for water drainage systems, giving priority to urban investment, in particular in those urban zones that are affected by natural disasters which negatively affect the environment...
- Selecting waste water treatment technologies that are suitable to the natural conditions, investment capability..., doing research and renewing technology with a view to possessing advanced waste water treatment technology.
- Doing research, organizing the production of high quality materials and equipment in Vietnam.
- Developing human resource, organizing the international cooperation in waste water treatment (calling for ODA technical assistance, technology transfer, investment in the water drainage systems...)

c) About solid waste management

The strategy of solid waste general management until 2025:

Considering solid waste general management a priority in environment conservation, contributing to pollution control for sustainable development. Solid waste has to be sorted from the source, collected, recycled, reused and radically treated by advanced and suitable technology, minimizing the amount of solid waste to be buried....Some main tasks:

- Preventing and minimizing the generation of solid waste.
- Sorting from the source, enhancing the collection and transporting work
- Promoting solid waste recycling, reuse and treatment.
- Planning waste water management
- Looking for financial aid.

The program of urban household solid waste treatment applying the technology of minimizing burial from 2010-2020 (now submitted to the Government for approval)

Using investment of the State with encouragement, and at the same time mobilising all economic sectors to invest in household solid waste treatment, ensuring that in 2020 all localities have household waste treatment plants using technology which minimizes burial, giving priority to regional scale solid waste treatment zones.

The technology to be applied must meet the following criteria: Increasing recycling and reuse ratio, minimizing burial (buried solid waste is <10%); complying to environment norms, being assessed and approved by competent authorities as being suitable.

Conclusions:

In the past years, the Government of Vietnam has paid attention to investment in construction of technical infrastructure works in urban zones, and used official development aid capital from international organizations and other countries efficiently ... Vietnam's urban systems have seen positive changes, however, they still cannot meet the demand of the rapid urbanization process. Through development programs and strategies, orientations for 2010 -2020, we hope with the effort of the Government of Vietnam and the support of international organizations and other countries, in the future, urban technical infrastructure will be improved and modernized contributing to sustainable development./.