The first regional conference on sustainable and ecology-effective water infrastructure development

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Presented by
Ms. Tran Thao Huong
Ministry of Construction
Socialist Republic of Viet Nam

This paper covers current status and challenges of water infrastructure development in Viet Nam. Measures that were taken and suggested solutions to satisfy the needs of sustainable and ecology-effective water infrastructure development in Vietnam will also be covered.

Ladies and gentlemen:

First of all, I would like to express my sincere thanks for your invitation to the conference on sustainable and effective water infrastructure development today.

In the process of integration, international cooperation and promotion of industrialization and modernization of the country, Vietnam's water sector has been under increasing pressure of socio-economic development and population growth.

Viet Nam has a population of around 84 million, 70% of which living in the rural areas, the remainder in the urban areas. The annual population growth rate is 1.7%. It is expected that Vietnam's population will reach 100 million by 2020 with about 45 million urban residents.

Vietnam's economy has seen the drastic developments from the introduction of renovation policy in 1986. Annual economic growth rate is between 7% and 8%. GDP per capita is 13.7 million VND.

With the pressures of population growth and socio-economic development demand, Viet Nam has been facing big challenges in formulating sound technical infrastructure policies, accessing to new financial sources, step by step improving planning procedure, meeting the rapid urbanization requirement, improving the efficiency of infrastructure service providers, promoting international coordination and cooperation among the countries in the region for the development of technical infrastructure in general and water infrastructure in particular.

1. Current status of water infrastructure in Viet Nam

a) Water supply

- Water source: Viet Nam doesn't abound in water, even at present under pressure of this resource. Water is mostly supplied from rivers sourcing from other countries. Only 40% of surface waterflow supplied by rivers in the country, 6 big river basins are dependent on flow from other coutries. Mekong river basin accounts for nearly 57% of total waterflow of Viet Nam while Red – Thai Binh river basin accounts for over 16% and Dong Nai river basin accounts for over 4%. All of these rivers are the international ones.

Waterflow in the dry season is a big challenge towards Viet Nam. As for some river basins, the dry season can last for 9 months. Water flow only ranges from 20 to 30% of total annual average waterflow. 4 out of 16 river basins of Viet Nam (including Ma river basin, Eastern – Southern part river group, Huong river and Dong Nai river) are in the group under high

pressure. There are 6 river basins in the group under medium pressure, of which Red river basin is mostly exploited .

- There are 67 urban water supply divisions with over 420 water supply systems of big and small sizes in the whole country.

- Total design water supply capacity is 5.48 million m^3/day.

- Total exploitation capacity is 4.2 million m^3/day (accounting for around 77%).

- Average rate of urban population getting the water supplied is 65% (in the big urban areas, this is ranging from 75% to 80% while around 200 out of 630 district towns have no the complete centralized water supply system which meets the water supply demand).

- Average water consumption level is 90 litres per capita per day (this figure in big urban areas is 100 – 120 litres per capita per day).

- Domestic water price ranges from 2,000 to 7,800 VND (including progressive price as per the consumption volume).

b) Water Drainage/Sewerage

- Service level (connection rate) is from 50% to 60%.

- Length of sewers per capita (calculated from house connections) is between 1.2 and 1.4 m (As for the urban areas in the world, the average length is from 6 to 8m per capita).

- Total urban wastewater volume is about 3.0 million m3/day. Total capacity of constructed wastewater treatment plants is 125,000 m3/day, of plants under operation is 86,000 m3/day (the urban areas which have treatment plants under operation are Ha Noi, Ha Long, Da Nang, Da Lat, Buon Me Thuot. Bac Thang Long waste water treatment plant with a capacity of 39,000 m3/day has not gone into operation).

c) Climate change

- Vietnam is almost relevant to the implications of the climate change. However, for the being time, have fully study yet to look at the impact of climate change in Vietnam.

- With a support from international donors such as WB, only few of small study to look at the impact of climate change on the design in urban storm drainages in sub catchments, the rising of sea level, the rainfall and flooding frequency.

2. Challenges

a) Water Supply

- Safety management of lakes, dams, though improved, is still not effective and overlapped. Ministry of Agriculture and Rural Development manages irrigation lakes while Ministry of Industry and Commerce manages the hydro-power lakes; as a result, it is very difficult to forecast the water level at the lakes. In addition, there are no bases for giving out the specific solutions because information about water source is not sufficient and not shared

- The people have not fully been aware of position, role of water towards the sustainable development of the country as well as their health and life. Economic value of water has not been paid much need to. Water has not yet been regarded as a resource or a commodity. Protection, management of water source has not yet been put into the right position as they should be. Population, degradation and exhaustion of water source have been seen in many places while prevention is not done in a timely and effective manner.

- Almost all urban (cities, towns) water supply systems were constructed a long time ago. Many factories have been constructed for more than 50 years, pipeline network is so old, and material of pipe is of poor quality. Upgrading and rehabilitation for extension of factory capacity have been carried out many times. However, little attention is paid to the pipeline network.

- Rate of urban population getting water supplied is rather low; in some areas, effluent quality has not yet met the sanitary standards; continuity of water supply is not secured affecting the production and daily life of the residents.

- There are no synchronous investments for source and network development. Management, operation and maintenance of water supply system have not been strengthened.

- Water price to be charged fully and properly is considered a pre-requisite to enable the water supply divisions to be financially autonomous, carry out policy of privatization and improve the service quality. However, introduction of water price increasing roadmap (suiting the specific conditions of each locality) has been facing many difficulties, especially in the context of current inflation.

- The average non-revenue water rate is around 32%, including mechanical loss (leakage) and commercial loss. This has been one big concern of Vietnam's water sector. With total current urban water exploitation capacity, a reduction of 1% of non-revenue water volume means that about 42,000 m3/day is saved.

- Comparing with others in the region, companies in Viet Nam still needs a great number of workers. Number of workers per 1,000 connections is 2,5 times than average level (5 workers/1,000 connections) in the developing countries. This will lead to the increased manpower costs – one main item in total costs of water supply management and operation.

b) Water drainage/sewerage:

- In the urban areas, the combined drainage/sewerage system is mainly being used (for both storm water and wastewater). There are certain difficulties in investment, construction and rehabilitation of urban environmental sanitation and drainage/sewerage system. Rehabilitation and upgrading of system of canals, sewers and drains for ensuring the drainage and anti-flooding for the urban areas are being given priority because budget for investment, construction of wastewater treatment plants is not available now.

- Due to natural conditions as well as the fact that urban areas are located scattered, urban wastewater after being collected by the combined drainage/sewerage system shall be discharged into system of rivers and drainage canals without treatment.

- At present, funding for management and operation of urban drainage/sewerage system sourced from local budget is not sufficient. Therefore, identifying a wastewater charge increasing roadmap for system management and operation cost recovery is a burning issue.

3. Measures

Cooperation strengthening in the region for sustainable & ecology-effective water infrastructure development.

a) Bases:

- Water is formed and flowed according the basins. Use of water source, protection of water source quality requires a uniform and integrated management mode on the basis of river basins and not depending on the administrative boundary.

- Water is not an inexhaustible source. Water supply development demands cooperation to manage and use water source in a sustainable, effective, equitable way as well as the coordinated treatment of other environmental issues. Sustainable solutions shall be customized for each area to balance between population in the area and water supply ability as well as the optimal water source management.

- Exploitation and use of surface water source shall be strengthened while it is necessary to limit the exploitation and to use properly the underground water source.
- Development of water sector shall be adhered to sustainable stability, environmental development and protection, bio-diversified preservation. Clean water cannot be found in the locations where flora has been destroyed. Flora is one integral entity in water source circulation.

- Water must be exploited and used in a economical and proper way. Technology of water reuse shall be applied for various purposes.

b) Implementation measures:

- Setting up and finalizing system of mechanisms, policies and guiding documents to exploit properly, economize and protect efficiently the water source, protect environment and natural landscape of the basin.

- Formulating the master planning of centralized wastewater treatment and drainage/sewerage system for the industrial zones, urban areas and densely populated areas; master planning of system of industrial solid waste landfills, hazardous wastes, medical wastes and domestic solid wastes.

- Dealing with the pollution issue and environmental protection at the river basins, formulating the measures for pollution treatment and mitigation in some heavily polluted river areas or sections, rehabilitating and newly constructing the separate systems of stormwater sewerage and domestic wastewater drainage for the urban areas and residences.

- Implementing the investment and construction projects of domestic wastewater treatment facilities which meet the environmental standards.

- Carrying out dredging of key river sections, embankment of important and necessary river sections, stepwise taming of flow to ensure its stability.

- Developing the capacity in environmental and resource management of the provinces, cities which share the same basin, including investment of environmental monitoring network and formulation of environmental and resource data bank of the basin.

- Mobilizing, to the maximum, such international resources as the technique, technology, experience and finance for protection of basin environment.

- Giving priority to exploitation, use and stepwise development of combined water supply system for inter-city in the area, a group of cities and industrial zones in one province or inter-province which are quite close in geographical location, have favourable toporgraphical conditions of receiving body and are able to construct the combined water supply and drainage/sewerage facilities. Constructing and connecting the clean water transmission pipelines among the cities/areas and among the main consumption areas of 2 adjacent provinces/cities.

Researching and being prepared for construction of water factories to supply water for inter-province, inter-area, i.e., chain of urban areas Mieu Mon – Xuan Mai – Hoa Lac – Son Tay – Ha Dong using the surface water source of Da river. Water supply system of northern area of Red river is using the water source from Red river or Duong river to supply water for the urban areas and industrial zones of such cities as Ha Noi, Bac Ninh, Hai Duong, Hung Yen, Vinh Phuc. System of water supply, drainage/sewerage, wastewater treatment and enviromental sanitation is

to be constructed for the urban areas under East – West economic corridor among 3 countries (Viet Nam, Laos and Cambodia).

- Further decentralization to the local administrations, taking the municipal authorities as basis. Delineating clearly the responsibilities, powers and duties of the concerned entities to make them suitable with the production renovating policy, effectiveness raising in the operations of divisions as well as supply of public products and services.

- Encouraging socialization, involvement of other economic sectors in invesment, construction and management of water supply and drainage/sewerage system synchronously, effectively, ensuring the environmental sanitation standards.

- Applying the mechanisms, policies of investment promotion, support and preference such as exemption from land rent; supporting compensations for land clearance, construction of installations outside the fence of project; being entitled to the most preferential tax rates (VAT, enterprise income tax) as per the current regulations; use of preferential finances for water supply investment project is prioritised, irrespetive of object of use; ODA sources are mainly used for the water supply activities for the severely disadvantaged areas, remote and far-flung areas as well as for network rehabilitation to minimize the non-revenue water volume.

- Preservating the nature and bio-diversity, forest eco-system.

4. Recommendations

- Eco-systems and environmental issues are of the global concerns. As a result, cooperation among stakeholders and countries is necessary.

- Newly constructed production establishments at the basins are requested to apply the technologies which are clean, environment-friendly and cause little pollution. Wastes from production establishments, industrial zones, export processing zones at the basins shall be handled according to the regulated standards.

- Finalizing the database system about resources and environment of the basin.

- Strengthening the leadership and capacity of state management system over protection of environment, landscape and sustainable exploitation of the basin.

- Strengthening international cooperation, experience exchange on management arrangements, mechanisms, policies of water sector in various modes such as multilateral cooperation, bilateral cooperation.

- Solving issues about enviromental management shall not be limitted to one community or country. As a result, cooperation among stakeholders and countries is necessary to cope with the emerging challenges about the development of the region, basically the challenge of environment-friendly economic development.

The above brief introduction about current status, challenges and solutions to the ecology-effective water infrastructure development is put forward for experience exchange and sharing with all the participants.

On behalf of Ministry of Construction of The Socialist Republic of Viet nam, I would like to express my sincere thanks to the United Nations Economic & Social Commission for Asia and the Pacific and all the participants of the conference.

I wish our conference best successes. Good health to all participants.