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From vision to action



Improvement of services in the republic of Korea

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Short summary

With the rapid economic growth that began in the early 1960s, Korea has made great strides in improving and constructing the infrastructure and service enhancement of waterworks and sanitation. Waterworks service is now provided to almost all regions in the country except for some vulnerable rural areas. On the other hand, more than 90% of sewage generated is collected and treated properly. The key success factors for a successful water service system included the government-initiated financial investment, which has been executed in a timely manner to deal with the steeply accelerating demand of water as a result of briskly growing economy, plus the adequate preparation of a water resource management system for various fields of waterworks and sewage services. At present, the maintenance of existing facilities and improvement of service quality in terms of sustainability are our biggest challenges in dealing with the task of water supply and sanitation in Korea, rather than the quantitative expansion of infrastructure. Some of the major outstanding issues include the low operation efficiency of existing facilities due to duplicated or over-investment in the past in consequence of inaccurate demand forecast, challenges in consolidated operation management as the quantity and quality of water are managed separately by different departments, structural financial problems of a waterworks and sewage system that has high dependency on government subsidy and the requirement of additional funds to address the climate change issue and the increased demand for high quality water. The government is trying to change the existing water management system based on the existing administrative district to a waterworks / sewage total operation system given the scale of business with a view to address those outstanding issues. Furthermore, it is also taking steps to encourage the participation of private companies in water service areas in a bid to facilitate the operation efficiency. However, as of now, there remains an assortment of other major issues to be dealt with including the reformation of laws and a sustainable financial operation system, before the goal of establishing a total water management system is achieved. An array of changes such as climate change and growing expectations with respect to public welfare, including water and wastewater services has created new issues in terms of the sustainability of water resources in Korea. Therefore, a becoming set of new and expanded policies for water and sewer services and water resources management is needed to tackle the climate change issues such as urban flash flooding and higher drought risks, and to suit the higher standards of living that demand better access to high quality water for leisure,

tourism and exercise. As a prerequisite, the new dimensions of functions and values of water should be recognized, appreciated, and framed accordingly among policy makers and decision makers.

Key words:

Reducing pollution ; Eliminating dumping of hazardous waste ; Minimising release of hazardous chemicals and materials - achieve sound management of chemicals through their life cycle ; Reducing untreated wastewater ; Increasing recycling and safe reuse ; Protect, restore and sustainable use of inland freshwater related ecosystems ; Prevent the introduction and significantly reduce the impact of alien species

Issues addressed:

Water quality: Water supply access -Discharge water quality standard -Nonpoint source control: - Annual precipitation is unevenly distributed among season. High population density and complex riparian relations require strong pollution control.

- The water supply access rate gap between urban and rural areas still exists, is widely considered as an important social issue, and the need for extra funding to accommodate rural areas with better public water services is also widely shared.

- As for the non-biodegradable, inorganic nutrients such as nitrogen and phosphorus, water quality management has been more challenging. In a water quality assessment in 2014, 98 out of 114 medium-scale watersheds monitored (86%), were reported meeting the "Good" quality standards, overachieving the management target of 86%. On the other hand, only 33 of 49 (67%) major lakes and ponds across the country were rated as of "Good" quality, not reaching the target of 94%. This result was later reviewed and it was concluded that the standards for the removal of nitrogen and phosphorus from wastewater treatment plants effluents had been unrealistic considering the best available technologies, and insufficient management and investment for technology was made for wastewater facilities and other industrial point sources.

- Some endocrine disruptors other than phenol, which is currently regulated, may need to be added as pollutants for treated water directly discharged and go back to the water eco-system.

- The river and stream pollution by non-point sources was estimated responsible for 68% of the total pollutant concentrations in 2010, which is projected to reach 72% by 2020 due to urbanization and resulting increase of paved impervious areas. The efforts to improve the water quality through the management of point sources are generally expected to mature in near future. Stormwater is suspected as the main culprit of the problem, calling strongly for the better management of non-point sources.

Means of implementation:

Governance: Institutions / legal framework: Timely preparation and implementation of water environmental policies.

1) Established the National Water Environment Master Management Plan in 2006 and implemented comprehensive measures to achieve the water quality improvement goals.

2) Executed the collaborative plans between departments for diffused sources of pollution, and developed the eco-friendly farming policy since 2004

3) Implementing a long-term 10-year plan to improve the service access rate of water supply and sanitation in rural areas.

4) Established the National Water Reuse Master Plan in 2010 and implemented comprehensive measures to achieve annual reuse target 2.57billion ton in 2020

5) Strongly pushing through the consolidation of water and wastewater management units in a bid to improve the efficiency of services operations

6) Enforcing water quality regulation and monitoring

- Enforcing the criteria on the sewage effluent limitation

- Establishing annual national monitoring plans

- A real-time remote water quality monitoring system (Sooshiro) in 740 sewage and waste water treatment plants

- Public Reporting water quality data through the web-based Water Environment Information System, and data collected from 762 sites (573 sites of rivers and streams and 189 sites of lakes and ponds)

7) Developing integrated river basin management system

- Introduction the reporting system and control zone for diffused sources control (Apr, 2006),

- Total Water Pollution Load Management System

- Introduction the reporting system and control zone for diffused sources control

- Designation of Riparian Buffer Zones

- Water Use Charges & River Basin Management Fund.

Lessons Learned:

Triggers:

Drivers: The government-initiated financial investment has been executed in a timely manner to deal with the steeply accelerating demand of water as a result of briskly growing economy.

Barriers: It is necessary to secure the investment resources and establish a systematic fund recovery mechanism for proper expense sharing by establishing a resolving fund to form a rational service tariff policy and rationalize the financial operation; thus, reformation of the financial support structure required to realize a reasonable service tariff from water supply and sewage services is absolutely needed.

What has worked well? The water infrastructure in Korea has been developed in accordance with a plan to promote the economic development. The investment in water infrastructure at the initial stage of economic development was possible thanks to foreign aid. Like any other industry, investment in waterworks requires activities and economic investment, and these efforts have contributed to technology development and job creation, either directly or indirectly.

What can be improved?

The way forward: 1) Careful investment and an efficient operation management system are required, and the scale of business should be considered in the water infrastructure. The Korean government has been driving the consolidation of water supply and sanitation services

2)Reformation of the financial support structure

3) Reinforcement of discharge water quality criteria and sewage network to adapt to climate change

Links: