

Waterworks Pipe Network Optimization System Construction Project

1. Background

- Lack of trust in tap water and continuous flow of complaints
 - Trust in tap water undermined by water volume, quality, and pressure issues caused by deteriorated waterworks pipe networks and inadequate supply system
- Lack of scientific management for tap water supply process
 - Water supply pipe network and previous waterworks pipe network improvement projects mostly focused on repairing leaking pipes or replacing pipes that are past their service life: this type of projects is not capable of giving a systemic solution of structural issues
 - Water systems, blocks, and pipe network systems are mixed because of the unplanned expansion of water transportation pipes, distribution pipes, and water supply pipes, which poses problems with effective maintenance.
- Foster waterworks businesses into a green growth industry with low energy consumption
 - Leakage reduction through water flow rate improvement and other projects is expected to drastically reduce the energy required for additional supply and production of tap water
 - a. Around KRW 519 billion is lost each year (as of 2008) because of the leakage caused by the deteriorated water pipes (0.7 billion tons).
 - b. Leakage reduction will decrease CO₂ emission by 234,000 tons per year.

2. Purpose

- Build an advanced water network management system through the scientific repair of leaking pipes based on water pipe network diagnosis and maintenance using IT technologies.
 - Ensure the effectiveness of pipe network repairs by performing diagnosis before improvement.
 - Build an optimal pipe network management system through block systems and maintenance systems.
 - Maintain the functions of pipe networks and water flow rate through preemptive and preventive maintenance.
- Decrease tap water supply to reduce CO₂ emission; prepare for changes in the water resource environment caused by climate change through the effective use of limited water resources.

- Improve the effectiveness of waterworks management by reducing the production/supply costs.
- Improve public trust in tap water by preventing leakage and water pollution.
- Build waterworks pipe network systems capable of systemic management.
 - Provide assistance with optimal operation and systemic problem solving through economical real-time monitoring and control.
- Transform waterworks businesses into a low-carbon green growth industry.
 - Improve water flow rate to reduce the energy required for tap water production and supply.

3. Direction of Construction

- Establish a master plan (framework initiative and framework plan) before implementing a project.
- Solve structural issues with pipe network systems in an organized manner.
- Build workforce, administrative, information systems to ensure continued maintenance.
- Transform phased projects into design-build projects for each block based on the project priority of distribution systems.
- Enhance coordination between construction and design to ensure reasonable construction.

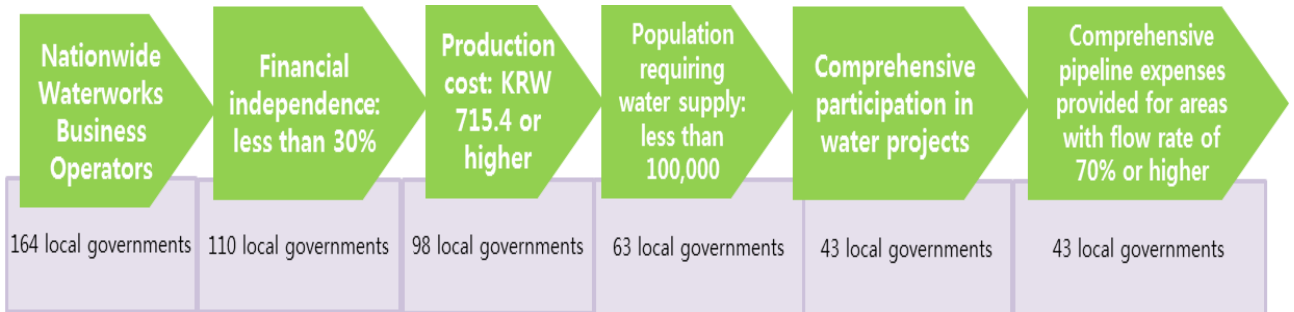
4. Project Details

- Repair pipe networks and build/improve GIS.
- Repair water transportation/distribution/supply systems.
- Build block systems and repair pipe network systems.
- Improve or replace defective pipes and unfit ancillary facilities.
- Replace or repair unfit water meters.

5. National Subsidy Plan

- Background
 - To improve the profitability of waterworks businesses by temporarily subsidizing a portion of the expenses required for waterworks business operation and management in local governments incapable of reinvesting for the improvement of water pipe networks.
- Selection of local governments to receive the subsidies

- Select beneficiaries based on financial independence, production cost, water flow rate, and the population that requires water supply among local governments that established and submitted their plans for the integrated operation of local waterworks by 2010



- Calculation of subsidy rate
 - Apply different subsidy rates to each local government considering water service fee and production cost.

6. Expected Effects

- Reduce tap water production cost by improving water flow rate; improve water business management.
 - Bring down water service fees to a practical level by reducing production cost.
 - Discourage redundant investments.
 - Improve the efficiency of water supply projects.
- Reduce CO₂ emission by reducing tap water production; prepare for changes in the water resource environment caused by drought and other types of climate change
 - Reducing tap water production is expected to prevent a loss of 610 million kwh.
 - Securing water supply capabilities is expected to save KRW 2.8 trillion per year.
- Prevent rust and secondary contamination within the deteriorated water pipes to ensure tap water safety and improve the public trust in tap water.

Source: Korea Environment Corporation (www.keco.or.kr)