Water Supply System & Smart Water Management in the Republic of Korea

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Introduction

Development of multipurpose dams for water supply, flood protection, hydropower
- Soyanggang Dam (1973)
- Andong Dam (1977)

1965-80
Industrialization

1981-90
Narrow its focus

Development of bulk water supply systems

2009~
Climate change
Sustainable water management under climate change

2001~2008
Eco-friendly strategy
Eco-friendly development & management of water resources

1991-2000
Phenol accident
Sewerage Enlargement
Water Supply System in Korea

**Water Supply**
- Bulk WS: MOE(K-water)
- Industrial WS: MOE(K-water)
- WS: MOE(Local G) - partly K-water

**Sewerage**
- MOE(Local G)
  - L G, K-water, Private

**Dam**
- Multi-D: MOE(K-water)
- Local-D: MOIS(Local G)
- Agric-D: MAFRA(KRC)
- Elec-D: MOTIE(KHNP)

**Rivers**
- National R: MOE
- Local R: Local G
- Stream: MOIS(L. G)

**Underground**
- Quantity: MOE(L G)
- Quality: MOE(L G)
  - L G: Local G

**Sea**
- MOF
- Local G

**Abbreviations**
- MAFRA: M of Agriculture, Food and Rural Affairs
- MOIS: M of the Interior & Safety
- MOTIE: M of Trade, Industry and Energy
- MOF: M of Oceans & Fisheries
- KRC: Korea Rural Community Corporation
- KHNP: Korea Hydro & Nuclear Power

Source: Water Policy and Regulation, Jeong Ju-hee
Smart Water Management (SWM) in Korea

A future oriented water management concept by ICT-based technologies for securing the stability of supply, safety and operational efficiency
SWM Solutions

**Trained Staffs**
- Monitoring of river flow & regional water balance

**Network Solution**
- To support decision-making with water-NET & related software

**Smart Devices**
- Remote & continuous monitoring of water network with smart meters & other sensors

**Customer Service**
- To improve customer interaction with mobile app

**K-water**
- Smart Water Management

- Leak Monitoring
- Risk Mgmt.
- Quality Mgmt.
- Leak Detection
- Customer Mgmt.
- Ultrasonic Water Meters
- Multi Parameter Sensors 5ea
- Leak Detection Sensors 177ea
- Intrusive acoustic sensors
- Smart Meters 146ea
- Flow, pressure & quality sensors 60ea

**Water Usage & Cost**
- Water Quality
- Bidirectional Communication
To suggest how to implement four pillars of SWM in the context of each water utility to improve operational efficiency for water supply system

1. **Basic Water Supply System**
   - Expanding drinking water coverage, Solving water quality & pressure issue with capacity building of local operators

2. **Near-time monitoring system**
   - Constructing near-time monitoring system with individual sensors and SCADA

3. **Full-time monitoring system**
   - Building Advanced Metering Infrastructure from water sources to Tap

4. **Smart meter + O&M System**
   - Expanding water coverage, Solving water quality & pressure issue with capacity building of local operators

5. **Individual Sensor + O&M System**
   - Expanding water coverage, Solving water quality & pressure issue with capacity building of local operators

6. **Logger + Data digitalization**
   - Expanding water coverage, Solving water quality & pressure issue with capacity building of local operators
Conclusion

Securing global-level technology · know-how and infrastructure in the fields of water · energy and city