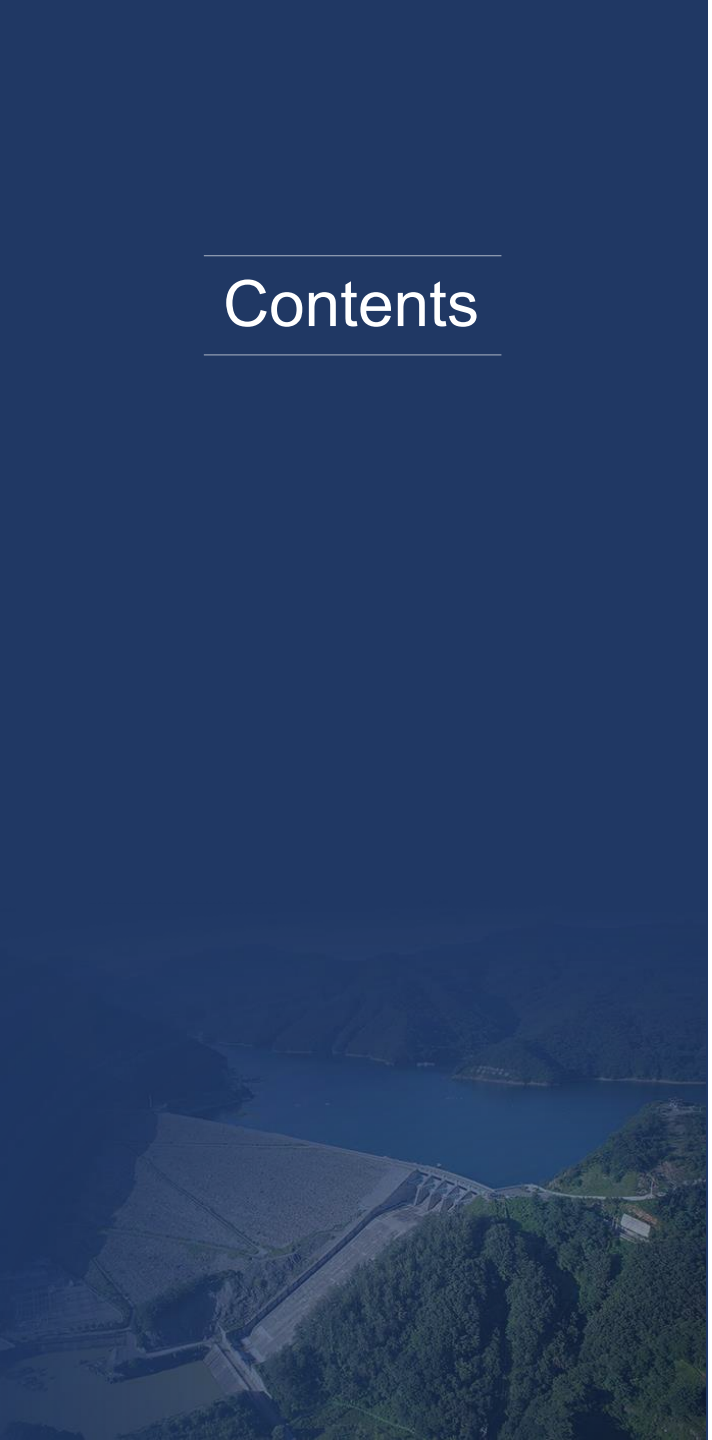
Integration of Water Management and Functional Realignment

2025. 05 . 14

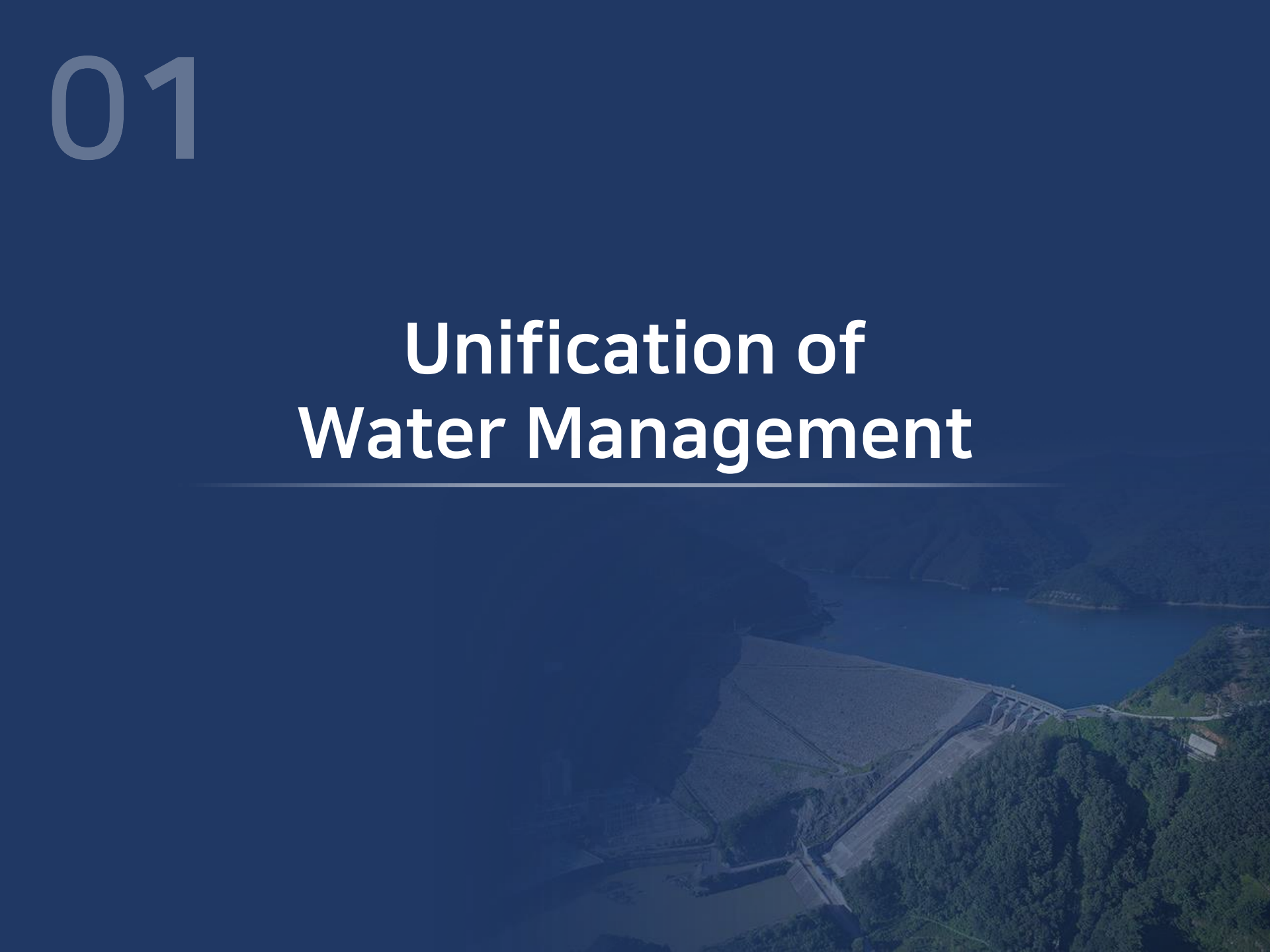
K-water

Contents



01

Unification of Water Management



1-1. Decentralized water management

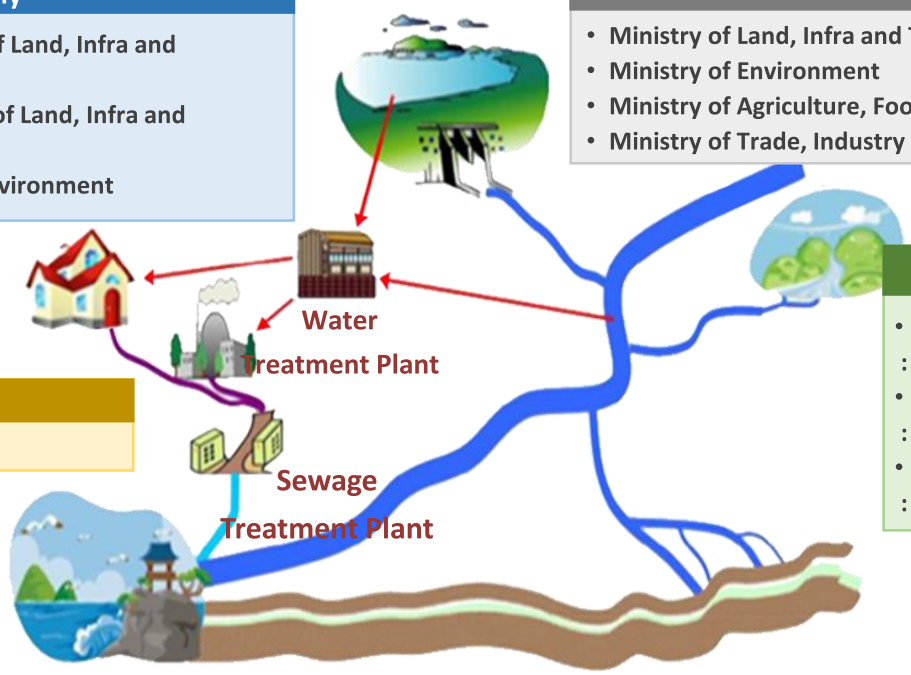
Korea's water management is diversified across multiple ministries.

Water Supply

- Regional water supply : Ministry of Land, Infra and Transport
- Industrial water supply : Ministry of Land, Infra and Transport
- Local water supply : Ministry of Environment

Dam

- Ministry of Land, Infra and Transport
- Ministry of Environment
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Trade, Industry and Energy



River

- National River, Local River
  : Ministry of Land, Infra and Transport
- Small River
  : Local Government
- Water Quality
  : Ministry of Environment

Sewage

- Ministry of Environment

Groundwater

- Water Quantity
  : Ministry of Land, Infra and Transport
- Water Quality
  : Ministry of Environment

《 Problems in the current water management system》

- ✓ Lack of policy coordination **reduces the efficiency of water management**
- ✓ **Imbalances in water resources** across regions and river basins

1-2. Issues in Korea`s water management system

The pluralistic structure of water management organizations
hinders effective resolution of water challenges.

Fragmentation Of water management authorities

- Lack of Coordination
- Fragmented across 24 laws and 45 separate plans

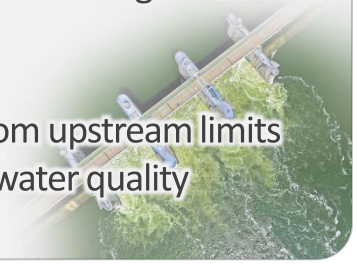
Quantity	Quality	Safety	Electricity
MOLIT	MOE	MOIS	MOTIE

Regional disparities in water services

- Urban-rural disparities in water service
  - Coverage : 99.7%, 71.0%
- Intensifying water conflict
  - Busan, Daegu kyung-nam

Deterioration of river water quality and ecosystem

- The dual management of water quality and quantity has raised issues such as algal blooms.
- The inflow of pollutants from upstream limits the improvement of river water quality



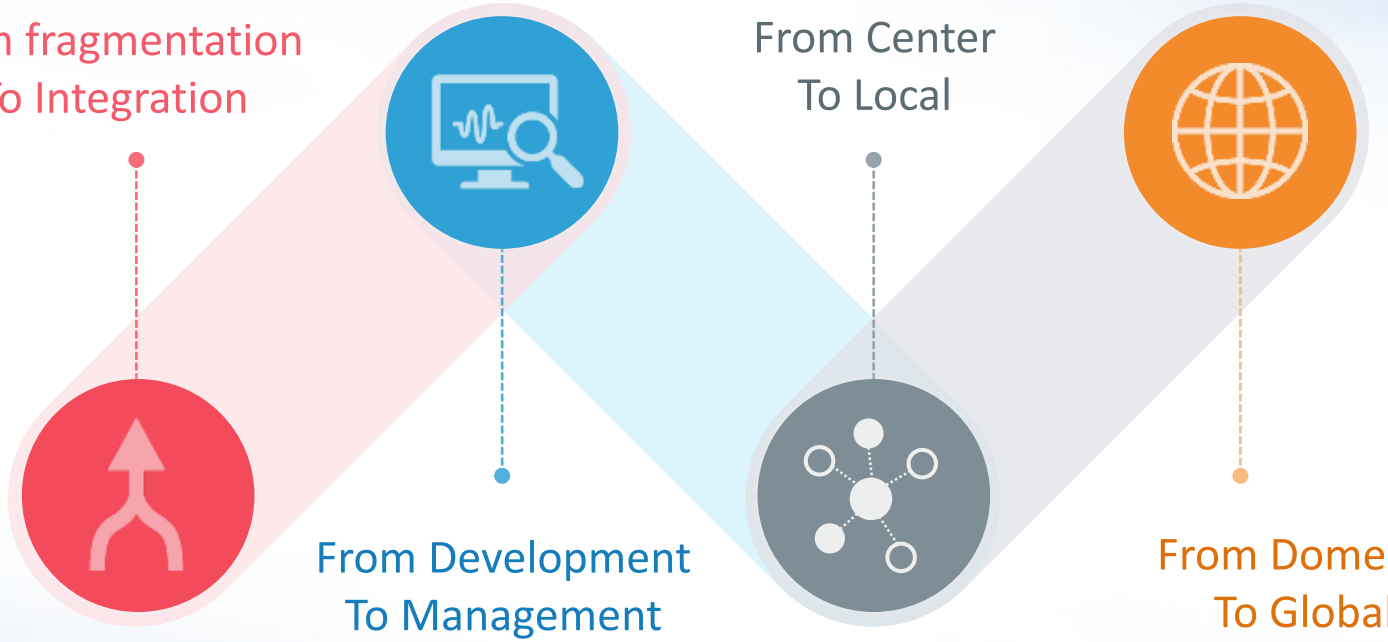
Financial inefficiency

- An estimated 2.74 billion USD has been wasted due to duplication in river-related projects.
- Redundant investment of 2.96 billion USD in both regional and local water supply system.

1-3. Paradigm shift in water management

Integration of water management across policy, organization, and institutional systems

A decentralized, watershed-based decision-making structure



Enhancing the utility and performance of existing water infrastructure

Expanding global activities

1-4. Three Major Water Management Acts

The Three Major Water Management Acts Passed the National Assembly

65% of the Public and 77% of Experts Support Integration

Amendment of the Law

- Government Organization Act (MOIS)
- Framework Act on Water Management (MOLIT)
- Water Technology and Industry Promotion Ack (MOE)

→ Legislation and Judiciary Committee ('18.5.28) → Plenary Session ('18.5.28)

* Approval: 59.7%

Entry into Force

'18.6月

Government Organization Act

- Integration of Water Management Functions into the MOE

Water Technology and Industry Promotion Act

- Demonstration Facilities and Industrial Clusters

'18.12月

Water Technology and Industry Promotion Act

- Formulation of a Master Plan for the Water Technology Industry

'19.6月

Framework Act on Water Management

- Establish National Water Management Committee
- National Comprehensive Water Management Plan

- MOIS : Ministry of the Interior and Safety
- MOLIT : Ministry of Land, Infrastructure and Transport
- MOE : Ministry of Environment

The Three Major Water Management Acts

’18.6月 ’18.12月 ’19.6月

Government Organization Act (’18. 6.)

Integration of Ministries for the Unified Management of Water Quantity and Quality

Transfer of Laws

Category	Key Points
Full Transfer	• Water Resources Act, • Dam Act, Waterfront Act, • Groundwater Act, • Water Supply Act, • K-water Act
River Act (Partial Transfer)	• Integrated Operation of Dams and Weirs, • Discharge Volume Decisions, • River Water Use Permits, • Maintenance Flow, etc.

Water Technology and Industry Promotion Act (’18.12.)

Promoting the Water Industry by Establishing a Foundation for Technological Advancement

Key Points

Category	Key Points
Master Plan for Advancing Water Technologies and Industry	• Implemented After Government Deliberation
Support for Commercialization of Excellent Products	• MOE Designates Excellent Technologies and Supports Pilot Institutions
Designation and Support for Innovative Water Companies	• MOE Designates, • Research Support and Performance Evaluation
Development of Industrial Clusters for Water Industry	• Priority Use and Fee Reduction for Resident Companies
Support for Overseas Expansion	• Government Support for SMEs Entering Global Markets

Framework Act on Water Management (’19.6.)

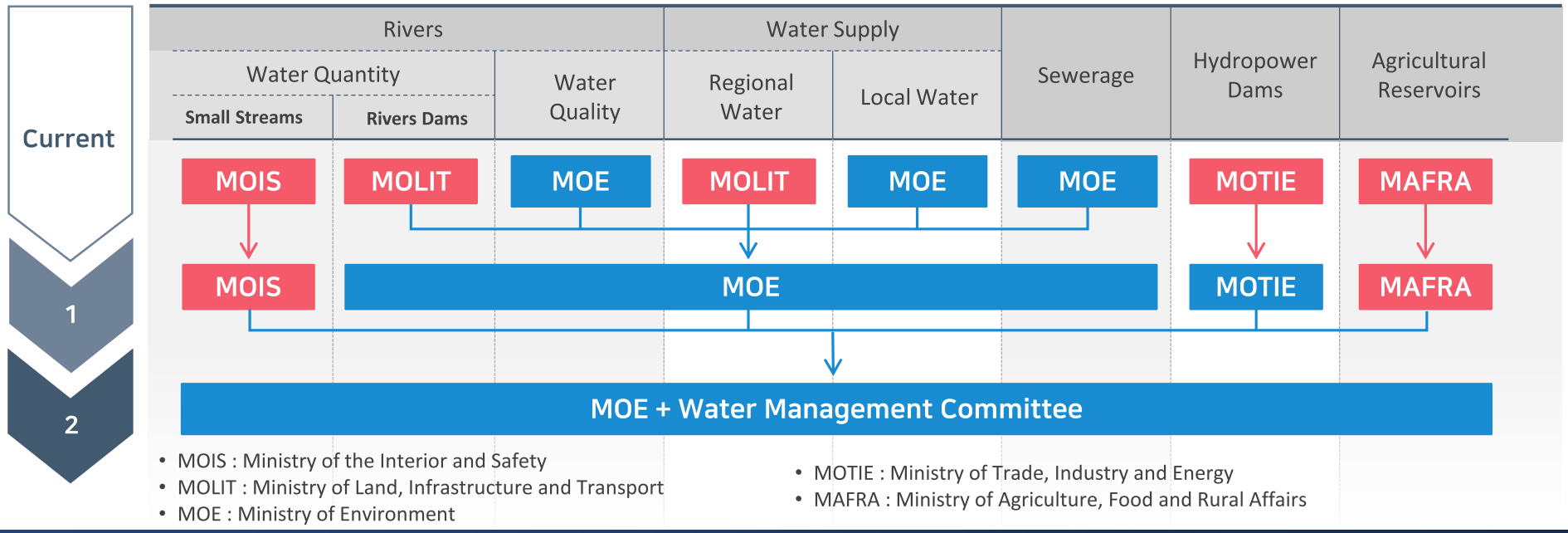
✓ **Presenting Fundamental Principles Water Management**

✓ **Integration of Water Management Functions**

Key Points

Category		Key Points
National Water Management Committee	Affiliation	President
	Functions	• National Plans • Inter-basin Water Transfers, • Water Disputes
Basin Water Management Committee	Affiliation	National Committee
	Functions	• Inter-basin Water Transfers • Water Disputes
National Water Management Master Plan	Formulated by the Ministry of Environment → Reviewed by the National Committee	

1-5. Stages of Integrated Water Management Implementation



Stage 1 Unification of MOLIT and MOE Water Management Organizations, Initially Integrating Water Quality and Quantity Functions

Stage 2 Establishment of Water Management Committee to Expand Integrated Management to Agricultural and Hydropower Sectors

02

Main Implementation

2. Main Implementation

Achieving the life-sustaining value of water for both humanity and nature

1 Water Management System

- Water Use Priority
- Leakage Reduction
- Responsible Water Use
- Water Governance

2 Water Supply & Stability

- Water-Vulnerable area solution
- Climate Resilience

3 New Water Value

Promotion of technological innovation

2-1. Developing a zero-waste water management framework

Setting national-level water use priorities

- Incorporating water use priorities into relevant legislation

① Water demand management
② Development of alternative sources in river basin
③ Utilization of remote wide-area water sources

Leakage reduction

- Local Water Supply Modernization
  - 133 projects across 118 local governments
  - An investment of approximately USD 2.29 billion

Ensuring responsible water utilization

- Increasing use of rainwater
- Promoting wastewater reuse
- Desalination of seawater

Establishment of governance

- Formation of basin-level governance bodies comprising central and local governments, local experts, and civic groups
  - Exploring solutions to water issues by river basin

2-2. Drinking Water Supply & Ensuring Water Stability

Water-Vulnerable area

- Securing region-specific alternative water resources
  - (Rural Area) Expansion of local water supply systems
  - (Island, Coastal area) Installation of submarine pipelines and groundwater dams
- Water quality stability in vulnerable supply areas
  - Outsourced management of small water supply systems

Climate Resilience

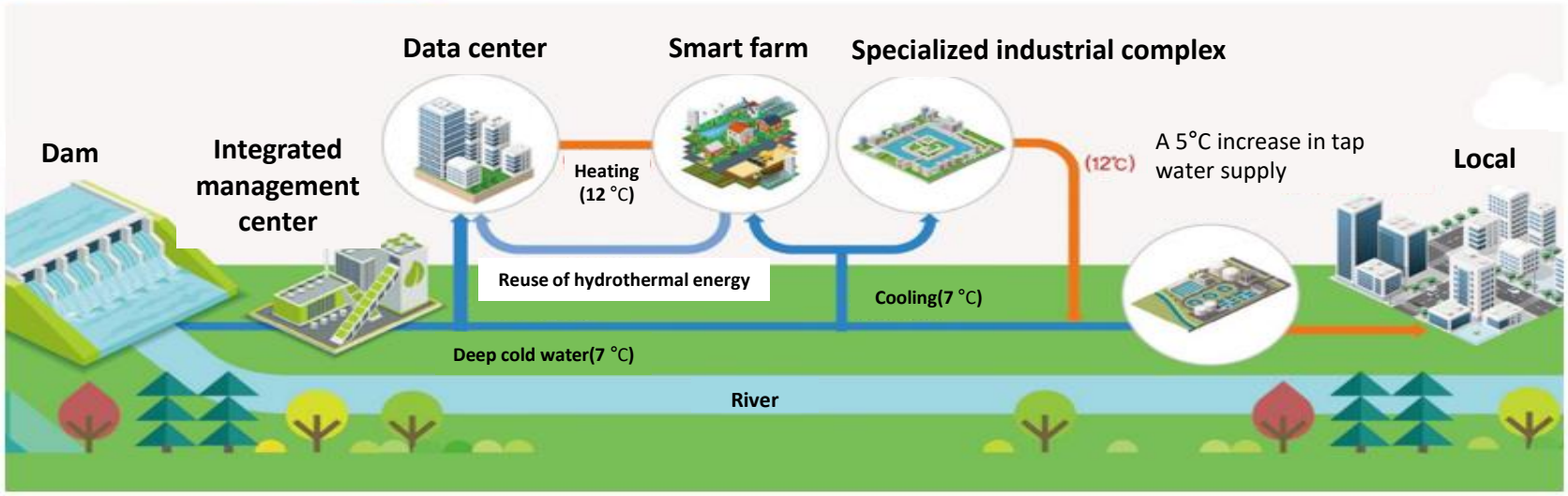
- Drought prevention
  - Establishment of an Integrated Drought Information Center
  - Drought prevention through linkage with available water resources
- Prompt Flood response
  - Linking the flood response systems between the Ministry of Environment and the Korea Meteorological Administration

2-3. Creating New Water Value

Promotion of technological innovation

- K-water`s 3 Super Gap Tech.
  - Digital Twin
  - AI Water Treatment Plant
  - SWNM
- Hydrothermal energy
  - Clean energy from water heat hydrothermal energy.

Hydrothermal energy supply system(Kang-won hydrothermal cluster in Korea)



2-3. Creating New Water Value

3 Super Gap Technology of K-water

Digital Twin

- Decision making by simulating virtual condition
- 4 Water Management packages

- Monitoring, flood, drought, water cycle

AI Water Treatment Plants

- Automation of the entire water treatment process
- Autonomy for all 8 processes

Intake → Chemicals → Mixing → Disinfection → Sedimentation → Filtration → Ozone → GAC filtration

SWNM

- Smart Water Network Management

① Water leakage management

② Water pressure management

③ Reorganization of the pipeline network

④ Water quality control

Thank you