

The Strategy of IWRM in Korea

April 13, 2015

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Kwater Overview

State-owned Water Resources Management Corporation(founded in 1967)



- Head Office (4 divisions, 24 departments)
- 8 Regional Headquarters (28 offices)
- Total employees : 4,500

Total Water Service Provider









Water Resources Development

Water Supply & Sewage System Green Energy Generation

Water Front City Construction Research & Development

Contents

Water Resources in Korea

Water Management History





1. Water Resources in Korea

- Characteristics

Annual Precipitation & Available Water Resources



Seasonal & Regional Unbalance



Regional Unbalance

- Han River 1,260mm
- Nakdong River 1,203mm
- Sumjin River 1,457mm
- Eastern Coast 1,270mm
- Southern Coast 1,496mm

2. Water Management History

- Water disaster record

Frequent water disasters (flood, drought & water pollution, ~1980s)

- Flood(Life loss) : 1925(647), 1959(849), 1972(550), 1980(160), 1984(189)...
- Drought : 1939, 1949, 1962, 1968, 1978, 1982...



"Water disaster was an obstacle for economic development" (Economic condition(1970) : GDP/capita = 249 USD (#50))

2. Water Management History

- First Step

Water resources development 🖈 Disaster 🎙 , Economy 👔

- 5 major River basin survey(1966~1972) : Loan from Advanced countries
- Establish 5-year economic development plan (1972)
- Construct 6 large dams under the loan of IBRD, ADB







Water Conflict

- Water right
 - Conflict between Daegu and Gumi city regarding intake facility relocation toward upstream
- Dam construction(Development vs preservation)
 - Nullification of Yeongwol dam construction due to objection of NGO and local government
 - Conflict between water securement of Ulsan city and
 - preservation of Cultural Heritage Administration
 - regarding lowering water level of Sayeon dam

- Challenges





Water charge system

- Water charge differences according to local government due to financial condition etc. despite of equivalent water charge of multi-regional water

Unbalance of water welfare

- Water shortage in costal & mountainous areas
- Shortage of water supply infrastructures
- (limitation to multi-regional or local water supply system)
- Poor financial condition of local government
- Absence of appropriate area for dam construction
 - ⇒ Reviewed as the national welfare
- Flood damage in tributary
- Vulnerable tributary in time of heavy rain due to steep slopes, lack of hydraulic structures. etc
 - (but streamflow depletion within no rain season)
- Lack of human resources and technology in local government
- Mainly investment to main stream by government policy
 - ⇒ National investment distributed enenly







Climate Change (2071~2100)

- Temperature 5.3 °C 1
- Annual Precipitation 19%
- Rainfall & typhoon intensity
- Extreme weather (Flood & Drought)



Deterioration of existing hydraulic structures

• Dam aging : 62% (the ratio of more than 30yr dam operation since construction)

Item	Bridge	Tunnel	Ports	Dam	WSS
Total	8,948	2,448	330	522	1,378
More than 30yr	647	163	58	326	203
ratio	7.23	6.66	17.58	62.45	14.73

Source : Ministry of Land, Infrastructure and Transport, 2013

• Agricultural reservoir : 87% (the ratio of more than 45yr dam operation since construction)

- Cause of stream depletion due to non-discharge of river maintenance flow

- Challenges

Insufficient co-operation due to diversified management system



- Paradigm Change

"Paradigm shifting of Water management is not a choice but essential"









4. Future plan for IWRM

Track 1 : Build IWRM Foundation

20 Element to Build IWRM Foundation

Efficiency

- Integrated planning based on watershed
- Green energy generation using water resources 1
- Real-time water circulation monitoring
- Investigation of catchment characteristic 1
- Upgrade and share water management technology
- Review water supply & flood control capacity of hydraulic facility
- Dam & river flood control ability

Equity

- Secure water resources for costal & mountainous village
- Flood disaster management project in tributary
- Rearrange water allocation considering environment
- Diversify water resources (Desalination, small size dam development, etc.)
 - Reestablish dam operation rule
 - Establish integrated water law
 - Rearrange water right & cost
 - Water related regulations

Sustainability

- Prepare climate change
- Enhance safety management for old facilities
- Connect land use & water management
- Integrate pollution source management

 Joint committee for each river basin

4. Future plan for IWRM

- Track2 : Pilot Project 1

One of three Pilot Projects, Sumjin River Basin



ISSUE

- Excessive diversion to other River basin
 *sumjingang dam, Bosunggang dam
 - Juam dam
- Shortage of river maintenance flow and civil complaint (Sea Water Infiltration)
- Objection of Dam construction

MEASURE

- Return of diversion water
 secure river maintenance water
 settlement of civil complaint
- Reallocation water
 - * Surplus water (Jangheong dam) → Service area of Juam dam
- Modify dam construction plan (Downscale or cancel)

4. Future plan for IWRM

- Governance

Process to figure out the solution of water issue

- Dam & Weir Operation Committee based on watershed
- Water Quality Management Committee based on watershed
- Dam Construction Preview Committee



Why Kwater? What Goals?

> Many people in Korea wonder if Kwater can lead IWRM as government agency.

Because someone has to do it, Kwater will lead without hesitation.

Lead Kwater's IWRM and reach national IWRM.

Thank You



Water & Global Contributions

Pleasure enjoyed with water, creating a happier world



The Best Water Partner

