

Fifth Meeting of High-level Experts and Leaders Panel on Water and Disasters (HELP)

# Application of R&D Projects in Science and Technology for Water-related Disaster Risk Reduction in Korea

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Shinsegae Chosun Hotel

Presented by KOO Young-seong

Director, KAIA

# KAIA Introduction

- ❖ Korea Agency for Infrastructure Technology Advancement
- ❖ Established in 2003
- ❖ Public agency under the Ministry of Land, Infrastructure and Transport (MOLIT)
- ❖ Specialized in R&D management: Planning, Progress monitoring, and Performance management
- ❖ Budget of 410 million USD, including 33 million USD for Advanced Water Management Research Program (FY2015)

# Research Area



# Water-related Disaster





# Advanced Water Management Research Program

## Vision

- Advancement of water management for the generation of water welfare

## GOAL

- Improve irrigation safety by 10%
- 90% level of the top water supply technologies
- Reduce urban flooding damages by 10%
- Global top 10 countries in the management of river

## Area

Stability

Smart

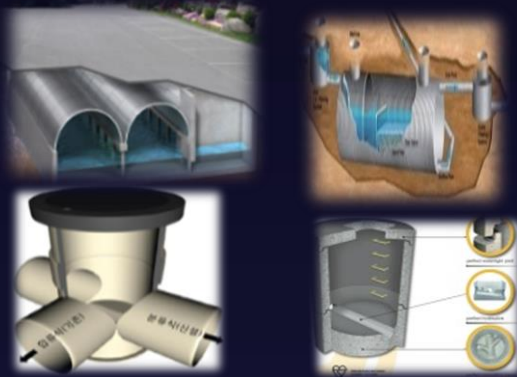
Sustainability

Disaster  
Prevention

# Major R & D Projects in Water Disaster Prevention

## Flood Damage Reduction

### Combined Inland-River System

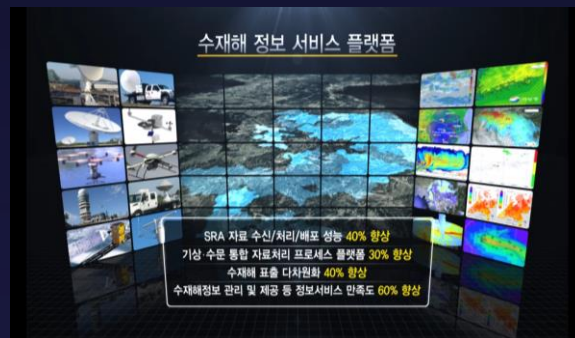


### Smart GI & LID

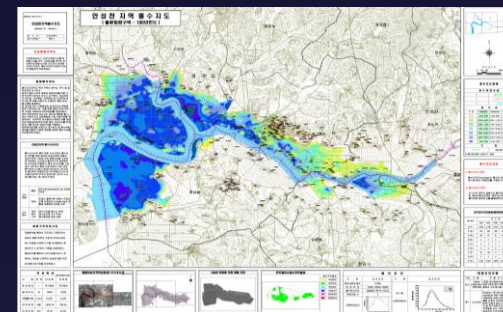


## Extreme Water Disaster Prevention

### Water Hazard Information Platform



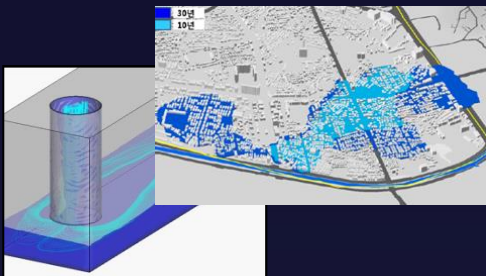
### Climate Change Adaptation for Water Resources (CCAW)



# Combined Inland-River System

- Principal Institution : University of Seoul (Consortium)
- From June 2013 to June 2017
- Public Investment of 7 million USD

## #1. Drainage Performance Improvement



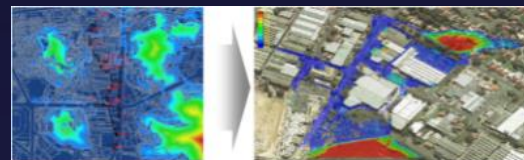
## #2. Rainfall Prediction

### Analysis of River Inundation/Risk (MCS, Bayesian, DDM)

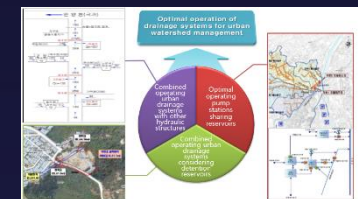
- Quantification Risk, Analysis of Uncertainty
- Flood Analysis of connected mainstream and tributary



(Bayesian model based)



## #3. Optimized Operational Techniques Development



# Smart GI & LID

- Principal Institution : Pusan National University (Consortium)
- From November 2012 to March 2016
- Public Investment of 18 million USD

## #1. GI & LID Test Facilities Construction



## #2. Green Infrastructure Technology Development



## #3. Water Cycle City Model and Application





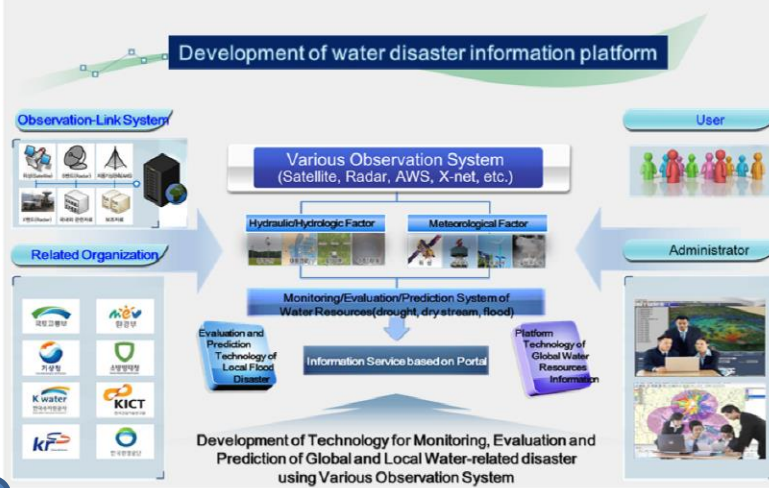
# Water Hazard Information Platform

- Principal Institution : K-water (Consortium)
- From July 2014 to March 2019
- Public Investment of 27 million USD

## #1. Hydrological Information Generation

## #3. Customized Flood Risk Assessment

### Conceptual Diagram



## #2. Assessment and Prediction for Dry Streams

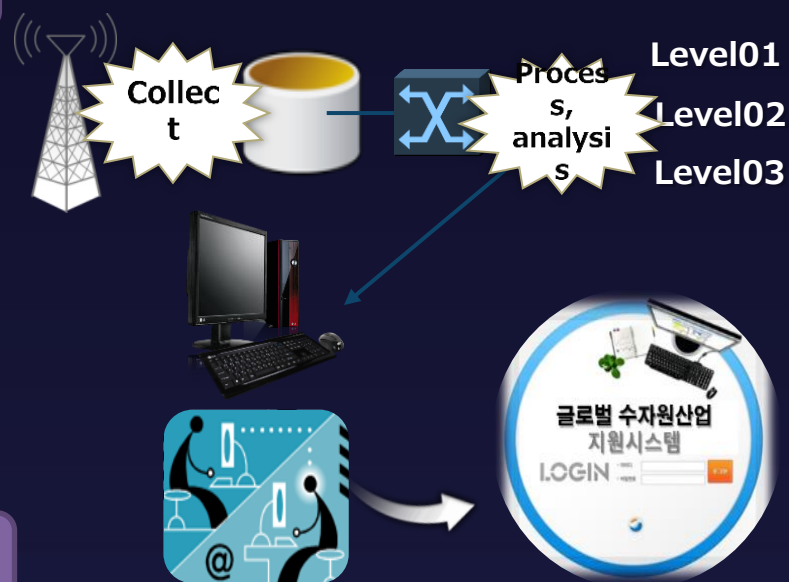
## #3. Water Resource Information Service System Platform

# Climate Change Adaptation for Water Resources

- Principal Institution : Sejong University (Consortium)
- From September 2014 to June 2019
- Public Investment of 22 million USD

#1. Adaptation Technology  
for Extreme Flood

#3. Adaptation Technology  
for Watershed Management



#2. Reliable Water  
Supply Technology

#4. Water Industry  
Technology

# Safe Community from Water-related Disasters

As-Is (2013)



To-Be (2023)



**Thank You**