

ICT, IoT, and Big DATA Application for Irrigation facilities management

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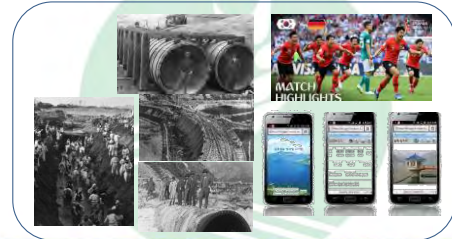
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Korea Past & Now



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Irrigation & Drainage Facilities



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Irrigation No Matter What Happen



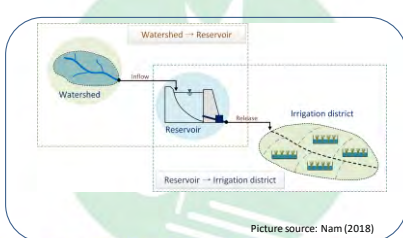
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Reservoir Management Tool



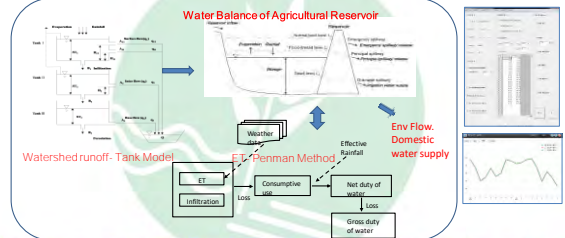
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Hydrological Operation Model for Water Resources System



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Application of HOMWARS

- Determination of new reservoir size
- Evaluation of supply potential of existing reservoir
- Drought analysis by climate change scenarios
- Design of delivery canal
- Analysis of irrigation supply for new cropping pattern
- Analysis for potential environmental flow supply
- Analysis for potential of drinking water supply for rural area

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Reservoir storage & Canal water level

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Canal water Delivery Info System

Mobile App

Web Program

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Canal water Delivery Info System

Water Distribution Info System

Optimum flow rate recommendation as of flow depth in canal
 > Providing current water level of station for optimum water supply

Hwaho station
 Current : 0.56 m
 Daily supply : 546,000 ton
 Cumulative : 1,305,000 ton
 Compare to optimum 124 %

Kim(2015)

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Hydraulic model development for Irrigation Canal – SWMM based

$$PS_2 = PS_{1,1} + W_1 + PK_1 - ET_1 - SP_1 - BK_1$$

Kim(2018)

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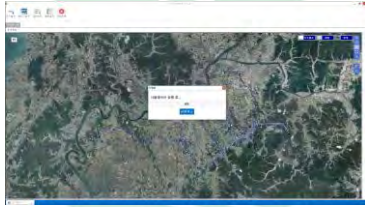
Irrigation Canal Delivery Simulation

Kim(2017)

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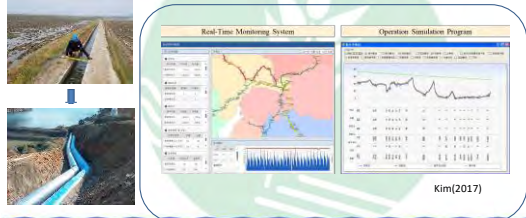
Irrigation District Management Platform



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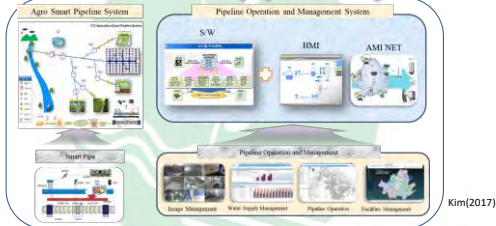
ICT-based smart pipeline system



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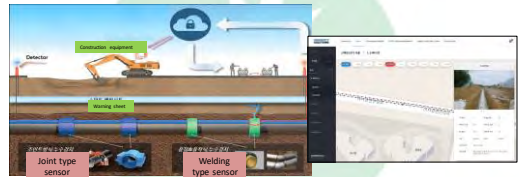
ICT-based smart pipeline system



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Pipe Leakage Detection



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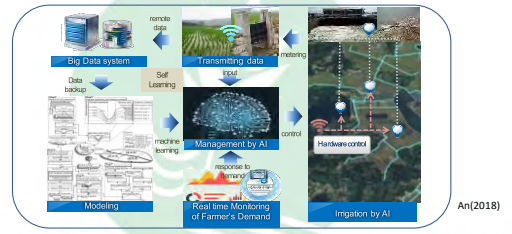
ICT for Vegetable farm & Orchard



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Machine Learning Irrigation



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Irrigation Supply prediction by ANN

BNN Input : Rainfall, Irrigation(estimated)
Verification by observed storage role

An(2018)

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Big Data Analysis for Drought

Lee(2017)

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Thank you for listening

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