

Korea-EU Horizon Europe Researchers Networking Forum on Energy & Advanced Mobility

• June-Seok Choi

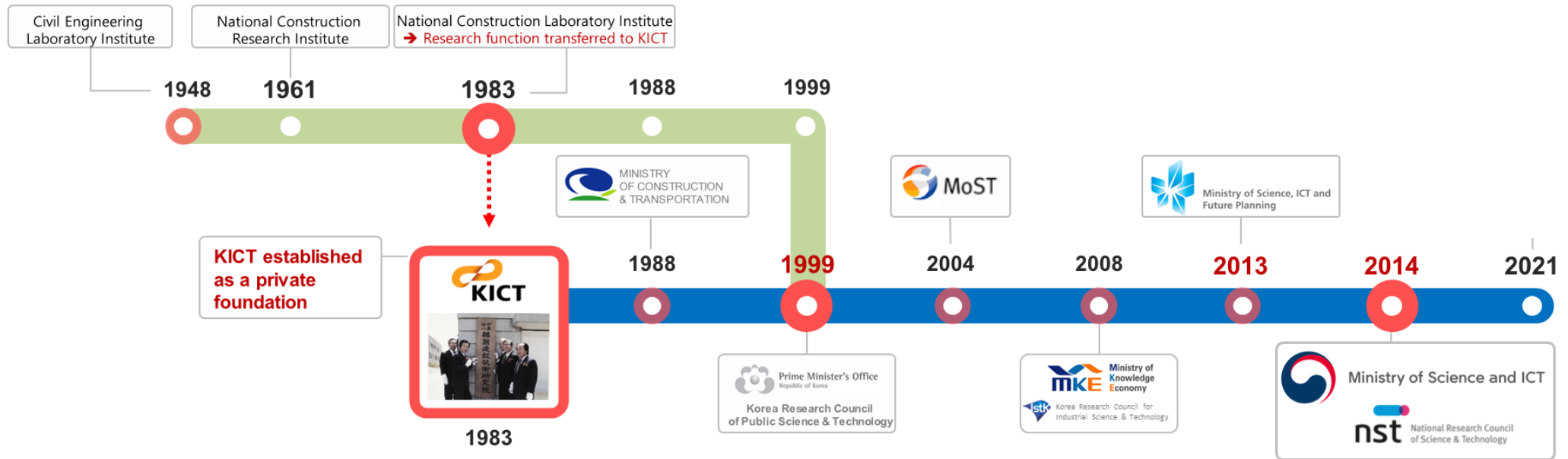
**• Research Fellow
& Professor**

• KICT

**• Water & Energy &
Resource**



1. Short Introduction of your Organization



01 Research & Development

- Advanced National Infrastructure Technology
- Natural Disaster Prevention and Resilience Technology
- Green Infrastructure Technology
- Construction Convergence Technology
- High-Performance Construction Materials

02 Policy Development & Industry Support

- National Construction Policy, Master Plan, etc.
- Construction Industry Support

03 Certification & Test

- Construction and Equipment Quality Certification
- Approval · Designation, Examination and Testing Service



1. Short Introduction of your Organization

Aimed at building Korea's best total experimental infrastructure for land and transportation R&D



SOC Evaluation Research Center (Yeoncheon, Gyeonggi-do)

National full-scale test and verification site to invigorate nationwide R&D and new technologies
Key facilities: SOC experimental test-drive courses, test facilities for reproducing various climate environments

Fire Research Center

(Hwaseong, Gyeonggi-do)

Korea's largest total fire safety research center aimed at advancing fire safety technologies
Key facilities: Real-Life Fire Performance Experiment Building, Materials Performance Evaluation Test Building



Ilsan Head Office (Goyang, Gyeonggi do)

Korea's only comprehensive construction research infrastructure
Key facilities: Future Convergence Building, Large Structure Experiment Building, Port Experiment Building, Integrated SOC Management Center



River Experiment Center (Andong, Gyeongsangbuk-do)

Develop technologies to preserve and restore rivers using large-scale test waterways modeled after real rivers
Key facilities: Steep, straight, and meandering channels





2. Expertise

KICT

KICT is a national research institute in Korea conducting advanced R&D in civil, environmental, and water engineering. Our research focuses on developing **carbon-neutral and climate-resilient water technologies**, including **seawater desalination, wastewater valorization, and CO₂ reduction through water-energy-resource nexus approaches**.

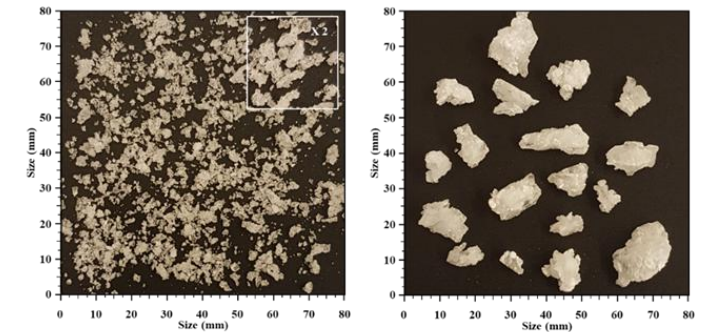
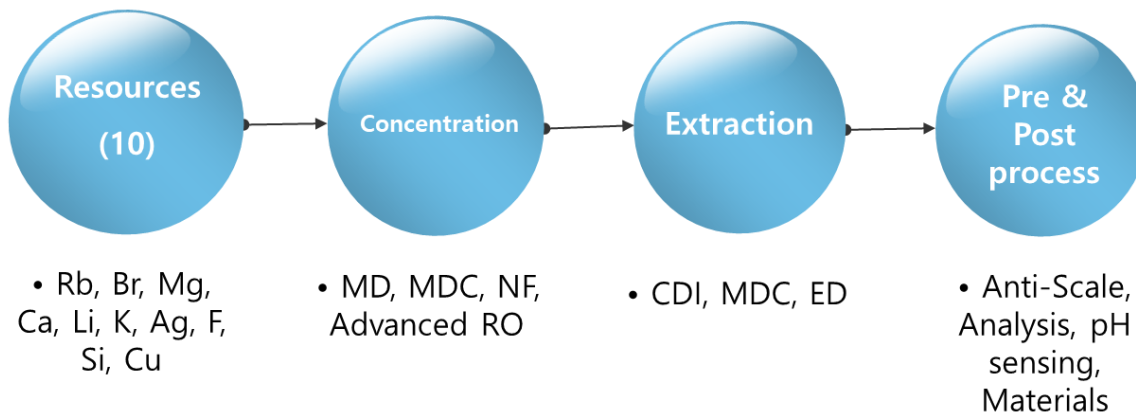
We aim to contribute to **innovative carbon reduction solutions** by integrating **AI, membrane processes, and resource recovery technologies**. KICT actively seeks **international collaboration** to co-develop sustainable water and environmental systems supporting the **EU Green Deal** and **global carbon neutrality goals**.

Keywords: Water-energy nexus, Carbon neutrality, Resource recovery, Desalination, CO₂ reduction, Circular economy

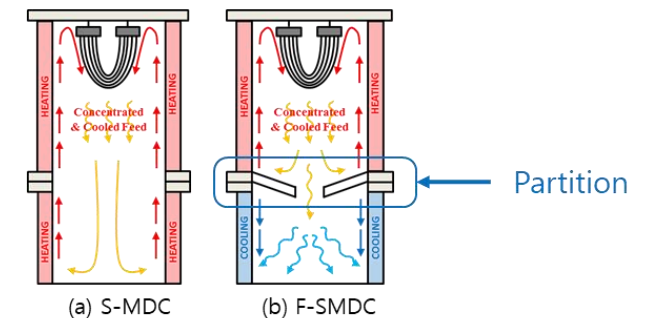
2. Expertise

WTCL (Green Desalination Research Lab.)

'VALUE in BRINE' is an innovative technology research lab. to circulate minerals & metals from brine for low carbon emission.



< sodium sulfate crystals produced >



< Convection current by heating/cooling >

❖ **Partition** prevented the feed solution mixing by convection (like trap)



3. Your Project Idea

Water-Energy-Resource

Targeted Call: HORIZON-CL5-2026-03-D2/HORIZON-CL5-2026-03-D3

Main Objectives

To develop **carbon reduction technologies utilizing urban water resources** based on the **circular economy** concept. The project aims to create an integrated **water-energy-carbon nexus system** that captures and reuses CO₂ through innovative water treatment and resource recovery processes.

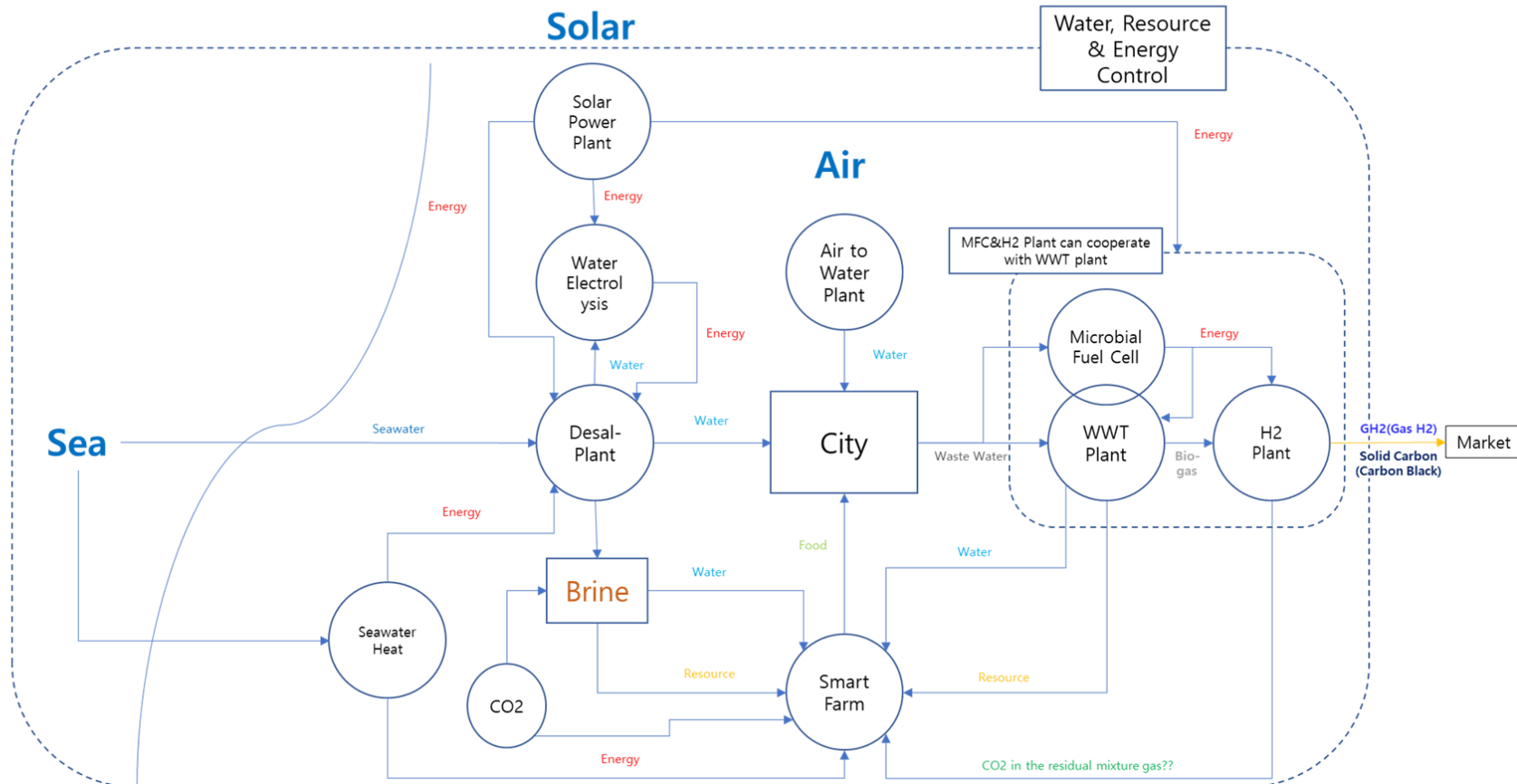
Idea Briefly Explained

The research focuses on using **urban wastewater and seawater desalination brine** as carbon capture and utilization media. By combining **membrane crystallization, electrochemical conversion, and AI-based process optimization**, the technology will contribute to **low-carbon cities** and **sustainable water management** aligned with the **EU Green Deal** and **carbon neutrality goals**.



3. Your Project Idea

Water-Energy-Resource Nexus (Circular Economy)





4. Profile You are Seeking and Why

IF YOU PRESENT A PROJECT IDEA

We are seeking **European partners**—including **municipal authorities, research institutes, and universities**—interested in developing **CO₂ reduction technologies through circular water systems**.

Ideal partners should have expertise in **urban water management, carbon capture and utilization (CCU), life-cycle assessment, or digital twin technologies** for sustainable city applications.

Collaboration aims to design and demonstrate **urban-scale water-carbon nexus solutions** contributing to **carbon neutrality and resource circulation**.



5. Contact Details

June-Seok Choi

jschoi@kict.re.kr

+82-31-910-0759

+82-10-5162-5700



June

WhatsApp 연락처

