

Enhancing Water Governance through Multi-Stakeholder Participation: Insights from River Experiment

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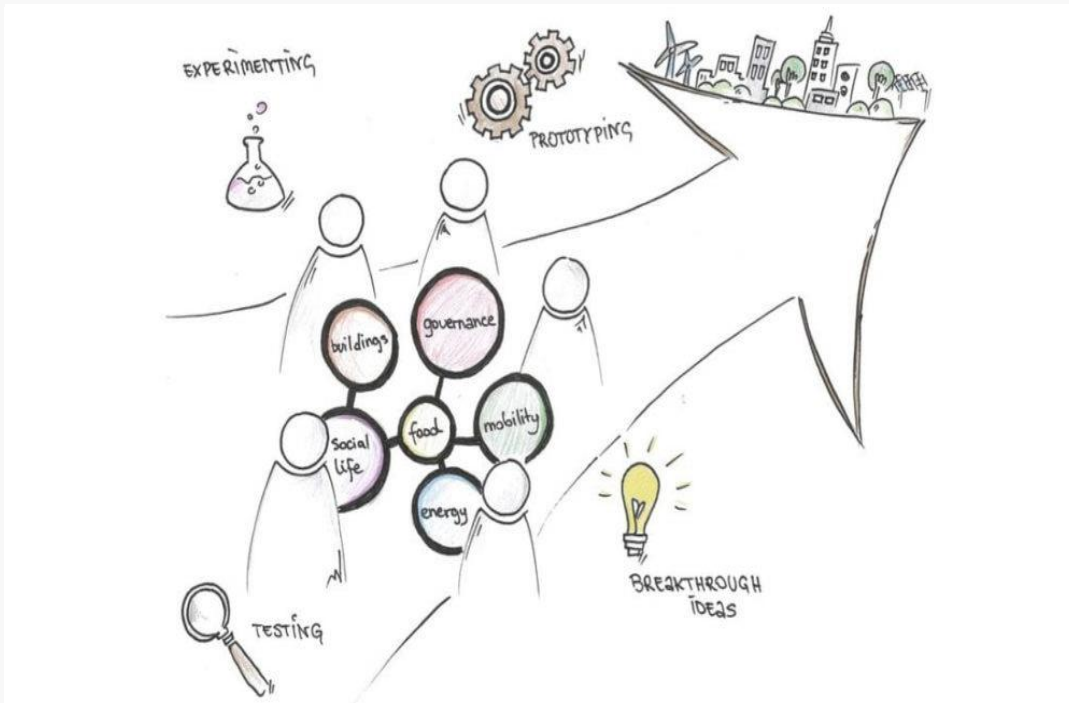
Case Study 1

Introduction

1-1

Living lab Vs River experiment

- Living Lab: Stakeholders participate in solving on-site issues
- Experiment: Experts participate in developing technologies for on-site problem-solving



<https://tedi-london.ac.uk/news/what-are-the-benefits-of-living-labs/>



Hydraulic Experiment Lab and Real Scale River Experiment

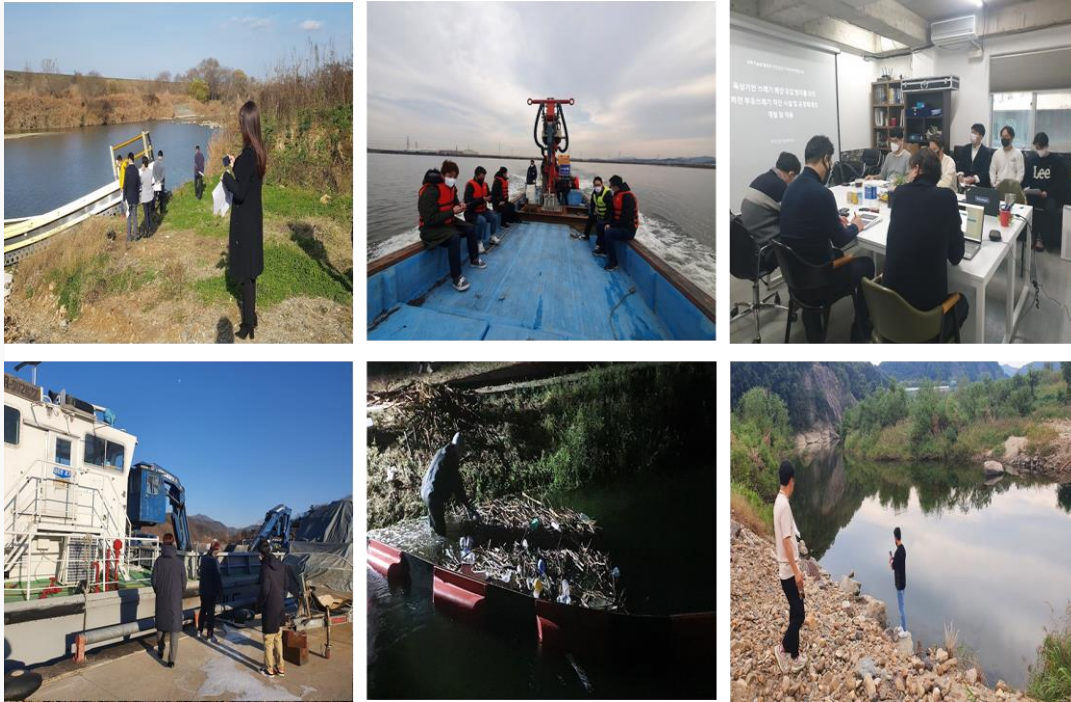
Case Study 1

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1-2

Data based decision making

- Decision-making using data generated on-site in real situations: Various situations **do not occur** within a project period
- Decision-making using data generated under controlled conditions: **questions** about how closely it resembles real on-site conditions



Living lab data



ADCP Regatta (2023, Andong REC)

Case Study **1**

Andong River Experiment Center (REC)

2-1

Andong city



Present

Andong (Korean: 안동; Korean pronunciation: [an.dŏŋ]) is a city in South Korea, and the capital of North Gyeongsang Province. It is the largest city in the northern part of the province with a population of 153,500 as of June 2024. **The Nakdong River flows through the city.** Andong is a market centre for the surrounding agricultural areas.



Queen Elizabeth II (April, 1999)

2-2

River Experiment Center (REC)



Area

193,051 m²

Buildings

Office building, Guest house, Control room, Pump station

Experiment facilities

- Pump (Max. discharge supply 10 m³/s),
- Three channels (Length: 560~680 m, Width: 11 m),
- Circulation flume (Length: 50 m, Width: 2 m, Height: 1.4 m)
- Physical model experiment field, Artificial reservoirs

Case Study **1**

Project overview

3-1

Project overview

- The issue of marine litter linked to river floating waste
- Issues, possible solutions, and operational challenges



source : OCEANCLEANUP

Case Study 1

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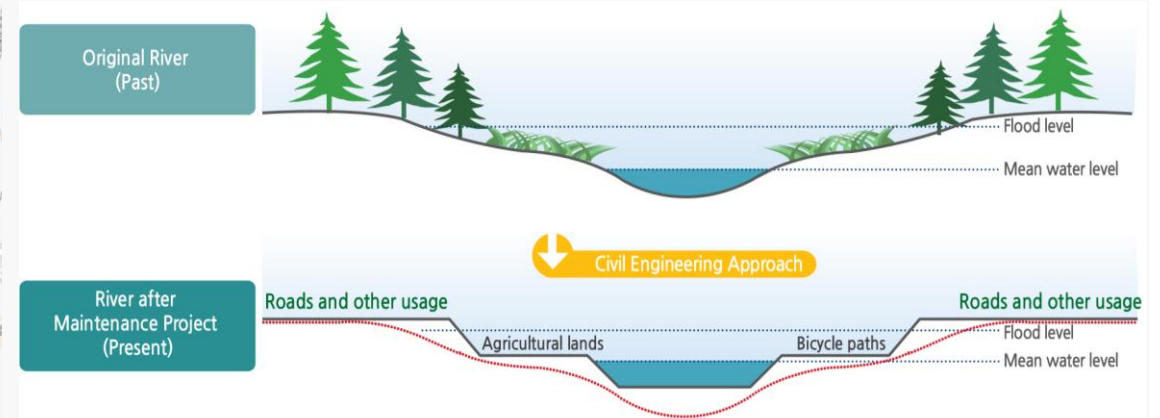
3-1

Project overview

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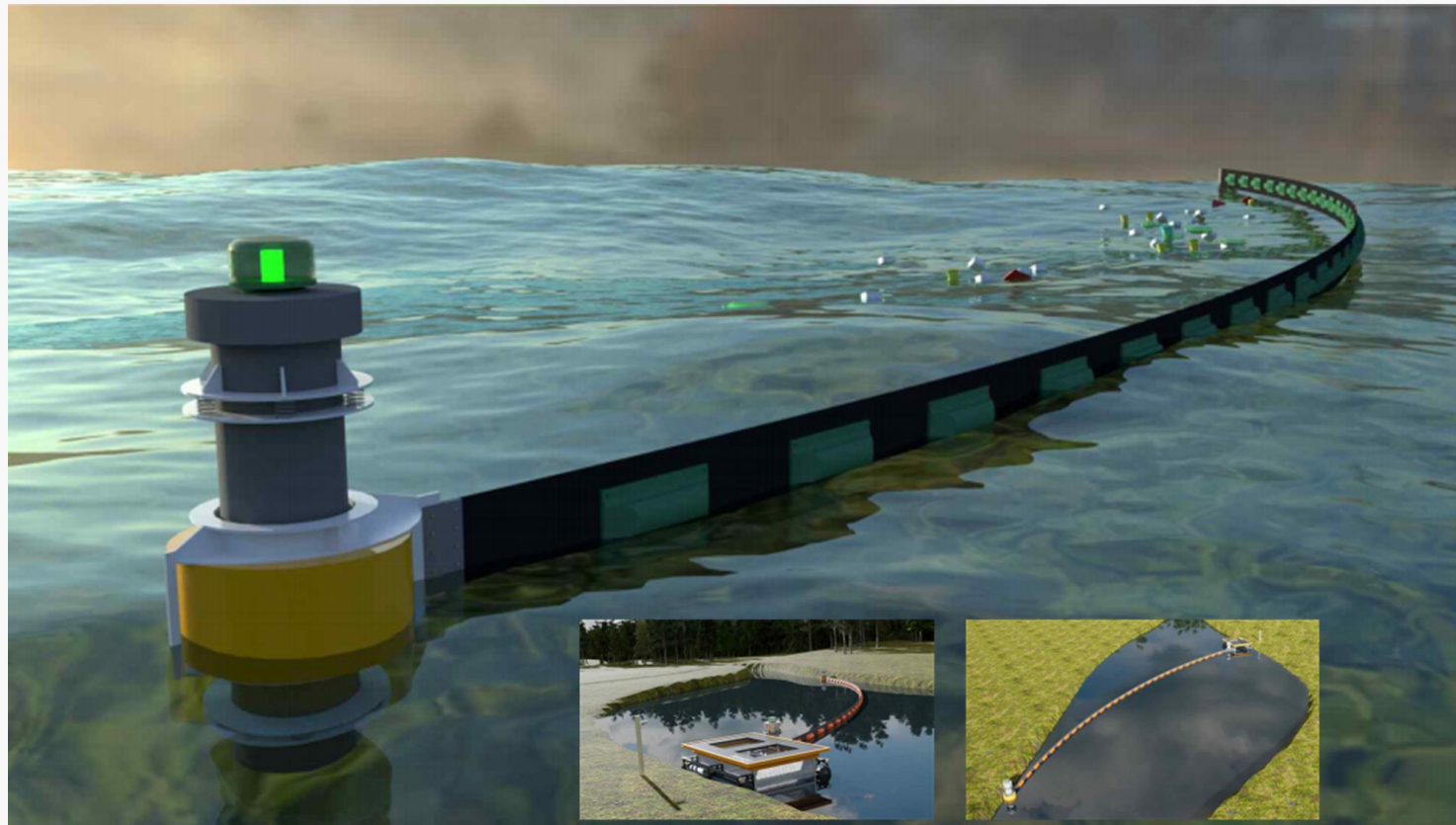
source : http://nationalatlas.ngii.go.kr/pages/page_1273.php



3-2

Objectives

- Development of a customized river floating debris blocking facility for Yugu Stream in Gongju city
- Demonstration of developed technology and establishment of maintenance plans



Initial design

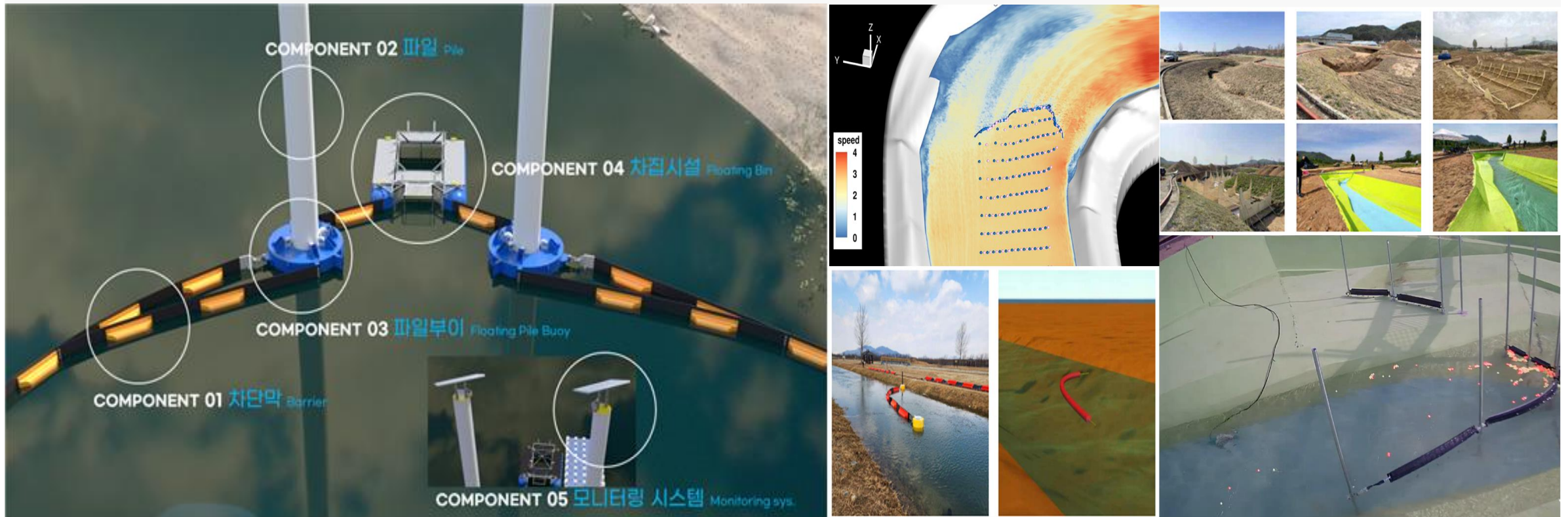
Case Study **1**

Project A \sim Z

4-1

Design, Experiment, Construction with Living lab

- Discussion of all ideas
- Verification until all stakeholders' various concerns are addressed



Case Study 1

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Case
Study **1**

Enhancing Water Governance through Multi-Stakeholder Participation : Insights from River Experiment



Case Study 1

Enhancing Water Governance through Multi-Stakeholder Participation : Insights from River Experiment

4-2

After project

- Meeting with local government, research institution, and private company
- Presenting possible solutions and engaging in continuous exchange of ideas

The image displays two website screenshots and three logos. The left screenshot is from the NST (National Science and Technology) website, featuring a navigation bar with links like 'NST 소개', '사업안내', and '연구성과 더보기'. The main content area is titled 'ARCHIVE' and lists various research topics such as '반도체 디스플레이', '이차전지', '첨단 이동수단', and '차세대 원자력'. The right screenshot is from the Ulsan Technopark website, with a navigation bar including 'Greetings', 'History & Organization', and 'Complex guide'. The main content area features the title 'Ulsan Technopark, the Center of Technological Innovation' and a description of its role as a center for regional technology innovation. The bottom left corner shows the KICT (Korea Institute of Civil Engineering and Building Technology) logo, and the bottom right corner shows the Foresys logo.

NST 국가과학기술연구회
NST 소개 사업안내 열린소식 홍보관 고객참여 정보공개 KOR Q

Ulsan Technopark
Greetings History & Organization Vision Complex guide What Ulsan Technopark Do Instruction of divisions Contact us Korean

ARCHIVE
23개 소관 연구기관의 연구성과 아카이브입니다.

Securing research funding

Ulsan Technopark, the Center of Technological Innovation

Ulsan Technopark is the center of the regional technology innovation network, providing hardware such as R&D, test production, and business incubators, as well as necessary support services for each stage of growth.

KICT
KOREA INSTITUTE OF CIVIL ENGINEERING and BUILDING TECHNOLOGY

STePI SCIENCE AND TECHNOLOGY POLICY INSTITUTE

Foresys

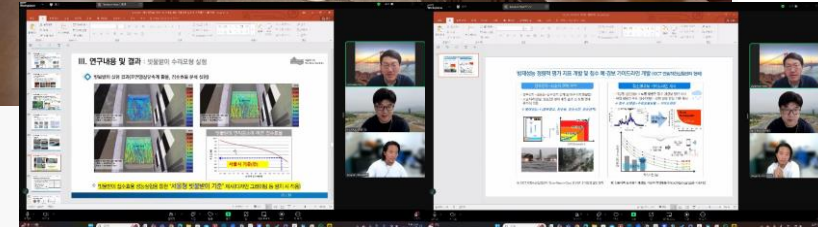
4-3

Other projects: Seoul Metropolitan Government

- Research side: On-site data from Seoul is needed
- Position of Seoul: Performance verification of the developed technology is required



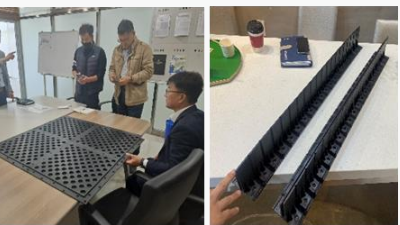
<https://www.joongang.co.kr/article/23839069>



4-3

Other projects: Gyeongsangbuk-do Provincial Government

- Generating ideas to solve on-site issues
- Design, construction methods, and standards for on-site application?



Case Study **1**

Conclusions

5-1

Factors Contributing to the Weakening of Water Resource Governance

- Low community engagement
- Lack of data and information, Especially record
- Lack of stakeholder collaboration
- Lack of technical capacity
- Focus on short-term results
- Insufficient financial and resource support
- Policy and legal inconsistencies



Practical design guidelines / Design standards

- Climate Change and Environmental Variability

Areas declared special disaster zones due to heavy rain



https://www.koreatimes.co.kr/www/nation/2024/10/113_355276.html

5-2

Factors Driving Changes in Water Resource Governance

- A local government proactive in problem-solving
- An intuitively verifiable method, real-scale experimental demonstration
- Coordinator / Research institution under the local government
- Expert groups (universities, construction companies, engineering companies, international organizations, etc.)
- Various funding programs available if you broaden your perspective
- Close mutual cooperation: local governments' efforts for revision, foundation for amendments by research institutions
Then the central government will take action.
- Various funding programs available if you broaden your perspective



Thank
You.