

Development of Technology for Aquatic Ecosystem Restoration in Korea



2010.9.14.
Aquatic Ecosystem Restoration

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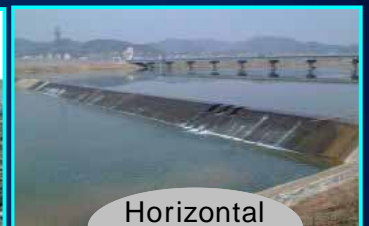




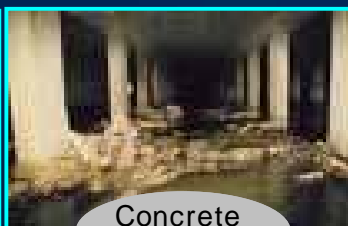
I. Project Background



Disturbed
River - bed



Horizontal
barrier



Concrete
covering



Water quality
deterioration

Deterioration of ecological health

Major policies for Ecological River Restoration

10-Year Plan of Ecological Stream Restoration

Ecologically healthy rivers and safe water from hazardous substances.

Securing water environment is fishable and swimmable



II. Outline of project

I. Outline of project



Project name

Eco-STAR Project – Development of technology for aquatic ecosystem restoration and management

Term of project

Dec. 2007 ~ May 2014 (6.5 years)

Total research budget

84.1 billion won

- Government 58.5 + private sector 25.6
- Mostly used for the commercialization projects

I. Outline of project

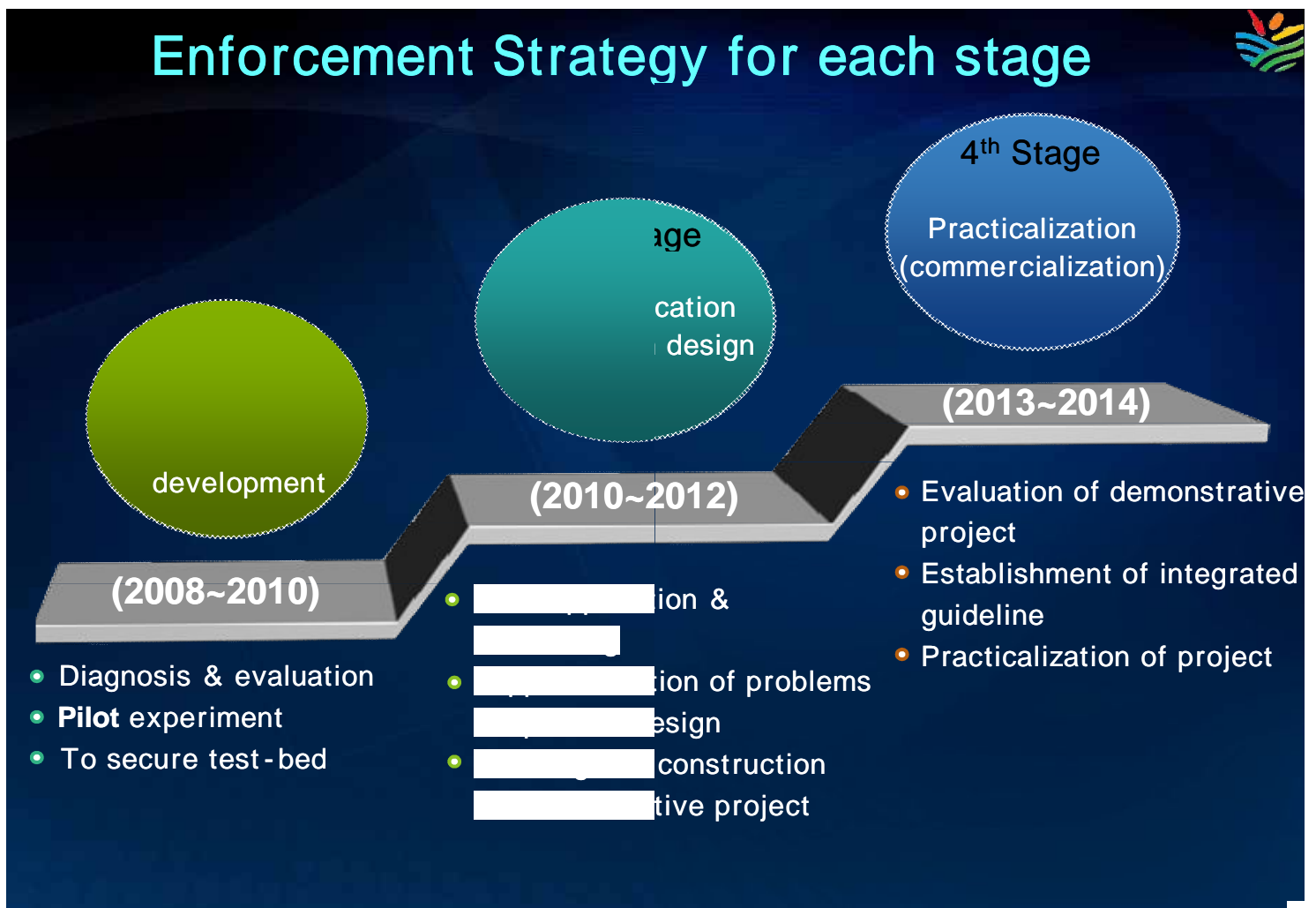


Vision

To develop and spread practical technology to restore disturbed aquatic ecosystem

To promote the lagged aquatic ecosystem restoration project as competitive Green industry in 21C

To contribute the recovery of ecosystem health and the improvement of nation's quality of life





List of Research

Practical projects

- 10 projects 4 fields, 49 B won by the government (90%)

Field	Project title	Research Institution	Fund
Habitat & physical continuity	1. Development of restoration technology of habitat in aquatic ecosystem	Kangwon Univ.	80
	2. Development of techniques on the natural river-bed restoration and land-forming control in the waterway	Hyundai E&C	51
	3. Development of techniques on natural river bank creation and induction of natural bank change	Halla E&C	60
Water environment	4. Development of nature-friendly technology for water quality purification	Halla E&E	48
	5. Development of technology of securing environmental flow for ecological rehabilitation	EFMC	33
	6. Development of effective technology for non-point source control	Singang	53
Riverine ecosystem	7. Development of technology to build up riparian zone and eco-belt	Hanseol POSCO E&C	48
	8. Development of technology on conservation of the waterfront and ecotone of the lake		49
	9. Development of technology to create and manage wetland specialized in absorbing and reducing greenhouse gases	Ilsong ERT Co.	21
Aquatic			

List of Research



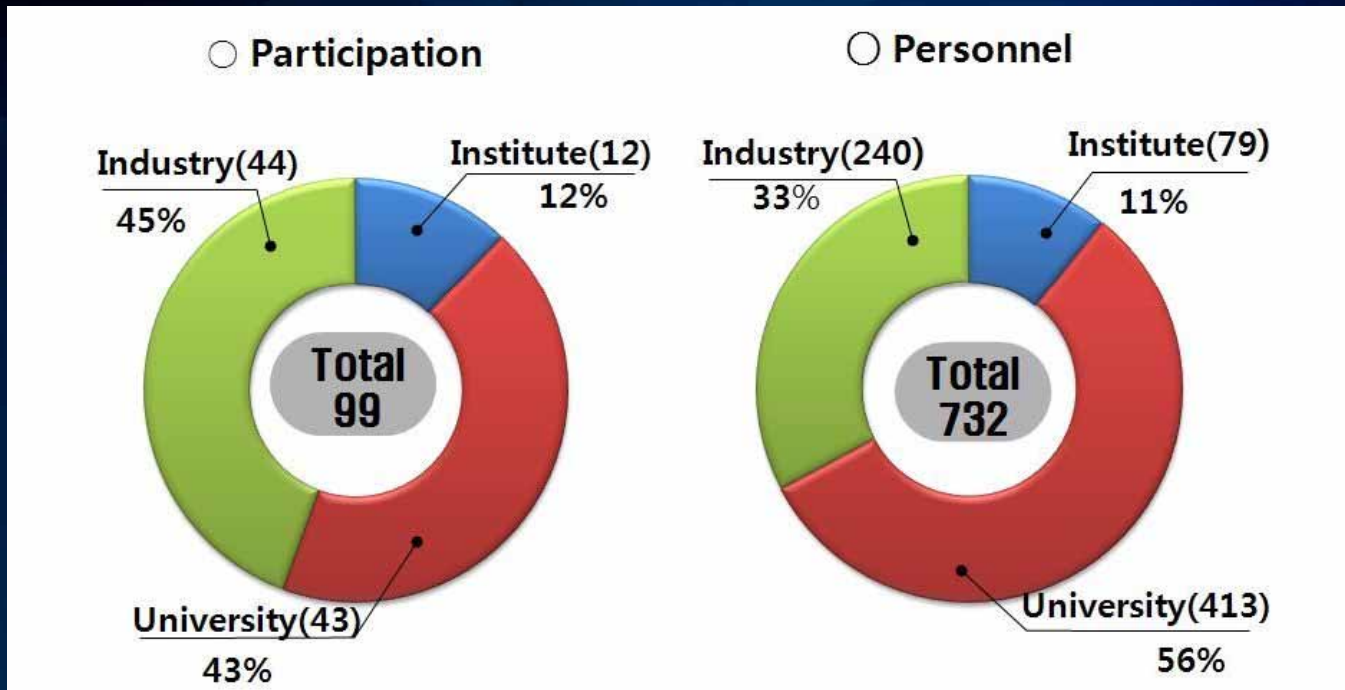
Fundamental projects

- 7 projects in 2 fields, 5 B won by the government (10%)

Field	Project title	Research Institution	Fund
Aquatic ecosystem health	1. Development of integrated assessment technique of lake ecosystem health	Kangwon Univ.	25
	2. Development of the assessment of river naturalness and its application methodology	Kongju Univ.	7
	3. Establishment of integrated manual for aquatic ecosystem restoration	Undecided	10
Fundamental research	4. Development of education and communication program for aquatic ecosystem restoration	Seoul woman Univ.	6
	5. Research on the legal system improvement and policy alternatives for the aquatic ecosystem restoration and management	Hanyang Univ.	1.2
	6. Replanning for aquatic ecosystem restoration project	KEI	1.5
	7. Planning for demonstrative eco-restoration stream	Dongmyeong E&C	2.8

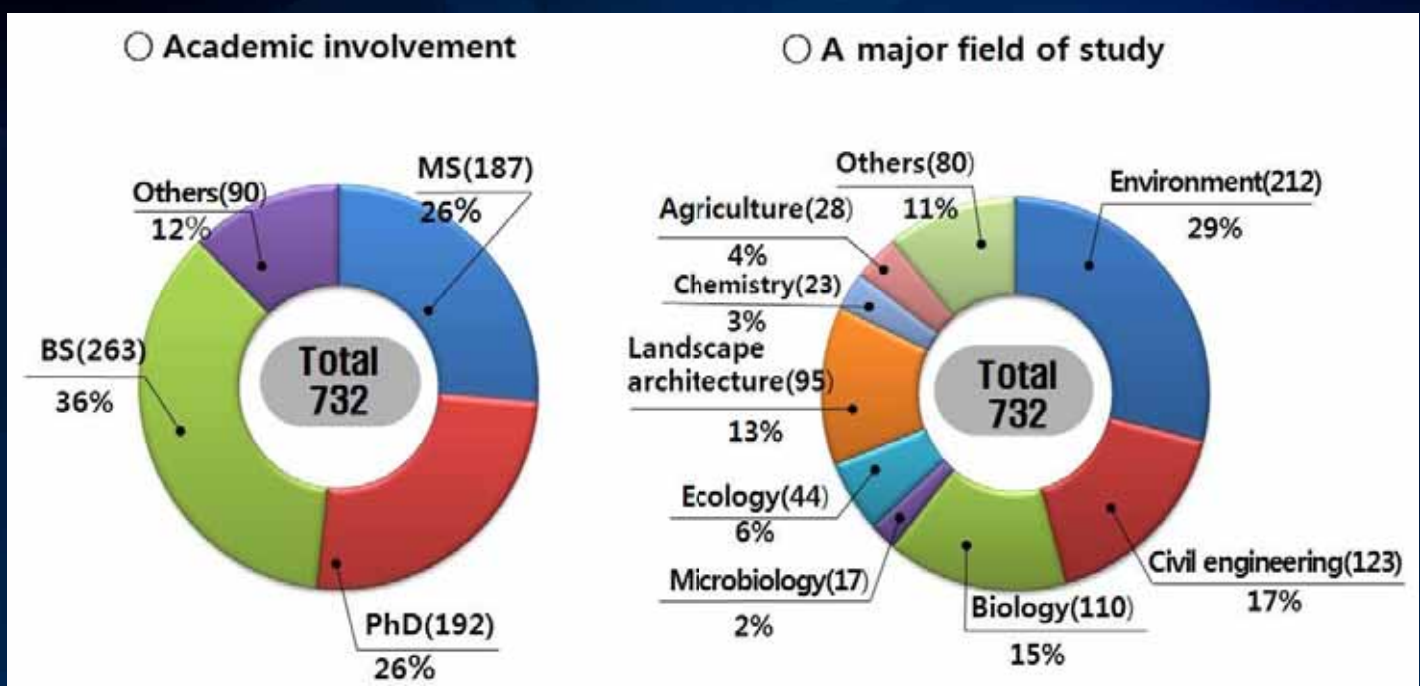


Project statistics



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Project statistics



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III. Ongoing projects

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Habitat &
physical continuity

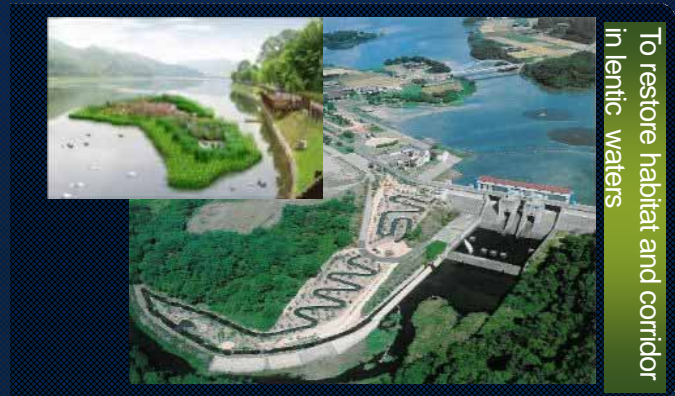


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Development of Restoration Technology of Habitat in Aquatic Ecosystem

Kangwon National Univ.
Halla Engineering & Construction Corp.
Korea Water Resources Corp.

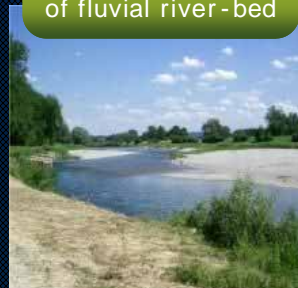
- Development of technology to restore the habitat of fishes, aquatic insect, reptiles, and otter whose habitat environment is damaged
- Development of technology to construct the ecological route that connects habitats
- Development of technique that constructs flood plain to restore the water area



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Partner Agency

Protection method of fluvial river-bed



Renovation of hydraulic weirs and drop structures



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■ Partner Agency

Creation method
for natural
revetment



Substitution
method for
artificial riverbank



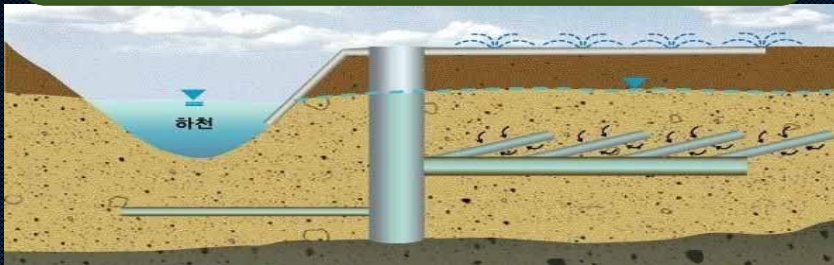
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Water environment



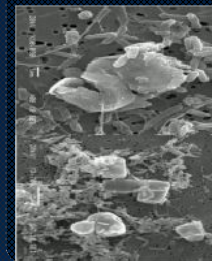
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Techniques for river-bed and soil filtration



Partner Agency 2

Securing algicidal microorganisms and immobilization technology



Partner Agency 1

Network-based an optimum decision support system



Partner Agency 2

Sustainable decentralized water supply technique to rehabilitate stream ecology using rain water



■ Partner Agency 1

Extension of city
NPS reduction



■ Partner Agency 2

Prevent inflow of muddy
water



Treatment facilities for
the road and bridge



Riverine ecosystem



■ Partner Agency

Technology for the
location of riparian
greenspace

Technology for
the creation of
wildlife passages



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■ Partner Agency 2

Recovery of lake ecological health through
vegetation restoration in the eroded surface
of lakeshore



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Development of Wetland Construction and Management Technique Specialized in Reducing and Absorbing of Greenhouse Gases



Ilsong ERT Co. Ltd.
Yonsei Univ.
Seoul National Univ.

- Development of construction technique for Sphagnum wetland on natural bases and man-made structures
- Development of wetland construction and management technique optimized to minimize greenhouse gases emission and assessment tool for greenhouse gas reduction

Sphagnum wetland on man-made structure



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IV. Achievements



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2 - 1stage	2 - 2stage	Total
18	32	55
2	10	12

2 - 1stage	2 - 2stage	Total
4	5	10
29	18	52

