K-water's Inclusive Global Business

Nov. 11, 2021

Nam Soo LEE

K water

Self Introduction

<K-water Career>

◦ Water Academy, General Manager (2021~)

◦ Global Business Division, General Manager (‘19~‘20)

- International Development Cooperation & Business

◦ Water Policy Research Center, Manager (‘15~’18)

- Water Industry Survey, Water Policy Study

◦ Audit Division, Public Relations, Manager (‘09~’13)

- Anti-corruption, Audit, Compliance, Public relations

<Education>

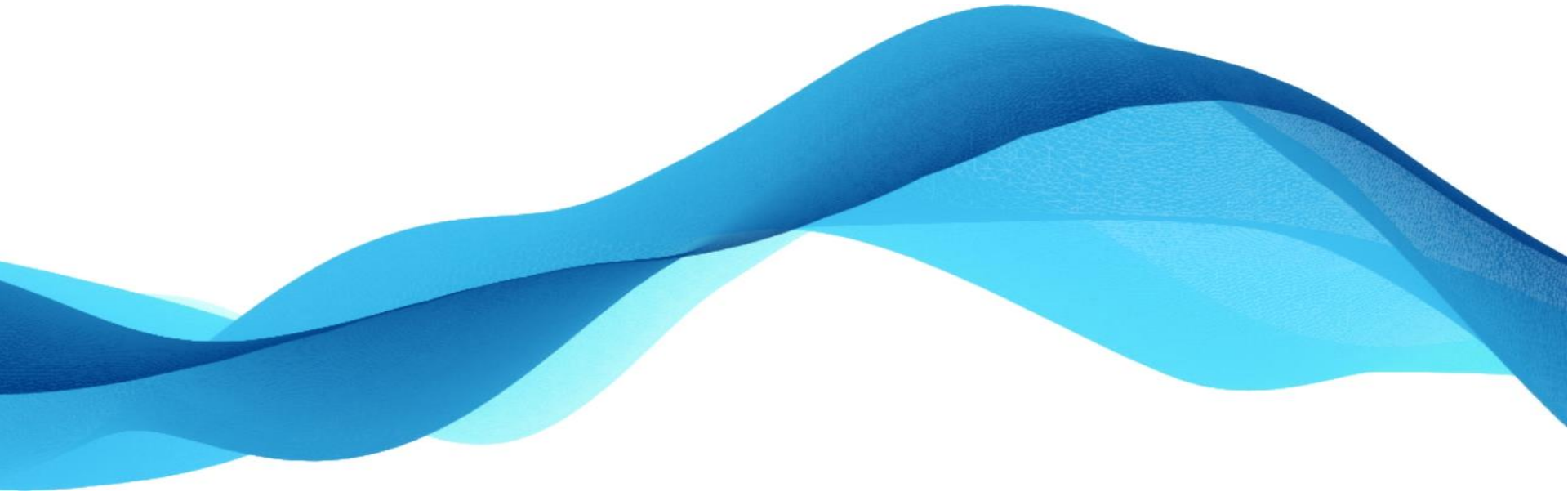
◦ Hannam University, Doctoral course(2nd semester) in Pedagogy

◦ Korea University MA in Economics (2010~2013)

◦ University of Seoul, Bachelor’s Degree in Economics (1993~1998)

CONTENTS

1 Overview of K-water



History

Beginning with the investigation and planning of water resources when established in 1967

Progressed as the representative agency in charge of the construction and management of water-related infrastructure in Korea

Scientific management of water quantity and quality based on IWRM and SWM

1967~1976

Investigation & Planning,
First Dam Construction

1976~

Dam Construction
& Operation/Management

1990~

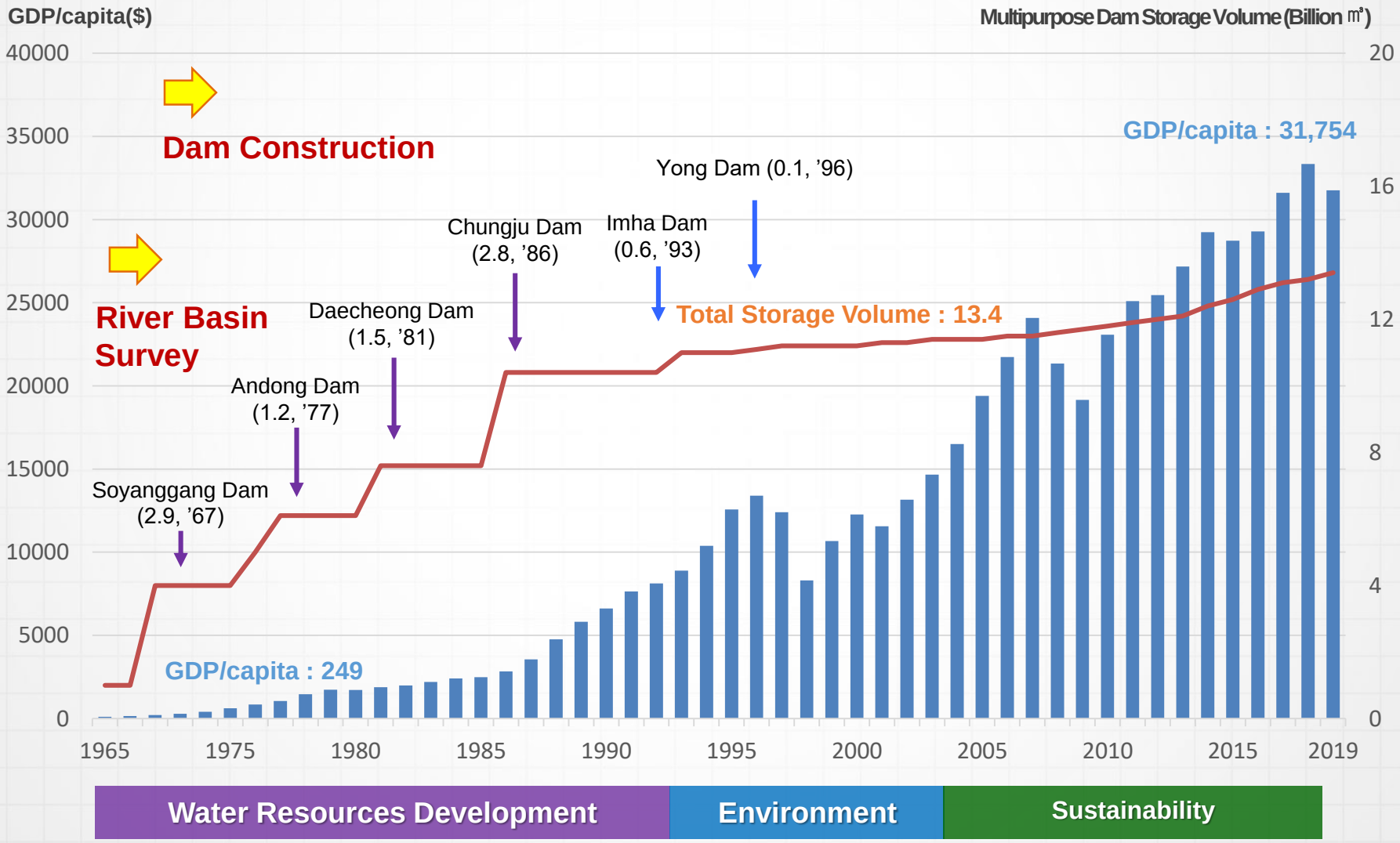
WTP / WWTP /
Water Pipeline Construction

2010~

Integrated Water Resources
& Smart Water Management

Water Management Contributions

GDP per capita vs Multipurpose dam storage volume



Business Areas

Water Resources

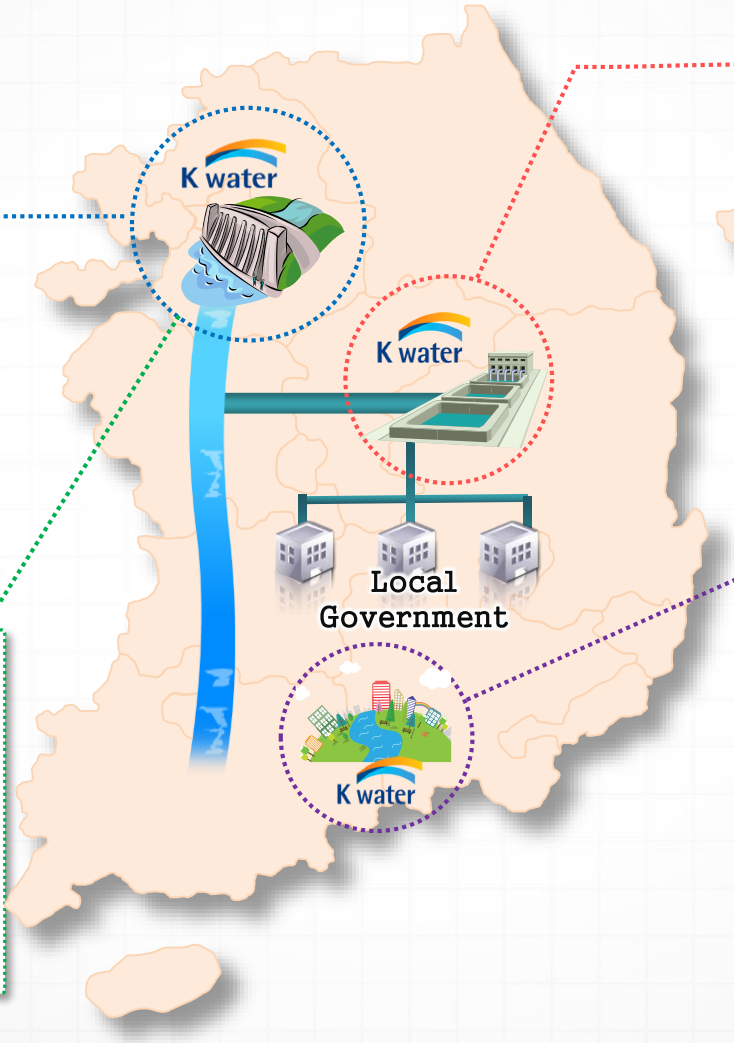
- 22 Multi Purpose Dams, 16 Weirs
- 14 Water Supply Dams,
- 5 Flood Control Dam

* Flood Control 5.3 bil. ㎥
(95% of gross domestic capacity)

* Water Supply 12.4 bil ㎥/yr
(65% of gross domestic supply)

Renewables

- Largest Hydropower Producer in Korea
- Tidal Power (World-largest)
- Floating Solar Power Plant



Water Supply

- Management of 48 Waterworks

* Capacity 17.6 mil. ㎥/day
(48% of gross domestic capacity)

- Supply to 112 out of local governments

Waterfront

- Waterfront and Smart City Development
- Multi Techno Valley

Organization Information

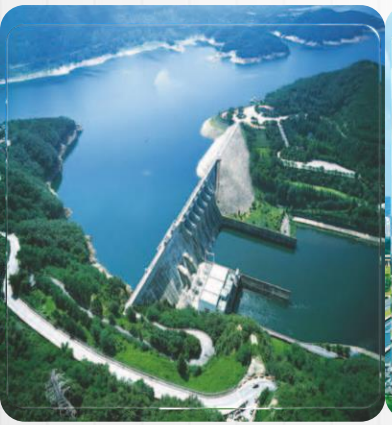
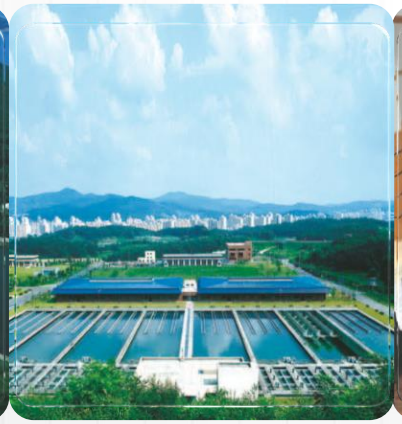
K-water (Korea Water Resources Corporation)

- **Located in Daejeon (Head office)**
- **100% government-owned Public Company under ME***

  * Ministry of Environment

- **(Head Office)** - 1 Vice President, 9 Divisions and 31 Departments
  (On-site Branches) - 6 Regional Divisions, 14 Departments and 73 Branch Offices
- **Employees : 6,700 as of 2021**

  * Approx.1,400 staffs have a Professional engineers license, MSc, and/or a PhD degree

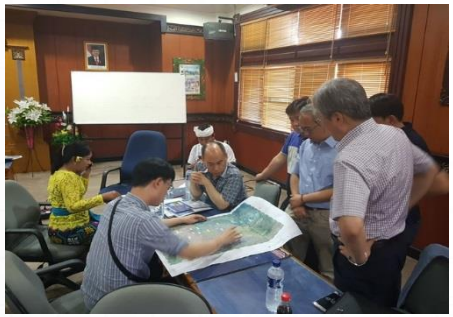

Overseas Business (1)

- Starting with the project of surveying the Fenhe River basin of China in 1994, K-water has completed 86 projects in 31 countries
- Currently 16 projects are underway in 10 countries

1994

The first overseas project

1994~



ODA Projects

64 Projects completed
10 Projects in progress

2006~

Technology Export Projects

22 Projects completed
1 Project in progress

2009~

Investment projects

5 Projects in progress

Overseas Business (2)

Creating a more prosperous world
by providing practical an effective solutions
to water problems

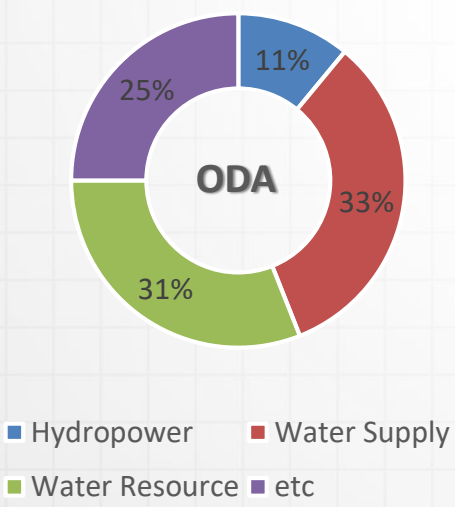
The New Global, the Greater Green

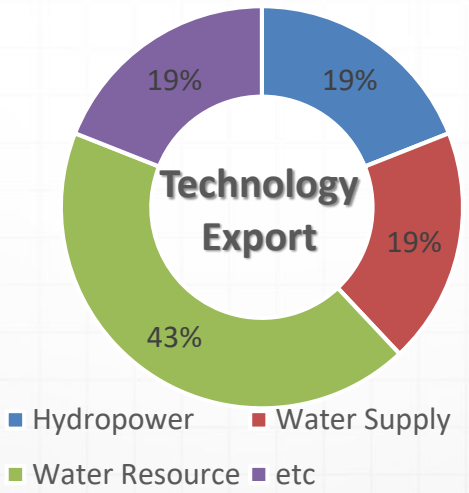
Overseas Business (3)

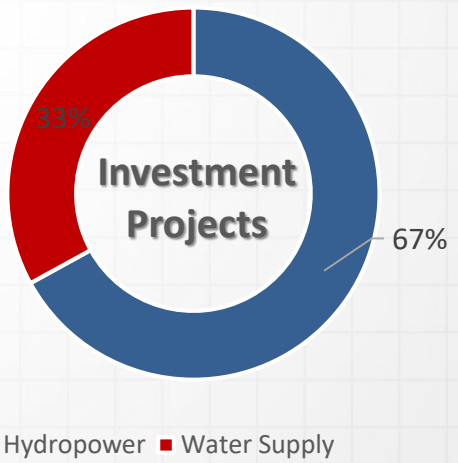
◆ Types of Overseas Business According to Financial Source

ODA	-Grant or Loan projects which public organizations including Central or Local Governments or International organizations provide to developing countries
Technology Export	-Neither ODA nor investment projects in which the 3rd party financing sources such as respective governments, private companies or any others request for proposals
Investment Projects	-Projects which recover the investment costs through O&M agreements -K-water directly secures project financing for construction or acquisition

◆ Overall Status by sector



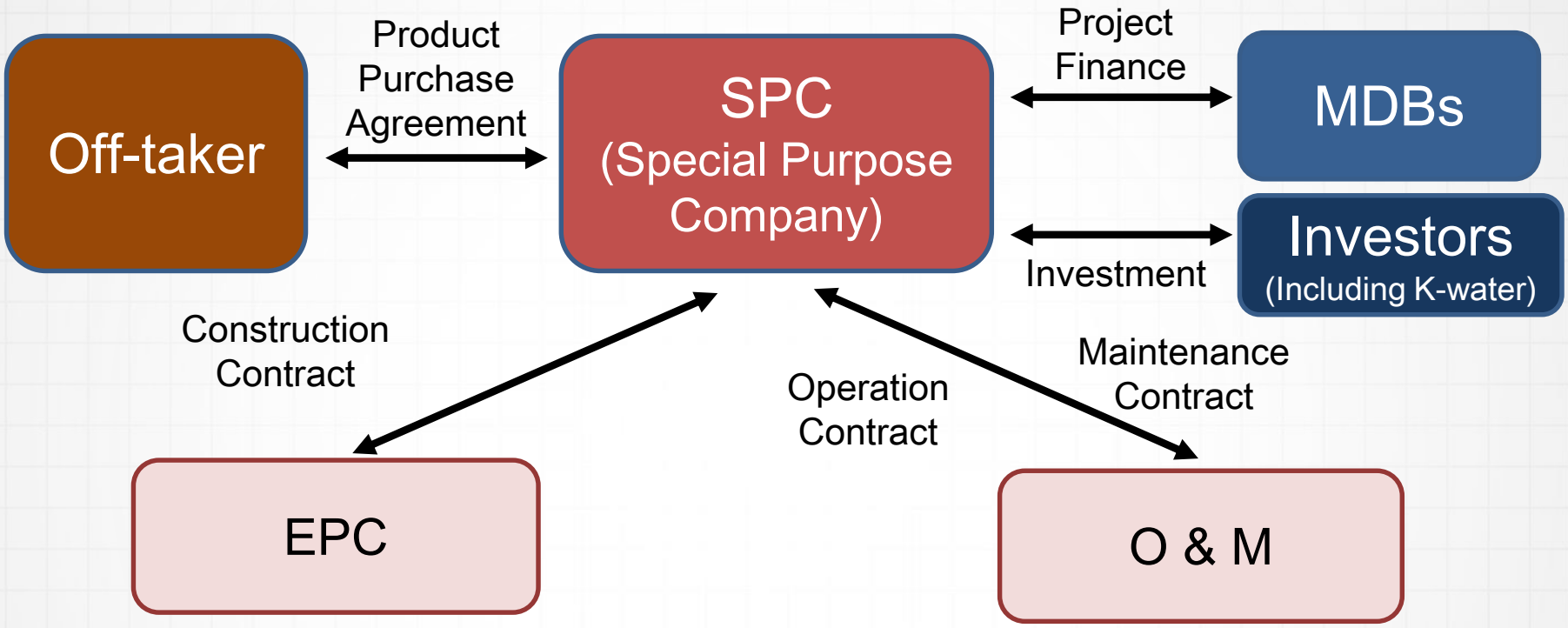




Branch Offices Overseas

2 Investment Projects

General Structure of an Investment Project



- Establish the SPC
- SPC signs a PPA with the buyer
- EPC : Korean Company + Local Company/International Company
- O&M : Korean Company + Local Company
- Investment Structure : Capital and Project Financing

☞ Project Financing Shareholders : K-EXIM, ADB, IFC, EBRD, AIIB, etc.

Procedure by Types of Investment Projects

Open Bidding Type

RFP
(Request for Proposal)

▼

Organizing Consortium
• K-water + Local/International Companies

▼

Submission of Proposal

▼

Selected as the Priority Partner for Negotiations

▼

Signing Contracts

▼

Construction/Acquisition & Operation

Development Proposal Type

Organizing Consortium
• K-water + Local/International companies

▼

Proposing the Development Project to the Host Country's Governments

▼

Negotiation of Project Conditions

▼

Signing of Contracts

▼

Financial Closing

▼

Construction & Operation

Unsolicited Proposal

Feature

- A proposal made by a private party
- Benefits and pitfalls

Process

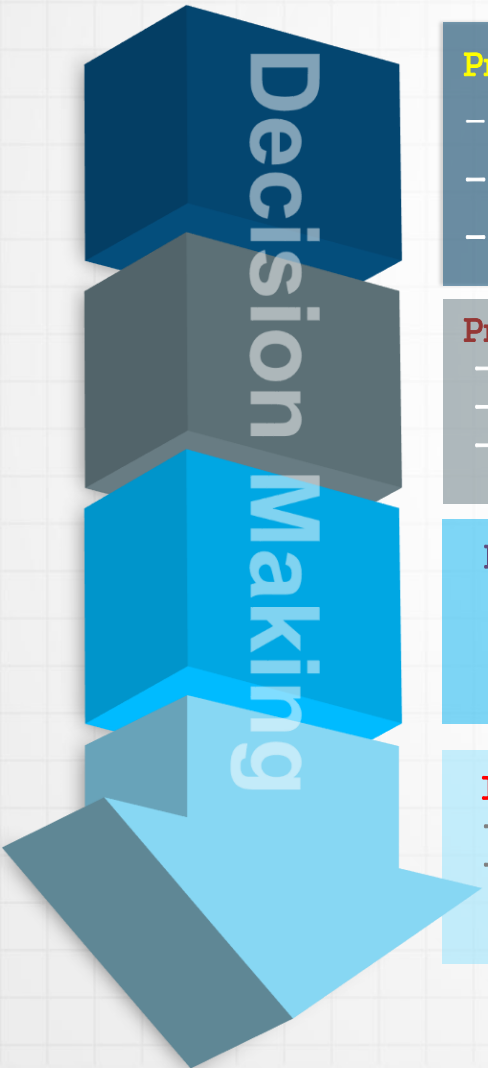
- Submission of the proposal by a private entity
- Evaluation of the proposal by a public agency
- Development of the studies
- Procurement of the project
- Implementation (construction and operation)

Incentive

- Bid bonus
- Right to match
- Automatic short listing
- Compensation for the F/S

Internal Decision Making Process (1)

- Decision Making and Risk Management in K-water
  - Committees Review by Phases



Project Selection Committee : K-water Global Business Division

- All types of overseas projects(ODA, Technical Exports, & Investment projects)
- Investigate and analyze by following risk-related guidelines and checklists
- In case of investment projects, whether to proceed further investigation, etc.

Pre-review for Investment : K-water Planning & Strategy Division

- Investment projects (over 3 bil. KRW) should be reviewed by this committee
- When approved, a certain budget is allocated for external consultation
- Before the Feasibility Study or submission of pre-qualification documents

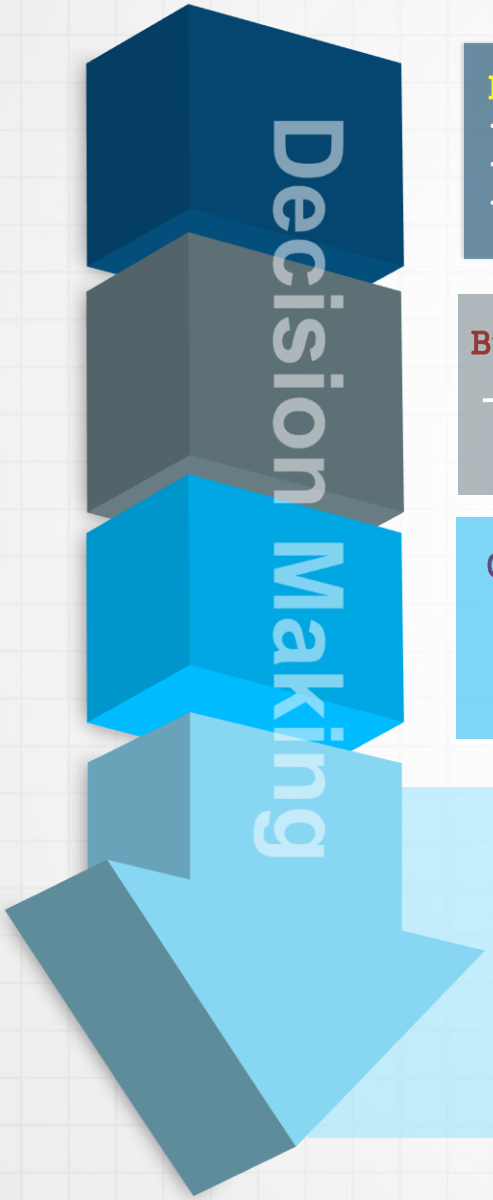
Pre-Feasibility Study : Korea Development Institute

- PFS for Investment projects (over 100 bil. KRW) should be conducted
- Based on the Act on Public Organization Operation and Presidential Decree
- Takes 4 to 6 months (or longer) to complete

Investment and Financing Consideration Committee : Internal Committee

- Investment projects (over 10 bil. KRW K-water funding) should be considered
- Expert consultation from legal, monetary, accounting, and investment areas are included in this process

Internal Decision Making Process (2)



Review for Investment : K-water Planning & Strategy Division
- Investment projects (over 3 bil. KRW) should be reviewed by this committee
- Chairperson : Executive Vice President, 10 committee members
- Thorough review on further developed reports

Business Strategy Committee : K-water Planning & Strategy Division
- When establishing a special purpose company, investing in subsidiary, etc.

Corporate Board
- Final Decision Making on whether to be involved in the investment project
- When establishing a special purpose company, investing in subsidiary, Overseas investment projects, etc.

Overseas Business Management Committee (Global Business Division)
- Regular check & review of the progress and risks of all on-going overseas businesses including ODA and Technical Exports

Risk Management Committee (Planning & Strategy Division)
- More serious risks, or risks that the Overseas Business Management Committee requests further consideration on an on-going business after approval of the Board

Major Issues or Key Factors for Consideration

Country
Legal, Political, Contract

- Payment for products
- Political stability
- Penalty for under performance
- Communication/ Transportation
- Control of conflicts
- Request of changes /revisions
- Procurement of /materials/labors/
- Government regulation/restriction

Bankable
Revenue, Cost, Funding

- Currency/ Exchange rate
- Inflation/ Interest
- Cash flow
- Cost of construction /operation /maintenance
- Share of SPC
- Tax
- Guarantee of off-take

E&S
Environment, Social

- Environmental Impacts Measurement
- Social Issues/ Local workforce/ Residents re-settlement
- Local & international regulations
- NGOs
- International Banks' Safeguards

Major Project (1)

[Pakistan] Patrind Hydropower Plant

- [Project description] Dam construction and O&M ☞ Construction 4.25 years, O&M 30 years
- [Facility capacity] 150MW (50M × 3 units), 641GWh (2.15 million households/month)
- [Total project cost] 436 million USD (Equity 25%; Debt 75%)
- History

  - ('12.12) Construction work commenced
  - ('16.12) Construction work was completed
  - ('17.11) Start of Commercial operation

View of the dam

Commercial Operation('17.11)

Major Project (2)

[Philippines] Angat Hydropower Plant

- [Project description] Acquisition of hydropower facility and O&M ☞ O&M 25 years + 25 years
- [Facility capacity] 218MW (50MW × 4 units, 6MW × 3 units), 371GWh
- [Total project cost] 483 million USD (Equity 45%; Debt 55%)
- ‘14.11. Start of commercial operation

View of the dam

Power Plant House

Major Project (3)

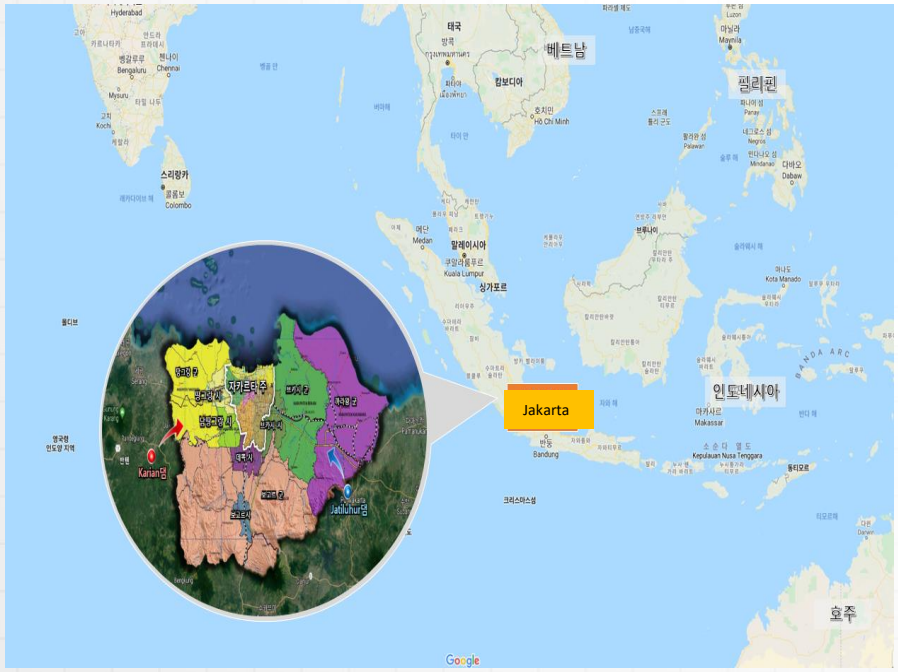
[Solomon Islands] Tina Hydropower Plant

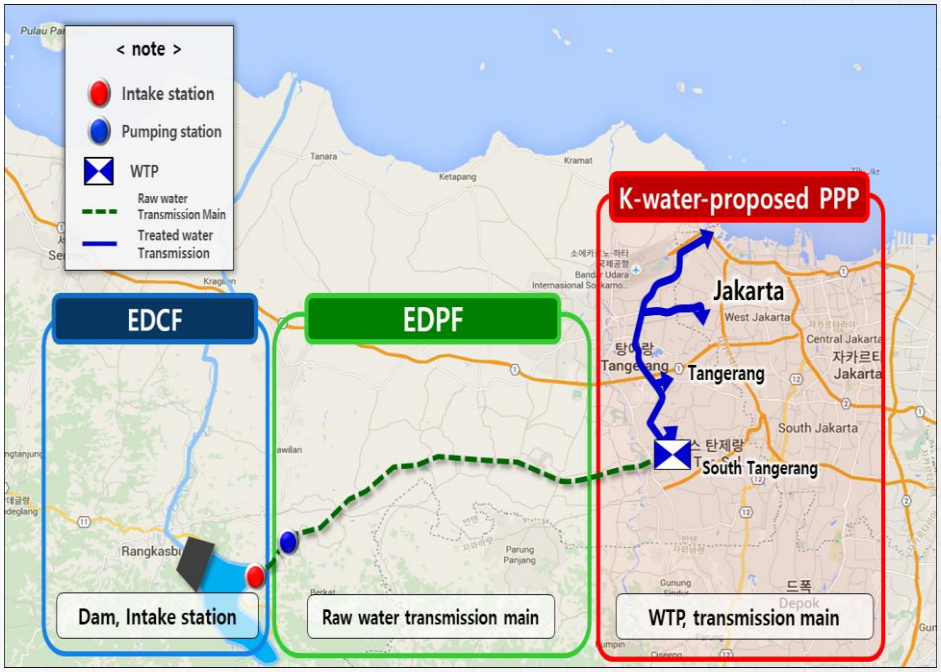
- Construction and O&M of Power Plant, located in Tina River, East of Honiara
  - ☞ BOT (Design and construction 4.75 years, O&M 34.75 years)
- [Facility capacity] 15MW (5MW x 3 units)
- [Total project cost] approximately 213 million USD (Equity 5%; Debt 95%)
- History
  - ('18.12) Signing of IA, PPA
  - ('19.09) Signing of EPC contract, Financial contract
  - ('19.12) Financial closing
  - ('20.6) ESMP partially approved

Major Project (4)

[Indonesia] Karian-Serpong Water Supply Project

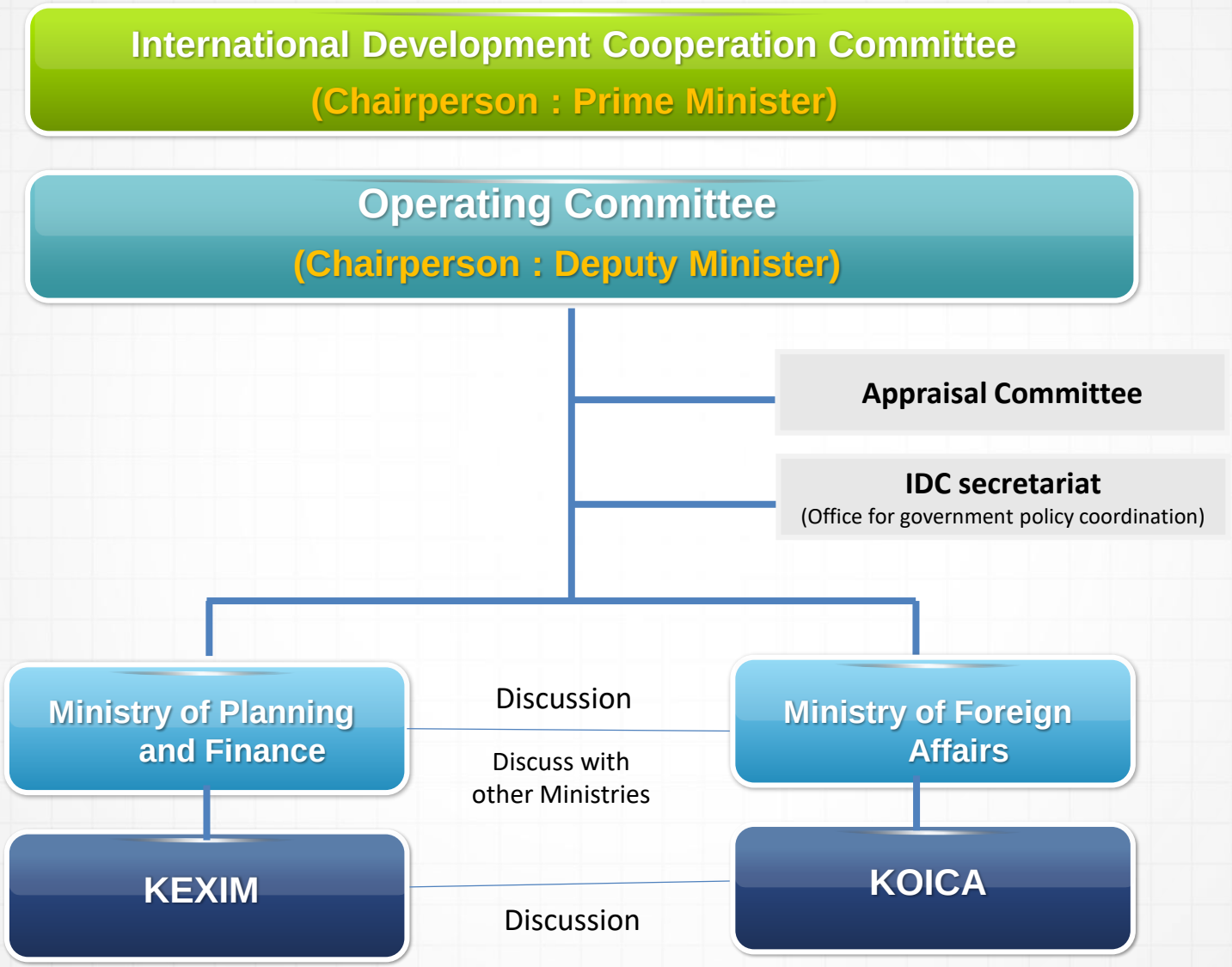
- Construction and O&M of 1 Water Treatment Plant and water pipeline network
  - ☞ BOT (Design and construction 3 years, O&M 30 years)
- [Facility capacity] Water Treatment Plant (conventional treatment, 397K ㎥), 25.2 km pipelines
- [Total project cost] Approximately 2.5 trillion IDR (Equity 30%; Debt 70%)
- Schedule : Construction commences in Jan. 2022, Completion of construction in Sep.2024





3 ODA Projects

Integrated ODA Process in Korea

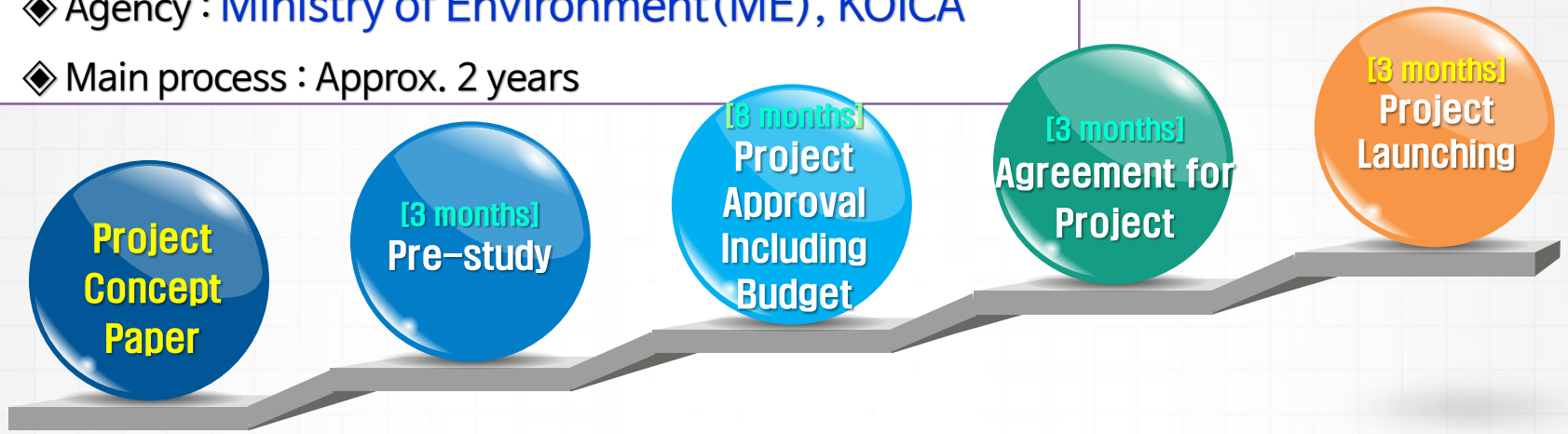


Procedure for ODA Water Projects

Grant Aid

◈ Agency : Ministry of Environment(ME), KOICA

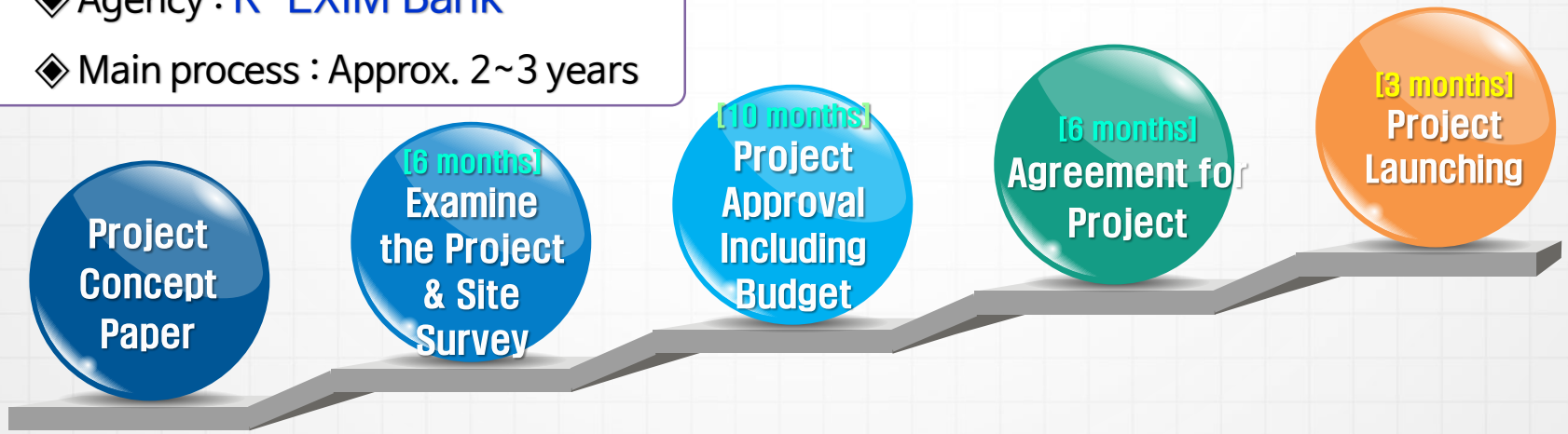
◈ Main process : Approx. 2 years



EDCF(Soft-Loan)

◈ Agency : K-EXIM Bank

◈ Main process : Approx. 2~3 years



ODA Project Case (1)

[Peru] Integrated Water Resources Management Project

- (Project Title) Installation Project of Integrated Water Resources Management Information Center for Rimac River Basin in Peru
- (Project description) Installation of measuring stations and information center, establishment of hydraulic analysis module for the Rimac River
- (Total project cost) 6 million USD (ME in Korea)

Project Area

ODA Project Case (2)

[Cambodia] Dauntri Dam Construction Project Management Consulting

- ✓ **Total Project Cost : 3.7 Million USD**
- ✓ **Capacity : 1 Rockfill Dam (H = 47m, L = 660m)**
- ✓ **Period : 2016.1 ~ 2023.7**
- ✓ **Financing : EDCF**
- ✓ **Clients : Ministry of Water Resources and Meteorology (MOWRAM) of Cambodia**
- ✓ **Scope : Review and Audit the Detailed Design, Supervision of Construction Work**

Case of Collaboration with ADB

K-water – ADB – Local Gov. partnership for SWM in South Asia
Implementation of SDG 6 (Clean Water and Sanitation)

Title — Promoting Smart Drinking Water Management in South Asia Cities

Duration — 2016~2020

Completed(3)	Planning(4)
Dhaka, Colombo, Chennai	Khulna, Male, Thimphu, Kolkata

Budget — 2.7 million USD

* ADB 1.5 million, e-asia fund 1 million, K-water 0.2 million(in-kind)

Partnership

K-water	Local Operator	ADB
• Technical diagnosis/ local training • Establishing SWM Pilot • Planning for operational efficiency	• Local information • Support K-water & ADB • Implementation of T.A. output	• T.A. Financing • Utility backup for - financial sustainability - private participation

4 International Training

K-water Academy

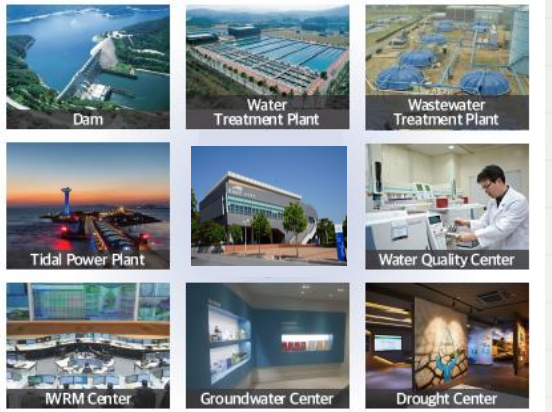
- A hub for educating experts on water management (Est. 1982)
- Training programs for K-water staffs, local government officials, water management companies and international participants
- Educational contents based on 54 years of water management technologies and 40 years of capacity building experiences

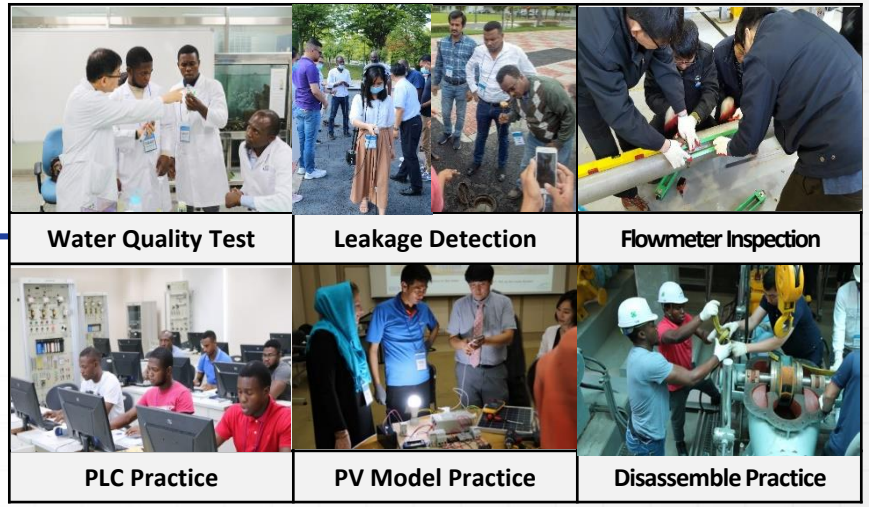
Strength of the Training programs

Lecture
+ Discussion

Study Visit

Practice





"Hands-on Learning"

Cases of International Training Programs (1)

Water Loss Reduction (WLR)

Module 1 Introduction	To understand the importance of WLR and identify the most important reasons behind water loss
Module 2 Fundamental Measures	To know the basic data prerequisites for sustainable water loss reduction management
Module 3 Commercial Water Losses	To know the causes and impact of apparent losses and choose the appropriate method to reduce them
Module 4 Physical Water Losses	To classify real water losses and know the principles of pressure management on leak flows
Module 5 Q&M and B/C Analysis	To understand the benefits of long-term infrastructure management for ensuring water loss reductions
Module 6 Action plan	To execute the typical project stages for designing implementing and operating WLR through specialized training

Cases of International Training programs (2)

▪ Offline Learning Course with COVID-19 Regulations

Case : Summer Program on Water Management

- Target : 45 International students currently residing in Korea (Open recruitment)
- Subject : Smart Water Management / Renewable Energy / IWRM
- Period : 5 days for each course

★ Key points : COVID-19 regulations were strictly applied during the entire training period
- social distancing in all places (lecture room, cafeteria, dormitory, study visit bus, etc.)
- ventilating the rooms at all time
- wearing masks & using hand sanitizers
- checking body temperature twice a day
- recording the travelling history of each participant after the class

[wearing masks]


[social distancing]


[setting up the partitions]

[digital thermometer]

Cases of International Training programs (3)

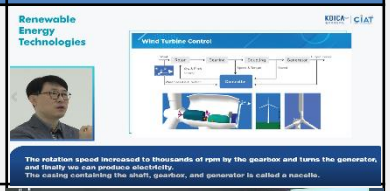
▪ Online Learning Course (Real-time + Non real-time)

Case : Renewable Energy Program for Pakistan

- Target : 22 Pakistan government officials
- Subject : Renewable Energy
- Period : 2 weeks (8 hours / day)

★ Key points : This type of course is strongly recommended for international participants because training time can be fully utilized despite the time differences between the countries.

- Program Schedule

Time	Activities	Course Type	Samples
Morning	- **Recorded Online Lectures (self-paced)** - **Assignment Submission**	Online (Non real-time)	
Afternoon	- **OT/ Opening Ceremony/ Closing Ceremony** - **Q&A Webinars with Lecturers** - **Team Project Workshop**	Online (real-time)	

Active Knowledge Sharing (1)

▪ Establishing Knowledge Sharing Platform

- **Activities :** ① Having a regular meeting for each quarter
  ② Conducting various cooperative projects

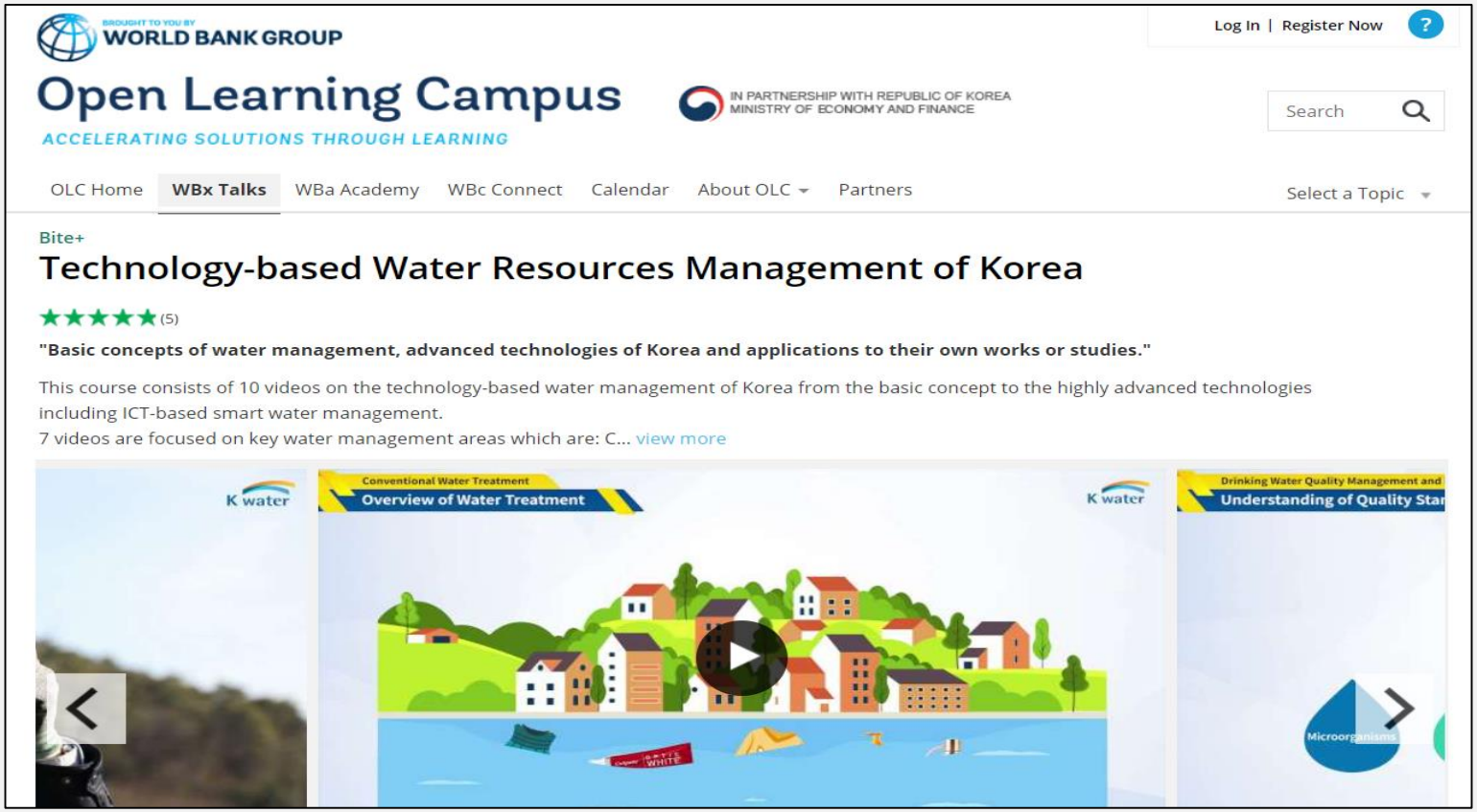
- **Projects**

Hosting Org.	Activities
K water, UNESCO i-WSSM	**Developing and providing free capacity building programs** for international students who are currently residing in Korea
K water, University of Seoul 1918	**Providing a free internship program** for the students studying in the University of Seoul who are government officials of their own countries
K water, WORLD BANK	**Cooperating on the development of online learning contents** which will be uploaded to the World Bank's online learning platform called Open Learning Campus

Active Knowledge Sharing (2)

- **Establishing a Knowledge Sharing Platform**

  - **Online Learning Contents Co-developed by K-water & World Bank**



Source : WorldBank website

Educational Consulting

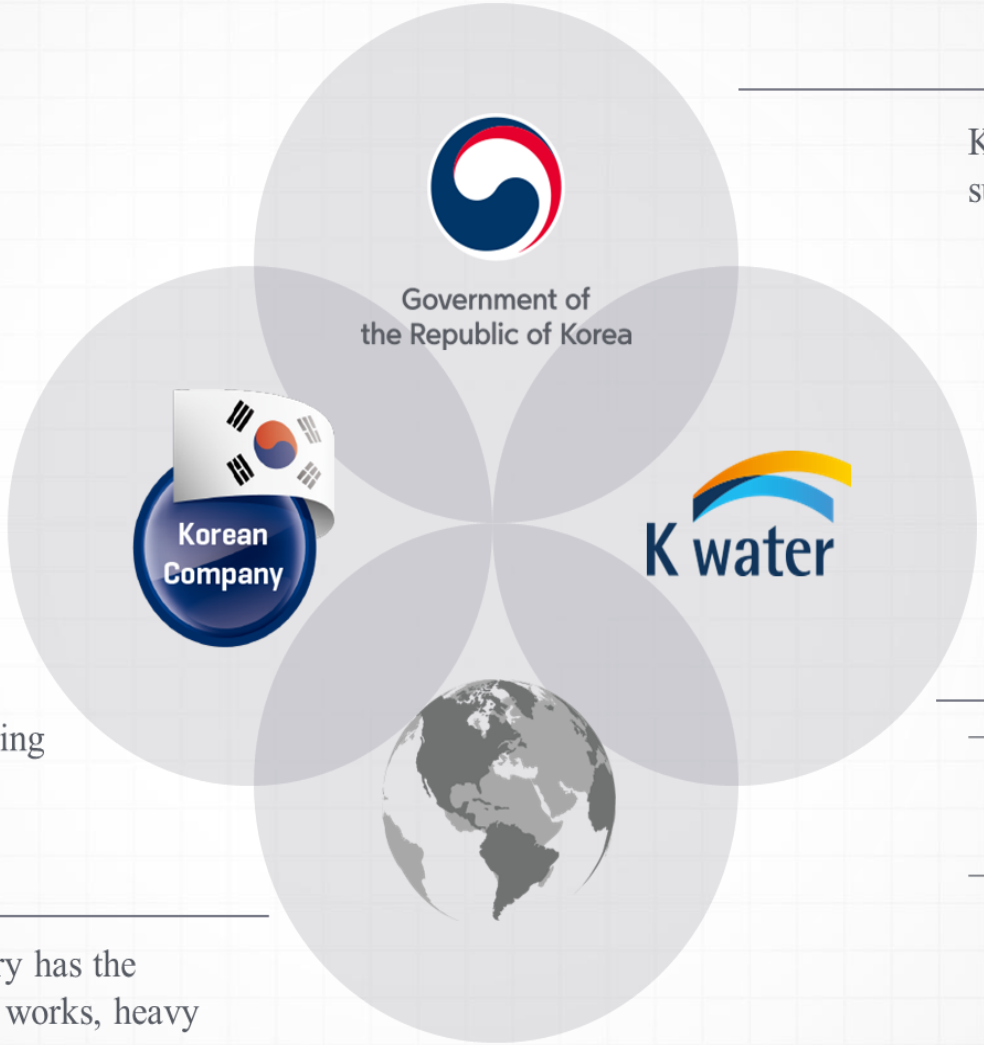
✓ **Collaboration to enhance the Capacity Building System on their own**

Project Name	Project Description	Duration	Donor
Supporting Climate Resilience in Water/Environment/Civil Infrastructure, Uganda	- Developing Training Modules for WRI - On-site and Invitational Training - Online Storyboard for Follow-up Projects	Mar 2020 ~ Dec 2021	WB-KGGTF
Preliminary Study for Designing Basic Concept to Build a Training and Research Center for DWASA, Bangladesh	- DWASA Facilities Investigation - Invitational Training - Basic Concept Design : ▪ Facility (lecture rooms, dormitory, equipment, etc.) ▪ Soft contents (training modules, operation knowhow, TOT, research area, etc.)	March 2019 ~ May 2020	ADB
PMC Project to Enhance Water Quality and Monitoring Capacity to Achieve SDG 6, Pakistan	- TOT Program (90 days in Korea) - On-site and Invitational Training - Consultation on Water Policy and Regulations	June 2020 ~ Dec 2024	KOICA

*Further progress case) Bangladesh : Preliminary Study(ADB) ➔ FS (KEXIM Bank)

5 Other Global Cooperation

Water Equipment Pilot Project



Korean government supports the pilot project

¬ Installation and verification the technology on the pilot site

¬ O & M of installed devices training

¬ Managing the whole process of pilot project

¬ Training, Technical consulting with experts on water sector

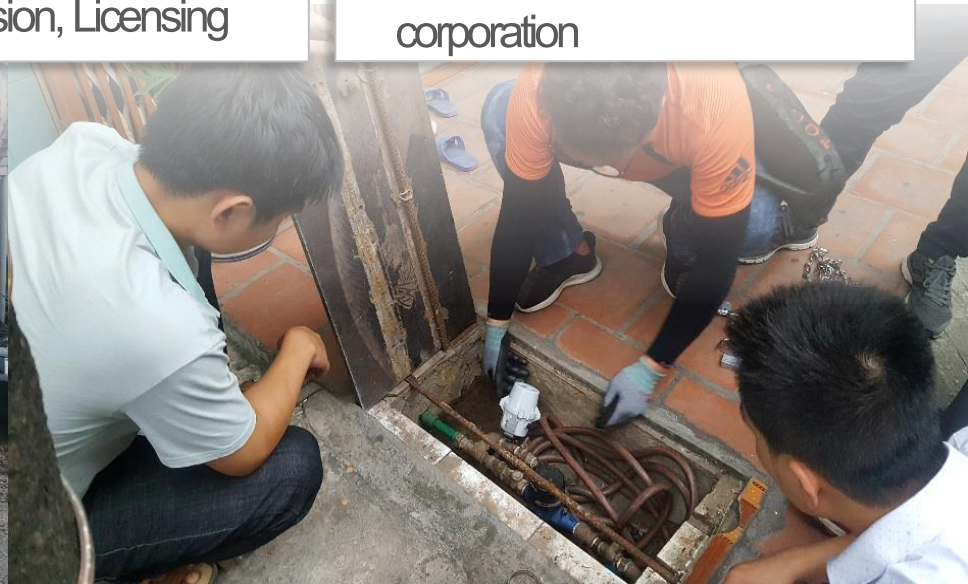
Partner of each country has the responsibility of civil works, heavy equipment, installation support, custom clearance etc

Water Equipment Pilot Project Case

[Pilot Project] Smart Water Network, Ninh Binh Province, Vietnam

Favorably-received not only for Overseas Expansion
but also for Resolving Global Water Challenges

Vietnam Issues	Water Facility Modernization	Project Results
- Ninh Binh Province (800 households) - Limited water supply (6 hours / day) - Excessive water leakage	K-water x USOL - [K-water] Analysis, Tech-consulting - [Usol] Leak detection sensor installation, Local training - [Ninh binh] Site provision, Licensing	- Remove the limited water supply (24 hours supply) - Leakage reduction (40 → 10 tons / hour) - Establishment of a local corporation



Asia Water Council (AWC)

AWC was established to set Asia's water issues at the top of global agendas and promote sustainable development by solving water problems under its mission

Set Asia Water Issues at the Top of Global Agendas

Solve Water Issues through Practical Water Projects

Develop the Foundation to be a Leader on Asia Water Issues

Mission	Asia's Sustainable Development with Smart Water
Vision	Setting Asia's water issues at the top of global agendas and promoting Asia's sustainable development by solving water problems
Organization	President, Bureau, Board of Council (BoC), 6 Special Committees and Secretariat
Members	147 members from 27 countries (as of April 2021)

Main Activities of AWC

- **2016**
  - Establishment of AWC
  - Water Project initiation
- **2017**
  - 1st AIWW
- **2018**
  - Water Security Joint Research
    (K-water, UNESCO i-WSSM, AWP, PUB)
- **2019**
  - AWC-MWR Cooperation Agreement
    (Visiting Scholar and Internship Program)
- **2020**
  - AWC Labelling Initiation
  - Smart Water Solutions
    (IWRA-AWC-K-water MOU)
- **2021**
  - 2nd AIWW & On-Air
  - GWWR Initiation

AWC Labelling

GWWR

Global Water Welfare Report

AWC
Asia Water Council

Water Projects

Trial to help initiate projects

AIWW

Asia International Water Week is held every 3 years

Thank you

K water