

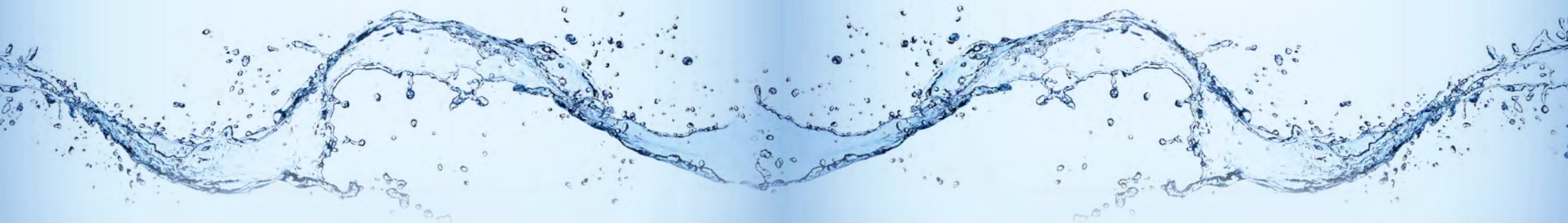


Trilateral Cooperation Secretariat



# CHINA · JAPAN · ROK COOPERATION ON WATER RESOURCES

## IN RESPONSE TO PERSISTENT AND EMERGING WATER CHALLENGES



中日韓三国合作秘书处秘书长

日中韓三国協力事務局

한중일3국협력사무국

[www.tcs-asia.org](http://www.tcs-asia.org)

Published by :



Special Collaboration with:



# Foreword

The Trilateral Cooperation Secretariat (TCS) is delighted to issue, on the occasion of the 7th World Water Forum in Daegu/Gyeongbuk, the Republic of Korea (ROK), this promotional booklet for Trilateral Cooperation on Water Resources in special collaboration with the Ministry of Water Resources of the People's Republic of China (China), the Ministry of Land, Infrastructure, Transport and Tourism of Japan, and the Ministry of Land, Infrastructure and Transport of the ROK.

Since 2006, the three countries have recognized the need for coordinated action in dealing with water-related issues at the World Water Forum. The three countries have considered various measures intended to strengthen cooperation in this area. As an immediate outcome of their deliberation, in 2012, it was decided that they would hold the Trilateral Ministerial Meeting on Water Resources every three years. In recent years, the Northeast Asia region has witnessed a surge in large-scale natural disasters such as floods and tsunamis. All three countries realize that trilateral cooperation to prevent natural disasters would be to the mutual benefit of all parties involved. Since 2011, the TCS has organized the Table Top Exercise on Disaster Management annually among the three countries. The TCS attaches great importance to promoting trilateral cooperation on water resources and maintaining this valuable cooperation for a long time, so that efforts can be made in cooperative manner to prevent water-related disasters.

This booklet explains the importance of water resources, the history of trilateral cooperation on water resources and the best practices of the three countries in this area. It details how the TCS can contribute to further enhance trilateral cooperative mechanisms in the area of water resources. The TCS is committed to facilitate and explore productive ways to strengthen ties among the three countries and hopes that this booklet will contribute to a better understanding of trilateral cooperation in the field of water resources.

## Why is Cooperation on Water Resources Important?

水资源合作的重要性

水資源協力が重要な理由

수자원 협력이 중요한 이유

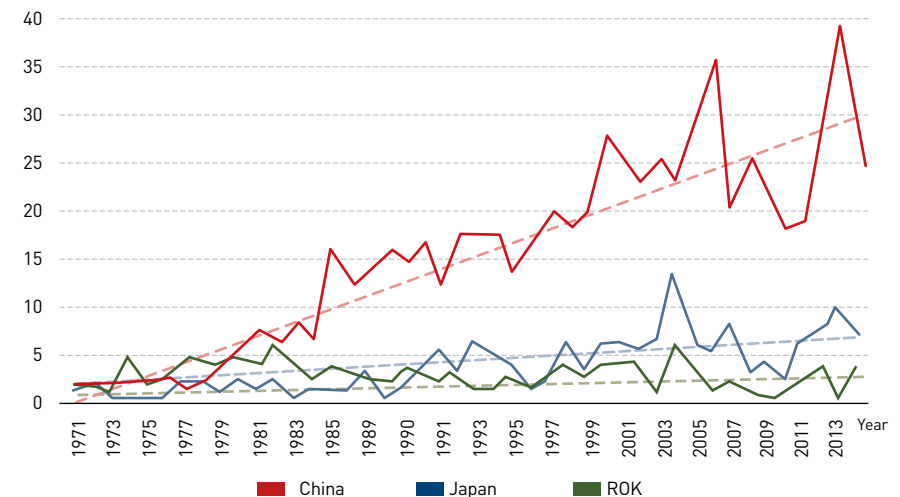
## The Climate is Changing:

Number of floods, droughts, and storms increased almost fourfold over last four decades.

As climate changes, people experience unexpected or large-scale natural disasters. Over the last few decades, the number of water-related disasters such as floods, droughts, and storms occurred 27 times in China, 7 times in Japan and 3 times in the ROK in 2014, compared to 5 times, 2 times and 1 time in the ROK in 1984, respectively.

**Coordinated actions among the three countries are necessary to reduce common risks.**

Number of Water-related Disasters over Time (1971-2013)



Source: EM-DAT (International Disaster Database, Centre for Research on the Epidemiology of Disasters – CRED)

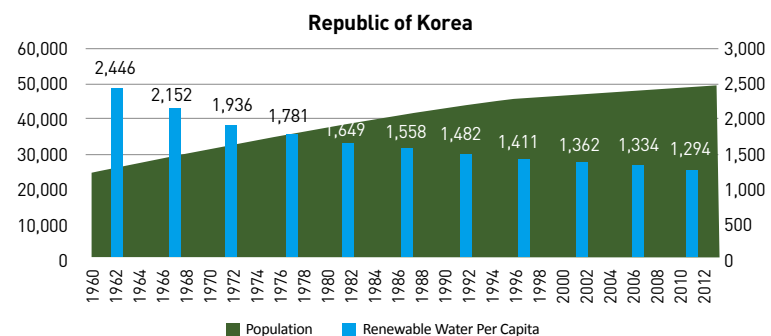
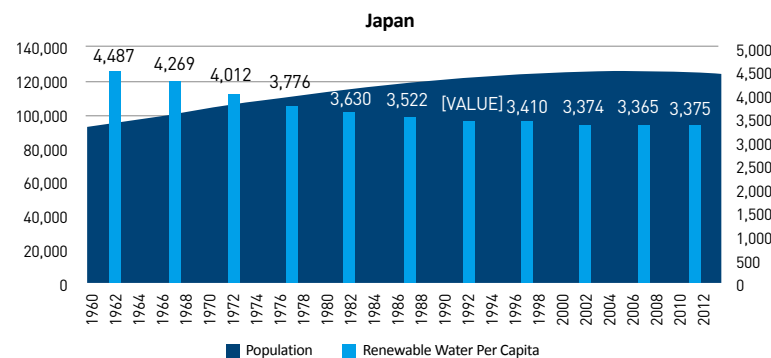
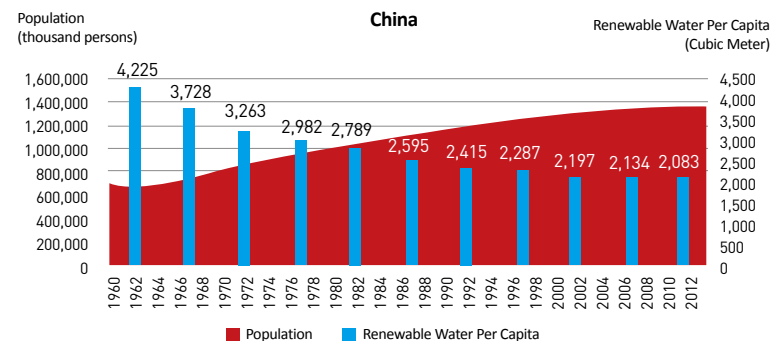
# Increasing Population Causes Water Shortage:

In consequence of a population bulge over the last 50 years, people face a serious freshwater scarcity problem.

The world experienced a rapid population expansion. The more people there are, the less water is available for each individual. In 2013, despite relatively high annual precipitation, each individual in China, Japan and the ROK could use respectively 2,072m<sup>3</sup>, 3,377m<sup>3</sup>, and 1,291m<sup>3</sup> of freshwater while the world average was 6,056m<sup>3</sup>.

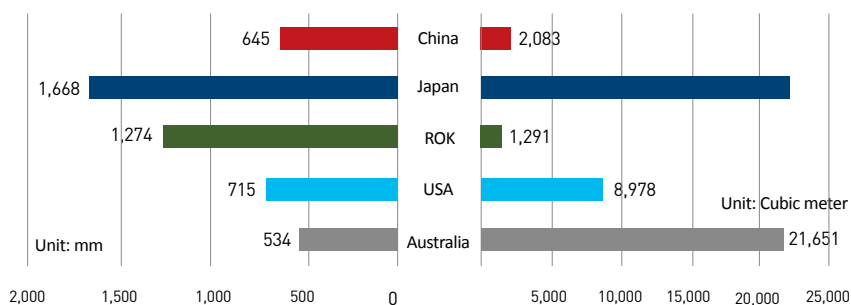
Countries of high population density like China, Japan and the ROK need a smart management of water resources.

Population and Renewable Water Resources Per Capita in China, Japan and the ROK Over Time



Annual Average Precipitation

Renewable Water Resources per Capita



Source : World Bank

Source : World Bank

# History of Trilateral Cooperation on Water Resources

中日韩三国水资源合作发展历史

水資源分野における日中韓協力の歴史

한중일 수자원 협력의 역사

## Trilateral Cooperation on Water Resources since 2006

2006

### 4th World Water Forum in Mexico

The three countries co-convoked 3 Joint Sessions at the 4th World Water Forum (WWF) in 2006 in Mexico, on Flood Management, River Restoration in the Asian Monsoon Region, and Water Resources information System.



2009

### 5th World Water Forum in Turkey

The three countries agreed to trilaterally cooperate to scale up number of bilateral cooperation to tripartite cooperation in the effort to meet needs of a platform where the three countries discuss coordinated actions that develop best countermeasures against common risks like floods and droughts adapting to climate change.



2012

### 6th World Water Forum in France

The three countries met together at the China Pavilion and signed the Memorandum of Cooperation on the Mechanism of Ministerial Meeting, agreeing to hold the Ministerial Meeting every three years.



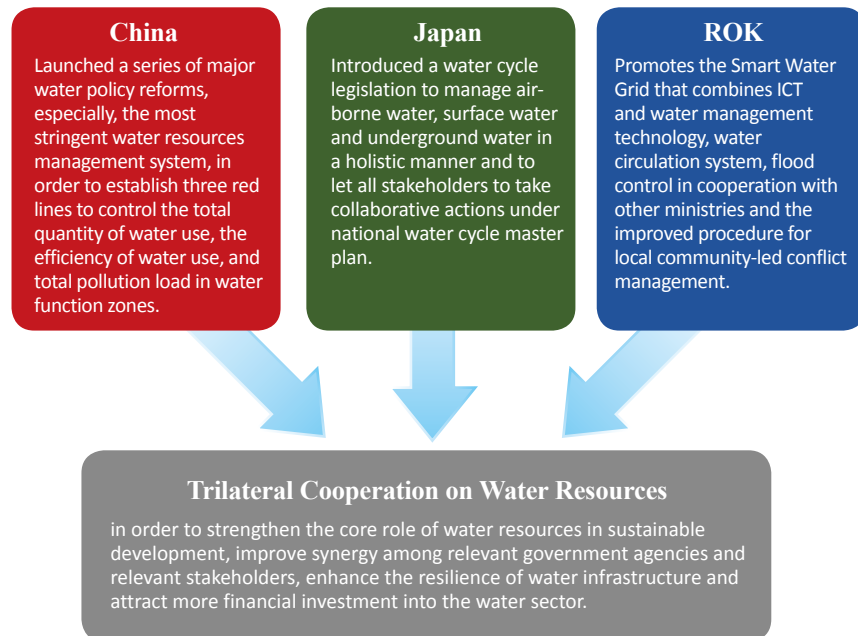
2015

### 7th World Water Forum in the ROK

The three ministers of water resources announced and signed the Joint Statement of the Trilateral Ministerial Meeting at the 7th WWF in Gyeongju, the ROK.

In 2015, the three countries reaffirmed the importance of trilateral cooperation for resolving water problems in the Asia and Pacific region as well as around the globe, with the topic of “*Water Policy Innovation in Response to Persistent and Emerging Water Challenges*”.

The goals of promoting the water policy innovation are to improve water security in the three countries and to share and spread good practices of each country to other countries, in particular, the developing world.



## Best Practices - Domestic Policies

国内的最佳实践

成功事例(国内)

모범사례 (국내 정책)

## The Strictest Water Resources Management System in China:

China established 3 red lines of water development and utilization, water use efficiency, and pollution load of water function zones for the Water Resources Management System.

### Purposes

- To address China's water problem
- To ensure sound and rapid socio-economic development
- To respond effectively to water shortage, water pollution, and water ecological damage

### Implementation Bodies

- Central and local governments
- River basin authorities

### Performing Bodies

The policy is performed and assessed by 10 departments including:

- Ministry of Water Resources
- National Development and Reform Commission
- Ministry of Industry and Information Technology
- Ministry of Finance
- Ministry of Land and Resources
- Ministry of Environmental Protection
- Ministry of Housing and Urban-Rural Development
- Ministry of Agriculture
- National Bureau of Statistics

### Description

The index of '3 red lines' control covers all provinces and cities. With the head of the local government taking overall charge, the principle of chief administrator taking responsibilities is adopted in the implementation of the strictest water management policies in 31 provinces, municipalities or administrative districts. The provincial level governments have meanwhile promoted the establishment of responsibility systems for water management at municipal and country level. Water distribution in 53 trans-provincial major rivers is launched, while the programming and technical reviews for the water distribution plan of 25 rivers is completed.

The System is implemented in an all-round way. The **total water volume** control stringently implements water exploitation assessment and water permit system. The **water use efficiency control** carries out 100 national and 200 provincial pilot projects on building a water-saving society. The **water function zones pollution discharge control** conducts security standard compliance projects in 175 main national drinking water resources and 14 pilot regions for conservation and restoration of water ecological system.

### Policy Outcomes

Assessment results show that by 2013, the national resources management control objectives had been reached. The total water use volume was 618.3 billion m<sup>3</sup>, the water use per 10,000 Chinese Yuan of added industrial value had decreased by 24% compared to that of 2010, the irrigation coefficient rose up to 0.523, and the water quality meeting standards reached 63%.



Distribution Map of National Pilot Projects on Water Eco-Civilization Development



Yanlon Lake Water-Source Project in Yancheng City, Jiangsu Province



Water Environment Treatment and Ecological Restoration Project in Ancient Yellow River Channels in Suqian City, Jiangsu Province



Water Saving Irrigation in the Modernized Agricultural Innovation Park in Yangling District, Shaanxi Province

## ● Basic Act on Water Cycle Policy in Japan:

Japan promulgated the Act on April 2, 2014 and in effect on July 1, 2014. Based on the Act, Japan established the Headquarters for Water Cycle Policy in the Cabinet office.

### Purposes

- To promote the value of water cycle across the country
- To clarify the basic principles of the water cycle upon implementing water cycle measure
- To clarify responsibilities of stakeholders such as the state, local governments, business operators and citizens

### Implementation Bodies

**The Headquarters for Water Cycle Policy consist of:**

- Director General: Prime Minister of Japan
- Vice Director-General: the Chief Cabinet Secretary and the Minister for Water Cycle Policy (Minister of Land, Infrastructure, Transport and Tourism)
- Members: all Ministers of State

### Stakeholders' Responsibilities

**The State** formulates overall water cycle measures and implement them based on the basic principles.

**The Local Governments** voluntarily and independently formulates water cycle measures suitable for the characteristics of their districts based on the basic principles under coordination with the State and other Local Governments and implement the same.

**Citizens** strive to maintain a sound water cycle and cooperate with the State or Local Governments in implementing water cycle measures when utilizing water.



## Description

### Five basic measures for water cycle policy

1. Importance of the water cycle
2. Public nature of water
3. Consideration toward sound water cycles
4. Comprehensive river basin management
5. International cooperation regarding water cycles

### Basic Plan behind the Water Cycle Policy (cabinet approval by summer 2015)

The purpose of the Basic Plan behind the Water Cycle Policy is promoting comprehensive and systematic implementation of water cycle measures. There are three matters prescribed in this plan:

1. The basic policy for measures with regard to the water cycle
2. Measures that the Government shall implement comprehensively and systematically with regard to the water cycle
3. Any matters necessary to promote measures comprehensively and systematically with regard to the water cycle

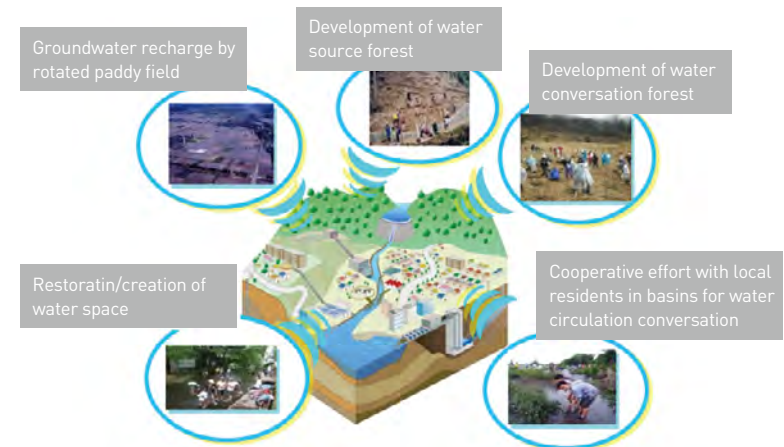
### Eight basic principles basic principles for the Basic Act on Water Cycle Policy

1. Maintaining and improving the reserving and recharging functions
2. Promotion of proper and effective use of water
3. Promotion of cooperation in river basins
4. Promotion of education regarding sound water cycles
5. Measures for promoting voluntary activities by private groups
6. Implementation of surveys necessary for formulating water cycle measures
7. Promotion of science and technology
8. Ensuring international partnerships and promoting international cooperation

## Future Outcomes

Through promoting this Act, “Japan’s experience” can be exploited for securing International Coordination and promoting International Cooperation.

1. Knowledge/experience of water resources management in integration of water systems
2. Comprehensive coordination among various stakeholders, and solution to conflicts
3. Construction/management of water resources development facilities
4. Water resources development facilities operation technology that would consider changes in weather and be based on prediction s using the latest science and technology
5. Construction/management of an international network regarding water cycles and water resources management in the Asian area





## Comprehensive Policy to Prevent Urban Flooding in the ROK:

The ROK set a concept of new disaster prevention policy by targeting medium sized rivers that pass through more than 2 local municipalities, overhauling the existing flood control plan, and coordinating all relevant stakeholders such as Ministries, Agencies, Local Municipalities, Corporations and private experts.

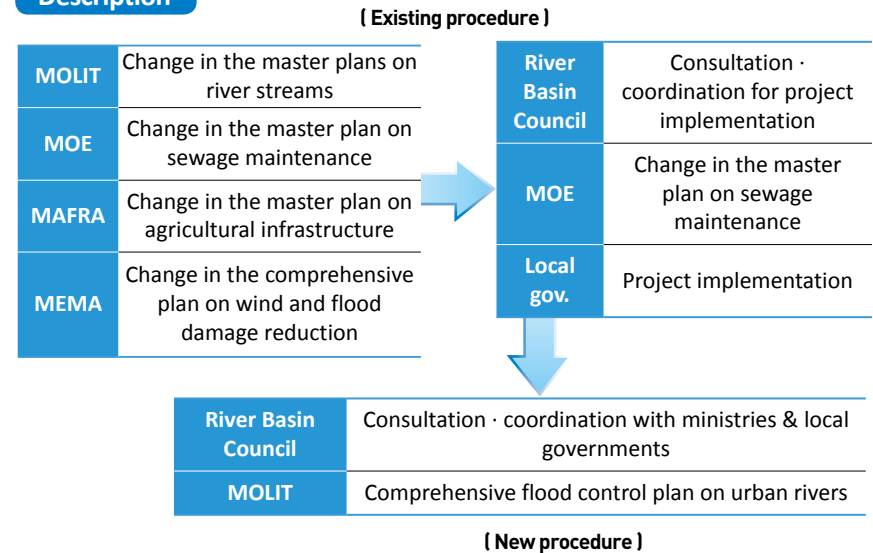
### Purposes

- To establish a cooperation scheme by building governance between central governments, local municipalities and public corporations
- To improve the flood prevention capacity and save the budget for projects

### Implementation Bodies

- Ministry of Land, Infrastructure and Transport (MOLIT)
- Ministry of Agriculture, Food and Rural Areas (MAFRA)
- Ministry of Environment (MOE)
- Ministry of Public Safety and Security (MPSS)
- Local municipalities
- Public corporations
- Experts from the private sector

### Description



### Future Outcomes

With major policies of using agricultural waterway as floodwater detention area; expanding pumping stations and dredging near river streams; and building detention basins in public or national lands, the project is considered to remarkably enhance flood control capacity and reduce budget spending. It will be expanded to other flooded areas by 2017.



3rd River Basin Council Meeting  
25 April 2013, Disaster situation office, Gimpo Cityhall



4th River Basin Council Meeting  
7 October 2013, Disaster situation office, Gimpo Cityhall

## Best Practices- International Activities

国内的最佳实践

成功事例(国内)

모범사례(국외 활동)

## China's Activity in International Society:

China has conducted RainWater Harvesting (RWH) projects in Africa.

### Applying Country/Regions

Africa

### Implementing and Cooperation Organizations

- Gansu Research Institute for Water Conservancy (GRIWC)
- Rainwater Harvesting Committee of China Hydraulic Society

### Purposes

Augmenting water resources for drinking water supply and agricultural productions for countries and regions facing similar challenges in water supply

### Description

China's expertise and innovation on rainwater harvesting and utilization have attracted great interests from other countries and regions facing similar challenges in water supply for domestic agricultural development.

To facilitate other countries to share China's experience on RWH, since 2003, the Chinese government, together with UN organizations such as UNEP, UNESCO, has sponsored Gansu Research Institute for Water Conservancy to organize international training courses for developing countries and promoted its application to other countries. Up to now, there are over 500 participants from 70 countries attended the technical training conducted in China and overseas. The participants have promoted the technology in their countries, especially in Africa.

- In 2004, with sponsorship of local government, GRIWC supported to Jigawa State of Nigeria to build over 100 RWH systems.
- In 2007, with sponsorship of the Ministry of Commerce of China, GRIWC supported to Algeria to build comprehensive RWH systems for the drinking water supply.
- In 2014, with sponsorship of the Ministry of Science and Technology of China and UNEP, GRIWC demonstrated China's module of RWH in Lakaipia county of Kenya, and assisted the Ministry of Environment, Water and Natural Resources of Kenya to study and compile National Rainwater Harvesting Plan.

### Outcomes

China's RWH projects in Africa and in other countries have provided an easy-to-learn and innovative module at low cost for each local community to build the system successfully by themselves. The projects are characterized by a minimum consumption of building materials and simplified engineering process. Multiple international donors and NGOs are willing to implement China's practice in other African countries for reasons that the cost is less than 50% of existing local and any other RWH practice in Africa and local communities enable to maintain the system independently after trainers leave the community.



Rainwater Harvesting Demonstration Project for Drinking Water Supply for Households, Nigeria, 2004



Rainwater Harvesting Demonstration Project for Drinking Water Supply for Schools, Nigeria, 2005



On-job Training on the Construction of Rainwater Harvesting Storage, Kenya, 2014



On-job Training on the Operation and Maintenance of Rainwater Harvesting System, Kenya, 2014

## Japan's Activity in International Society :

**International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO was established in 2006 to share Japan's long-accumulated expertise with other countries to contribute to reducing disaster damage.**

### Applying Country/Regions

Asia and all around the world

### Implementing and Cooperation Organizations

International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO

### Purposes

Japan has a long history of fighting and overcoming water-related disasters, and consequently has a wealth of knowledge and experience, as well as sophisticated technology, in the field. Japan has further realized global expectations that it should share its long-accumulated expertise with other countries in consideration of their needs and conditions in order to help reduce disaster damage.

### Description

ICHARM is to serve as the Global Centre of Excellence for water hazard and risk management by observing and analyzing natural and social phenomena, developing methodologies and tools, building capacities, creating knowledge networks, and disseminating lessons and information in order to assist governments and all stakeholders in managing risks of water-related hazards at global, national, and community levels.

1. Innovative research: High-quality research outcomes and a wide scope of knowledge relevant to water-related risk management establish ICHARM as a global leader and resourceful partner for promoting water-related risk management world-wide.
2. Effective capacity building: Local capacity is essential to sound management of water-related risks. Through provision of cutting-edge training which emphasizes development and application of advanced knowledge and solutions, ICHARM supports a global network of exemplary practitioners of water-related hazard and risk management, especially through one-year M.Sc. program since 2007 jointly with JICA and Ph.D program since 2010 collaboration with GRIPS.
3. Efficient information networking: ICHARM's broad knowledge base and primary research findings support powerful and comprehensive opinions which guide water-related hazard and risk management solutions from global to local scales.

### Future Outcomes

Standing on these three pillars, ICHARM will globally serve as a knowledge hub for best national and local practices and as an advisor in practical policy making. ICHARM emphasizes localism, i.e., project implementations tailored to local needs and conditions, by creating an efficient worldwide information network such as the collaboration with UNESCO and ADB. At UNESCO Pakistan project, for instance, ICHARM was assigned to two of the three components in this comprehensive project: augmenting of flood forecasting and hazard mapping capacity after huge damage from the worst flood in the past 80 years in northern Pakistan late July 2010. In the first component, ICHARM assisted the Pakistani government in the development and implementation of “Indus-IFAS” and the production of flood hazard maps. In the other component, ICHARM provided the opportunity to participate in its M.Sc. program and short-term training programs for personnel of the Pakistan Meteorological Department, the Pakistan Space and Upper Atmosphere Research Commission and other governmental agencies. ICHARM also has been serving as the secretariat of International Flood Initiative, a framework in flood management among international organizations such as UNESCO, WMO, UNU and UNISDR.



2013-2014 National Graduate Institute for Policy Studies (GRIPS) Graduation Ceremony



IFAS training in Pakistan with 3 graduates from ICHARM M.Sc. Program (2013)



## ROK's Activity in International Society:

**Asian Water high Level Round Table (AWHoT) established by the Korean government has invited the representatives from 29 organizations responsible for regional water-related issues and encouraged them to engage in AWHoT.**

### Implementing Organization

AWHoT Secretariat

### Purposes

- To establish consensus for the way to tackle water issues, by which it will contribute to the success of the 7th World Water Forum.
- To provide the initial step of a sustainable relationship among all participants.

### Description

1. AWHoT was initiated during 2014 Singapore International Water Week with 15 participants including 6 national representatives. In the 1st meeting, regional water-related issues were discussed to enhance the mutual understandings between participants.
2. The 2nd meeting took place during Nakdong River Water Week 2014 in October, 2014 in Gyeongju, the ROK with 14 participants including 9 other national representatives. Details of water-related challenges that each nation was faced with were shared and categorized by issues.

3. The 3rd meeting was held in February, 2015 to have five working group discussions with themes including Infrastructure & Finance, Water Supply & Sanitation, Water & Energy Nexus, Aral Sea and Mekong River. All participants agreed to have a more influential organization to implement identified solutions. ‘Smart Water Management Initiative’, which would be the new agenda after 7th World Water Forum, and concept of Asia Water Council were introduced.
4. In the 4th meeting during the 7th World Water Forum, the report from five working groups and the Roadmap of Asia Water Council were introduced. There was an official publication ceremony of the publication, ‘**Insight into Asian Water**’.

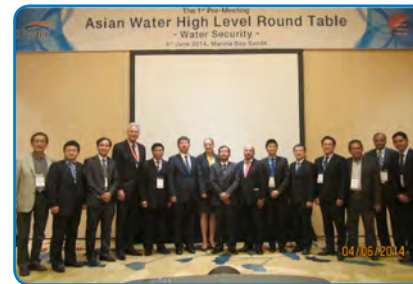
### Future Outcomes

‘**Insight into Asian Water**’ published during the 7th World Water Forum, describes the current status of water resources and water-related issues in multiple countries, and introduces national strategies to tackle their challenges.

The report aims to give abundant information on water-related status, challenges, and strategies to relevant stakeholders in the world.

The readers may determine how to participate in potential projects to implement strategies specified in the report. They may also give national representatives advices to develop the national strategies.

11 countries including China (Changjiang River), Indonesia, Japan, the ROK, Laos, Mongolia, Singapore, Taiwan, Thailand, Uzbekistan and Hong Kong participated in the publication.



1st AWHoT Meeting  
June, 2014, Singapore



2nd AWHoT Meeting  
November, 2014, Gyeongju, the ROK



3rd AWHoT Meeting  
February, 2015, Kathmandu, Nepal

## Role of TCS

TCS 的职责

TCS の役割

TCS 의 역할

## TCS Aims to Promote Peace and Common Prosperity among China, Japan and the ROK, with 5 Mandates of:



Providing support for the consultative mechanisms



Promoting understanding of trilateral cooperation



Exploring and facilitating potential cooperative projects



Networking with other international organizations



Compiling database and conducting research



## TCS Works on for Trilateral Cooperation in the fields of Environment, Sustainable Development and Disaster Prevention.



**The TCS provides supports to existing mechanisms on environment, forestry cooperation, and water resources.**

2nd DG Level Meeting on Forestry Cooperation  
January, 2015, Jeju, ROK



**The TCS promotes understanding of trilateral cooperation on sustainable development.**

TCS Session "Building Cooperation Model for Low Carbon Growth: Potential of Inter-City Cooperation among Korea, Japan and China  
Jeju Forum, May, 2014, Jeju, ROK



**The TCS promotes collaboration for humanitarian assistance and disaster relief mechanisms in response to large-scale natural disasters.**

The 2nd Top Table Exercise (TTX)  
March 6, 2014, Ministry of Foreign Affairs of Japan,  
Tokyo, Japan

## TCS will continue to play the role as a hub to promote the trilateral cooperation on water resources.

Started from organizing the Trilateral Director-level Consultation Meeting on Water Resource in 2014 and in 2015, TCS makes efforts to facilitate and explore cooperative projects to support the trilateral mechanism on water resources among the three countries.



The 1st Trilateral Director-level Consultation Meeting on Water Resources  
September 29, 2014, TCS, Seoul, the ROK



The 2nd Trilateral Director-level Consultation Meeting on Water Resources  
February 11, 2015, TCS, Seoul, the ROK

# References

## China-Japan-Korea Ministerial Meeting on Water Resources

“China--Japan-Korea Trilateral Ministerial Meeting Joint Statement (2015)”

“Memorandum of Cooperation on the Mechanism of Ministerial Meeting among Japan, China and the Republic of Korea (2012)”

## Trilateral Cooperation Secretariat (TCS)

“Annual Report FY2013-2014”

“2013-2014 Progress Report of the Trilateral Cooperation”

## World Bank

Total Population available from

<http://data.worldbank.org/indicator/ER.H2O.INTR.PC>

Renewable Internal Freshwater Resources Per Capita available from

<http://data.worldbank.org/indicator/ER.H2O.INTR.PC>

Average Precipitation in Depth (mm per year) available from

<http://data.worldbank.org/indicator/AG.LND.PRCP.MM>

## EM-DAT (International Disaster Database, Centre for Research on the Epidemiology of Disasters – CRED)

Number of Natural Disaster (Flood, Drought, and Storm) available from

<http://www.emdat.be/database>

\* Best Practices (Domestic Policies and International Activities) were provided by the Ministry of Water Resources of the People’s Republic of China, the Ministry of Land, Infrastructure, Transport and Tourism of Japan, and the Ministry of Land, Infrastructure and Transport of the Republic of Korea.



Trilateral Cooperation Secretariat

## China-Japan-ROK Cooperation on Water Resources

### in Response to Persistent and Emerging Water Challenges

**Published in** April 2015

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**Designed by** BMCNI +82-2-2272-4548

**Printed by** BMCNI +82-2-2274-4545

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