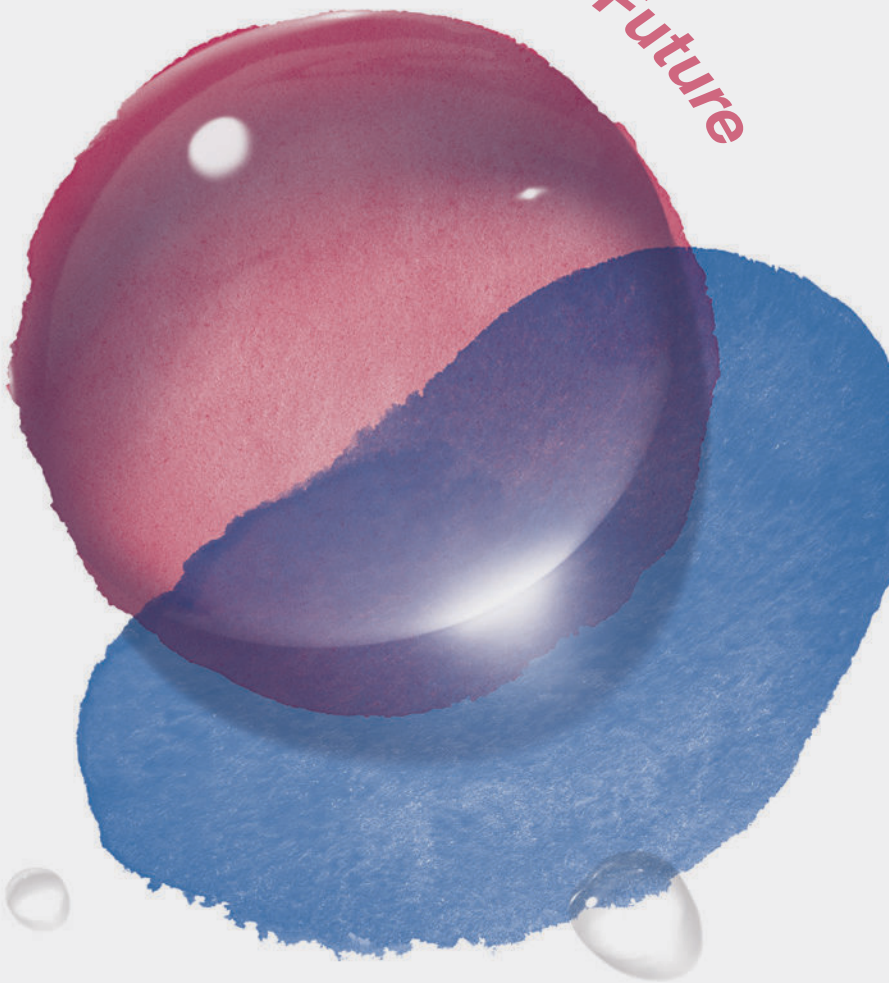
Final Report

7th World Water Forum 2015

Water for Our Future



National Committee for the 7th World Water Forum (Republic of Korea)
World Water Council

7th World Water Forum 2015

Daegu & Gyeongbuk, Republic of Korea

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Introduction

Called "the world's biggest gathering on water," the World Water Forum has been held every three years since 1997 and is the largest international conference on water.

This year, the 7th World Water Forum took place in Daegu and Gyeongju in the Republic of Korea over six days from April 12th to 17th under the overarching theme of Water for our Future.

The 6th World Water Forum produced over 1,000 solutions which called for implementation; now was the time for action. Thus, the 7th Forum adopted implementation as its core value. To produce tangible results based on this core value, the 7th World Water Forum introduced new components such as the Science and Technology Process and constructed mechanisms like the Action Monitoring System for future follow up. Like previous editions of the World Water Forum, this Forum also emphasized the democratic participation of stakeholders from diverse levels and backgrounds.

The 7th World Water Forum was jointly organized by the Republic of Korea and the World Water Council together with Daegu Metropolitan City and Gyeongbuk Province.

Over 40,000 participants from water-related government agencies, international organizations, NGOs, academia, corporations, and media representing 168 countries attended approximately 400 sessions, making the 7th World Water Forum the largest in Forum history.

Especially noteworthy was that although there was no official summit, ten world leaders attended the Grand Opening Ceremony of the 7th World Water Forum at Daegu Exco on April 12th, enhancing the significance of the 7th World Water Forum.

This year's World Water Forum produced several meaningful outcomes for the international water community. In the Grand Opening Ceremony, President Park suggested the creation of the "Daegu-Gyeongbuk Water Week," prompting the commitment and cooperation from relevant organizations to realize this event.

Additionally, 106 high-ranking government officials including Ministers and Vice-Ministers, 6 Speakers of Parliament, 4 Vice-Speakers of Parliament, and 71 members of Parliament discussed water-related political issues at the World Water Forum. Furthermore, representatives of national governments, local governments, public institutions, international organizations, and corporations signed 21 MOUs, and leaders held approximately 50 bilateral and multilateral meetings, creating a venue for cooperation on water issues.

At the Expo and Fair, government agencies and water-related corporations from 39 countries presented innovative ideas in 1,015 booths. There were 21 national pavilions, as well pavilions hosted by water-related corporations, international organizations, and NGOs which showcased water policies and cutting-edge technology and products from around the world.

After six fruitful days, the 7th World Water Forum ended with the Closing Ceremony on April 17th at Daegu EXCO under the theme of "Water for our Future." The Ceremony reaffirmed the water community's commitment to continue the achievements made at the 7th World Water Forum until the 2018 World Water Forum in Brazil.

The '7th World Water Forum Final Report' is a record of the historic achievements and successes from this year's World Water Forum.

World Water Forum Highlights: The Historical Journey to Act for Water

World Leaders at the Grand Opening Ceremony, EXCO Daegu

Governor Kwan-yong Kim of Gyeongbuk Province, H.H. Shekih Hamed bin Zayed Al Nahyan of the UAE, OECD Secretary-General Ángel Gurría, President Mulatu Teshome of Ethiopia, President Benedito Braga of World Water Council, Chairman Jung-moo Lee of the National Committee for the 7th World Water Forum, President Park Gyeun-hye of the Republic of Korea, President Gurbanguly Berdimuhamedow of Turkmenistan, President Emomali Rahmon of Tajikistan, Prince Albert II of Monaco, President János Áder of Hungary, Prime Minister Abdelilah Benkirane of Morocco, UN Deputy Secretary-General Jan Eliasson, and Mayor Young-jin Kwon of Daegu Metropolitan City *left to right

Largest ever World Water Forum begins with record attendance by world leaders

Under the theme of "Water for Our Future," the 7th World Water Forum was held in two venues, Daegu and Gyeongju in Gyeongbuk Province, with over 40,000 entries.

The World Water Forum began its six day journey with the Grand Opening Ceremony on April 12 at 14:00 in EXCO (Daegu), attended by around 3,000 participants including heads of state, ministers, parliamentarians, CEOs of water-related businesses, water experts, and the general public. The ceremony featured performances expressing hopeful wishes for the future of water, and was highlighted by remarks from world leaders, a record number of whom were in attendance. Following President Park Geun-hye of the Republic of Korea, the summit-level representatives all declared that the world is at a historic moment for tackling global water challenges. It was acknowledged that the year 2015 is highly significant because the Millennium Development Goals will expire and the Sustainable Development Goals, which propose the new development path for the next 15 years, will be adopted.

Ministerial Conference, Hotel Hyundai Gyeongju

Ministerial Roundtable, Hotel Hyundai Gyeongju

Policymakers resolve to act for water through three Statements

Three statements were adopted during the 7th World Water Forum's Political Process: the Ministerial Declaration accompanied by Recommendations to Ministers, the Parliamentarian Statement, and a Local & Regional statement entitled 'Daegu - Gyeongbuk Water Action for Sustainable Cities and Regions.' The 7th World Water Forum is expected to support discussions of global sustainable development in 2015, a year in which the sustainable development agenda is particularly meaningful.

With more than 100 ministerial delegations participating in the Ministerial Conference, the Ministers adopted the Ministerial Declaration on April 13th, 2015 which acknowledges that sustainable management of water resources is a collective responsibility of all stakeholders that is vital to development for all countries. It supports the inclusion of a dedicated water goal and water-related targets in the post-2015 Development Agenda and recognizes the 7th World Water Forum's contribution in supporting their implementation. To support collective action on subjects of particular interest, 8 Ministerial Roundtable discussions provided unique opportunities for the political community to interact with numerous representatives from the worlds of business, civil society, academia and the media.

The 'Conference of Parliamentarians for Water,' which attracted the keen interest of legislators from around the globe, was successfully completed by gathering 71 members of Parliaments from 27 countries. The legislators discussed solutions for global water issues, supported the creation of a global network of parliamentarians for water, and adopted the Parliamentarian Statement pledging to promote international cooperation on

water challenges. The statement calls for prioritizing water security in terms of sustainable economic development, allocation of financial resources and streamlining budget execution efficiency. It also provided a future direction for water management by acknowledging the critical role of legal frameworks and institutional mechanisms for implementing sustainable policies and enabling the participation of all stakeholders, including youth.

Local and Regional Authorities, HICO Gyeongju

The Local and Regional Authorities (LRAs) Conference was held on April 13-14th in HICO Gyeongju, with sustainable water management led by local governments as the key topic. Over 100 local government representatives, international organizations and NGOs from 26 countries participated, and the Conference concluded with the 'Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions' which is a roadmap that provides concrete tools to guide LRAs in the implementation of sustainable water management strategies at the local level. This document calls on national governments to establish a foundation for local and regional authorities to be actively involved in the definition and implementation of political strategies of international consensus, taken at the national and supra-national level, for sustainable water management.

Science and Technology Process newly included connecting technological innovations with water challenges

With its core value of implementation, the 7th World Water Forum newly introduced the Science & Technology Process, which was essential to put solutions into practice. It focused on the implementation of scientific and technological innovations in water management to help countries tackle global water challenges and ensure sustainable development. The process also aimed at bridging the scientific and technological gap between developed and developing countries by encouraging the sharing of information and technological action tools for imminent water challenges.

STP White Paper Launching Ceremony, EXCO Daegu

The STP White Paper, the key achievement of the Science & Technology Process, compiled the past, present, and future of the science and technology of water, and shared the science & technology methodology for implementation. It covers five Main Focuses of the Process: Efficient water management, Resource recovery from water and waste-water systems, Water and natural disasters, Smart technology for water, and Understanding and managing ecosystem services for water. The White Paper presents examples related to characteristics, challenges, and implementation methods of each Main Focus, and also provides practical information to policymakers, technicians, researchers, and entrepreneurs.

CEO Innovation Panel, EXCO Daegu

Three special CEO Innovation Panels were another key feature of this new process, providing opportunities for interaction between CEOs of water-related enterprises, high-level government officials, water experts, and other stakeholders on the front lines of global water issues. During the sessions, leading figures shared their experiences and discussed means to foster innovation, engage business in adopting water stewardship approaches, promote sustainable water goals and build water resilience for cities.

The sessions concluded with the awarding of the World Water Challenge prizes, which awarded to Ricardo Alba of Colombia for contributing the most successful solution to water-related challenges: the development of a rainwater collector made of plastic bottles for schools and poor urban areas. The team also received the Daegu & Gyeongbuk Water Prize at the closing ceremony of the 7th World Water Forum.

Inter-regional dialogues go beyond continents and processes

The Regional Process was able to identify that greater commitment from countries was imperative to addressing the issues of the water sector. In addition to the World Water Forum's dedicated Regional Process sessions, the 7th World Water Forum introduced several new features:

- The creation of the 'Economically Water Insecure' region is expected to pave the way for more practical solutions by categorizing regions based on water security, going beyond the traditional categorization based on geography or climate.

- A successful new set of inter-regional dialogues to discuss common water issues from different geographic perspectives helped participants exchange experiences and lessons and share ideas which could be commonly adapted. Some of these sessions involved as many as five regions tackling topics such as adapting to climate change or water and food. Through collaborative discussions and cross-cutting concluding sessions, participants gained a broader understanding of how to deal with similar challenges in different contexts.

Economically Water Insecure (EWI) Regional Session, HICO Gyeongju

Daegu & Gyeongbuk Water Prizes go to the best implementation and best solution

The 7th World Water Forum added one more important Prize to the prestigious water related Prizes which were awarded on the occasion of the triennial Forum. Together with King Hassan II Great World Water Prize, Kyoto World Water Grand Prize, and Mexico World Water Prize, Daegu & Gyeongbuk Water Prize was awarded to winners of two special contest programs that held world finals during the Forum week: Water Showcase and World Water Challenge.

The Water Showcase, one of the special programs in the Thematic Process which aimed to discover solutions to water-related issues and their implementation cases, decided the winner as Kanupriya Harish from India for highlighting the achievements of renovating traditional water harvesting to improve drinking water supply for local communities in Tahr region in India in her case "Rain for Life".

World Water Challenge was also founded as a special program of the Science and Technology Process to seek for innovative scientific and technological solutions to water challenges. Ricardo Alba of Colombia became the winner with the most successful solution: the development of a rainwater collector made of plastic bottles for schools and poor urban areas.

Water Showcase and World Water Challenge both successfully served as a core portion of the 7th World Water Forum not only by seeking solutions and specific implementation strategies on cases dealing with water issues all over the world, but also by providing realizable guidelines on similar water problems.

The two laureates received the Daegu & Gyeongbuk Water Prize with a grant of 30,000,000 won respectively at the closing ceremony of the 7th World Water Forum.

Daegu & Gyeongbuk Water Prize Award Ceremony, EXCO Daegu

Expo & Fair, EXCO Daegu

Expo & Fair attracts the global water community

The Expo and Fair took place in the Exhibition Hall of EXCO, Daegu during the 7th World Water Forum. Some 294 private corporations and organizations from 40 nations participated and operated 910 booths. Building on the high interest in the 7th World Water Forum from early in the preparatory stage, the Expo and Fair provided presentation spaces and opportunities for water experts and visitors to communicate and have discussions on water problems as well as a space for policy briefing sessions.

Among the exhibition hosts, 19 national pavilions (installed by 18 countries) displayed and promoted national water policies and industries. The national pavilions included Brazil, China, France, Japan, Spain, Netherlands, UAE, and the U.S.A. among others. In particular, the Korean pavilion, which was co-operated by 7 major Korean ministries, showcased Korea's water management policies and technologies.

Ministers from Japan, the Republic of Korea, and the People's Republic of China
Signing agreement to jointly implement a framework for water resources policy, Hotel Hyundai Gyeongju

Countries sign historical agreements

Signing ceremony of DGIC, EXCO Daegu

Goodbye until 2018 Brasilia, EXCO Daegu

At least 21 Memorandums of Understanding were signed during the 7th World Water Forum week between governments, regional authorities, and public organizations establishing the foundations for joint effort. This facilitation of political agreements marked a step forward in international water cooperation.

Among the agreements signed, an important move was taken by Korea, China and Japan. At the trilateral ministerial meeting, the three Ministers pledged to strengthen the core role of water in sustainable development and attract more financial investment to the water sector. The agreement sets a cooperative framework for water resources policy planning to be jointly implemented in the three countries.

Particularly, the Ministry of Land, Infrastructure and Transport of Korea signed two MOUs with the Ministry of Environment and Natural Resources Protection of Georgia and the Ministry for Climate Change of Pakistan to enhance cooperation with these countries.

In addition, 50 bilateral and multilateral meetings took place, making the World Water Forum a true platform for international cooperation.

Implementation Roadmaps and Daegu-Gyeongbuk Implementation Commitment (DGIC) established to support the 7th World Water Forum's core value

The Thematic Process, the backbone of the 7th World Water Forum, announced the Implementation Roadmaps (IRs) concerning its 16 overarching themes as the main outcome of the Process. The Design Groups of 16 themes of the Thematic Process, the National Committee for the 7th World Water Forum (Rep. of Korea), and the World Water Council announced the Daegu-Gyeongbuk Implementation Commitment (DGIC) at the closing ceremony of the 7th World Water Forum, pledging to implement and monitor the IRs.

The Implementation Roadmaps feature the global water community's commitment to implement solutions and ideas well beyond the 7th World Water Forum. It is expected to propose substantive solutions for global water challenges by establishing achievement goals and implementation ideas for the 16 themes of the Thematic Process, while integrating contributions from other processes. It is also expected that the Roadmaps will provide a clear picture of how to implement various aspects of the water-related Sustainable Development Goals and thereby create support for the achievement of the SDGs as a whole.

To this end, the Action Monitoring System (AMS) was established to keep track of the IRs for the next three years. The outcomes of the Roadmaps will be discussed and the network of water organizations and governments will be further strengthened through regular progress meetings. The IRs and AMS mechanisms will serve to guide collective action and keep track of progress in a public arena.

World Water Forum in numbers

The 7th World Water Forum produced diverse meaningful outcomes by holding over 400 sessions and events attended by the largest number of participants in the history of World Water Forum. This achievement indicates that the World Water Forum is maturing and expanding over time in terms of size and content. Approximately 46,000 entries from 168 countries were recorded for the 7th World Water Forum, including EXPO participants. Moreover, the 7th World Water Forum shone even brighter with the participation of heads of states, including presidents and prime ministers of nations with great interest in the World Water Forum as well as heads of international organizations such as the UN and OECD who are leading economic and social development. The following world leaders attended the 7th World Water Forum: President Park Gyeun-hye of the Republic of Korea, President Gurbanguly Berdimuhamedow of Turkmenistan, President János Áder of Hungary, President Mulatu Teshome of Ethiopia, President Emomali Rahmon of Tajikistan, Prime Minister Abdelilah Benkirane of Morocco, Prince Albert II of Monaco, OECD Secretary-General Ángel Gurría, UN Deputy Secretary-General Jan Eliasson, and H.H. Shekih Hamed bin Zayed Al Nahyan of the UAE

Not only heads of state, but also a large number of ministers, local government heads and parliamentarians who are responsible for water resource-related policies attended the 7th World Water Forum. The World Water Forum was attended by 80 ministers and vice-ministers, a total of 71 parliamentarians, including 6 speakers and 4 vice-speakers, and 58 heads of local government. Moreover, the number of sessions—403 sessions and events in total—held under diverse themes were categorized as follows: 128 for Thematic Process; 32 for Political Process; 51 for Regional Process; 40 for Science & Technology Process; 61 for Citizen's Forum; and 91 diverse additional sessions.

A very successful EXPO also took place to share water-related technologies and policies through practical exhibits. From a total of 40 countries, 294 water-related institutions attended the EXPO and 18 countries such as Brazil, China, and France and hosted national pavilions.

Ministers came together at the 7th World Water Forum, April 13, Hotel Hyundai Gyeongju

International Steering Committee

1. Establishment & Objective

For the organized preparation of the 7th World Water Forum, the International Steering Committee (ISC) was established jointly by the National Committee of Korea and WWC in October 2012. The ISC played the important role throughout the whole preparatory process as the highest decision-making body, consulting major agendas as process commissions progress, budget issues, international collaboration, and so on. The ISC held 10 meetings in total.

Meeting	Date & Venue	Major Agenda Items
1st	Oct 15, 2012 Gwacheon, Rep. of Korea	- Directions of organizing Process Commissions - Plans for the new Science & Technology Process
2nd	Jan 30-31, 2013 Marseille, France	- Nomination of ISC members - Decisions on date and venue of Kick-off meeting
3rd	May 10, 2013 Seoul, Rep. of Korea	- Decision on the date of the 7th World Water Forum week - Discussion on 'Water storage' and 'Resilience'
4th	Oct 5, 2013 Budapest, Hungary	- Process Commissions' progress reports - Decision of 2nd Stakeholder Consultation Meeting date and venue
5th	Feb 24, 2014 Gyeongju, Rep. of Korea	- Replacements of ISC and Process Commission members - Registration fees and discount rates
6th	Jun 27, 2014 Mexico City, Mexico	- Budgets for Process operation - Plan to send official invitations
7th	Oct 23, 2014 Marseille, France	- Plan to sign MOUs with regional coordinators - Ministerial roundtable organization
8th	Feb 23, 2015 Paris, France	- Session layouts and other logistics - Fundraising follow-up
9th	Apr 10, 2015 Andong, Rep. of Korea	- Final check-ups of Process sessions and Citizen's Forum - PR plans during the Forum week
10th	Jul 15, 2015 Hangzhou, China	- Process for Final Reports - 7th World Water Forum follow-up

2. ISC Members

The ISC was to consist of 16 members at most, including two Co-chairs. Both the Korean National Committee side and the WWC side would propose one Co-chair and half of the members. Each of the four Process Commissions (Thematic, Political, Regional, and Science & Technology) had at least one member included in the ISC.

Benedito Braga (Co-Chair)

President, World Water Council
Professor, University of Sao Paulo, Brazil

Soontak Lee (Co-Chair)

Distinguished Professor,
Yeungnam University, Rep. of Korea

Dogan Altinbilek

Vice-President, World Water Council
Turkish Contractors Association, Turkey

Byung-man Choi

Executive Director of K-water Institute,
Rep of Korea

Guy Fradin

President, Department of the Forestry, Water and Territories, Ministry for Ecology and Sustainable Development, France

Kanupriya Harish

Project Director, Jal Bhagirathi Foundation, India

Jun-haeng Heo

Director, Yonsei Institute of Smart Space
Professor, Yonsei University, Rep of Korea

In-hwan Hyun

President, Korea Federation of Water Science and Engineering Societies Professor, Dankook University, Rep of Korea

Sangman Jeong

President, Korean Society of Hazard Mitigation
Professor, Kongju National University, Rep of Korea

Jinsheng Jia

Vice-President, China Institute of Water Resources and Hydropower Research, China

Karin Krchnak

Director, Freshwater Division, WWF-US, USA

Seong-ho Lee

Director General, Global Economic Affairs Bureau, Ministry of Foreign Affairs (Rep. of Korea)

Si-jin Lee

CEO of Korea Environment Corporation, Rep of Korea

Adama Nombre

President, International Commission on Large Dams, France

András Szöllösi-Nagy

Special Advisor to the President, World Water Council , Hungary

Hyoseop Woo

Professor, Gwangju Institute of Science and Technology, Rep. of Korea

Thematic Process

I. Overview

1. Objective & Goals

The Thematic Process, the backbone of the World Water Forum, seeks to engage various stakeholders with different interests in discussion of all water-related subjects.

The general direction of the Thematic Process of the 7th World Water Forum was to facilitate the implementation of all World Water Forum discussions in a practical and innovative way. The Thematic Process aimed to collect global resources and capacities that could provide practical ideas by reviewing precedent cases and connecting demand and supply.

One of the major challenges that the 7th World Water Forum faced was to encourage the adoption of a dedicated water goal and targets within the UN's post-2015 Development Agenda. Thus, the Thematic Process aimed to demonstrate that the global water community is ready and has the right tools and a comprehensive program to implement the UN's water goal and targets.

In addition, the objective of the Thematic Process of the 7th World Water Forum was to move one step forward and materialize implementation by reviewing past actions and establishing a future implementation plan.

2. Thematic Process Commission

As the advisory body for the Thematic Process, the Thematic Process Commission made judgements on Process matters, made recommendations on Working Groups, Design Groups and Session Groups, reviewed session design and content, received feedback from the Working Groups, and oversaw overall operations of the Thematic Process. The Commission was composed of four host country experts and four international experts and met regularly to determine the direction of the Process.

Since the establishment of the Commission in July 2013, 15 meetings were officially inscribed in the preparatory process over two years until the 7th World Water Forum.

Thematic Process Commission Members

	Name	Profile
	Mark Smith **Co-Chair**	Director of the IUCN Global Water Program Leader of the Livelihoods and Environment group at CSIRO Australia
	Hyo-Seop Woo **Co-Chair**	Professor, Gwangju Institute of Science and Technology President, Korean Society of Ecology and Infrastructure Engineering

** Last name alphabetical order*

	Osward Chanda	Water and Sanitation Manager for the North, East and Southern region in the African Development Bank
	Bernard Guirkinger	Deputy General Director of SUEZ ENVIRONNEMENT Member of the Economic, Social and Environmental Council Vice-President of the European and International Affairs Section
	Kun-Yeun Han	Professor, Kyungpook National University Hydrological Sciences Section President, Asia Oceania Geosciences Society
	Yeong-Kwan Kim	Professor, Kangwon National University Director, Gangwon Green Environment Center
	Darne C. McKinney	Professor and Associate Chair of the Environmental and Water Resources Engineering program in the Department of Civil, Architectural and Environmental Engineering, The University of Texas
	Sang-Kyu Park	Associate Professor, Ajou University

II. Key Components

Like previous World Water Forums, the Thematic Process of the 7th World Water Forum mobilized various stakeholders to establish 16 themes based on the objective of the Process. The Thematic Process offered 128 sessions in total: 1 Opening Session; 90 Issue Sessions; 16 Concluding Sessions; 20 Special Sessions (10 high-level panel sessions, 9 special focus sessions and 1 cross-cutting session); and the Water Showcase World Final.

The Implementation Roadmaps (IRs) were established for each of the 16 Themes at the Closing Session. It was based on the achievements of the 7th World Water Forum and on factors that enabled or obstructed implementation in the past. Along with the IRs, the Action Monitoring System (AMS), an interactive on-line platform, was established to monitor and check the progress of the IR.

In the Closing Session, the Daegu-Gyeongbuk Implementation Commitment (DGIC) was signed to monitor future implementation. Additionally, the Water Showcase highlighted exemplary cases from all water-related fields, allowing participants to share practical solutions for implementation.

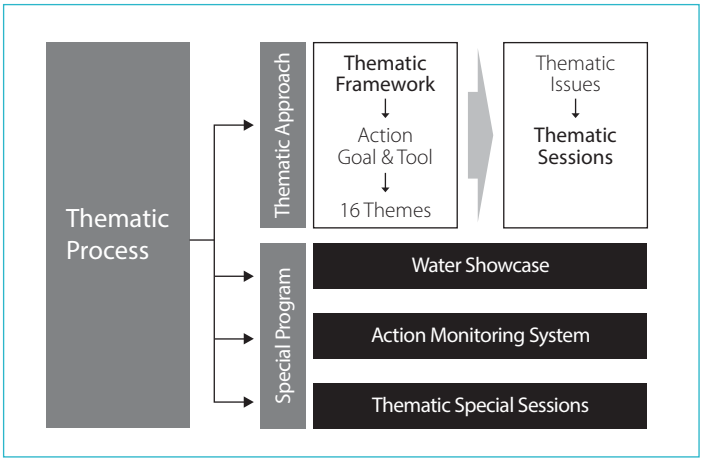


Figure 1. Thematic Process Program of 7th World Water Forum

1. Thematic Framework and Issue Sessions

The Thematic framework was divided into Action Goals (aligned with the three pillars of sustainable developemnt) and Action Tools (such as education, governance, finance, etc.) to realize the goals.

Action Goals were divided into the three categories of Water Security for All, Water for Development and Prosperity, and Water for Sustainability: Harmonizing Humans and Nature. The Action Tools were about Constructing Feasible Implementation Mechanisms. Sixteen themes and a theme framework consisting of 90 issues were confirmed on the basis of the action goals and action tools (see table below). During the 7th World Water Forum, the Thematic Process held 90 Issue Sessions under the principle of 'one issue-one session.' Concluding sessions for the 16 themes were held.

Table 1. Thematic Framework of Thematic Process, 7th World Water Forum

Action Types		16 Themes	Issue Sessions	Concluding Sessions
Action Goal	1. Water Security for All	1.1 Enough Safer Water for All	1.1.1 Safe Drinking Water for All: Realizing the Human Right to Water and Sanitation	Concluding Session 1.1: Enough Safer Water for All
			1.1.2 Water Quality and Safety to Ensure Water Security for All Uses	
			1.1.3 Non-conventional Water Supplies to Ensure Water Security for All: Filling the Demand Gap	
			1.1.4 Innovative Water Services for Rural Areas and Slums	
			1.1.5 Enough Safe Water for All: Monitoring, Evaluation and Accountability in the post-2015 Framework	
			1.1.6 Addressing Water Security Challenges: Case-studies and Sharing of Experiences on Providing Enough Safe Water for All	
		1.2 Integrated Sanitation for All	1.2.1 Reaching Universal Access to Sanitation	Concluding Session 1.2: Integrated Sanitation for All
			1.2.2 Faecal Sludge – The Sanitation Challenge beyond the Toilet	
			1.2.3 Urban Sanitation and Protection of Receiving Waters: A Call for Progressive Implementation	
			1.2.4 Resource Recovery and Reuse: Inspiring Change towards a Circular Economy	
			1.2.5 Integrated Sanitation: Vital in Urban Planning for Development	
		1.3 Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness	1.3.1 Water and Disaster: From Humanitarian Response to the Protection of Livelihood and Economies	Concluding Session 1.3: Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness
			1.3.2 Assessing, Mitigating, and Monitoring Risk with Use of Innovative Methodologies and Technologies	
			1.3.3 Preparedness, Response and Adaptation against Extreme Flood under Climate Change	
			1.3.4 Adapting to Climate Change: Focus on Disaster Risk Prevention with a Long-term Perspective	
			1.3.5 Enhancing Resilience through Robust Water Policies and Appropriate Water Management	
			1.3.6 Climate Change Adaptation in Basins: Examples and Good Practices	
			1.3.7 Urban Flood Resiliency through Adaptation to Climate Uncertainties	

Action Types		16 Themes	Issue Sessions	Concluding Sessions
Action Goal	1. Water Security for All	1.4 Infrastructure for Sustainable Water Resource Management and Services	1.4.1 Strategies and Planning for Sustainable Water Infrastructure Development: Laying down the Foundation for Our Future	Concluding Session 1.4: Infrastructure for Sustainable Water Resource Management and Services
			1.4.2 Water Storage Infrastructures for UN Sustainable Development Goals	
			1.4.3 The Role of Water Storage on Climate Change Adaptation	
			1.4.4 Scaling-up Investments in Natural Infrastructure	
			1.4.5 Stakeholder Participation and Raising Finance for the Integrated Water Resources Management (IWRM) of the World's Lake Basins	
			1.4.6 Adaptable Management Strategies for Ageing Water Infrastructures	
			1.4.7 Water Infrastructure for Sustainable Transport and Economic Development	
	2. Water for Development and Prosperity	2.1 Water for Food	2.1.1 Making Every Drop Count: Best Available Technology in Irrigated Agriculture	Concluding Session 2.1: Water for Food
			2.1.2 Water Quality Management for Agriculture and Environment - Will Clean Water Be a Future Luxury?	
			2.1.3 Modernization of Irrigation/Drainage Schemes for Food Security, Rural Prosperity and Poverty Alleviation	
			2.1.4 Adapting to Change for Sustainable Water Use in Agriculture	
			2.1.5 Innovation in Water Smart Agriculture: Working from the Ground Up	
		2.2 Water and Energy	2.2.1 Energy for water	Concluding Session 2.2: Water and Energy
			2.2.2 Water for energy	
			2.2.3 Putting the Water-Energy Nexus into Practice. Economic and Policy Incentives	
			2.2.4 Multipurpose Uses and Services of Hydropower Reservoirs	
			2.2.5 Off-grid Water and Energy Solutions in Developing Countries	
		2.3 Water and Cities	2.3.1 Water Security for Cities through Integrated Urban Planning and Services	Concluding Session 2.3: Water and Cities
			2.3.2 Adaptation to Climate Change: Increasing Cities Resilience	
			2.3.3 Water and Sanitation Operators: Capacity for an Urban Era	

Action Types		16 Themes	Issue Sessions	Concluding Sessions
Action Goal	2. Water for Development and Prosperity	2.3 Water and Cities	2.3.4 Built and Natural Infrastructure for Water Secure Cities	Concluding Session 2.3: Water and Cities
			2.3.5 Recycling and Reuse – Resource Positive for Cities	
			2.3.6 Information and Communication Technologies effectively Used to Achieve Water Security -"The Smart City" (Jointed with S.4.6 of Science & Technology Process)	
	3. Water for Sustainability: Harmonizing Humans and Nature	3.1 Green Growth, Water Stewardship and Industry	3.1.1 Water, the Impetus for Green Growth?	Concluding Session 3.1: Green Growth, Water Stewardship and Industry
			3.1.2 Public Private Partnership	
			3.1.3 Water Stewardship: Can Voluntary Collective Action Meet the Needs of Vulnerable Communities and Major Water Users?	
			3.1.4 Co-optimized Solutions that Close the Water-Energy Loop – Reducing Impacts and Driving Value from Waste	
			3.1.5 Valuing Freshwater Ecosystems: Building the Economic Case for Protection and Restoration	
		3.2 Managing and Restoring Ecosystems for Water Services and Biodiversity	3.2.1 Setting the Scene: Reviewing and Assessing the Current State of Ecosystems and Risks to Water Security	Concluding Session 3.2: Managing and Restoring Ecosystems for Water Services and Biodiversity
			3.2.2 Location-specific Challenges and Opportunities for Management and Restoration	
			3.2.3 Establishing the Foundations for Success: the Science, Benefits and Relevance of Eco-Hydrology	
			3.2.4 Available Tools, Methods, Approaches and Platforms for Scaling Improved Management and Restoration of Ecosystems for Water Services and Biodiversity	
			3.2.5 Scaling Impact and Collective Implementation, to Manage and Restore Ecosystems for Water Services and Biodiversity	
		3.3 Ensuring Water Quality from Ridge to Reef	3.3.1 Water Quality: Smarter Use for Water Security	Concluding Session 3.3: Ensuring Water Quality from Ridge to Reef
			3.3.2 Monitoring and Reporting of Water Quality	
			3.3.3 Strengthening Frameworks for Governing and Managing Water Quality	
			3.3.4 Sustainable Wastewater Management and Reuse	

Action Types		16 Themes	Issue Sessions	Concluding Sessions
Action Goal	3. Water for Sustainability: Harmonizing Humans and Nature	3.3 Ensuring Water Quality from Ridge to Reef	3.3.5 Green Investment for Blue Economy – Managing Sources for Coastal and Marine Water Quality Improvements	Concluding Session 3.3: Ensuring Water Quality from Ridge to Reef
		3.4 SMART Implementation of IWRM	3.4.1 Integrated Joint Management of Rivers, Lakes and Aquifers at Basins Level	Concluding Session 3.4: SMART Implementation of IWRM
			3.4.2 Implementing IWRM especially for Transition Countries	
			3.4.3 Catchment Approach for Decentralization of Integrated Water Resource Management	
			3.4.4 Knowledge Base for IWRM	
			3.4.5 IWRM Directions for post-2015 Development Agenda	
Action Tool	4. Constructing Feasible Implementation Mechanisms	4.1 Economics and Financing for Innovative Investments	4.1.1 Does Paying the Environment for Water Services Really Work?	Concluding Session 4.1: Economics and Financing for Innovative Investments
			4.1.2 Performance Based Contracting for Water Supply and Sanitation	
			4.1.3 Innovative Financing for Small and Decentralized Water and Sanitation Operators and Actors	
			4.1.4 Innovative Financing under the 3 Ts (Tariffs, Taxes and Transfers) and Beyond	
			4.1.5 Financing Agricultural Water Use	
			4.1.6 Closing the Finance Gap for Sustainable Water Management: Opportunities, Models and Targets	
		4.2 Effective Governance: Enhanced Political Decisions, Stakeholder Participation and Technical Information	4.2.1 Stakeholder Engagement in the Water Sector: How to Get There?	Concluding Session 4.2: Effective Governance: Enhanced Political Decisions, Stakeholder Participation and Technical Information
			4.2.2 Strengthening the Performance and Governance of Water Supply and Sanitation Services	
			4.2.3 Strengthening Basin Governance for Efficient Water Resources Management at All the Relevant scales	
			4.2.4 Integrity and Transparency for Successful Water Policies – Challenges and Progress	
			4.2.5 Principles on Water Governance for Better Water Policies: From Vision to Action	
			4.2.6 Counting What Counts: Getting Indicators Right for Better Water Governance	

Action Types		16 Themes	Issue Sessions	Concluding Sessions
Action Tool	4. Constructing Feasible Implementation Mechanisms	4.3 Cooperation for Reducing Conflict and Improving Transboundary Water Management	4.3.1 Water Diplomacy and Multi-level Governance: Connecting Levels to Make a Difference	Concluding Session 4.3: Cooperation for Reducing Conflict and Improving Transboundary Water Management
			4.3.2 International Water Law Demystified	
			4.3.3 Mandate, Structure and Means for Efficient Transboundary River and Aquifer Basin Joint Organizations	
			4.3.4 Building Trust: Facilitating Data and Information Exchange between the Riparian Countries in Transboundary Basins	
			4.3.5 Sharing Benefits of Transboundary Waters across Sectors and Countries	
			4.3.6 Investing in Transboundary Basin Management, It Pays Back: Sustainable Funding of TBM and Common Infrastructures	
		4.4 Water Cultures, Justice and Equity	4.4.1 Fostering Water Heritage, Water Values and Related Cultural Expressions	Concluding Session 4.4: Water Cultures, Justice and Equity
			4.4.2 Water Cultures and Cultural Diversity – Indigenous Perspectives and Solutions on Water Issues in 2015	
			4.4.3 Women for Water: Agents of Change for a New Culture of Water	
			4.4.4 Water Justices and Cooperation: Perspectives and Frameworks for Fostering Cultural Diversity, Society and Nature	
			4.4.5 Mainstreaming a New Water Ethic	
			4.4.6 Sacred Rivers and Cradles of Civilization – In Urgent Need for Action?	
		4.5 Enhancing Education and Capacity Building	4.5.1 Water Education and Capacity Building: Key for Water Security and Sustainable Development	Concluding Session 4.5: Enhancing Education and Capacity Building
			4.5.2 Financing Water Professional Training to Develop Competencies: A Fruitful Economic Strategy for Water Utilities	
			4.5.3 Ensuring Sustainability of Water Infrastructures by Investing in Water Training Centers: It Pays Back	
			4.5.4 Facing the Changes in Due Time: Specific Training for Basin Organizations	
			4.5.5 Water Education for Leaders on Safe Water and Environment	
			4.5.6 Captivating the Attention of the Global Population on Water Issues with Innovative Tools	

2. Thematic Progress Special Programs

The core value of the 7th World Water Forum was implementation. Actual case-based experiences are significantly powerful to achieve successful implementation worldwide. In this regard, the Special Programs in the Thematic Process of 7th World Water Forum (the IR, AMS, and Water Showcase) were designed to focus on realizing implementation.

Thematic Special Sessions, one of the special programs of the Thematic Progress, were organized in addition to the 90 Issue Sessions to highlight specific issues.

Table 2. List of Thematic Special Sessions

	Code	Session Title	Organizations Involved
High Level Panel	T.SS.01	Future of World's Waters beyond 2030	- Lee Kuan Yew School of Public Policy, Singapore - Middle East Technical University
	T.SS.05	Infrastructure Financing for a Water-Secure World	- World Water Council (WWC) - OECD
	T.SS.06	Water in the Post-2015 Development Agenda	- World Water Council (WWC) - Ministry of Transport, Public Works and Water Management, The Netherlands - The Butterfly Effect
	T.SS.07	How can we achieve a water and food secure future?	- World Water Council (WWC) - Food and Agriculture Organization of the United Nations (FAO)
	T.SS.08	IWRM post-2015: A new way forward	- World Water Council (WWC)
	T.SS.10	Water Security and Sustainable Development: Co-operation among Disciplines and Stakeholders	- UNESCO - K-water
	T.SS.15	Global Dialogue on Water Security and Sustainable Growth	- Global Water Partnership (GWP) - OECD
	T.SS.17	Water and Disasters	- CTI Engineering Co., Ltd
	T.SS.20	The Challenges and Opportunities in Measuring Counties' Progress toward a Sustainable Development Path for Water Use	- Korea Environment Institute (KEI)
	T.SS.25	To Price or not to Price: That is NOT the question. A high level dialogue	- The World Bank Group
Special Focus Session	T.SS.02	Leadership for National Water Management Contributing to Economic Growth	- Korea Institute of Civil Engineering and Building Tech nology (KICT)
	T.SS.03	Water Well and Culture	- DaeguGyeongbuk Water Forum (DGWF)
	T.SS.04	Management of Water Resource with New Village Movement	- DaeguGyeongbuk Water Forum (DGWF)
	T.SS.11	Global Water Industry Development through a New Innovative PPP Cluster	- Daegu Gyeongbuk Development Institute
	T.SS.18	The United Nations World Water Development Report 2015 : Water for a sustainable world	- UN WWAP
	T.SS.19	Two global Conventions on transboundary water cooperation- so what?	- United Nations Economic Commission for Europe (UNECE)
	T.SS.21	Women for a water secure world : past, present and future	- Women for Water Partnership

	Code	Session Title	Organizations Involved
Special Focus Session	T.SS.23	Three years of youth involvement in the water sector? lessons learned and way forward	- The International Secretariat for Water - Korea Water Forum (KWF)
	T.SS.24	Special Launching Event, Water and Green Growth	- K-water - World Water Council (WWC)
Cross-cutting Session	T.SS.09	The Water-Energy-Food Nexus: Are we finally talking?	- Food and Agriculture Organization of the United Nations (FAO) - International Water Association (IWA) - International Union for the Conservation of Nature (IUCN)

III. Implementation Roadmap

Undoubtedly, one of the major achievements of the 7th World Water Forum was the Implementation Roadmaps of the Thematic Process. The IRs are strategic and practical plans that ensure continuous action after the World Water Forum, as opposed to a single, week-long event held every three years. The IRs aim to incorporate the ideas of stakeholders from all over the world who must identify and directly contribute to solving water issues.

The IRs are a global action agenda to resolve water challenges relating to each of the 16 themes identified by the World Water Forum's hundreds of stakeholders. It sets out a strategic plan to implement solutions for major water-related issues and contributes to achieving concrete solutions that go beyond discussions. Moreover, the IRs contain the assessment criteria and procedures to monitor the progress on each action and strategy until the 8th World Water Forum in 2018.

Initially, the IRs were mainly developed by the Design Group members from 90 global organizations from Korea and abroad who participated in the preparation of the Thematic Process. However, more stakeholders agreed to participate in the IRs during the Concluding Session of the Thematic Process, making the plan more inclusive. Thus, it can be said that the IRs will contribute to the resolution of water-related problems by the global community.

The IRs set out a strategic plan to implement solutions for each theme and prioritized actions. It presents an action-oriented agenda for change that can be used by all stakeholders to align their actions. The IRs are composed of three main parts: Goal, Progress, and Execution, which are described below.

Part I: Goal

- Why does the international society need to focus on the implementation of this theme and why is our goal important?
- Define the goal of the theme and explain its rationale
- This section consists of two modules: Theme Goal and Rationale & Theory of Change

Part II: Progress

- What needs to be done over the next three years to achieve the goals?
- Define the objectives to accomplish the theme goal and establish its action plan
- The section consists of three modules: Objective, Action, and Milestone

Part III: Execution

- How should we execute the plans for better performance?
- Identify effective communication strategies with stakeholders and performance metrics to monitor progress.
- The section consists of 2 modules; Action Monitoring and Communication

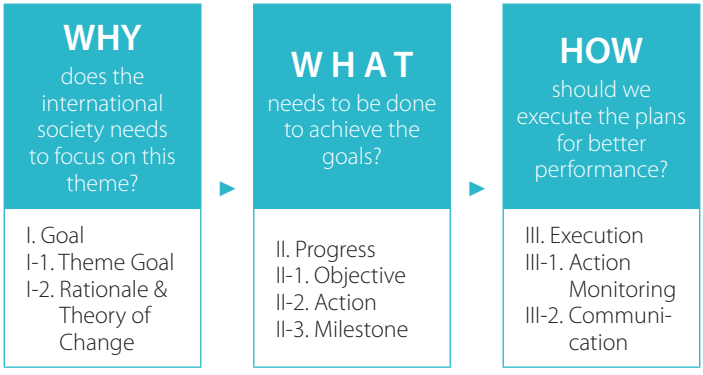


Figure 2. Key Components of Implementation Roadmap

1. Characteristics and Distinctiveness

The IRs, as a platform to integrate the global water community's implementation experiences, are a voluntary commitment by different organizations for global progress. Therefore, it is different from a binding governmental commitment or obligation.

This year marks the end of the UN's Millennium Development Goals (MDGs). It is also the year when the global community will establish its joint vision and objectives for the next 15 years. The Sustainable Development Goals (SDGs) as part of the post-2015 Agenda have already been established. Therefore, now is when a close connection between the water sector and SDGs shall be made.

It is important to understand how the IRs are distinguished from the SDGs as part of the UN'spost-2015 Agenda. The SDGs present long-term goals for the next 15 years as well as government commitments to monitor and achieve a set of targets; the SDGs encompass various areas, including water issues. The IRs, focusing solely on water issues, are much more specific (for 16 themes) and include operational commitments for implementation partnerships. The two are, therefore, very complementary.

The IRs may contribute to making the water-related SDGs operational while also creating a mechanism for tracking progress of the World Water Forum progress until the 8th World Water Forum in Brazil in 2018. IR developers (also the theme coordinators for the 7th World Water Forum) have been informed of the targets and associated indicators for the SDG water goal as a reference for deciding upon their own indicators.

In developing the IRs, each Design Group creating a Roadmap was required to develop a draft prior to the World Water Forum. At the World Water Forum, participants reached a compromise on how to complete each Roadmap, and the Roadmaps were officially announced at each Thematic Process Concluding Session. The following table shows the status of completion of each IR at the end of the World Water Forum. Design Groups have the authority to access IR content uploaded on the AMS. Most Roadmaps were appropriately established based on the guidelines. After the 7th World Water Forum, Design Groups with less completed Roadmaps were asked to complete them based on the World Water Forum outcomes.

Table 3. Status of Completion in Implementation Roadmap (As of September 1, 2015)

Theme	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	3.3	3.4	4.1	4.2	4.3	4.4	4.5
Sumitted (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y (Partially)	Y	Y	Y	Y (Partially)	Y
Executive Summary	O	X	X	O	O			O		O		O	O		X	
I. Goal																
I-1. Theme Goal																
Theme Goal	O	O	O	O	O	O	O	O	O	O	O	O	O	O	X	O
Key Focus Area	O	O	O	X	O	O	O	O	O	O	O	O	O	O	O	O
I-2. Rationale and Theory of Change																
The Significance of the Theme	O	O	O	O	O	O	X	O	O	O	O	X	O	O	X	O
Relevant SDGs with Theme	O	O	X	X	O	O	O	O	O	O	X	O	O	O	X	O
Lessons Learned	O	O	O	O	O	O	X	O	O	O	X	X	O	O	X	O
Result of 6th Forum	O		X	X	O	O	X	O	O	O	X	O	O	X	X	X
Success Factors and Barriers	O	O	X	X	O	O	X	O	O	O	X	O	O	O	X	X
Implications	O	O	X	X	O	O	X	O	O	O	X	O	O	O	X	X
Theory of Change	O	O	O	X	O	O	O	O	O	O	O	O	O	O	X	O
II. Progress																
II-1. Objectives																
Objective	O	O	O	O	O	O	O	O	O	O	X	O	O	O	X	O
SDGs	O	O	X	X	O	O	X	O	O	O	X	O	O	O	X	O
6th Forum Target	O	X	X	X	X	O	X	O	O	O	X	O	O	O	X	O
II-2. Action																
Action	O	X	O	O	X	O	O	O	O	O	X	O	O	O	X	O
Time Frame	O	X	O	O	X		X	O		O	X	X	O	O	X	O
Leading Member	O	X	O	O	X	O	X	O	O	O	X	X	O	O	X	O
II-3. Milestone																
Milestone	O	X	O	O	X	X	X	O	X	O	X	O	O	O	X	O
III. Execution																
III-1. Action Monitoring																
Indicator of Progress	O	O	O	X	X	X	X	O	X	O	X	O	O	O	X	X
Target Valuex and Time	O	X	O	X	X	O	X	O	X	X	X	X	X	X	X	X
III-2. Communication																
Communication	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

2. Action Monitoring System (AMS)

In addition to the establishment of the IRs, the AMS was also created to enable the monitoring of progress of the IRs. The AMS is an on-line system where actual process is checked against the strategies and plans after the content of each of the 16 Roadmaps are uploaded.

The AMS is an interactive platform. The main purpose of the system is to register and monitor the outcomes of the 7th World Water Forum in a practical manner.

The structure of the Action Monitoring System is composed of three main parts:

- Formulating and sharing a Roadmap based on discussions on a theme during Issue Sessions;
- Recording and tracking feasible activities and progress within the implementation process; and
- Monitoring and assessing the outcomes and fulfillment of a Roadmap for the future action

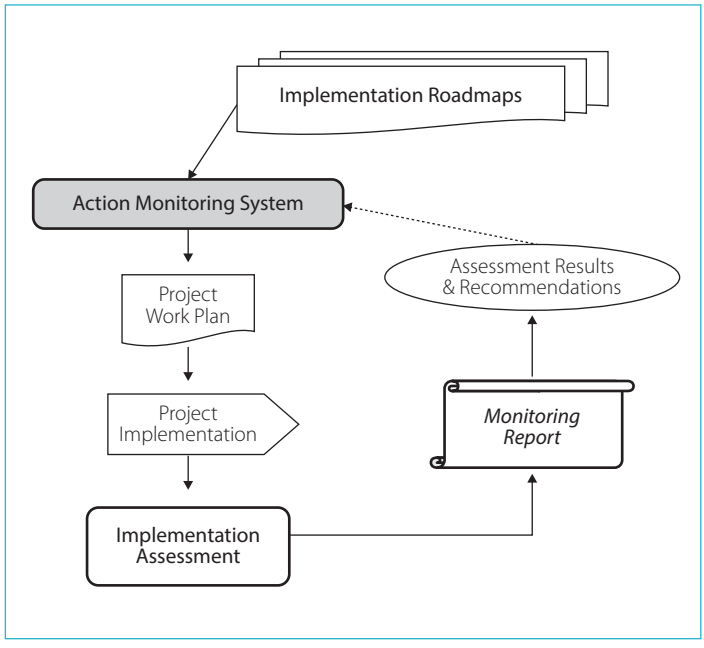


Figure 3. Schematic Concept of Action Monitoring System

The on-line system has been completed and is now fully operational, and anyone who is interested may access the system to directly check specific content and the execution progress of a Roadmap. However, in order to supplement or correct the content of the IR, or to perform evaluation of results, a separate authority needs to be granted. (Visit http://ams.worldwaterforum7.org).

3. Declaration of the Daegu-Gyeongbuk Implementation Commitments (DGIC)

The 7th World Water Forum organizers and the Thematic Process Commission, in an effort to strengthen the execution of the 16 Implementation Roadmaps and to express a strong will for realizing implementation, arranged a signing ceremony for the Daegu & Gyeongbuk Implementation Commitment (DGIC) at the closing of the 7th World Water Forum. In particular, the DGIC introduced the establishment of the IRs to global communities and emphasized: the significance of the IRs and the AMS including how the IRs and the AMS have embraced the core value of the 7th World Water Forum and how they would play a pivotal role in the global water sector beyond the World Water Forum; the need to consider sociological, economic and environmental aspects in water-related problem diagnosis and solutions, and; the establishment of the solution execution mechanism, all of which were the results discussed in the World Water Forum.

Table 4. Coordinator Organizations joined in signing for the DGIC

16 Themes		Coordinators & Co-coordinators
1. Water Security for All	1.1 Enough Safe Water for All	UNESCO International Hydrological Programme (UNESCO-IHP)
	1.2 Integrated Sanitation for All	pS-Eau (Programme Solidarité Eau) AQUAFED
	1.3 Adapting to Change : Managing Risk and Uncertainty for Resilience and Disaster Preparedness	International Centre for Water Hazard and Risk Management (ICHARM)
	1.4 Infrastructure for Sustainable Water Resource Management and Services	International Commission on Large Dams (ICOLD)

16 Themes		Coordinators & Co-coordinators
2. Water for Development and Prosperity	2.1 Water for Food	Food and Agriculture Organization of the United Nations (FAO)
	2.2 Water and Energy	International Water Association (IWA)
	2.3 Water and Cities	UN-Habitat International Water Association (IWA)
3. Water for Sustainability: Harmonizing Humans and Nature	3.1 Green Growth, Water Stewardship and Industry	K-water
	3.2 Managing and Restoring Ecosystems for Water Services and Biodiversity	Ramsar Convention Secretariat
	3.3 Ensuring Water Quality from Ridge to Reef	International Water Resources Association (IWRA)
	3.4 SMART Implementation of IWRM	UNESCO Regional Science Bureau Global Water Partnership (GWP)
4. Constructing Feasible Implementation Mechanisms	4.1 Economics and Financing for Innovative Investments	Asian Development Bank (ADB)
	4.2 Effective Governance : Enhanced Political Decisions, Stakeholder Participation and Technical Information	OECD Water Governance Initiative
	4.3 Cooperation for Reducing Conflict and Improving Transboundary Water Management	International Network of Basin Organizations (INBO)
	4.4 Water Cultures, Justice and Equity	UNESCO Women for Water Partnership (WfWP)
	4.5 Enhancing Education and Capacity Building	International Network of Water Training Centers (INWTC)

4. Next Steps

In order to secure effectiveness of the IR and AMS, the Government of Korea and the World Water Council will strengthen the network among different water-related organizations that participated in the World Water Forum, by holding annual meetings for evaluating IR execution and regularly posting detailed information regarding the progress of IR execution and performance. With this, it is expected that innovative ideas from the 7th World Water Forum will be successfully put into practice while attracting consistent attention from the global water community, rather than being buried. The AMS will be transferred to the World Water Council (WWC) for further management.

Overall results of the IRs will be collected and organized through AMS and confirmed at the 8th World Water Forum.

IV. Water Showcase

The purpose of the Water Showcase was to discover representative cases that addressed diverse issues to be solved in various water-related fields. The greatest achievement of the Water Showcase was the identifying and extracting of lessons learned from these cases. The Showcase provided stakeholders from around the world with opportunities to introduce best practices: participants described a series of problem solving processes by recognizing a problem, devising solutions, drawing up strategies, and proposing implementation and evaluation. Also, the Showcase aimed to create solutions in terms of knowledge, technology, strategy, and communication to solve similar problems and challenges.

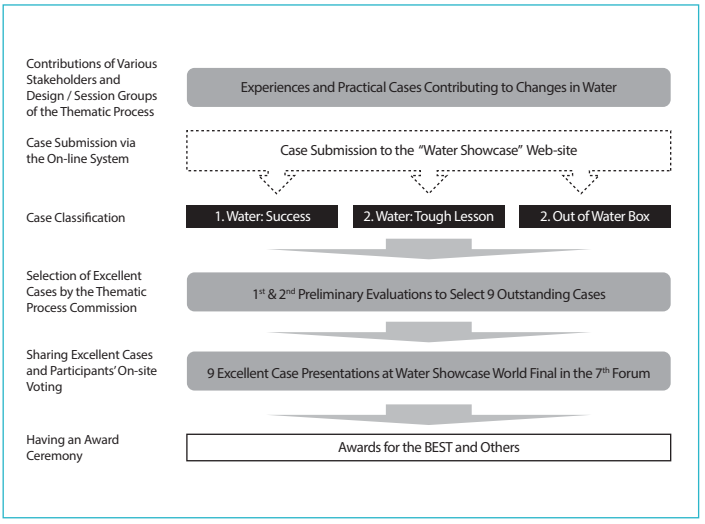


Figure 4. Operating Diagram of Water Showcase

1. Case Submissions

All cases were classified either as pertaining to the Water Sector or Out of the Water Box. This classification was based on the policy goal that was set.

The Water Sector was defined as the area with water as the main component in resolving or improving current water challenges. Efficient use and management of water were the key objectives in these cases. The Out of the Water Box covered cases in which the main objective was not related to water as an end in itself, but still contributed to improving water-related situations. Individuals and organizations wishing to participate in the showcase submitted their cases via the on-line system from August 2014 until the end of January 2015.

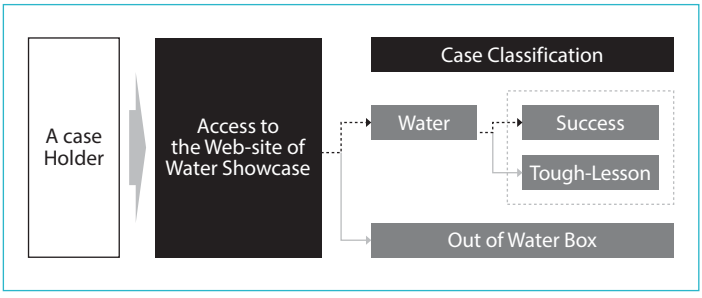


Figure 5. Classification of Cases

Here, 'Tough-Lessons' included cases with insufficient achievements, but served to provide instructive lessons.

As of January 31st, 2015, a total of 115 cases from more than 32 countries around the world were submitted (refer to tables below).

Table 5. Status of Submitted Cases: Classified by Country

Country	# of Case	Country	# of Case
Australia	1	France	5
Laos	1	Spain	1
Bangladesh	1	Germany	2
Lebanon	1	Sri-Lanka	1
Brazil	1	GWP-MD	1
Malaysia	5	Sudan	1
Canada	1	India	21
Nepal	2	Sweden	2
China	5	Indonesia (funded by Japan)	1
Netherlands	1	Taiwan	2
Columbia	2	Iran	4
Nigeria	2	Turkey	3
Costa Rica	1	Kenya	1
Pakistan	4	USA	4
Egypt	3	Korea, Rep. of	17
Slovenia	1	Unidentified	17
Total of Submissions		115	

Table 6. Status of Submitted Cases: Classified by Region

Region	Total of Cases	Percentage over total
Asia Pacific	69	70%
South America	4	4%
North America	5	5%
Africa	7	7%
Europe	13	13%

2. Preliminary Evaluation

There were two steps in the preliminary online evaluation to select the finalists to present at the Water Showcase World Final. First, the 7th World Water Forum Secretariats evaluated all the submitted cases based on the following six evaluation criteria previously established at a Thematic Process Commission meeting: Clarity (10 points), Importance (15 points), Impact/Contribution (20 points), Transferability/Adaptability (20 points), Sustainability (20 points), and Implementation (15 points).

Out of 115 entries, the 44 cases with the highest scores were

selected. Then, from February 27th to March 11th, 2015, the six members of Thematic Process Commission (excluding two co-chairs) conducted the secondary online evaluation based on the same criteria and confirmed the nine finalists.

On March 20th, 2015, the results of the preliminary evaluation and the finalists were announced officially through the website and e-mail notification. All nine finalists were informed that they should prepare an oral presentation as well as a poster to be exhibited during the World Water Forum.

3. Water Showcase World Final

The Water Showcase World Final was held on April 15th, 2015 at Daegu Inter-Burgo EXCO. The event consisted off four parts: 1) reporting the program progress, including the evaluation progress, 2) oral presentations by the nine finalists (six minutes per presentation), and 3) "Meet the Speakers" for interaction between the finalists and the audience (including the final evaluation by the jury and the onsite voting by the audience), and 4) the award ceremony.

The winner of the Water Showcase World Final was selected based on 1) the online evaluation scores given by the six members of the Thematic Commission when selecting the finalists (30%), 2) the on-site online voting by participants (20%), and 3) the final evaluation by the jury (50%).

Prior to the Water Showcase World Final, the final evaluation jury had a meeting to clarify the criteria and the process of final evaluation. The jury was comprised of seven experts.

Table 7. Jury Member of Water Showcase World Final

Name	Organization
Asha W. Abdulrahman	Women for Water Partnership
Byung-man Yoon	Korea Water Resources Association
Dogan Altinbilek	Middle East Technical University, Ankara, Turkey (TPC Co-chair of the 6th World Water Forum)
Haekyung Lee	Korea Environmental Health & Welfare Association
Hyoseop Woo	Korea Institute of Civil Engineering and Building Technology (TPC Co-chair of the 7th World Water Forum)
Mark Smith	International Union for Conservation of Nature (TPC Co-chair of the 7th World Water Forum)
Patrick Lavarde	French National Agency for Water and Aquatic Environments (TPC Co-chair of the 6th World Water Forum)

Table 8. Nine Finalists of the Water Showcase World Final

Result	Title of Case	Presenter (Country)
The Best	Rain for Life	Kanupriya Harish (India)
Excellent	Non-Conventional Water Resources Program in the Mediterranean	Konstantina Toli (Global Water Partnership - the Mediterranean)
Excellent	Water Resource Optimization for Brighter Future: A Case of Climate Change Adaptation of Southwest Bangladesh	Mohon Kumar Mondal (Bangladesh)
Excellent	Concave Green Roof as Water-Energy-Food Nexus	Mooyoung Han (South Korea)
Outstanding	Ground Water cum "Dug Well" Recharge of Coastal Eco Systems: Recharging with Roof Rainwater supports desalination of Coastal Water Bodies	Jos C Raphael (India)

Result	Title of Case	Presenter (Country)
Outstanding	Lake Sihwa Water Quality Improvement Project	Water and Green Growth Project Team (South Korea)
Outstanding	Raising Disaster Awareness and Capacity of Community in DesaNegeri Lima, Maluku Province, Indonesia / CBDRR Saves 5000 Residents from the Break of Landslide Dam of Way Ela River	Haryono Hansen Sirait (Indonesia, a project funded by Japan)
Outstanding	Sustainable Mitigation of Arsenic Contaminated Ground Water in Bihar, India	Ashok Ghosh (India)
Outstanding	Village Water Entrepreneurs & Water ATMs	Ankit Tulsyan (India)

The evaluation criteria were similar to those for the preliminary evaluation. In addition, an 'On-site Presentation' criterion was added for the final jury evaluation for the World Final.

In addition to oral presentations on stage at the Water Showcase World Final, each presenter created a poster summarizing the essential points of their cases. Posters were exhibited during the World Water Forum week. The award ceremony of the Water Showcase was held after the presentations.

Ms. Kanupriya Harish of India was awarded the grand prize. Her submission, Rain for Life, introduced a conventional rainwater collection system implemented over twelve years to improve the drinking water supply to a local community in Tahr Desert area in India. The case was well received by the panel of judges and participants. In addition to the grand prize, prescribed medals and prizes were awarded to the eight other finalists.

Table 9. Prizes in Detail

Awards for Water Showcase World Final	
The Best (1st Place)	A trophy and cash prize within the Daegu & Gyeongbuk Water Prize (30,000,000 KRW)
Excellent (2nd Place)	A trophy and cash prize (10,000,000 KRW)
Excellent (3rd Place)	A trophy and cash prize (6,000,000 KRW)
Excellent (4th Place)	A trophy and cash prize (4,000,000 KRW)
Outstanding (5 persons left)	A trophy

Furthermore, the winner of the Water Showcase was awarded a trophy for the 'Daegu & Gyeongbuk Water Prize' along with prize money of 30 million won, which was newly created for the 7th World Water Forum, during the closing session of the World Water Forum.

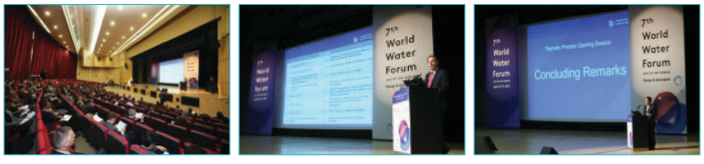
The Award Ceremony of the Water Showcase World Final, EXCO Daegu

V. Thematic Process Sessions

1. Characteristics and Distinctiveness

The first official program of the Thematic Process was the Opening Session held at Daegu EXCO in the morning of April 13th (Monday). Representatives from associated organizations related to the Design Groups and Session Groups who actively conducted the Thematic Process activities, including the members of the Thematic Process Commission participated in the Opening Session. Following the declaration of the opening, President Ishii Naoko of the Global Environment Facility (GEF) and President Choi Gye-woon of K-water delivered keynote speeches.

In particular, in the Opening Session, Dr. Hyoseop Woo, the co-chair of the Thematic Process Commission, emphasized the importance of the 16 themes and 90 issues as well as the achievement of the performance target while reviewing the progress of the Thematic Process of the 7th World Water Forum. He also expressed his hope for successful sessions and called for the participation and cooperation of global organizations and stakeholders. Dr. Mark Smith, the co-chair of the Commission, recognized the need for the establishment of the IRs for the 16 themes, and emphasized the active participation and cooperation from participants around the world.



Opening Session of the Thematic Process, EXCO Daegu

2. Issue Sessions

As of September 1st, 2015, about 70% of reports on sessions had been submitted. Session organizers who had not submitted their final report were strongly encouraged to do so promptly by the National Committee to make the 7th World Water Forum Final Report more informative.

** Refer to page 33-50 for detailed descriptions of outcomes of issue sessions.*

2.1. Action Goal I: Water Security for All

Theme 1.1. Enough Safe Water for All

Overview

The role of water in human development and environmental sustainability has been clearly recognized. Sustainable development will not be achieved without securing water for human well-being, the environment and economic activities. To ensure water security, it is essential to have enough safe water for health, livelihoods and production. Providing good quality water in sufficient quantities and enough safe water improves the quality of life for all, especially for the most vulnerable groups such as women and children, by fulfilling human needs, improving health and livelihoods, and expanding economic and other opportunities. Enough safe water is also essential to support economic activities across all sectors.

The session discussed the importance of providing enough safe water for all users and uses in achieving water security for sustainable development in the post-2015 framework. Given the theme's focus on the importance of providing enough safe water for all, the discussion delved into both the quality (safe) and quantity (enough) aspects of water supplies for all users and uses, including environmental water needs. The session also touched upon effective realization of the human right to water, access to safe water, as an important part of ensuring enough safe water for all.

Summary of Theme Goals in the IR

To enhance water security towards ensuring 'enough safe' water for all users and all uses through the dissemination and sharing of knowledge, appropriate technologies, scientific innovation, best practices and policy tools on: improving water quality by reducing all types of pollution and improving wastewater management; augmenting water supplies through both demand management and the use of non-conventional water resources such as safe wastewater reuse, desalination and rainwater harvesting; and expanding access to water services to those lacking access to safe water

Theme 1.2. Integrated Sanitation for All

Overview

The purpose of the session is to synthesize the outputs of all the sessions and to present the implementation roadmap for Theme 1.2 (Integrated sanitation for all). It was suggested that this roadmap be in line with the post-2015 process, so, de facto, this session focused on this aspect.

Summary of Theme Goals in the IR

To advocate for the improvement and development of sanitation and wastewater services and management considering the whole sanitation chain: access, evacuation and treatment (for both non-collective systems and for collective systems), reuse and resources recovery

Theme 1.3. Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness

Overview

Over the past decades, water-related disasters have been rapidly increasing due to global changes, such as population growth, urbanization, and economic development. Furthermore, anthropogenic climate change is already altering the earth's water cycle, and the depth and extent of its impacts will increase over at least the next few decades, if not centuries. Perhaps the most important impacts of climate change for humans will be expressed through the medium of fresh water, since water is a fundamental part of how our economies approach energy, health care, manufacturing, agriculture, and most aspects of natural resource management. Currently, climate change presents serious challenges to our decision making systems and political economies, our approaches to responding to water-related disasters, and our vision of what sustainable water resources management can and should look like.

To achieve these targets, this session incorporated the results of the 6th World Water Forum as well as previous World Water Forums and is linked to efforts through relevant initiatives, such as the Third World Conference on Disaster Risk Reduction held in March 2015, the UNESCO Science-Policy Dialogue in June 2015, and the UN Framework Convention on Climate Change in Paris in December 2015.

This session spanned the following aspects of climate adaptation and water: 1) The understanding and assessment of risk, which is critical to reduce the impacts of extreme weather events and to promote resilient and sustainable recovery and reconstruction efforts by all levels of stakeholders and the environment. 2) Integrative approaches to ensure that institutions, governance systems, infrastructure, and ecosystems are robust to shifts that are difficult to predict and anticipate. Flexibility, reliability, and sustainability are no longer easily defined targets, yet as qualities they are arguably more necessary than ever. 3) National, regional, and global policy frameworks that enable rather than restrict effective action by civil society, the private sector, and all levels of decision makers.

Summary of Theme Goals in the IR

To respond to the dynamic, evolving nature of the water cycle and highlight sustainable approaches to water resources management, disaster management, climate adaptation and economic development

Theme 1.4. Infrastructure for Sustainable Water Resource Management and Services

Overview

Historically, appropriate water infrastructure has increased social resilience, created conditions for economic growth, reduced hunger and malnutrition, transformed rural economies and created employment. Water infrastructure that includes social and environmental dimensions and the natural water infrastructure play a vital role in strengthening water security in the face of changing patterns of climate variability and population growth.

Summary of Theme Goals in the IR

To strengthen and maintain existing water systems and further develop new water storage infrastructure, and to develop adaptable management strategies for ageing of water infrastructures, especially dam facilities, through sharing and exchanging of knowledge and experiences of both developed and developing countries, eventually to provide all stakeholders of ageing dams how and what to do for securing our life and property against threats by nature such as climate change

2.2. ACTION GOAL II: Water for Development and Prosperity

Theme 2.1. Water for Food

Overview

The Concluding Session of Theme 2.1 Water for Food highlighted the main findings from relevant sessions and outlined the next steps in addressing some of the key issues, keeping in mind that global food production will have to increase to satisfy a growing population. The session provided a synthesis of the outcomes from a range of sessions, covering topics on water use-efficient technologies and the modernization of irrigation schemes, water quality management, adaptation to environmental change and farmers' capacities in water use for agriculture. There was a panel discussion on some of the outcomes and concrete suggestions for follow-up were made.

Summary of Theme Goals in the IR

To help encouraging private investments in technologies and management practices that enhance the sustainable production of crops, livestock, and fish by both small holders and larger scale producers, and address the excessive use and degradation of water resources in key production regions that threaten the sustainability of livelihoods dependent on water and agriculture

Theme 2.2. Water and Energy

Overview

Water and energy are inextricably linked - choices made and actions taken around one resource will impact the other. Informed decisions made on policies and investments need to be made which sustain or improve benefits and minimize trade-offs. Water and energy can be binding constraints on economic growth, but short term solutions can result in long term impacts with much higher social, environmental and economic costs.

Key messages from the water and energy thematic issues were brought together in a synthesis session, where highlights including the implementation roadmap was presented and discussed. A high level panel moderated by SIWI discussed how water and energy need to be considered holistically, and the nexus could be a leverage point for improving efficiency and long term sustainability.

Summary of Theme Goals in the IR

To deliver water and energy for all while minimizing environmental impact, through enhancing efficiency, improving sustainability and strengthening governance in resource management

Theme 2.3. Water and Cities

Overview

This session aimed at summarizing the main outputs of the other sessions in terms of resilience, capacity building, integrated urban design, and how the urban water resources can be used and recycled in an urban ecosystems approach. The session emphasized that integrating water in urban planning as a cross sectoral and multidisciplinary approach is a technical, institutional, and regulatory challenge. With each of the themes covered in the previous sessions this session presented the multiple ways in which water contributes to making a city sustainable for its citizens.

Summary of Theme Goals in the IR

To provide water security for cities by embracing an integrated city planning agenda for a "regenerative city," which enables to better plan for the healthy, liveable, risk-resilient city

2.3. ACTION GOAL III: Water for Sustainability: Harmonizing Humans and Nature

Theme 3.1. Green Growth, Water Stewardship and Industry

Overview

As risks to development increase, green growth strategies will gain support among countries. Green growth can be a solution to tackle challenges such as unsustainable business-as-usual practices, excessive use of resources and deterioration of ecosystems. In particular, water, a vital component to socio-economic development and environmental sustainability, can contribute to realizing green growth.

In this respect, each session under Theme 3.1 explored how to address the current water challenges from different perspectives. Following discussions during the World Water Forum week, the Concluding Session collected key messages and encourage collective action for implementation. Design groups of Theme 3.1 made efforts to attain objectives and targets of the Implementation Roadmap by the 8th World Water Forum in 2018.

Summary of Theme Goals in the IR

To ensure coherent policy to enable green growth; foster the long-term engagement of a variety of stakeholders in water management; and recognize economic value of water to avoid business risks and protect ecosystem services

Theme 3.2. Managing and Restoring Ecosystems for Water Services and Biodiversity

Overview

The Concluding Session summarized some of the main recommendations, actions and insights from the five earlier issue sessions, and maps their application to the 'Theory of Change' and objectives of the Implementation Roadmap for the theme. The session facilitated interactions across issues, themes and processes of the World Water Forum, including the Regional and Scientific & Technical themes. The outcome was a greater understanding of shared objectives and actions that were possible to pursue within a roadmap for slowing, stopping and reversing the loss of ecosystems that are critical for water services and biodiversity.

Summary of Theme Goals in the IR

To slow, stop and reverse the loss of ecosystems, especially wetlands, as a fundamental basis for resilient and successful societies

Theme 3.3. Ensuring Water Quality from Ridge to Reef

Overview

Water quality is viewed as an important consideration in the paradigm of water management and overall insufficient water management affects the decrease of the amount of usable water, which will be discussed intensively in this session.

Summary of Theme Goals in the IR

To improve water quality management in situations where water quality degradation or inappropriate use of water qualities is responsible for reducing the quantity of water available for the

various uses it is needed for

Theme 3.4. SMART Implementation of IWRM

Overview

Reconciling water uses among competing social and ecological needs is a political as well as technical process. When we consider the multiple uses of water, be it for food and energy, industry and environment, or inland navigation and recreation, an integrated management approach is necessary to balance supply and demand. But, the question ishow balance of implementation in practice can be achieved while safeguarding the sustainability of surface and groundwater sources.

Summary of Theme Goals in the IR

To ensure the IWRM approach is applied at all levels throughout the world as a means to achieve water security

2.4. ACTION TOOL: Constructing Feasible Implementation Mechanisms

Theme 4.1. Economics and Financing for Innovative Investments

Overview

Greater recognition is needed of the contribution of investment in water infrastructure and water resources development to create platforms for growth and for social stability that is essential for increasing the flow of financial capital. Vendible aspects of water investment help foster solid capital markets essential for economic development. Investment in water supply and services saves millions in costs related to poor public health, low productivity and environmental damage in the long run. Investment needs, for both hard measures and soft measures, are large. The needs will not be solved by ODA only. Efficient use of existing financial resources for water would significantly help us achieve our water-related goals and ease barriers to access to resources that already exist. Innovative financing mechanisms and private and public partnership are also essential.

Summary of Theme Goals in the IR

To ensure that adequate financial provision is made to achieve the global goal of water security

Theme 4.2. Effective Governance: Enhanced Political Decisions, Stakeholder Participation and Technical Information

Overview

To share opinions on how to contribute to the improvement of water governance through the discussion among session group members under the theme of effective governance

Summary of Theme Goals in the IR

To guide decision-makers across levels of government to strengthen institutions' capacity in order to reap the economic, social and environmental benefits of good governance; to inform public debate and actions; and to contribute in facilitating change and reform where and when needed

Theme 4.3. Cooperation for Reducing Conflict and Improving Transboundary Water Management

Overview

Water unites far more than it divides. Half of the world's population lives in transboundary river basins. Indeed, water is a potential catalyst for cooperation and peace from local to international levels. The conditions for sound and sustainable cooperation must use numerous means that include new forms of consensus building such as assisted negotiations, mediation and multi stakeholder participatory processes, legal instruments and frameworks at national and international levels, joint management practices and institutions and capacity building. Water is an important venue for second track diplomacy as it plays important roles in allowing dialogs among conflicting parties.

Summary of Theme Goals in the IR

To provide guidance to decision-makers across all levels of government in different relevant fields (international law, policy, diplomacy, institutional and technical engineering) on how to develop and improve transboundary management in order to reduce conflicts and ensure an optimal use of water resources for socio-economic development

Theme 4.4. Water Cultures, Justice and Equity

Overview

Water has brought civilizations livelihood, sustenance and well-being. Water carries the collective memory of humanity. Water has been instrumental in our past development. It is equally the key to our future development as well to maintaining our life support on Earth, our home. Water debates often mirror debates of social ethics. Knowledge embedded in this collective experience of humanity and gathered over generations can therefore provide important lessons for the future. Moreover, it is important to consider how different genders and different age groups each cultivate different relationships with water.

Summary of Theme Goals in the IR

To create and maintain an implementation network of the design group members and session participants/convenors on water, cultural diversity, justice and equity and raise the awareness among water professionals and decision makers about the intricate but

yet often ignored relevance of cultural diversity, justice & equity for water management and development and include these aspects into policies, programmes and practice

Theme 4.5. Enhancing Education and Capacity Building

Overview

Education and training is essential to establish effective water resources management appropriate to local and regional needs. Developing and developed countries need enhanced capacity building. Education and training must be more than a one-way flow of the rich to the poor. All require a demand/needs-based capacity development programs that enables and empowers civil society, community organizations and stakeholders to fulfill their roles in water governance and management.

Summary of Theme Goals in the IR

To provide guidance to decision-makers across all levels of government on how to develop and improve water education, professional training and capacity building

VI. Thematic Special Session

A total of 20 thematic special sessions were organized; to discuss themes that were not addressed at the Issue Sessions associated with the 16 themes; to combine or cross-cut two or more themes; and to organize sessions for high-level participants. The special sessions were comprised of High-level Panels, Cross-cutting Sessions, and Special Focus Sessions to emphasize the core of the sessions.

Through 10 High-Level Panel sessions and 9 Special Focus Sessions, dozens of delegations of ministries, heads of NGOs, high-level delegations of UN agencies, Presidents of research institutes, eminent scholars and local governors participated in enriching the discussions within the Thematic Process of the 7th World Water Forum. Some panels attracted hundreds of people, sharing the future vision to clarify what the global water community expects beyond 2015 and at the same time what changes in water can be expected beyond 2015.

One of the most noticeable points was that these sessions ultimately emphasized "water and sustainability", "water and risks", and "water and future", although they dealt with 19 different topics respectively. It strongly showed how important the global community has regarded the year of 2015 so as to face the current challenges and to prepare the future beyond 2015 in a sustainable way.

One Cross-cutting Session was also held to address the nexus between water, food and energy. This drew significant attention to the inter-related nature of water, energy and food systems, focusing on what concrete measures can be tried and taken within resource use efficiency and across sectors such as cross-sectoral policy targets and actions to ensure better coordinated and more coherent decision-making process.

Refer to page 50-54 for detailed descriptions of outcomes of special issue sessions.

VII. Summary & Conclusions

The Thematic Process Commission (TPC) held a total of ten in-person meetings and five video conferences during the two-year preparation period, which demonstrates the remarkable commitment of the Commission members.

In the preparatory process of the 7th World Water Forum, the TPC organized several important meetings or was actively involved in several, such as the Kick-off Meeting, the 2nd Stakeholders Consultation Meeting, the Design Group Coordinator Meeting, and the Implementation Roadmap Workshop, in order to ensure actual participation of many global stakeholders and commitments from them to the Thematic Process.

The 7th World Water Forum included: the Thematic Process Opening Session, 90 Issue Sessions, 16 Concluding Sessions, 20 Thematic Special Sessions, and the final event of Water Showcase World Final.

Among the many visible and meaningful outcomes of the Thematic Process, the establishment of the IRs and AMS was one of the most important achievements. The implementation of actual actions is based on the willingness of communities to practice those actions. In principal, the IRs were created by Design Groups of the Thematic Process who represent the expertise of a number of stakeholders.

Establishment of IR and AMS

The Thematic Process Commission can proudly say that one of the most fruitful results of the 7th World Water Forum is the 16 Roadmaps and their on-line based monitoring system.

The IRs themselves are an endeavor that can contribute SDG-related efforts in the global community. In order to highlight water issues in particular among the various agendas discussed within the SDGs and drive shifts in policy making and resource mobilization, providing valid and solid references are needed. In this regard, the IRs can support the SDGs and become a clear foundation for water policies and finance mobilization.

The IRs will contribute to making water-related SDGs operational while also creating a mechanism for tracking progress of the World Water Forum process until the 8th World Water Forum in Brazil in 2018. In order to do so, however, strong leadership and commitment of the government of Korea and World Water Council is needed. The former is expected to host on a regular basis a review meeting for IR stakeholders to evaluate and collect feedback on the progress of their respective IR and to update their IR in the AMS periodically.

It could be said that the role of the Thematic Process stood out at this World Water Forum. Even though the four major processes of this World Water Forum were developed independently of each other, mutual exchange and cooperation among the processes, especially between the Regional and Science and Technology Processes, were noticeably effective and smooth, which distinguished the 7th World Water Forum from previous World Water Forums. This cooperation was expressed in the joint Concluding Sessions among relevant topics in each Process. In addition, close communication methods with respect to Process Commission sessions were established and connections among different Processes were also solidified by holding Design Group coordinator meetings in order to establish a system of cooperation among Working Groups of each process.

From the beginning of the preparatory process, Korea as the host country of the 7th World Water Forum contributed to developing the global water agenda and at the same time made lots of efforts to develop a Korea-led water agenda by organizing various panel discussions and several agenda development meetings. Additionally, efforts were also made to lead the agenda development cooperation among government ministries associated with the major points of discussion of the previous World Water Forum. In order to do this, opinions of various domestic water sector stakeholders (academics, trade associations, businesses and civic society) were collected, and pending issues, experiences and success cases of Daegu and Gyeongbuk, the host cities, were fully shared.

Some difficult but important lessons learned from the preparation for and execution of the Thematic Process should be stated here for future World Water Forums. They are, among others:

- Effective linkage between relevant topics in each Process is important and should have been thoroughly planned before the World Water Forum and executed during the World Water Forum. One of the most effective ways to have effective linkages would be to facilitate communication among the relevant groups both in the Stakeholders Meetings and Working Groups Meetings. Then, they could have a Joint Session and Concluding Session, if necessary, during the World Water Forum. A joint Commission meeting would be a good opportunity for discussion of such Joint Issue Sessions and Concluding Sessions. In this Forum, only a Joint Working Groups Meeting and some Joint Concluding Sessions between relevant groups in each Process were materialized, which was less than hoped for.

- A stronger commitment among the Working Group members, especially by Theme and Issue Coordinators, to the World Water Forum process should be encouraged, although their participation is voluntary. Submission of final reports after the World Water Forum is lower than expected at 70%, and some Design Groups in the Thematic Process were very slow in completing their Roadmaps. Some Issue sessions did not produce any information introducing their session, despite several notices from the Commission before the World Water Forum.

Next Steps

Key achievements from the 7th World Water Forum included the development of 16 Implementation Roadmaps and the official declaration of the Daegu and Gyeongbuk Implementation Commitment to ensure actual implementation. However, the pressing issue today is the specific and actual execution of the IRs. Through execution, it is necessary to confirm that the world's water-related challenges are overcome and transformed in a positive direction, no matter how small the change may be. Working Groups of the 7th World Water Forum must continue to fulfil their roles, post-Forum follow-up action should be organized, and the WWC should continue to provide active support. In addition, the evaluation results of the AMS should be closely linked to the 8th World Water Forum, creating sustainable activities.

Furthermore, it is also necessary to try to utilize the IRs to contribute to the post-2015 SDGs.

* Session Outcomes

1. Issue Sessions

Action Goal 1: Water Security for All

Theme 1.1. Enough Safe Water for All

Issue 1.1.1 Safe Drinking Water for All: Realizing the Human Right to Water and Sanitation

Access to water and sanitation was recognized as a human right in 2010. Implementing this fundamental right is a legally binding obligation. This right entitles each person to have sufficient supply of water for personal and domestic uses, access to water of safe quality, being accessible physically and continuously, culturally

acceptable and affordable without discrimination. This session illustrated how policy frameworks can incorporate human rights considerations, present concrete examples of how provision of water services can be improved and how stakeholders' engagement can facilitate the implementation of the right to water.

Issue 1.1.2 Water Quality and Safety to Ensure Water Security for All Uses

This session aimed to provide a platform for discussion and exchange to highlight strategies and solutions to address the global water quality challenge for the Post-2015 sustainable development. A number of key presentations were presented, followed by an interactive multi-stakeholder panel discussion to bring different perspectives and different stakeholders. Examples of successful solutions and case-studies were also shared.

Issue 1.1.3 Non-conventional Water Supplies to Ensure Water Security for All: Filling the Demand Gap

In this session, various non-conventional water supplying approaches were presented and discussed with several actual examples. Sharing the various methodologies, experiences and network, the audiences and participants of this session were exposed to various useful alternatives for solving water deficiency issues which cannot be easily solved by conventional methods.

The presentation covered the challenges of water deficiency as well as the non-conventional responses to the challenges, which include rain water harvesting, non-conventional desalination, waste water recovery and so on. The discussion included open idea exchange for solving specific water deficiency problems raised by audiences and participants. The discussion could be extended further by establishing a global connection between people with water deficiency problems and idea/advice providers.

Issue 1.1.4 Innovative Water Services for Rural Areas and Slums

Despite the progress made in the world with respect to access to safe drinking water since the adoption of the MDGs in 2000, 768 million people still lack access to an improved source of drinking water; and extensive inequalities still exist. The majority of those without improved facilities has been poorer people living in rural or slums areas; they present very specific operational, institutional and social challenges to address.

This session focused on low-cost solutions to provide safe water, decentralized water supply approaches, and how these solutions could be implemented in rural areas, slums and low-income countries. After taking stock of the specific issues that need to be addressed in rural areas and urban slums, the session examined various "solutions" developed (low-cost and adapted technologies, community participation and management, financial inclusion, etc.).Following the case studies, a discussion allowed participants to develop and share a coherent and integrated strategy for ensuring vulnerable people from rural and slums areas in low-income countries to benefit from sustainable water services.

Issue 1.1.5 Enough Safe Water for All: Monitoring, Evaluation and Accountability in the Post-2015 Framework

The quality of sector policies, programming, financing, implementation, and long-term sustainability, as well as how countries enable access to information and participation, and how they manage to reach unserved and marginalized people, need to be monitored and evaluated. What information should be monitored in the post-2015 era to enable governments, civil society, development partners and individual households to make informed decisions to achieve the goal on "ensuring availability and sustainable management of water and sanitation for all," so as to realize universal access and the human right to water? How should this be captured at national and regional levels? What is the role of the different stakeholders, and in particular of civil society, in the monitoring and evaluation for a real universal access to water? With examples from Asia, Latin America and Africa, this session spanned three world regions and included stakeholders representing civil society, a multilateral development bank (AfDB) and policymakers represented by the African Ministers Council on Water (AMCOW).

Issue 1.1.6 Addressing Water Security Challenges: Case-studies and Sharing of Experiences on Providing Enough Safe Water for All

This session focused on discussing different aspects of water security by presenting case-studies and sharing concrete experiences on addressing water security challenges with emphasis on ensuring enough safe water for all uses. Case studies and concrete experiences on addressing different aspects of water security were presented with the aim to provide opportunities for knowledge and experience exchange based on shared benefits of cooperative knowledge exchange on water security challenges that would most likely affect developing countries and their development. The session also covered responses to addressing these challenges, including water-related environmental and social challenges, institutional development and capacity building. The case-studies were based on experiences of Centres of Excellence on Water from different parts of the world. The session also aimed to discuss key water security challenges and responses to addressing them drawing on results of the case-studies and practical experience.

Theme 1.2. Integrated Sanitation for All

Issue 1.2.1 Reaching Universal Access to Sanitation

The session set the scene for the integrated sanitation theme. The session first took stock of the overall status of sanitation development globally and, through high level keynote speakers, summarized the latest JMP and GLAAS assessments on progress being made and the emerging global architecture for giving due attention to sanitation. This was complemented by two

case studies of developing countries that are well on their way to achieve universal sanitation access. The session then broke the problem down into 3 special segments (urban, towns and rural) and examined the elements for success is each of these environments, each being complemented by cases where good progress has been achieved.

Issue 1.2.2 Faecal Sludge –The Sanitation Challenge beyond the Toilet

Contributions to this session covered all aspects of faecal sludge management (FSM), starting with pit/tank emptying, sludge treatment, as well as recovery and reuse options. Such sustainable sanitation solutions not only need innovative technical approaches, but must also include special consideration of economic, social, institutional/management, and legal issues as well private sector participation opportunities. Recovering the value in waste is one special aspect which enhances performance and viability and contributes to resource conservation. Following presentations, an interactive multi-stakeholder discussion panel elaborated on the importance of FSM as an integral part of the sanitation system and evidence of successful solutions.

Issue 1.2.3 Urban Sanitation and Protection of Receiving Waters: A Call for Progressive Implementation

While untreated wastewater is a global problem, its impact on people and environment varies across regions. Up to 90 percent of wastewater in developing countries flows untreated into rivers, lakes and highly productive coastal zones, threatening people's health, food security and access to safe drinking and bathing water. Accordingly, the scope of the session was to focus on the implementation and management of collective wastewater systems - from evacuation to treatment - closing the gap towards integrated sanitation for all.

Wastewater treatment schemes must meet the legal discharge standards, defined within the legislation of almost all countries. Those standards, however, are rarely met. Too often, standards achieve adverse effects, as they are considered unrealistic and any cost efficient intervention, improving the current situation but not meeting the discharge standard, would legally threaten its initiator. How can the principle of "progressive implementation" of the United Nations become part and parcel of the indicator and monitoring structure, allowing for a progressive treatment performance with a phased approach over the next 15 years?

Issue 1.2.4 Resource Recovery and Reuse: Inspiring Change towards a Circular Economy

Cities produce large amounts and very diverse types of waste including wastewater and faecal sludge. While the prospects for resource recovery from wastewater and sludge are promising, the potential is still largely untapped, except in the informal sector. The resources embedded in the approximately 330 km3/year of municipal wastewater that are globally generated (AQUASTAT) would be theoretically enough to irrigate and fertilize millions of hectares of crops and to produce biogas to supply energy for millions of households. However, only a tiny proportion of thiswastes is currently treated, and the portion which is safely reused is significantly smaller than the existing direct and especially indirect use of untreated wastewater, which are posing significant potential health risks.

Nevertheless there are already existing RRR success stories at scale (e.g. in Bangladesh, Mexico, Mongolia and Japan –presented in the session). To replicate these experiences in other localities and countries, the session participants identified the following enabling conditions:

- political will to invest in RRR policy formulation and implementation and to support RRR projects on the ground,
- sufficient data and knowledge on the amounts of wastewater and sludge produced, collected, treated and reused to identify problems and opportunities and to plan for investments.
- skilled policymakers for appropriate policy formulation and skilled practitioners for successful and sustainable RRR projects implementation
- flexible but clear polices, laws and regulations
- positive public acceptance of RRR solutions
- feasible business models for RRR and clear cost sharing and cost recovery mechanisms,
- clear roles and responsibilities of RRR stakeholders, including ministries of water, agriculture, environment and health

Issue 1.2.5 Integrated Sanitation: Vital in Urban Planning for Development

Integrated sanitation management requires integration both within the sanitation "value" chain and integration with other dimensions of urban development. This means that technical planning and political organization must go hand-in-hand. Integrated sanitation is of particular importance in dense urban and peri-urban settings, it is vital for public health, social cohesion, economic activity and healthy and pleasant environments. Collecting, controlling, conveying, treating and recovering all forms of waste/used water requires infrastructure that can be costly to build, complex to operate and that needs to work in conjunction with other infrastructure. In addition, all these forms of infrastructure have to evolve together in the context of the urban development that they serve. Sanitation infrastructure is also heavily dominated by the physical geography, morphology, climatic economic and social determinants of each individual urban context and is, therefore, very case and location specific.

The session concentrated on the difficult practical issues that face political leaders and city managers as they try to reconcile a wide range of different needs and viewpoints into a coherent and integrated strategy and action program on the basis of an entire city.

Theme 1.3. Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness

Issue 1.3.1 Water and Disaster: From Humanitarian Response to the Protection of Livelihood and Economies

Water, source of life, can also cause great disasters. Natural events (floods, droughts), manmade events (conflicts, population displacement) and water related diseases are increasing in frequency and intensity. Each year, over 300 million people are affected by these events, including more than 40 million for natural disasters. These crises need humanitarian interventions to help affected populations in terms of access to safe water, sanitation and hygiene. This humanitarian response must be coordinated, comprehensive, appropriate and immediate. It must involve many actors including the civil society, international and national NGOs, water ministries and local authorities, private sector actors, donors and finally UN agencies. To ensure humanitarian aid effectiveness, a proper response should be prepared well in advance by anticipating crisis and developing coordinated emergency response preparedness plans, at national and local levels.

Finally, the emergency response should be connected with the development agenda to ensure a smooth transition that will restore population in their initial condition. This transition from emergency, rehabilitation towards development should also aim to increase the resilience of the affected population to possible new crisis in the future.

Issue 1.3.2 Assessing, Mitigating, and Monitoring Risk with Use of Innovative Methodologies and Technologies

Over the past decades, natural hazards have considerably impacted our society and economy due to rapid human development. Furthermore, the impacts of climate change are becoming great risk. Since natural hazards have enormous threat worldwide, assessing, mitigating, preventing, and monitoring risk is crucial nowadays. This session will explore the innovative methodology and technology application in multi-hazard assessment, mitigation, and monitoring based on the experiences from multi-regions, such as Asian-Pacific and European countries.

The session presented the utilization of methodologies in understanding and analyzing the water-related risks, and technologies in providing effective preparation and efficient responses. The cases proposed in this session covered the aspects of sediment disaster, flooding, typhoon and hurricane, watershed management, and multi-hazard reduction/recovery and include good practices to be applied to other cases. These efforts can improve disaster readiness and resilience, and reduce potential damages and make this world safer from natural disasters.

Issue 1.3.3 Preparedness, Response and Adaptation against Extreme Flood under Climate Change

For a long time, many countries, especially in Asia and the Pacific, have suffered from flood, causing heavy socio-economic damages. Even though most countries have depended on existing flood control measurements so far, it has become necessary to develop more advanced strategies and techniques to respond to extreme floods. In addition, the number of countries experiencing heavy rainfall and extreme floods enforced by climate change has been increasing. As they establish the guidelines and advanced systems to respond to extreme flood, many countries will be able to identify the decrease in socio-economic damages caused by extreme flood. Also, they will enhance their disaster risk management capacity.

This session aimed to diagnose the current status and provide a comprehensive guideline to cope with extreme floods based on a manual establishment and infrastructure management to recover from damage; it also examined how proper extreme flood management will contribute to achieve sustainable development.

Issue 1.3.4 Adapting to Climate Change: Focus on Disaster Risk Prevention with a Long-term Perspective

Working towards preventive action requires a reframing of the paradigm of disaster risk management from a traditional focus on mitigating the impacts of disasters using stand-alone and ad hoc interventions to a broad focus on prevention, mitigation, preparedness, and vulnerability reduction. This includes recognizing that disaster risk management faces high uncertainties, especially in the long term, and is, therefore an iterative effort that includes experimentation and learning. Therefore, preventive action against disasters requires a long-term development perspective. It needs to be embedded in an integrated process that incorporates water resources management and climate adaptation processes, and mainstreamed into national planning processes.

The session aimed to increase awareness of the increasing disaster risks as a result of climate change, and to share and discuss perspectives on the issue. The session provided a response to disasters through an approach that takes a long-term perspective and aims at preventing and mitigating the effects of extreme events. The approach and the associated requirements are explained and highlighted through concrete examples. The session will also discuss how infrastructure can provide solutions for both water management and disaster response/prevention but can also "lock in" certain solutions.

Issue 1.3.5 Enhancing Resilience through Robust Water Policies and Appropriate Water Management

This session sought to foster a dialogue between the audience and the speakers on the emergence of new issues and new solutions that enable the practical implementation of climate adaptation of water resources. Furthermore, the interactive panel session aimed to contribute to develop climate adaptation feedback mechanisms in the context of upcoming SDGs. The session spanned a wide variety of institutions, regions, technical disciplines, and policy approaches.

Issue 1.3.6 Climate Change Adaptation in Basins: Examples and Good Practices

The session gave an overview of the most important lessons learned from adaptation in basins and presented the experiences gained though concrete cases from various basins in the world. Concrete adaptation measures with basin-wide benefits were presented, such as ecosystem-based adaptation, improving data and information exchange and awareness-raising activities. Special attention was paid to emerging issues such as linking basin-wide, national and local adaptation and increasing synergies and managing tradeoffs between adaptation and mitigation.

Issue 1.3.7. Urban Flood Resiliency through Adaptation to Climate Uncertainties

The session explained the concept of flood/disaster risk management and strategies. It provided broadly applicable methods to quantify flood resiliency and mitigate vulnerability considering inter-dependencies in urban systems. Coupled modelling of inland and coastal flooding and sea level rise under the effect of climate change was also discussed. Real world examples included New York City, New Orleans and other areas where flood disasters have recently occurred. Case studies from US, Turkey, Iran, Mexico, and Brazil were presented and debated.

Theme 1.4. Infrastructure for Sustainable Water Resource Management and Services

Issue 1.4.1 Strategies and Planning for Sustainable Water Infrastructure Development: Laying down the Foundation for Our Future

The purpose of this session was to share and exchange useful knowledge and experience regarding the development strategy and planning of sustainable water infrastructure and services. Representatives of government authorities and public utilities of China, Spain, US, Mexico and Korea as well as delegates from ICOLD were the speakers and panelists of the session; they shared their ideas and experiences with sustainable water infrastructure development as representatives of developing and developed countries.

Issue 1.4.2 Water Storage Infrastructures for UN Sustainable Development Goals

Per capita water storage capacity has been decreasing since the 1980s. To achieve the UN's SDGs on water, food and energy, it will be necessary to increase storage capacity in a more sustainable and balanced manner. The objective of this session was to discuss the needs for storage capacity and to prepare a quantitative evaluation of those needs for the coming September UN meeting.

Issue 1.4.3 The Role of Water Storage on Climate Change Adaptation

Storage structures can play an important role in the future to mitigate and adapt to the potential adverse impacts of climate change and variability. Storage reservoirs can also make positive contributions to water management within the framework of sustainable development, so as to promote socioeconomic development and alleviate poverty. The roles of reservoir storage for adaptation to climate change and variability, as well as their policy implications for water management, within the framework of sustainable development were evaluated according to the issues listed below:

- Potential impacts (both positive and negative) of climatic and non-climatic factors on reservoirs and vice versa;
- Policy frameworks, management structures and implementation instruments;
- Challenges faced and lessons learned on construction and operation of reservoirs, given sometimes conflicting legislation and institutional frameworks for water supply, irrigation, energy generation, social development and protection of the environment;
- Adaptation and mitigation mechanisms for socio-economic and environmental challenges resulting from specific reservoirs;
- Drivers for water resources policy, management and development from within and outside the water sector and their impacts on policy making of reservoirs and in the context of climate change

Issue 1.4.4 Scaling-up Investments in Natural Infrastructure

As water becomes scarce or polluted and flooding becomes a bigger risk, the tendency is to look towards hard infrastructure solutions. However, natural infrastructure, as a substitute or complement to traditional 'hard' infrastructure offers solutions and multiple benefits to society. Restoring rivers or better managing wetlands as natural infrastructure is often a more cost-effective option than hard infrastructure alone, providing a range of benefits for ecosystems and sustainable development. At least 50% of the world's freshwater or wetland ecosystem services have been degraded over the past century and the costs to society are huge and growing. Many stakeholders are realizing that a portfolio of built and natural infrastructure is urgently needed. Business has a key role to play in implementing natural infrastructure solutions. This session explored the key challenges to realizing natural infrastructure based solutions and a cross section of business, government and civil society will share experiences. The financial, governance and technical challenges and opportunities were explored, and participants debated what is most needed to scale up and sustain these efforts.

Issue 1.4.5 Stakeholder participation and raising finance for the Integrated Water Resources Management (IWRM) of the world's lake basins

Freshwater accounts for only 2.5% of water on the earth, and lakes and rivers provide 90% of this fresh water stock and support life in

a variety of ways. They support such things as the fishing industry, agriculture, the ecosystem and a beautiful range of scenery, life and culture. However, lakes in enclosed areas are easily contaminated and have difficulty recovering once contaminated. Lakes are a barometer that reflects sensitive environmental changes such as global warming or climate change. However, common ground between government, civil society and other stake holders cannot be found in order to reach an agreement about how to raise the funding necessary to protect the ecosystem services of the "lakes and marshes and the rivers and inland seas that are connected to them."

IWRM in lakes basins involves: 1) water quality, water quantity and water circulation (lakes, rivers, inland sea, and groundwater), conservation and maintenance and use of efficiency, fairness; 2) striking a balance between water use and ecosystems; 3) development and the environment, biodiversity sustainability, and various measures for implementation. When the strategy is divided to large enclosed, organizations policy should focus on three pillars of "hardware", "software" and "heart-ware". "Hardware" consists of things such as 4) flood control and purification technology, also consisting of financial support for the funding of "software", and the people's feelings to protect the nature which we call "Heart-ware".

Issue 1.4.6 Adaptable Management Strategies for Ageing Water Infrastructures

Water infrastructure has contributed both directly and indirectly to growth of a nation, and is considered one of the indicators to assess industrialization. Thus, each country has built many and various water infrastructures, such as dams, water supply and sanitation facilities, canals, etc., so far, particularly in the 1900s. However, as time goes, water-related infrastructures age over time and reveal their vulnerability to constant disruption. Consequently, both developed and developing countries are seeking better ways to cope with the overwhelming threats to those infrastructures of which performance can be affected by common environmental conditions, extreme natural hazards, terrorism, and ageing effects. Especially, dam facility ageing is a key issue to be investigated and solved in every country in terms of technology and socio-economy, because it may be a main cause of dam failure which results in catastrophic loss of life and property downstream. However the methods that developing countries choose to use should be different from those of developed nations because of gaps in technology and economy. This reality requires both developing and developed countries to find "adaptable" management strategies for ageing of water infrastructures. Hence, the objectives of this session were to share and exchange the useful knowledge and experience in developing strategies and technologies, specifically focusing ageing of dam, adaptable to developed or developing nations.

Issue 1.4.7 Water Infrastructure for Sustainable Transport and Economic Development

Using waterways to transport goods and people contributes directly to both economic development and sustainability. Improvements in rivers to support year-round navigation have opened up regions, stimulated economic development, and connected people and their goods with the markets of the world, thus contributing to the Millennium goal of reducing poverty. Inland waterborne transports inherent efficiency also translates to lower energy use and lower emissions for each ton transported, as compared to other modes, thus advancing environmental sustainability. Moving more goods on water also can reduce congestion on alternate modes. This session will show how inland waterborne transport is advanced and improved by the international technical collaboration led by PIANC, the World Association for Waterborne Transport Infrastructure.

Globalization is driving increased trade and the need to use rivers to connect the hinterland, and even land-locked countries, to seaports. The stakeholders in river navigation around the world face similar problems, including safety, accident prevention, and protection of the environment. More pooling of knowledge and experience, and the creation of a global framework for analysis and thought, as can be done at the World Water Forum, would make it possible to further promote and advance the environmentally-friendly dimension of this very important water use, water for transport.

ACTION GOAL II: Water for Development and Prosperity

Theme 2.1. Water for Food

Issue 2.1.1. Making Every Drop Count: Best Available Technology in Irrigated Agriculture

Appropriate technology can make every drop of water count. Best Available Technology (BAT) has helped create the regional phenomenon of 17% of cultivated land producing nearly 50% of total crop revenue through irrigation. BAT serves the rain fed environment, small scale as well as production agriculture, and well-resourced and less well economically supported regions. The BAT session demonstrated steps to move water use technological solutions to the action stage in the face of increasing significant drought, changing rainfall patterns, expansion of groundwater utilization, and climate-induced heightened evapotranspiration affecting plant health and productivity. Current technology applied in appropriate ways has the capacity to sustain water resources, enhance water efficiency and complement the creation/repair of critical infrastructure in irrigation and other-use water distribution systems. Participants from government, NGOs, business R&D, and university sectors will examine the utilization of improved technology across a wide range of environments and economic/cultural settings, integrating aspects of the most advanced sensing tools and enhanced classic approaches to

delivering water for nutritious and sustainable agriculture in South, Southeast and North Asia, Sub-Saharan Africa, MENA, and the Western Hemisphere.

Issue 2.1.2. Water Quality Management for Agriculture and Environment - Will Clean Water Be a Future Luxury?
Even with substantial investments in environmental conservation, particularly improvements in nutrient use efficiency and wastewater treatment, water quality is still projected to deteriorate dramatically over the coming decades, adversely affecting agriculture, fisheries and aquaculture, livelihoods and ecosystems. This alarming trend calls for a rethinking of our current development pathway, and even greater investments in the environment and water supply infrastructure and management. Several technological, policy and institutional solutions exist but have yet to be applied. This session addressed the following topics:
1) Water quality? Status and trends
2) Balancing agricultural, fisheries, aquaculture and forestry and ecosystem services
3) Technologies for water quality management
4) Economic incentives and markets for reducing water pollution

Issue 2.1.3. Modernization of Irrigation/Drainage Schemes for Food Security, Rural Prosperity and Poverty Alleviation
Irrigation is crucial in enhancing economies and rural poverty alleviation. However, additional measures are urgently needed to mitigate disasters caused by recurrent extreme events. The session focused on identifying future priorities in irrigation and drainage services, including;
1) Infrastructure development and upgrading
2) Service provision and improvement with proper water management techniques
3) Institutional arrangements and reform
4) Organizational management
The session reviewed existing irrigation and drainage services from the viewpoint of: socio/economic transitions; climate change; multiple uses of water services; and investment needs. These assessments will identify necessary practical actions to be taken by stakeholders to ensure irrigation and drainage sustains and increases its contribution to food security, vibrant rural economies and poverty alleviation. These actions will be incorporated into the implementation roadmap to be monitored by AMS.

Issue 2.1.4. Adapting to Change for Sustainable Water Use in Agriculture
Between now and 2050, FAO projects that globally 60% more food needs to be produced to satisfy a population of more than 9 billion people. For developing countries, it is estimated that their food production needs to be doubled. Irrigated agriculture covers only 20% of global cropped area, but it produces around 40% of global food. Not including climate change, it is estimated that the amount of water that needs to be withdrawn for agriculture could increase by about 10 - 15%. Agriculture's current water use is already unsustainable. Many large canal scale irrigation schemes are under-performing providing unreliable water services.

The session focused on identifying context and appropriate options for adaptation to changing environmental circumstances along three levels.
1) Farm-level (satisfying food needs, generating income (including exit strategies), reduce adverse environmental impacts);
2) System level (infrastructure, water productivity, floods and drought management, safeguarding natural ecosystems);
3) Strategic or planning level (in- and intensification of (irrigated) agriculture, supporting policies and incentives, research priorities, infra-structure development, water management and governance).

Issue 2.1.5. Innovation in Water Smart Agriculture: Working from the Ground Up
The objectives of this session were to share best practices, to critically engage the water community more fully in agricultural water management challenges, and to increase knowledge of ways to support farmers globally. Outcomes included:
- Begin the process of developing a global 'Water Smart Agriculture' community of practice that links research and practical demonstrations of capacity development, as well as policy makers and private sector perspectives on water management capacity building for farmers.
- Share case studies and experiences leading to a more informed global debate.

Theme 2.2. Water and Energy

Issue 2.2.1. Energy for Water
Different sectors have implemented treatment design concepts or specific technologies to achieve significant reductions in their energy and carbon footprint. Many of these measures are economically beneficial, which is the main driver for change. This session examined and exchanged knowledge on strategies and management requirements to achieve a reduction in the energy footprint of systems that use energy to convey and treat water for irrigation, industrial and domestic uses. However the focus of the discussion was on how water and energy footprints can be further minimized by synergies between these interlinked sectors.
In this session, the policies and incentives were discussed sector by sector, but also in a trans-sectoral approach to identifying the benefits and bottlenecks (institutional, regulatory) of water-energy minimization and cross-sectoral synergies.

Issue 2.2.2. Water for Energy
In the energy sector, water is used from sourcing to production, for example in extraction of different fuels (oil, gas, bio-fuels, uranium, etc.), energy production (cooling systems etc.) and conversion,

refining, storage, and transportation amongst others. In a context of an increasing pressure on resources combined with global and climate change, as energy production is in most cases impossible without water, linkages between both energy and water systems have grown more complex and interdependent. According to the World Energy Council (ref. World Energy Council, Water for Energy, 2010), water must be viewed as a complex vulnerability of the energy system (and vice versa).
Unfortunately, in many regions, water use planning and energy production policies are not fully integrated and there is still a need for an optimization of current practices to make water use and provision for energy as efficient as possible in order to keep energy impacts on water (and ecosystems including humans) at a minimum. Being able to estimate the energy sector's interactions with water is therefore a crucial challenge in order to contribute to a sustainable future in respect to human rights.

Issue 2.2.3. Putting the Water-Energy Nexus into Practice. Economic and Policy Incentives
Energy supports water treatment and distribution, while water supports the production of energy such as hydropower and cooling of thermal power plants. Other sectors such as the extractives industry and food production require both energy and water. As populations increase and the climate has become increasingly unpredictable, the demands on these finite resources threaten to push the limits of what the environment can sustain.
This session explored how institutional arrangements and a process of collaboration can develop joint solutions leading to shared benefits across the water, energy, and food sectors. Experiences and examples of reconciling different water uses from the local to transboundary level were shared effectively.

Issue 2.2.4. Multipurpose Uses and Services of Hydropower Reservoirs
Amidst the controversy over dam projects, it is important to recognize that hydropower reservoirs can significantly contribute to services beyond energy production. Existing reservoirs increasingly support regional water security in the context of the water-food-energy-environment nexus and provide socio-economic and environmental water services. Whilst hydropower faces the imperative to move from renewable to sustainable, avoidance and minimization of environmental and social risks, stakeholder consultation and engagement, benefit sharing, and good governance are all essential to foster better project outcomes. This session addressed the trade-offs between competing demands and objectives, policies, tools and financing arrangements to encourage sustainability and multiple benefits.

Issue 2.2.5. Off-grid Water and Energy Solutions in Developing Countries
Water and wastewater systems are usually managed as networks, connected to the electricity grid for pumping, treatment and monitoring requirements. Newer technologies provide access to off-grid power for remote areas which can be used to improve the existing water supply and sanitation situation. Small decentralized wastewater treatment systems producing energy may further ensure a higher quality of water supply and sanitation.
In many situations, planning of these off-grid systems should be integrated with future development of urban networks in a regional planning approach as urban areas may expand to these off-grid locations. These decentralized and energy independent water systems should also be considered sometimes for expanding urban areas and addressing the informal settlements water services, which are off-grid systems within urban areas.
This session focused on identifying the levers and bottlenecks for such off-grid water and sanitation systems in terms of institutional and regulatory framework, financial mechanisms, social acceptance and project ownership.

Theme 2.3. Water and Cities

Issue 2.3.1. Water Security for Cities through Integrated Urban Planning and Services
The session was the Opening Session for the theme of "Water and Cities" and set the scene of cities in 2030 so that the discussions of the following issue sessions could focus on answering how to best prepare ourselves for this upcoming context. It covered the urban water challenges and introduced the importance of integrated approaches at the level of the water cycle - integrating sanitation, water supply and drainage, and at the level of the city planning - integrating the water cycle in the shape and design of the city, with an urban ecosystems approach.
The session also called for facilitating dialogue and partnerships between local authorities, urban planners and water practitioners to tackle the urban water challenges and increase opportunities to improve access to water and sanitation and showcase the good examples of such partnerships.

Issue 2.3.2. Adaptation to Climate Change: Increasing Cities Resilience
In the Northern hemisphere as well as in the South, cities are significantly exposed to climate change. The increase of the frequency and the intensity of extreme rainy events and their consequences, particularly flood surge, could have important impacts on human capital, especially as the urban population is expected to double by 2050. Climate change will also have strong impacts regarding capital goods, with an estimated amount of 4 000 billion assets at risk in cities by 2030.Impacts of natural hazards, including storm surges, heat stress, extreme precipitation, inland and coastal flooding, landslides, drought, increased aridity and water scarcity, are increasing exponentially in urban areas which house a large proportion of economic activities.
Facing this risk, the challenge consists of implementing rainwater management solutions allowing the increase of urban resilience

towards heavy rainy events, while limiting the investments to be realized on the wastewater drainage systems. Several large urban areas have already implemented flood control solutions based on a global approach, combining rain and flood forecast models, smart grids technologies, decision support systems and customer crisis management tools.

Issue 2.3.3. Water and Sanitation Operators: Capacity for an Urban Era

Urban water and sanitation operators have a formidable challenge keeping up with growing demand for services, particularly in the parts of the planet where urbanization is fastest. Water scarcity, increasing pollution and climate uncertainty are compounding the already difficult challenge of serving city dwellers fairly and sustainably. In the post-2015 development framework, the call for greater attention to water quality, wastewater treatment and equity, among other valid concerns, will fall heavily to operators that are overwhelmingly under-capacitated to address the challenge. The Capacity development of water and sanitation operators, working closely with other urban water and land managers in an integrated manner needs to be elevated urgently among international priorities. The session aimed to discuss the challenges that urban water and sanitation operators will face in this urban future and discuss possible solutions to address these challenges.

Issue 2.3.4. Built and Natural Infrastructure for Water Secure Cities

Water security for cities can be achieved by realizing that the water cycle is a natural system that is severely impacted by urbanization. Many stakeholders impact this water cycle upstream, within and downstream of a city and the governance across the water cycle has evolved as our cities have grown and now often provides an impediment to integrated water management.

The session focused on how cities can reconnect to the natural water cycle by finding the right balance between built-grey, natural-green, and water-blue infrastructures. This integration of grey, green and blue is necessary to improve water-related risk resiliency by connecting the city to its catchment and recognizing that water flows shape the city. It also improves livability, and contributes to a less resource consumptive city by enabling rain water harvesting, close loops recycling, and nutrient recovery.

Issue 2.3.5. Recycling and Reuse – Resource Positive for Cities

Rapid urbanization, aggravated by the impacts of climate change, is leading to unseen pressure on finite resources. Change of model for cities utilities is a fundamental need to relieve the pressure on resources, including energy and water resources. Municipalities and local industries must optimize their resources management with an integrated water/waste/energy approach. This entails a suite of actions to collect and treat polluted water, to reuse wastewater and consider it a wealth of energy, to manage peak and average demands, with a view to control the energy consumption and CO2 emissions.

Comprehensive series of solutions exist to respond to global challenges in cities. Recycling and reuse could be a first step to rethink the relationship between cities and resources and to come up with new social and economic growth models that are more efficient, better balanced and more sustainable.

Issue 2.3.6. Information and Communication Technologies effectively Used to Achieve Water Security -"The Smart City"(Jointed with S.4.6 of Science & Technology Process)

This session focused on identifying how ICT can assist cities in this transversal approach. A summary of the STP session on ICT and a series of case studies shared the levers and bottlenecks they identified, and how it was enabled integration of services and ultimately improved services. Group discussions focused on identifying the benefits, bottlenecks and enablers of implementing ICT projects improving health, resiliency, efficiency, resource recovery, and integrated services, as well as the decision-making process and whether top-down policy or bottom up customer behavior have most influenced the technology uptake.

ACTION GOAL III: Water for Sustainability: Harmonizing Humans and Nature

Theme 3.1. Green Growth, Water Stewardship and Industry

Issue 3.1.1. Water, the Impetus for Green Growth?

In response to increasing population, rapid urbanization and unpredictable climate change, it is essential to adopt green growth as a new development strategy. Unsustainable business-as-usual approach and "growth first, clean up later" paradigms needs to be changed to decouple economic growth and environmental sustainability. Green growth policy is a response to the traditional growth patterns. It can be a pathway for sustainable development in economic, environmental and social aspects. To make green growth happen, greater recognition on water and appropriate policy options which are tailored to each countries context are necessary with special attention paid to it by policy decision makers. In this regard, this session cast light on what policy options could be effective to manage water for green growth and provide opportunities for the participants, influential experts, and authorities to share different perspectives on the issue.

Issue 3.1.2. Public Private Partnership

The importance of funding for water resources management is growing. Most investment in water has been done mainly by the public sector because water has been considered as a public good. Hence, the public sector has invested a lot of money in the water sector to provide high quality water for domestic, industrial and agricultural uses. However, the public sector investment has limitations particularly in developing countries. Also, the private sector is realizing that water is one of the most critical issues to

decide business sustainability and that it can significantly affect business.

Hence, the private sector has joined in the sustainable management of water resources. Nowadays there are many success stories in public-private partnerships in water resources management. Beyond the investment in management of water resources, private sectors are participating in capacity building, innovation in tools and stakeholder engagement. This session showcased the theory of public-private partnerships, success stories and lessons learnt from existing partnerships.

Issue 3.1.3. Water Stewardship: Can Voluntary Collective Action Meet the Needs of Vulnerable Communities and Major Water Users?

To-date, water stewardship initiatives have focused strongly on major corporations, helping them to understand and their water use within a catchment context, and take initial steps to improve their performance. An evidence base is emerging that strengthens the case for major corporations to engage in water stewardship. Nevertheless, as an evolving approach that is focused on long-term sustainability outcomes, much remains to be learned about how effective water stewardship has been at meeting diverse needs in often challenging contexts. In particular, the ability of water stewardship to simultaneously support the needs of both vulnerable communities and major water users needs to be better understood.

Using information technology to tell real life stories from different contexts and an interactive panel discussion, this session assessed water stewardships contribution thus far, reveal shortcomings and highlight opportunities for improvement.

Issue 3.1.4. Co-optimized Solutions that Close the Water-Energy Loop – Reducing Impacts and Driving Value from Waste

Useful resources are being wasted through inefficiencies and linear business models. Given the current trends of increasing demands and increasingly constraining supplies, focusing solely on efficiency is an insufficient response. Responses need to rethink the systems, which enable our way of life in order to recover and reuse resources to reduce impacts and capture value from waste. By working collaboratively at a systems level, we can reveal new opportunities for valuable and co-optimized solutions, avoiding end-of-pipe fixes that simply shift impact to another part of the value-chain. This session discussed practical cases of holistic approaches that could give rise to circular solutions capable of breaking through the silos of water, energy and waste.

Issue 3.1.5. Valuing Freshwater Ecosystems: Building the Economic Case for Protection and Restoration

Each year, Earth's water systems produce trillions of dollars' worth of free goods and services essential to a well-functioning global economy. However, this value has largely been left unaccounted for in business decisions and market transactions. Fortunately, a growing number of stakeholders recognize the value that natural resources and services provide for free, and the need to safeguard and restore them.

This session explored advances that are helping stakeholders establish an economic case for investment in the protection and restoration of freshwater ecosystems in light of inherent trade-offs among competing water uses. Discussions also explored opportunities and challenges around justifying, stabilizing, and leveraging investment in freshwater sustainability efforts.

Theme 3.2. Managing and Restoring Ecosystems for Water Services and Biodiversity

Issue 3.2.1. Setting the Scene: Reviewing and Assessing the Current State of Ecosystems and Risks to Water Security

This session provided a global overview of the situation of the topic 'managing and restoring ecosystems for water services and biodiversity'. It provided a perspective on the major global trends impacting freshwater systems, the state of water-related ecosystems, and the anticipated impacts for people and nature. This session examined issues from the intergovernmental level, and is also based on sound science and assessments from different disciplines and geographical locations.

Issue 3.2.2. Location-specific Challenges and Opportunities for Management and Restoration

This session was designed to provide location-specific examples that highlight impacts, pressures and assessment of trends, all of which are important to efforts taken to manage and restore aquatic ecosystems (rivers and wetlands). Some of the key dimensions to be considered include impacts of water resources development and climate change on flows and ecological productivity of the Mekong River, and the significance of assessment on ecological change in the context of managing rivers in Korea and streams as a result of large-scaled river restoration project.

Key lessons learned from desert ecosystems and continuous efforts to promote national water reserve including wetland ecosystems were also addressed based on the cases in North America. In addition, valuable insights on the optimization of social and ecological benefits to restore lake ecosystems were introduced; an example is Balkan lake. Finally the environmental impact of artificial flooding pulses on the natural recruitments of fish was discussed as an example of large-scale riverine system in China.

Issue 3.2.3. Establishing the Foundations for Success: the Science, Benefits and Relevance of Eco-Hydrology

Ecohydrological applications use hydrological processes and ecosystem properties interplay as management tools which are becoming important measures in the course of increasing global human impact. Especially because there is increasing evidence that the cumulative effect of intermediate and dispersed

pollution leakage from the catchment to receiving freshwater ecosystems is much larger than the sum of high impacts from point sources of pollution. A novel approach for solving this problem in the framework of IWRM is provided by ecohydrology as formulated within UNESCO-IHP. Ecohydrology theory makes use of understanding the interplay of hydrological and ecological processes from molecular to catchment scales to regulate and enhance catchment carrying capacity, i.e. water resources, biodiversity, ecosystem services for society and resilience.
This session examined approaches, principles and experiences in management and restoration that have the potential to be applied or scaled across multiple locations. Current ecohydrology theory and practices were introduced through a series of case studies in the framework of UNESCO-IHP, illustrating harmonization of biotechnological measures with hydroengineering in Europe, Africa, and Asia.

Issue 3.2.4. Available Tools, Methods, Approaches and Platforms for Scaling Improved Management and Restoration of Ecosystems for Water Services and Biodiversity
To deliver water services from ecosystems, and to sustain biodiversity, it is necessary to understand and then address the drivers of ecosystem loss, and design plans for management and restoration that are tailored to the particular conditions that exist in a specific location.
Speakers in this session used examples to illustrate the importance of using the appropriate public policies (e.g. water allocations), financing (e.g. Global Environment Facility), use of technology (e.g. satellites), capacity building (e.g. through networks of practitioners), and project design approaches (e.g. targeting appropriate interventions)to deliver the required progress and impact.

Issue 3.2.5. Scaling Impact and Collective Implementation, to Manage and Restore Ecosystems for Water Services and Biodiversity
The session provided a guided discussion among participants to identify how to scale positive impact on ecosystems for water services and biodiversity through implementation of key interrelated activities. Following a series of presentations from different organizations that highlighted scaling-up strategies and lessons learned, a Panel of presenters and invited experts were asked to respond to the lessons presented in the presentations. Audience and Panel engagement took place through questions from the floor and moderated discussion. Key lessons on scaling up for water services and co-benefits for ecosystem and biodiversity will be taken forward into the Implementation Roadmap.

Theme 3.3. Ensuring Water Quality from Ridge to Reef

Issue 3.3.1. Water Quality: Smarter Use for Water Security
Water quality has emerged in recent years as a crucial consideration in the paradigm of water management, as views shift from a singular focus on quantity requirements and infrastructure to a more balanced and multidimensional approach to the research, policy and governance of water resources. As the world's water resources face ever increasing pressures, it is becoming ever more urgent to use water smarter. An important approach in achieving this is to use appropriate water qualities for different uses - domestic, agriculture, industry, energy and ecosystems. Despite varying requirements between uses, water quality indicators and criteria, defined in relation to the particular sensitivities and requirements of each use, are not readily defined or widely accessible.

Issue 3.3.2. Monitoring and Reporting of Water Quality
Water quality monitoring at all levels - from Ridge to Reef - is paramount to our ability to better manage the world's precious fresh water resources and to guarantee access to safe drinking water. However, the availability of timely, reliable and accurate water data is limited. As a result, our understanding of the current state of the water quality situation across the various sectors and geographic scales (from local to global) is inadequate. While the global community is about to set targets for water quality management under the SDG framework, there is an urgent need for developing appropriate indicators as well as monitoring and reporting approaches/tools for tracking the progress on the water quality targets.
The session aimed to identify present bottlenecks as well as promising approaches and best practices in water quality monitoring and reporting which are worthwhile to consider for further upscaling and implementation. At the same time, innovative approaches from science and technology might contribute to overcome existing bottlenecks, e.g. by improving real time sharing of data, "poor-mans" observations, and the use of a multi-model ensemble. The session aimed to also identify regional and global alliances (WMO, UNEP) to make such innovations happen.

Issue 3.3.3. Strengthening Frameworks for Governing and Managing Water Quality
Good water quality is essential for humans as well as the ecosystem. Due to its diverse and complex nature, a holistic approach among different sectors and stakeholders is required to improve water quality. However, such an integrated approach often faces significant challenges during implementation. The value and priority of water quality differs in environment, agriculture, industry, energy etc. Legal, institutional and financial problems can emerge during the implementation of water quality policy. Therefore, we need a solid but flexible framework to consolidate various stakeholders and coordinate their interests.
This session explored the good examples of water quality governance at national, regional and international levels. Participants discussed the core factors of water quality governance and drew insight on water quality policies. Those lesson can be applied by the audience to devise their water quality policies in a

more integrated and sustainable way.

Issue 3.3.4. Sustainable Wastewater Management and Reuse
Lack of sustainable wastewater management has direct impact on aquatic ecosystems, disrupting the fundamental integrity of our life support systems. Properly managed, wastewater is a huge source of water, energy and nutrients. Wastewater sludge can be used to manufacture construction materials to generate biogas and biofuel, providing opportunities for green employment and social well-being, turning a harmful pollutant into a valuable resource. This session showcased that an integrated wastewater management is possible. For that, it is important to have technological capabilities, right rules and regulations, supportive policies and financial mechanisms.
In this session, outcomes from studies conducted by UNEP/GPA, Global Wastewater Initiative (GW2I) were presented to demonstrate how these elements can be integrated. Several case studies from different regions were presented, including wastewater management and reuse applications in Turkey and the example of West Basin in California (US) on fit- for- purpose wastewater treatment for multiple benefits of water reuse in different domains (irrigation, industrial, and environmental restoration).

Issue 3.3.5. Green Investment for Blue Economy – Managing Sources for Coastal and Marine Water Quality Improvements
Coastal areas include some of the most dynamic, attractive, vulnerable, and densely populated regions on Earth and are greatly impacted by activities upstream. Marine and coastal resources provide at least $3 trillion annually in economic goods and services and an estimated $20.9 trillion per year in non-market ecosystem services (Costanza 1997, UNDP 2012). They represent enormous assets and opportunities for local and global economy, but deteriorating water quality and changes in the sediment loads result in dramatic and negative impacts (in these areas). The cumulative economic impact of poor ocean management practices is at least $200 billion dollars per year (UNDP 2012, p 6). To better realize "blue economy", "green investments" in basins can help ensure that healthy coastal and marine systems can continue to catalyze economic development.
In 2014, an Action Platform on Source to Sea Management was established to support integrated and innovative approaches to governance and management from source to sea. This session explored ways to make use of green investment to combat water quality degradation downstream and realize blue economy potential.

Theme 3.4. SMART Implementation of IWRM

Issue 3.4.1. Integrated Joint Management of Rivers, Lakes and Aquifers at Basins Level
This session presented lessons learned from fifty years of successful field experiences in integrated management of rivers, lakes and aquifers by basin organizations. It gave recommendations on how to develop multi-level geographic and political approaches and multi-economic sectors involvement.

Issue 3.4.2. Implementing IWRM especially for Transition Countries
Transition countries are faced with different water management tasks. Some need to resolve fundamental issues (e.g. access to healthy drinking water), while others must go to the very limit of or even beyond their spending ability (e.g. water quality protection and flood protection). In general, the majority of specific water management issues need to be resolved and concrete mechanisms established to enable substantial improvement in the status of water resources on the planet as a whole and in various regions. The above requires appropriate organization of local water management, addressing the nature of water management, capacities, implementation bodies, funding, and approaches to regional and global water management.
Regional water management needs to be consistent with the objectives of overall regional development (river basin and natural basin), keeping in mind both universal and specific criteria, as well as the special circumstances of different entities.

Issue 3.4.3. Catchment Approach for Decentralization of Integrated Water Resource Management
Recognizing the key role of water in sustaining human and environmental development, there is a need to provide a whole catchment water systems framework to tackle water problems in a decentralized manner, bringing on board individual water services in a cross-disciplinary manner. Focus needs to include complex relationships between hydrological processes, water resources management, ecology, socio-economics and policy-making.
The principal objective of this session was to showcase how international programs such as the Hydrology for Environment, Life and Policy (HELP), Ecohydrology approach of the UNESCOs International hydrological Program as well as catchment/basin planning tools could be used to promote cost-effective and user oriented IWRM and to ensure water security at national, regional and global levels. The decentralized IWRM approach needs to maximize environmental, economic and social welfare in an equitable manner across the catchment.

Issue 3.4.4. Knowledge Base for IWRM
In this decade, many initiatives and networks to improve IWRM have been established, and knowledge on implementation of IWRM including the latest science technology has now been shared. In addition, the majority of counties have introduced the concept of IWRM in their water policy. In this way, IWRM and its advantages have already been well known in the water sector, and we've already entered the stage of discussion on implementation of IWRM. On the other hand, unexpected phenomena such as serious water-related disasters caused by climate change have emerged everywhere on Earth. Issues on water will go from bad to

worse due to rapid economic and population growth. To address these complex issues, the session focused on IWRM approaches such as concept of stakeholder engagement
The final report of the Open Working Group on Sustainable Development Goals states "by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate." This was supported by the Synthesis report of the Secretary-General on the Post-2015 Sustainable Development Agenda which was resolved on December 4th, 2014. To achieve this proposed goal, it is high time to mobilize existing knowledge on IWRM.

Issue 3.4.5. IWRM Directions for post-2015 Development Agenda
Water features strongly in the final proposals for Sustainable Development Goals, including a dedicated goal for water (Goal 6) and specific mention in other goals. Within Goal 6 there is proposed target on IWRM: "by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate." While the final SDGs will not be agreed upon until September 2015, there is currently widespread support for a dedicated water goal. That notwithstanding, IWRM will be a critical means of implementation in ensuring that water is adequately considered across the entire post-2015 development agenda.

Since the Johannesburg Plan on Implementation in 2002, IWRM has become the de facto approach around the world for robust and sustainable water management. For example, as of 2012, 65% of countries have developed IWRM plans. Despite this progress, IWRM has come under greater scrutiny and criticism in recent years. In response to this, the World Water Council has established a Task Force on IWRM. Against this background, it was proposed to bring together a session to discuss how IWRM can meet the proposed Post-2015 Sustainable Development Goals target.

In addition, the session focused on how to change approaches to IWRM in order to support the broader Post-2015 Development Agenda.

ACTION TOOL: Constructing Feasible Implementation Mechanisms

Theme 4.1. Green Growth, Water Stewardship and Industry

Issue 4.1.1. Does Paying the Environment for Water Services Really Work?

Ecosystems are a form of "natural infrastructure" that provide economic services to society and help to protect vital economic assets by storing water, regulating its flow and preserving its quality. If these natural systems are destroyed or impaired, their functions have to be replaced by man-made assets, often at high cost. Empirical studies show it is often more advantageous and cost effective to preserve or restore natural ecosystems (green infrastructure) than to seek to replace them with costly physical infrastructure such as water and wastewater treatment facilities.
The challenge for policymakers is to devise ways of capturing the economic benefits of aquatic ecosystems in monetary terms, in order to generate finance for preserving these vital assets. The concept of Payment for Ecosystem Services (PES) is firmly established and there are a growing number of schemes (e.g. the Latin American "Water Funds"). Through presentation of case studies, this session explored (1) the necessary conditions these schemes to succeed, (2) the feasibility of "roll out" to enlarge their scale and impact, and (3) additional innovative options to finance environmental services.

Issue 4.1.2. Performance Based Contracting for Water Supply and Sanitation
Performance-based contracting (PBC) is a form of results-based contracting. As implied in PBC, the financial terms of the contract are linked to the actual performance of the contractor, specified in the monitorable performance indicators. Output-based aid uses a similar approach. The main aim of PBC is to create incentives for the contractor to achieve cost efficiencies, timely delivery, or enhanced benefits of other kinds ("maximizing development outcomes and outputs"). A number of recent PBC schemes currently exist in the water supply and sanitation sub-sectors, including reduction of non-revenue water.
The session explored both the enabling conditions required for the successful use of PBC as well as the structuring of PBC contracts and assignment of risk for successful outcomes. This session contained presentations of case studies by a variety of stakeholder including operators and regulators assessing the track-record of PBC and factors accounting for success or failure. Materials were also presented on the scope and potential of extending PBC into other water sub-sectors such as irrigation and demand-management.

Issue 4.1.3. Innovative Financing for Small and Decentralized Water and Sanitation Operators and Actors
Local level actors and small scale water and sanitation operators are increasingly viewed as indispensable and valuable players in the rapidly expanding urban and abandoned rural areas spread in all development settings, whereas their mutual collaboration is growing. However, being limited in an access to sustainable financing, the scope of their action rarely sufficiently reflects the required financial efficiency and durability of water and sanitation supply.

Given the circumstances, this session focused on the innovative financing and economic approaches aimed to enhance access to water and sanitation services. A wide range of different institutional perspectives and practices were offered to the audience seeking

to trigger a broader discussion and a replication of the best practices. Also, this session guided the audience through cases and successful lessons, which illustrate the growing importance of local level water and sanitation actors and operators.

Issue 4.1.4. Innovative Financing under the 3 Ts (Tariffs, Taxes and Transfers) and Beyond

It is now commonly prescribed that costs of water and sanitation services should be covered by a combination of sources, including tariffs, taxes and transfers, referred to collectively as "the 3Ts". These three sources represent the basis for "sustainable cost recovery," which entails securing future cash flows and using this revenue stream as the basis for attracting repayable sources of finance such as loans, bonds and equity to bridge a temporary financing gap and help smooth out the burden of these investments over a longer period. However, despite major efforts for explaining key financing concepts to water sector professionals, mobilizing investments for the sector is difficult; there is a lack of transparency with respect to how much financing is currently allocated to the sector, domestic governments in developing countries remain small contributors of finance to the sector, and sustainability of service delivery on the long term is still a big challenge.

This session presented recent work to track the financial flows of the sector and showcased innovative financial approaches, such as through land, through facilitating access to local loans and through bankable business models adapted for the private sector.

Issue 4.1.5. Financing Agricultural Water Use

In order to meet the food needs of a growing and increasingly urbanized global population with changing consumption patterns, agriculture will need to make substantial water use adjustments. The challenge is compounded by land use change and increased competition for water resources. The lack of sustainable management and operation and maintenance (MOM) also continues to impact productivity of large irrigation systems. Agricultural water infrastructure is degraded and needs rehabilitation and modernization. At the same time, performance is constrained by inadequate resources, lack of effective beneficiary engagement, and limited capacity of public agencies

The session presented the inadequacies of traditional financing for agricultural water use, experiences of PPP in irrigation management, and other options to improve agricultural water financing.

Issue 4.1.6. Closing the Finance Gap for Sustainable Water Management: Opportunities, Models and Targets

While over 500 billion dollars are already spent annually on water and sanitation, over twice that has been estimated as necessary to meet the needs of the world's growing population. Moreover, sustainable water management requires finance that can be flexibly deployed to adequately support the maintenance, rehabilitation, and restoration of the infrastructure and systems that support the entire water cycle, including not only conventional, built infrastructure but also critical natural and social systems. Traditional sources of water finance have not yet come close to meeting these needs.

This session characterized the finance gap for sustainable water management, considering the challenge according to not only its quantitative, supply-side measures but also its qualitative and cost-controlling dimensions. The session also shared innovative financing models and mechanisms that have generated new and flexible revenue streams, contributed to cost control and recovery, and driven sustainable water resource management principles throughout the water cycle.

Theme 4.2. Effective Governance: Enhanced Political Decisions, Stakeholder Participation and Technical Information

Issue 4.2.1. Stakeholder Engagement in the Water Sector: How to Get There?

The size and nature of water challenges ahead requires a coordinated effort among policy makers and the wide range of stakeholders who play a role in, and are affected by, actions and outcomes in the water sector. All governments now acknowledge that policies, however well-intentioned, need stakeholder engagement to fit with local realities and to be implemented in practice. Additionally, people demand this change: they are more educated than before, and in today's expanding middle-class, the top-down heavy approach no longer washes.

During the 6th World Water Forum in 2012, the session on stakeholder engagement concluded with the lack of evidence-based analyses on the drivers, mechanisms, costs, benefits and impact of stakeholder engagement in water-related decisions. Three years later, the session at the 7th World Water Forum was organized to provide an opportunity to launch the OECD report "Stakeholder Engagement for Inclusive Water Governance," which provides such evidence, based on a Survey across 215 stakeholders, and a compendium of 69 case studies. The session also provided a platform for showcasing success stories and innovative tools for inclusive decision-making. Parallel roundtable discussions dug deeper into implementation issues with a view to preparing an Implementation Roadmap of the 7th World Water Forum.

Issue 4.2.2. Strengthening the Performance and Governance of Water Supply and Sanitation Services

This session was meant to be a platform for discussion between IFIs, national and local authorities, operators of any form, users and citizens on the conditions for improved quality and cost efficiency of services provided to the population. The session focuses on the new approaches in performance and governance of water supply and sanitation services. This session concerned developed as well as developing countries and tools and targets adapted to both contexts were discussed.

Issue 4.2.3. Strengthening Basin Governance for Efficient Water Resources Management at All the Relevant scales

Today, it is wildly accepted that basins of rivers, lakes and aquifers are the territories where efficient water resources and aquatic ecosystems governance has to be established. Many countries have organized their water policy at basin levels and cooperate with neighbor countries when they share transboundary waters. But, also in many other countries, basin management approach remains too often insufficiently developed; when basin management exists, there are deficiencies in the mandate, in organization, in governance, in the resources allocated and shortfalls in means and capacities. Moreover, oftentimes the basin organizations (whatever their form) have difficulties to put in place critical tools such as water information system, sustainable financial system, and to find the way for a real integrated water resource management, including a system for managing together surface and ground waters.

The session aimed at analyzing and disseminating the solutions around the following axes:

1) Development of a governing basin frameworks of treaties, regional agreements, national water laws, governance rules, management plans or other water allocation arrangements,
2) Increasing of the number of countries with water security diagnoses and governance tools, based on existing (local, basin, national, international) regulatory and legislative frameworks and Integrated Basin Management mechanisms,
3) Increasing the number of institutions within basins or aquifer systems capable of ensuring sustainable management of water resources,
4) Development of an appropriate framework for contextual assessment of water resources, users and impacts of uses and indicators of water governance at basin scale, starting with baseline / inventory of the sources of information in the basin.

Issue 4.2.4. Integrity and Transparency for Successful Water Policies – Challenges and Progress

This session aimed to be interactive with a strong element of knowledge sharing among participants. The presentations were short, mostly practice and evidence based. It aimed to make the next step in broadening and deepening partnership for integrity and transparency in the water sector with reference to where we stood after the 6th World Water Forum in Marseille and the Budapest Water Summit in 2013.

Also the session provided an excellent opportunity for participants to get a feel of how integrity and transparency fit the total policy picture and how essential it is to make the case for higher investments in water infrastructure and sustainable services.

Issue 4.2.5. Principles on Water Governance for Better Water Policies: From Vision to Action

The 6th World Water Forum (Marseille, 2012) acknowledged "effective governance" as a critical condition for success to meeting the water reform challenge worldwide. The 7th World Water Forum called upon concrete implementation tools and guidance to make this happen. The OECD strongly believes that robust evidence-based analysis, knowledge sharing and international best practice can help define sustainable pathways to reap the economic, social and environmental benefit of good water governance. During the 6th World Water Forum, the OECD committed to set up a network on water governance that would foster continuity between two World Water Forums and produce robust policy guidance in support of decision-making. One year later, the OECD Water Governance Initiative was launched as a multi-stakeholder bi-annual Policy Forum aiming to advise governments and contribute to the Global Water Agenda. After two years of activities, following a bottom-up and inclusive consultation process, the Water Governance Initiative has produced a set of Principles on Water Governance to be endorsed at the OECD's Ministerial Council Meeting in June 2015.These Principles on Water Governance provide the framework of 12 "must haves" for clear, outcome-oriented and tangible water policies to happen on the ground, while accommodating the diversity of situations and arrangements within and across countries. The Principles acknowledge that one size does not fit all and that governance is very much place-based and context-dependent. They seek to contribute to effective, efficient and inclusive design and implementation of water policies across levels of government in OECD and non-OECD countries.

The session was organized to provide a platform for multi-stakeholder experience-sharing on the building blocks of good governance covered in the 12 Principles. Participants were invited to echo how such Principles translate in their day-to-day management and activities and which concrete commitments can help support their implementation on the ground. The session was composed of a high-level kick-off panel under the auspices of the OECD's Secretary General, and followed by lively debates and discussions with the audience during roundtables around each of the 12 Principles.

Issue 4.2.6. Counting What Counts: Getting Indicators Right for Better Water Governance

The last decade has witnessed multiple attempts at developing indicators for measuring various aspects of water governance, in search for greater transparency and accountability. But this can be a daunting task because of a number of challenges related to the complexity of the sector, the incompleteness of the information environment, but also the uncertainty of the context and difficulties to establish causality.

Policymakers have indeed limited control on environmental, economic and social factors that might affect water governance. As Einstein said, "not everything that counts can be counted and not everything that can be counted counts."The session discussed existing tools for measuring water governance and challenges

and opportunities to move towards more systemic frameworks to assess the performance of water governance at different levels.

Theme 4.3. Cooperation for Reducing Conflict and Improving Transboundary Water Management

Issue 4.3.1. Water Diplomacy and Multi-level Governance: Connecting Levels to Make a Difference

Water diplomacy enables countries to negotiate agreements on the allocation and management of international watercourses. It is a dynamic process that seeks to develop reasonable, sustainable and peaceful solutions to water allocation and management while promoting or influencing regional cooperation and collaboration. In practice, international cooperation operates at differing levels: the local, national, the transboundary, the basin, the regional and the global. When negotiating water sharing arrangements there is always a process of identifying why water is needed by the different parties and what they need it for, followed by decisions on how water should be distributed between water uses and users.

Issue 4.3.2. International Water Law Demystified

The past two years have brought major developments in this regard. Two global legal frameworks are now in place to foster cooperation: the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention), which reached in 2014 the required ratifications threshold to enter into force in 2014, and the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention or Helsinki Convention), which has been opened for accession worldwide. The session celebrated these major steps forward in international water law and discussed how the two global treaties can be implemented in an effective, coherent and mutually supportive way.

Issue 4.3.3. Mandate, Structure and Means for Efficient Transboundary River and Aquifer Basin Joint Organizations

Developing a joint organization for a transboundary river and aquifer basin requires a clear mandate from decision-makers, a solid and efficient structure, and a set of means (financing, staff, capacities, databases, etc.). By reviewing relevant examples, the session offered the opportunity to analyze those requirements and their implications for efficient and effective joint waters management in a transboundary context.

Issue 4.3.4. Building Trust: Facilitating Data and Information Exchange between the Riparian Countries in Transboundary Basins

Transboundary freshwater basins cover 45% of the world's land mass, connecting two or more countries. The management of these vital resources faces many challenges, among which is the need for the regular exchange of data and information. Such an exchange is fundamental for establishing good cooperation between countries, whether for routine water resource operational management or for medium or long-term basin planning, with monitoring of the program of measure and investments. The session allowed for a sharing of experiences of how to reinforce data and information exchange between riparian countries in transboundary basins.

Issue 4.3.5. Sharing Benefits of Transboundary Waters across Sectors and Countries

The extent to which countries are willing to engage with co-riparians in transboundary cooperation is often determined by the perception by each country of the potential benefits of cooperation. In addition, the process of regional cooperation contributes to building trust among riparian countries (and vice versa), and facilitates broader regional integration, stability and the prevention of conflicts.

A nexus (or inter-sectoral) approach to managing the interlinked resources within a transboundary basin, thus, can enhance water, energy and food security by increasing efficiency, reducing trade-offs, building synergies and improving governance across sectors and borders. The session illustrated concrete examples of inter sectoral cooperation to advance transboundary management of basin resources. It will also include interactive discussions.

Issue 4.3.6. Investing in Transboundary Basin Management, It Pays Back: Sustainable Funding of TBM and Common Infrastructures

This session was organized to present field experiences of successful funding of transboundary river basin Institutions, to discuss innovative mechanisms and to propose guidance frames for disseminate them.

Theme 4.4. Water Cultures, Justice and Equity

Issue 4.4.1. Fostering Water Heritage, Water Values and Related Cultural Expressions

This session was organized to present field experiences of successful funding of transboundary river basin Institutions, to discuss innovative mechanisms and to propose guidance frames for disseminate them.

The session aimed to raise the awareness of the World Water Forum participants about the cultural, economic and environmental importance of water-related heritage on the one hand; and the vulnerability of this heritage to threats of the anthropocene on the other, such as land use changes and development, disasters, and climate change. The session debated the many relations of water with cultural and natural heritage. Highlights in the session included the launch of the book "Water and Heritage, material, conceptual and spiritual connections" and of the concept of the World Water Heritage Program to the public by the International Commission on Irrigation and Drainage and the World Water

Council.
The session also had several presentations showcasing practical examples of water and heritage policy developments and practical case studies from Korea, Thailand, Iran, Algeria and Mexico. The Panel discussion focused on questions of whether and how (instruments such as EIAs) natural and cultural heritage deserve a more prominent role in water policies and development practices.

Issue 4.4.2. Water Cultures and Cultural Diversity – Indigenous Perspectives and Solutions on Water Issues in 2015
In this session, indigenous peoples and project leaders from diverse regions shared indigenous perspectives on salient water issues and promoted the equitable involvement of indigenous communities in decision-making and management, in line with the UN Declaration on the Rights of Indigenous Peoples.
The session provided a platform for discussion about practical applications of how we can collectively care for water and what we can learn from traditional teachings in today's world.

Issue 4.4.3. Women for Water: Agents of Change for a New Culture of Water
This session involved women leaders and representatives from UN bodies, regional political bodies, governments, NGOs and academics. They shared their experience and vision on water policies and programs for equitable involvement of women in decision-making and management on water for healthier and more prosperous communities, in view of the Post-2015 Agenda and the UN objective of gender equality in all sectors of society. In a second part of the session, leading scientists, activists and practitioners interacted with the public on ongoing and future actions to improve the role of women in water management and governance.

Issue 4.4.4. Water Justices and Cooperation: Perspectives and Frameworks for Fostering Cultural Diversity, Society and Nature
This session presented scientific and practical approaches to conceptual and legal frameworks regulating the hydro-social sphere. In presentations and discussions, the participants explored how those frameworks and their implementation could foster water cooperation, justice, cultural diversity and more harmonious interactions of society and nature. The session concentrated on diverse perspectives on water, water rights, legal frameworks and how they can be better understood and embedded in cooperative mechanisms, from public participation to international conventions.

Issue 4.4.5. Mainstreaming a New Water Ethic
An initiative to develop a global "water ethics charter" was proposed by the 6th World Water Forum and is now active with support from UNESCO, Water-Culture Institute, and others [Details at http://waterethics.org/the-water-ethics-charter/]. The initiative is currently in the consultative stage. It will be finalized in 2016 and then open for endorsement by cities, companies, basin organizations, and other entities.
This session presented the Charter concept (which is still under development) and invited the session participants to offer input as part of the consultation process. The session was divided into three parts. Part 1 provided an overview of ethics as a theme of water use and governance during the past two decades and show how the Charter is building on these efforts. Part 2 was short presentations on key elements of the Water Ethics Charter. Part 3 was an interactive, facilitated discussion in small groups focusing on how the Charter could be implemented at both global and local levels.

Issue 4.4.6. Sacred Rivers and Cradles of Civilization - In Urgent Need for Action?
The session focused on rivers and water systems which are considered to have a particularly strong spiritual importance and heritage and on their complex cultural, religious, economic and environmental functions and the dynamics at work in these hydro-social interactions. All of this must be appropriately taken into account in all efforts directed at sustainable usage, preserving and restoring rivers. Presentations and discussions addressed challenges of rivers with internationally known cultural importance such as the Jordan, Ganges and Amazon. They outlined specific cases and current efforts, as well as the need for comprehensive action.

Theme 4.5. Enhancing Education and Capacity Building

Issue 4.5.1. Water Education and Capacity Building: Key for Water Security and Sustainable Development
Water education and other forms of capacity building remain critical areas for achieving water security and sustainable development. This session focused on the current status of water education, including the progress achieved during the International Decade for Action - Water for Life and the Decade of Education for Sustainable Development (UNDESD), and contribute to the identification of the necessary tools to advance water capacities in the context of internationally agreed development goals and the post-2015 Development Agenda. For this purpose, water education was considered in all forms (formal, non-formal and informal) and levels (K-12, Technical Vocational Education and Training TVET, higher education, community and long-life learning approaches), for water sector professionals but also for decision-makers, stakeholders, local communities, mass-media professionals, among other target groups. Special attention was paid to water education as an empowerment tool for children and youth, encompassing also a focus on gender equality and Africa.
The session presented an opportunity to operationalize the concept of water education for sustainable development and water security, through clear results-based objectives. Water education and capacity building must ultimately be the tool that

will provide the knowledge, skills and values needed to achieve positive and sustainable behavioral changes.

Issue 4.5.2. Financing Water Professional Training to Develop Competencies: A Fruitful Economic Strategy for Water Utilities
Developing competencies through professional training is a key issue for strengthening performance of water and sanitation services. Experience shows that capacity building is a good way to improve water services delivery. By promoting better efficiency in the operation and maintenance, professional training outputs are directly supporting backbone issues for the sustainable development of the water sector. Consequently, investing in professional training is a fruitful qualitative strategy.
Considering the volume of funding mobilized for water and wastewater infrastructure, developing capacity through professional training is a relevant way to promote long-term profitably. The lifetime of an infrastructure (and so on the investment profitability) is deeply linked with the maintenance and good use made of it. By upgrading activities standards and outcomes, professional training is furthermore a fruitful long-term strategy.

Issue 4.5.3. Ensuring Sustainability of Water Infrastructures by Investing in Water Training Centers: It Pays Back
Considering the increasing needs in the development of water infrastructures in order to meet the MDGs, and the necessity of mobilizing skilled staff for efficient operation and maintenance, the demand for vocational training is rising (especially, more recently, for sanitation) all around the world.
The training supply must follow this trend: the necessity of creating and/or strengthening Water Training Centers (WTC) is consequently relevant, especially in southern countries.
This session focused around this main question: Why and how to create and strengthen sustainable WTC around the world? Behind this key question, three complementary approaches were discussed, considering the WTC itself, and the context in which WTC evolves.

Issue 4.5.4. Facing the Changes in Due Time: Specific Training for Basin Organizations
This session focused on the exchange of good practices and importance of capacity building, including formal and informal training of staff members and stakeholders, for better management and restoration of water resources and aquatic ecosystems in the basins of rivers, lakes and aquifers.

Issue 4.5.5. Water Education for Leaders on Safe Water and Environment
Educating leaders engaged in the water field as experts, teachers, citizens and policy makers must confront the intricacies of today's water issues, which will further lead to responsible decision-making in the future. Diverse research has been carried out in the field of water education, in collaboration with UN DESD (Decade of Education of Sustainable Development), allowing many nations to achieve capacity building. Yet, developing countries and countries in transition are still struggling to adequately cope with such water issues due to the lack of water-related capacity.
In this session, potential action plans for the education program were developed and discussed based on the essential notions of water-related capacity building and reinforcing cooperative networks. Through open and interactive discussions, exchange of best practices and successful ideas, cooperative blue prints for the capacity building of water leaders were designed.

Issue 4.5.6. Captivating the Attention of the Global Population on Water Issues with Innovative Tools
This session aimed to present and try out various methods to obtain the much needed attention for water-related issues. It focused on tools and techniques that can be easily duplicated by the participants of the session. Therefore, it is essential to develop innovative and, sometimes, unconventional tools and techniques in order to captivate the attention of the targeted people. Through this process, we can give the people proper knowledge to improve the situation of water resources throughout the world.
Several techniques and tools are currently used to educate and raise the awareness of our leaders and the global population about water issues. They were presented afterwards the participants interacted with each speaker and experimented with the tools.

2. Special Sessions

Thematic Special Session(1): High-level Panel

T.SS.01. Future of World's Waters beyond 2030
This session focused on global water situations beyond 2030 caused by rapid changes in a variety of water and non-water related areas, demographics (number, age and structure), urbanization, migration between and within countries, scientific and technological developments, globalization, free trade, climate, change, emergence of middle class and their increasing aspirations, environmental considerations, industrial development, food and energy securities, and host of other associated factors which have not been adequately considered at present by the water profession. Leading and eminent personalities from governments, the private sector, academia and international organizations shared their views on the future of the world's waters beyond 2030, and then interacted with the audience.

T.SS.05. Infrastructure Financing for a Water-Secure World
As implementation requires substantial financial resources from different types of public and private sources, the World Water Council and the OECD set out to create a High-Level Panel on Infrastructure Financing for a Water Secure World. This panel

session outlined clear objectives and encouraged the dialogue on the role of infrastructure to ensure water security. Furthermore, the Panel looked into the necessary financial resources and the means to generate them to achieve water security in different parts of the world.
The High Level Panel, which intersected Themes 1.4 and 4.1, explored financing mechanisms for water-related infrastructure that would be feasible for countries with different circumstances and economic statuses. This panel also served to follow up on recommendations emanating from the Camdessus Panel (2003) and the Gurria Task Force (2006).

T.SS.06. Water Is the Key for Sustainable Development: High-Level Panel on Water in the Post-2015 Development Agenda
As no development can occur without the necessary water security to nurture sustainable development, the World Water Council, the Governments of the Netherlands, South Africa and Switzerland and the Butterfly Effect convened High-level Panel on the role of water in the Sustainable Development Goals. Indeed, 2015 marks the transition between the MDGs and the SDGs, and the 7th World Water Forum could call attention to this important evolution through this high-level event.
A dedicated water goal has been critical as part of the post-2015 Development Agenda with measurable targets and indicators in support of life, well-being, economic development and the environment. This panel included very high level participation and discussed the definition of specific targets for a water goal in the SDGs, as formulated at the time of the World Water Forum. The panel mainly addressed how the goal and targets related to water will be implemented and monitored in the coming fifteen years, in particular at the national and regional levels, in order to ensure true progress in their achievement.

T.SS.07. How Can We Achieve a Water and Food Secure Future?
Many regions in the world will face substantial water scarcity, and water shortages will constrain agricultural production and limit the incomes and livelihoods of many residents in rural and urban areas. Persistent work is needed in policy and investment arenas, particularly in lower income countries, to extend and ensure access to water for household use and agricultural production. The policies and investments should acknowledge the increasing urbanization in many countries which is placing additional pressure on land and water resources. Farmers must retain access to the water they need for producing food and sustaining livelihoods. Development and adoption of new technologies that will enhance crop and livestock production in a sustainable manner should be increased, particularly for smallholders. The private sector will need to be encouraged to invest and engage in activities that will create employment opportunities in rural areas. During the High-Level Panel, modalities were discussed on how the above mentioned issues should be addressed.

T.SS.08. IWRM Post-2015: A New Way Forward
The World Water Council Task Force on Integrated Water Resources Management (IWRM), working with international and Korean partners, organized a High-level Panel on IWRM within the Thematic Process. This Panel was composed of high-level water practitioners and policymakers involved in the conceptualization and implementation of IWRM.
The Panel debated the role of IWRM in water management systems across the world, at different scales and with different scopes and actors. They have been challenged to identify priorities for a new IWRM agenda that will accelerate progress in the next 15 years, aligning it with the demands of the expected SDGs and other global commitments such as a new Climate Agreement adopted at COP 21 in Paris in late 2015. The Panel addressed how IWRM can respond to the new vectors that are influencing demands on water resources, such as: green economy; global environmental and climate change; water, energy and food security; uncertainty and risk etc. They also discussed how the principles and processes of IWRM should be adapted to these future challenges.

T.SS.10. Water Security and Sustainable Development: Co-operation among Disciplines and Stakeholders
This session emphasized the importance of scientific cooperation and cooperation among different parts of governments to reduce the gap between scientific research, policy development and action. It also targeted providing and developing scientific research results that improve interface between science and policy to solve water security problem.

T.SS.15. Global Dialogue on Water Security and Sustainable Growth
A secure water world is emerging as a top human development priority in the post-2015 Development Agenda. But to truly deliver secure and sustainable water for all, policymakers need sound evidence connecting water security to economic growth and development. The Global Water Partnership (GWP) and the OECD launched a Global Dialogue for Water Security and Sustainable Growth to promote and accelerate a transition to water security, by connecting policy makers and practitioners through Country Consultations, and through a Task Force analysis of the links between water security and sustainable economic growth.
A High-level Panel of Vice Presidents, Ministers, and representatives of the World Bank, NGOs, and the business sector, under the leadership of Her Excellency Ellen Johnson Sirleaf, President of Liberia and patron of the GWP and Mr Angel Gurria, OECD Secretary-General, released the milestone report on "Securing Water, Sustaining Growth" and a Policy Statement calling for enhanced action.

T.SS.17. Water and Disasters
This special session focused on the issues of "Water and Disasters", the issues that have been closely connected and are some of the core global challenges that need to be addressed comprehensively.

The session was organized by the High-level Experts and Leaders Panel on Water and Disasters (HELP). HELP (chaired by Dr. Han Seung-soo, UN Secretary-General's Special Envoy on Disaster Risk Reduction and Water and composed of high-level leaders and experts) and was established with the aim of amassing a broad array of knowledge, expertise, influence, networks, and convening power in order to galvanize governments and multiple stakeholders into action with an eye to improving water and disaster situations around the globe.
The Special Issue of Water Policy Journal on "Water and Disasters", a compilation of case studies on recent water-related disasters and policy lessons learned developed by HELP, was launched during the session.

T.SS.20. The Challenges and Opportunities in Measuring Counties' Progress toward a Sustainable Development Path for Water Use
Measuring countries' progress towards a sustainable development path is a major concern for developing countries as well as international community (IDA17 replenishment, post-2015 and SDG Consultations) because the overexploitation of water resources, which is closely linked with economic growth, could not merely degrade ecosystem, but also damage the economic prosperity of a society in the long run. Although at present various water-related indicators have been developed and are used by countries or international organizations, there has been lack of the policy implications as a framework for review, monitoring and accountability for sustainable water use.
This session discussed the policy strategies for substantial progress through water sustainability indicators framework in regional platforms. High-level delegations from selected countries and organizations discussed the availability and limitation of a water sustainability indicators framework, considering the cross-cutting balance of the economic, social, and environmental aspects of water use from developing to developed countries.

T.SS.25. To Price or Not to Price: That Is NOT the Question. A High Level Dialogue
Water management has primarily been approached as an engineering problem and not an economic or social one. As such, pricing mechanisms, although widely debated, are not well understood or implemented, and the potential of better pricing for promoting sustainable water management and equitable access is not discussed at the highest political levels. Pricing impacts major economic sectors (agriculture, industry, energy, and environment) as well as households, including the socially vulnerable. Preferences for supply-side expansion in water services and non-price demand management are a norm, rather than an exception. Population growth, land use changes, economic growth, and climate change, are increasing the pressure on the water systems and securing water for all is today one of the main challenges that countries face. Pricing mechanisms can assist in ensuring equitable access and sustainable water management but its implementation requires strong political will and appropriate institutional mechanisms. For decades, the global community has been discussing the importance of pricing, but limited reform and implementation has taken place. It is time to take the dialogue to the appropriate level.

Thematic Special Session(2): Special Focus Session

T.SS.02. Leadership for National Water Management Contributing to Economic Growth
Presided by Korea Institute of Civil Engineering and Building Technology (KICT) and Ministry of Land, Infrastructure, and Transport (MOLIT), this session emphasized the importance of efficient water management for national economic development with its focus on the impact of appropriate water resource management on national economic growth. To this end, this session introduced best practices of Korea's water management and shared the water management status of developing countries with insufficient national water resource management systems. In addition, the ADB and World Bank shared a water management vision from an economic perspective.

T.SS.03. Water Well and Culture
Water and wells have been symbolically considered a source of life, pregnancy, and the productivity. Water wells have been not only village women's meeting place, but also a space for silent trade, diverse barter, and other type of exchanges. In this respect, water wells were very important community place in the ancient past. Examination by Korean anthropologists reveals that there was cultural integration of the dragon god belief and phallicismin the Silla royal wells and ponds. In cultural integration, various concepts such as the life vitality of water, birth of life, and vitality have intermingled.
This session discussed the cultural transmission of water wells based on the cultural circular system and the preservation of environments. It could contribute to appreciation of nature; water, and wells could be considered the big theme for the World Water Forum and the gateway for enlightenment.

T.SS.04. Management of Water Resource with New Village Movement
Water is essential to development, but developing countries are often lack of agricultural water, clean drinking water, as well as skills and infrastructure for managing water resource. Without proper management and infrastructure for water resources, no country can secure food, public health, or even basic human rights. This is the reason why development institutions around world are so interested in management, skills, infrastructure, and policies associated with water development in developing countries. New Village Movement (SaemaulUndong), a comprehensive rural development program launched in Korea in the 1970s, has been recognized for improving rural living environments and raising

rural household income. Water development for agriculture and safe drinking water and its management for controlling floods, drought and mountain landslides were important elements of SaemaulUndong Projects. International development organizations also agree that water problems in developing countries is vitally important; thus they are investing significant resources to assist overcoming the water problem.
This session discussed how an effective water policy for rural villages could be made, especially under with insufficient financial resources, and presented what kind of proper technologies might be useful for water development and its management in developing countries. Presenters shared lessons from Saemaul Undong.

T.SS.11. Global Water Industry Development through a New Innovative PPP Cluster
As the city hosting the 7th World Water Forum, developing the water industry is an important issue in the Daegu-Gyeongbuk (D-G) region. To that effort, the city and province focuses on developing a water cluster with the Korea Water Partnership (KWP). The Korea Water Cluster will become a new front line policy in this region. The Korea Water Cluster would not only be a test bed for manufacturers in the water sector, but a touchstone of networking showcase of private-public-partnership(P-P-P) for the global water industry.
Regional water clusters are globally visible now. From Singapore to Wisconsin, and from Singapore to China, the outcomes and experiences of these clusters can help build the Korea Water Cluster. Thus, the primary objective of this session was to share knowledge and experience in developing the regional water clusters. The panel discussion during the session discussed the core value of PPP scheme for the sustainable development of a regional water cluster, particularly in Korea Water Cluster. The role and limit of private contribution to public water sector will be discussed and be outlined as a result.

T.SS.18. The United Nations World Water Development Report 2015: Water for a sustainable world
During this session, the United Nations World Water Assessment Programme (UN WWAP UNESCO), in cooperation with UN-Water Members and Partners, presented the main findings and messages of the World Water Development Report 2015 (WWDR 2015), Water for a Sustainable World. Water for Sustainability was one of the pillars of the World Water Forum's thematic framework and this Report, the flagship publication of UN-Water, provides a focused descriptive analysis that demonstrates how water is a key factor in a future sustainable world. Taking into account economic growth, social equity and environmental sustainability, a forward-looking narrative described how major challenges and change factors in the modern world will affect and can be affected by water resources, services and related benefits in a not too distant future.

T.SS.19. Two Global Conventions on Transboundary Water Cooperation - So What?
The entry into force of the Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention) in August 2014 and the global opening of 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention) represent major breakthroughs in terms of international water law and transboundary water cooperation. In addition, transboundary water cooperation as a key factor for sustainable water resources management is mentioned in the draft Sustainable Development Goal on water, as negotiated by the Open Working Group.
However, more than 130 countries around the world still haven't ratified any of the Conventions and the added value remains unclear to many of the stakeholders, including citizens at large.
This special session aimed to give the floor to all categories of stakeholders impacted by the actual accession of a country to such legal instruments and by its implementation. What legal pathways do they open? What cooperation can they generate? What are the potential benefits for business, agriculture, for the industry and the environment? What's in it for citizens, for riparian populations and for the most vulnerable? Why two conventions? The session was also an opportunity to celebrate this development with high-level representatives of the countries, which have ratified one or both of the Conventions, and to collect announcements of intentions.

T.SS.21. Women for a Water Secure World: Past, Present and Future
This Special High-Level session was designed as an out-of-box event to present the outcomes of the women pre-conference to the participants of the 7th World Water Forum. Dances and songs in good humor alternated with high-level and professional presentations and an open discussion of the High-level Panel with the floor.
Members of Women for Water Partnership (WfWP) in their national costumes, together with high-level officials and recognized female water professionals, representatives of the civil society, girls and youth presented the outcomes of the women pre-conference specialized sessions and discussions on gender equity integrated in the following areas: climate change, disaster risk reduction, food security and food safety, right to water and sanitation, SDGs and post-2015, and IWRM.

T.SS.23. ThrezWay Forward
2012 was the first year that a youth program was incorporated in the World Water Forum. The place and the role of youth in the water sector were not defined then. In three years, this has changed. International institutions and governments now recognize young people as valuable partners. Large international conferences include dedicated sessions driven by youth for youth. Young people are invited to participate and coordinate preparatory and consultative processes for global issues such as the definition of sustainable development goals. Institutes and

international networks have now developed youth strategies. Different youth networks communicate, meet, organize and develop joint initiatives.
This session assessed the achievements accomplished by youth for the water cause. Ministers and heads of international and non-governmental organizations shared their experiences on youth water initiatives at local and international levels. This session was also an opportunity to engage others to join and to set the challenges for the future involvement of the new generation of water experts. The session was organized in two parts: an introduction on the strategic role played by the youth at the international and national levels followed by a dialogue between young and senior leaders on past, current and future youth initiatives.

T.SS.24. Special Launching Event, Water and Green Growth
Rapid economic growth and unpredictable climate change have put water at greater risk and increased the level of global water consumption over the last few decades. With the recognition of the importance of water, Water and Green Growth Project, a joint collaboration between the Korean government and the World Water Council was embarked in 2010. Since then, the Water and Green Growth Project polished a new concept, Water and Green Growth, and developed a policy guideline and roadmap to achieve socio-economic development, decoupling environmental degradation. This session commemorated the publication of the Water and Green Growth and presented results of research to encourage implementation of Water and Green Growth policies.

Thematic Special Session(3): Cross-cutting Session

T.SS.09. The Water-Energy-Food Nexus: Are We Finally Talking?
The need for cross-sectoral collaboration is becoming increasingly urgent as the competition for resources between water, energy, agriculture, fisheries, livestock, forestry, mining, transport and other sectors is growing. Sectors need to better coordinate the planning, management, development and conservation of environmental resources and services. Ultimately, this requires compromises and trade-offs, but it may also provide opportunities to rethink current practices, policies and governance arrangements and to identify synergetic uses across sectors. The Water-Energy-Food Nexus draws attention to the interrelated nature of our water, energy and food systems. Thinking systematically about these resources helps to highlight the broader development implications of water management and it forces us to think of the impacts a decision in one sector can have not only on that sector, but on others.
The session focused on what concrete steps can be taken within sectors (e.g. resource use efficiency) and across sectors (e.g. cross-sectoral policy targets) to ensure that decision-making processes will be better coordinated and more coherent in regard to water, energy and food. And it asked: are we finally talking?

Political Process

I. Overview

1. Background of the Political Process

The Political Process is the platform for the highest-level participation among the main processes of the 7th World Water Forum. The objectives of the Political Process include facilitating exchange of views of the national governments, parliamentarians, and local governments on water issues that are relevant to the national agenda and intergovernmental processes in order to promote cooperation at all levels, as well as reaching a consensus on a political message and joint commitment directed to the international community. This year, 2015, has a special relevance in formulating actions for the global water agenda. It is the target year of the Millennium Development Goals followed by establishing a new global sustainable development agenda in the UN Summit on Sustainable Development to be held in September. It is also a unique opportunity to strike an ambitious agreement towards a climate-resilient world in the COP21 scheduled in December in Paris, France. As declared in the outcome document "The Future We Want" of the Rio + 20, United Nations Conference on Sustainable Development in 2012, water is at the core of achieving these goals.

In this spirit, representatives from over 120 national governments, members of parliaments, representatives of local governments, international organizations, civil society and various stakeholders actively participated in over a yearlong preparation process. In preparation for the political process, Ministerial Declaration, Parliamentarian Statement, and Daegu-Gyeongbuk Water Action were discussed along with logistical issues including the composition of the Ministerial Roundtables, financial support, and sight tours.

Ministerial Process Opening, Hyundai Hotel Gyeongju

2. Overall Progress

Three preparatory committee meetings (PrepComs) for the ministerial process were held in UNESCO headquarters, Paris in preparation of the Ministerial Process (the 1st PrepCom on December 17th-18th, 2014; the 2nd on February 24th – 25th, 2015; and the 3rd on March 23rd - 24th, 2015).

The preparation process including the PrepComs was organized in a participatory and inclusive manner. All UN member states, relevant international organizations, civil society groups and stakeholders were invited to the PrepComs to contribute their input to the Process including the outcome document. The participants discussed the outcome document of the Process, the Ministerial Declaration as well as the organization of the Ministerial Roundtables.

Co-chairs of the Political Process Commission, Mr. Seong-ho Lee, Director-General of the Global Economic Affairs of the Ministry of Foreign Affairs of the Republic of Korea, and Dr. András Szöllösi-Nagy, former rector of UNESCO-IHE Institute for Water Education, led the preparation of the Political Process.

Asia-Pacific Parliamentarians Conference on Environment and Development(APPCED), a global network of parliamentarians headed by Mr. Ju-young Lee, and the Smart Water Forum (secretariat: K-water) joined together with the National Committee for the 7th World Water Forum (Rep. of Korea) and the World Water Council to prepare for the Parliamentarian Process.

Additionally, ICLEI Local Governments for Sustainability (ICLEI), United Cities and Local Governments (UCLG), Daegu-Gyeongbuk Development Institute (DGI), UN-Habitat/ Global Water Operators' Partnership Alliance (GWOPA), World Water Council (WWC), and the National Committee for the 7th World Water Forum (Rep. of Korea) signed a partnership agreement to jointly prepare for the Local and Regional Authorities process.

Ministerial Process Plenary, Hyundai Hotel Gyeongju

3. Political Process Commission

As the decision-making body of the Political Process, the Political Process Commission gave deep thoughts on Roundtables, Statements, logistical arrangements, and oversaw overall operations of the Thematic Process. The Commission was composed of four host country experts and four international experts and met regularly to determine the direction of the Process.

Political Process Commission Members

	Name	Profile
	Sophie Auconie	Former Member of European Parliament
	Kwang-Myoung Cha	Executive Secretary, Korean Parliamentary League on Children, Population, and environment
	Dr. Won-Gi Choe	Associate Professor, Korea National Diplomatic Academy
	Bert Diphoorn	Senior Advisor Urban Basic Services, UN-Habitat
	In-Won Seo	Head of Research Department, Daegu-Gyeongbuk Development Institute
	Dr. Jerome Delli Priscoli	Senior Advisor of US Army Corps of Engineers Civil Works
	Seong-ho Lee **Co-Chair**	Director-General for Global Economics Affairs Bureau, Korean Ministry of Foreign Affairs
	Andras Szollosi-Nagy **Co-Chair**	K-Rector of the UNESCO-IHE Institute for Water Education

II. Ministerial Process

1. Overview

The Ministerial Conference took place in April 13th, 2015 in the city of Gyeongju, Republic of Korea. 127 Heads of Delegations of which 106 were Ministerial level officials assembled at the Conference. The Heads of Delegations renewed their commitments in addressing the water-related challenges at the plenary session and discussed in depth effective ways to solve water issues around the 8 themes – (1) water and sanitation, (2) Integrated Water Resources management, (3) sustainable water management and conservation of ecosystems, (4) water-food-energy nexus, (5) financing for water governance, (6) adaptation to climate change, and water related disaster management, (7) culture, education and capacity building, and (8) transboundary water cooperation – of the ministerial Roundtables. The ministers and heads of delegations adopted the Ministerial Declaration which urged the international community to bring the water issue to the fore of the global agenda and made joint commitments in advancing cooperation in fields such as sustainable development agenda, climate change adaptation, disaster management and transboundary water management. In addition to the report on the Roundtables, 52 Heads of Delegations gave national statements at the Plenary Session.

[The Program of the Ministerial Conference]

Time	Category	Details	Venue
08:30 - 08:50	Opening Ceremony	Opening Speech - Mr. Il-ho Yoo, Minister of Land, Infrastructure and Transport of the Republic of Korea - Mr. Xavier Sticker, Ambassador for the Environment of the French Republic - Mr. Benedito Braga, President of the World Water Council	Convention Hall (B1 Floor)

Time	Category	Details	Venue
09:10 - 12:30	Ministerial Round tables	1. Ensuring Safe and Enough Water and Sanitation for All	Diamond Hall (B1 Floor)
		2. Integrated Water Resources Management	Crystal Hall (B1 Floor)
		3. Sustainable Water Management and Conservation of Ecosystems	Ruby Hall (2nd Floor)
		4. Water-Food-Energy Nexus	Jade Hall (B1 Floor)
		5. Financing for Strengthening Water Governance	Emerald Hall (2nd Floor)
		6. Adaptation to Climate Change and Management of Water related Disaster Risks	Kum Kang Hall (B1 Floor)
		7. Culture, Education and Capacity Development in Water Sector	Sapphire Hall (2nd Floor)
		8. Water for Peace and Co-Prosperity – Transboundary Water Cooperation	Dynasty Hall (B2 Floor)
14:00 - 15:00	Plenary Session	Reports on Ministerial Roundtables	Convention Hall (B1 Floor)
15:00 - 18:50		National Statements	
19:00 - 19:30	Closing Ceremony	Adoption of the Ministerial Declaration and Closing Speech - Mr. Il-ho Yoo, Minister of Land, Infrastructure and Transport	

[List of Speakers for National Statements at the Plenary Session]

	Speakers	Position / Country
1	Anisul Islam Mahmud	Minister of Water Resources of the People's Republic of Bangladesh
2	Mohammed Al-Sada	Minister of Energy and Industry of the State of Qatar
3	Kirsten BrosbØl	Minister of the Environment of the Kingdom of Denmark
4	Neven Mimica	European Commissioner for International Cooperation and Development of European Commission
5	Annageldi Yazmyradov	Deputy Chairman of the Cabinet of Ministers of Turkmenistan
6	Hossam Moghazy	Minister of Water Resources and Irrigation of the Arab Republic of Egypt
7	Hazim El-Naser	Minister of Water and Irrigation of the Hashemite Kingdom of Jordan
8	Hamid Chitchian	Minister of Energy of the Islamic Republic of Iran
9	Hocine Necib	Minister of Water Resources of the People's Democratic Republic of Algeria
10	Maximus Johnity Ongkili	Minister of Energy, Green Technology and Water of Malaysia
11	Charafat El Yedri Afailal	Ministry Delegate in Charge of Water of the Kingdom of Morocco
12	Sergey Donskoy	Minister of Natural Resources and Environment of Russian Federation
13	Narayan Prakash Saud	Minister of Irrigation of the Federal Democratic Republic of Nepal
14	Judi Wakhungu	Minister of Environment , Water and Natural Resources of the Republic of Kenya
15	Nomvula Mokonyane	Minister of Water and Sanitation of the Republic of South Africa
16	Khayrulio Ibodzoda	Chairman of Committee on Environment Protection of the Republic of Tajikistan
17	Hean Bun	Secretary of State of Ministry of Water Resources and Meteorology of the Kingdom of Cambodia
18	Paulo Lemos	Vice Minister of Environment of Portuguese Republic
19	Michael Connor	Deputy Secretary of Department of the Interior of the United States of America
20	Hanna Serw aa Tetteh	Minister of Foreign Affairs and Regional Integration of the Republic of Ghana
21	Mazen Ghonaim	Minister of Water of Palestine
22	Anna Shiweda	Deputy Minister of Agriculture, Deputy Minister of Agriculture, Water and Forestry of the Republic of Namibia
23	Alemayehu Tegenu	Minister of Water, Irrigation and Energy of the Federal Democratic Republic of Ethiopia

	Speakers	Position / Country
24	Karl Schwaiger	Director of water, Federal Ministry of Agriculture, Forestry, Environment and Water Management of the Republic of Austria
25	Gorkhmaz Huseynov	Chairman of "AZERSU"OJSC of the Republic of Azerbaijan
26	Kai Kaatra	Director of Water Resources Management, Ministry of Agriculture and Forestry of the Republic of Finland
27	Guadalupe Palomeque	Ambassador of the Plurinational State of Bolivia to the Republic of Korea
28	Aingeal O'Donoghue	Ambassador of Ireland to the Republic of Korea
29	Felip De la Morena	Ambassador in Special Mission for International Environmental Affairs of the Kingdom of Spain
30	Lisa Svensson	Ambassador of Oceans and Seas of Environment and Energy of the Kingdom of Sweden
31	Pio Wennubst	Assistant Director General of Swiss Agency for Development and Cooperation of the Swiss Confederation
32	Alba Florio	Ambassador of the Oriental republic of the Eastern Republic of Uruguay to the Republic of Korea
33	Ramon J.P. Paje	Secretary of Department of Environment and Natural Resources of the Republic of Philippines
34	Franz-B. Marre	Head of Water, Urban Development and Transport Division, Federal Ministry for Economic Cooperation and Development of the Federal Republic of Germany
35	Ferid Agani	Minister of Environment and Spatial Planning of Republic of the Republic of Kosovo
36	Alain de Comarmond	Principal Secretary, Department of Environment, Ministry of Environment, Energy and Climate Change of the Republic of Seychelles
37	Luis Felipe da Silva	Secretary of State of Water of the Republic of Angola
38	Zhanybek Kerimaliev	Vice Minister of Agriculture and Land Reclamation of Kyrgyz Republic

	Speakers	Position / Country
39	Shavkat Khamraev	Deputy Minister of Agriculture and Water Resources of Republic of Uzbekistan
40	Christopher Ngwey	Ambassador of the Democratic Republic of Congo to the Republic of Korea
41	Issa Ali	Minister of Livestock and Water of the Republic of Chad
42	Ravi Kewalran	Deputy Head of Mission of Australian Embassy to the Republic of Korea
43	Sajjad Ahmad	Director General of Environment of Ministry of Climate Change of the Islamic Republic of Pakistan
44	Deng Yai	Minister of Environment of the Republic of South Sudan
45	Ben Micatt	Minister for Public Enterprise ofthe Independent State of Papua New Guinea
46	Nana Fatima MEDE	Permanent Secretary of Federal Ministry of Environmentof the Federal Republic of Nigeria
47	Benedicte Johanita RANDRI-ANARISON	Minister of Ministry of Water, Sanitation and Hygiene of the Republic of Madagascar
48	Amadou Mansour FAYE	Minister of Hydraulics and Sanitation of the Republic of Senegal
49	Yamilette Yamilette Astorga	Minister of Water Supply of the Republic of Costa Rica

Ministerial Process Plenary, Hyundai Hotel Gyeongju

2. Outputs and Achievements

The heads of delegations adopted the Ministerial Declaration by consensus. The Ministerial Declaration focused on participating governments' political will and commitments as well as national policies, plans and actions to advance water-related cooperation on a global scale. In light of the achievements made through UN General Assembly Resolutions towards water and sanitation as a human right, they reaffirmed their commitment to the human right to safe drinking water and sanitation and ensuring progressive access to water and sanitation for all. Regarding the global sustainable development agenda, they supported the inclusion of one dedicated water goal and water-related targets in the post-2015 Development Agenda.

Implementation, the core value of the 7th World Water Forum, was emphasized throughout the Conference. In particular, the heads of delegations showed great interest in the "Implementation Roadmap" along with the Action Monitoring System, which could be considered a reference for establishing implementation and monitoring guidelines for water-related goals in the post-2015 Development Agenda. They also underscored Integrated Water Resources Management (IWRM) and its balanced relation with food and energy as an effective approach to address increasing food and energy requirements towards sustainable development.

Recognizing that water is one of the major issues in tackling climate change, the heads of delegations committed themselves to ensure a successful outcome at the 21st session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in full recognition of the importance of water-related issues in climate change.

On transboundary water issues, the heads of delegations recognized that transboundary water cooperation based on win-win solutions can contribute to sustainable development and sound management of the transboundary waters between riparian countries, as well as to peace and stability of the nations.

The heads of delegations also committed themselves to addressing water-related disasters. They acknowledged the pressing need to take preventive actions and enhance resilience and preparedness towards water-related disasters at national, regional, and international levels and emphasized systematic and effective response mechanisms as a crucial instrument in dealing with increased risks and uncertainties of water-related disasters.

They also welcomed the launch of the Science and Technology Process as a new pillar of the World Water Forum and highlighted the critical role of science and technology in paving the way from solutions for resolving water-related challenges to implementation by applying innovative and applicable technologies to policies. They shared a common understanding of the need to establish sound science-based public policies and regulations supported by appropriate institutional mechanisms. In particular, they stressed the importance of convergence of information and communications technologies (ICT) on smart water management and planning. They called upon nations to promote knowledge sharing and the development and deployment of scientific knowledge and innovative technologies to facilitate financing, investment, education, training and capacity building, particularly for developing countries and as well as to develop and diffuse concrete business models among stakeholders.

The heads of delegations also noted the "Daegu-Gyeongbuk Recommendations to the Ministers at the 7th World Water Forum," an outcome document finalized by consensus through discussion among government delegates during the PrepComs. The Recommendations complement the Declaration with more concrete suggestions to translate the commitments and political will expressed in the Declaration into policies and actions. Structured on the basis of the 16 themes of the Thematic Process, the Recommendations incorporated novel and innovative suggestions to overcome the water-related challenges: the need to reinforce the ongoing process to create an intergovernmental panel under the United Nations on water-related matters as well as a robust intergovernmental institutional mechanism to establish an innovative platform to bring together the science and the policies were highlighted. In relation to enhancing education and capacity building in the water sector, the Recommendations underlined the role of women as agents of change in the water-sustainable development nexus and in achieving equitable access to water for all and all uses including sanitation.

Ministerial Process Report on Roundtables,
Hyundai Hotel Gyeongju

III. Ministerial Roundtables

Eight Ministerial Roundtables took place as a part of the Ministerial Conference, Hyundai Hotel Geyongju

Each Roundtable was organized by a lead government(s) and, in some cases, through the request of the convening government, was supported by international organization(s) and non-government organizations.

The objective of the Ministerial Roundtables was to have in-depth discussion on topics that are highly visible in political spheres or on "issues of the future." These topics were very specific and included issues addressed to a lesser extent in the Ministerial Declaration, which needs to be pursued further in the smaller working groups.

Topics addressed in the Roundtables are closely related to other intergovernmental processes and major meetings, including the post-2015 Development Agenda (Sustainable Development Goals) and the 21st session of the Conference of the Parties (COP21) to the UN Framework Convention on Climate Change (UNFCCC), amongst others.

1. Roundtable 1: Ensuring Safe and Enough Water and Sanitation for All

Moderators and Participants

- Moderators: Algeria, South Africa, Sri Lanka
- Participants: Angola, Indonesia, Iraq, Ireland, Mexico, Philippines, Spain, Switzerland, Turkey, Russia, Rwanda, Portugal, Tunisia, Ethiopia, Azerbaijan, Ghana, South Sudan, Seychelles, Morocco, International Water Association (IWA), UN Secretary General's Advisory Board on Water and Sanitation(UNSGAB)

Session Description

The objective of the session was to create a high-level intervention framework for identifying key success factors to guide and facilitate achievement of ensuring enough safe water and sanitation for all. Sustainable and reliable services and the application of risk management and plans were addressed as key issues.

The Roundtable was structured around the following core themes:

- Sustainable water management: understanding the concept and its application
- Safe water and sanitation for people and the environment
- Water security, building disaster preparedness and resilience and adapting to climate change
- Art of "ensuring" a successful outcome, including enabling actions, sector-wide mobilization and "smarter" water governance

Program

- Session 1: Safe Water and Sanitation for People and the Environment
- Session 2: Water security and building disasters preparedness, resilience, and adapting to climate change
- Session 3: Public policy, regulation and enabling actions for sector wide mobilization

2. Roundtable 2: Integrated Water Resources Management (IWRM)

Moderators and Participants

- Moderators: Japan, Nigeria
- Participants: Cambodia, Chad, Philippines, Samoa, Russia, Gabon, Seychelles, Israel, Kazakhstan, Qatar, Iran, Tunisia, Uzbekistan, Asia-Pacific Water Forum, Network of Asian River Basin Organization (NARBO)

Session Description

Integrated Water Resources Management (IWRM) towards achievement of a sound water cycle is a key to success for sustainable development. This includes enhancing prevention, resilience and preparedness towards water-related disasters and improving management of water allocation, access to drinking water, improving and protecting water quality by strengthening wastewater management.

The Roundtable was structured around the following core themes:

- How does each country maintain sound water cycle through IWRM?
- How can we cooperate to ensure sound water cycle through IWRM in the future?

Program

* This roundtable consisted of series of national speeches of participating countries regarding to the topic of Integrated Water Resources Management.

3. Roundtable 3: Sustainable Water Management and Conservation of Ecosystems

Moderators and Participants

- Moderators : Republic of Korea(Minister of Environment), Secretary-General of the Ramsar Convention
- Participants: Japan, Kenya, Nigeria, Papua New Guinea, Uzbekistan, Myanmar, Seychelles, Australia, World Wide Fund for Nature

Ministerial Process Roundtable 3, Hyundai Hotel Gyeongju

Session Description

Access to water and sanitation is a universal human right, and it is essential for human dignity. Against this backdrop, this Roundtable paid special attention to vulnerable communities in cities such as slums. Addressing the water services challenges that vulnerable communities face can improve economic growth as well as social equity.

The Roundtable was structured around the following core themes:

- How to manage government spending on water in an effective and transparent manner
- How to establish financing mechanisms for water infrastructures
- How to promote awareness on unequal access of vulnerable groups in urban areas to water supply
- How to protect water resources and eco-sensitive zones from unplanned development
- How to recognize the importance of water quality and quantity for biodiversity
- How to improve understanding of the values of environmental services provided by ecosystems
- How to emphasize functions and values of aquatic ecosystems
- How to recognize the importance and necessity of international cooperation on water management
- How to enhance technology transfer and knowledge-sharing for improving water management
- How to increase financial contributions to improve water management infrastructures

Program

- Session 1. Urban water management for the future we want
- Session 2. Conservation of ecosystems for water services and biodiversity
- Session 3. International cooperation for sustainable water management

4. Roundtable 4: Water-Food-Energy Nexus

Moderators and Participants

- Moderators : China, Pakistan
- Participants: Angola, Austria, Bahrain, Egypt, Ethiopia, Indonesia, Kyrgyz Republic, Malaysia, Morocco, Sweden, Tajikistan, USA, EU, Tunisia, Finland, Qatar, Germany, Georgia, IWA, International Union for Conservation of Nature (IUCN), World Wide Fund for Nature, World Youth Parliament for Water

Session Description

This session aimed at better understanding of the water-food-energy nexus through joint discussion on approaches for managing interactions among the three and exchange of national and regional practices in policy decision-making with full consideration of the tripartite relations. As such, this Roundtable invited participants to share lessons and experiences and reach consensus on further actions including information sharing as well as technological exchanges and cooperation for further development of the water-food-energy nexus.

The Roundtable was structured around the following core themes:

- To intensify research on the Nexus theory and technology for deeper understanding of the water-food-energy interactions and interdependence and to encourage technical innovation in overlapping areas;
- To introduce Nexus-related methodologies and viewpoints to the government policy making process, to promote inter-departmental dialogues and cooperation, realize synergies of policies, increase policy continuity and improve the capacity and quality of water governance;
- To reinforce cooperation and coordination among the respective goals of water, energy and food development in the international consultation and future implementation of the post-2015 development goals, so as to synergize development of the three areas; and
- To boost international Nexus cooperation and exchange and promote successful case studies by using the implementation and monitoring platforms set up at the 7th World Water Forum.

Program

* This roundtable consisted of series of statements of participating countries and observers regarding to the topic of water, food and energy nexus.

5. Roundtable 5: Financing for Strengthening Water Governance

Moderators and Participants

- Moderators : The Netherlands, World Bank
- Participants: Estonia, Jordan, Gabon, Hungary, Indonesia, Kosovo, International Secretariat for Water, UNSGAB

Ministerial Process Roundtable 5, Hyundai Hotel Gyeongju

Session Description

This Roundtable targeted ministers, leading officials and experts working on improving the efficiency of financial resources in the sector and strengthening the governance structures for the sustainability of the sector with a view toimplement the SDGs.

The objectives of the Roundtablewere to discuss how to:

1. Strengthen the enabling framework for financially sustainable water services. In particular:

- How to move the water pricing agenda forward?
- What is the role of water regulations?
- How to enhance transparency and accountability?
- The political economy of reform.

2. Design sustainable and innovative arrangements to promote the long-term sustainability of service provision.

- Identify practical ways forward to reconfigure the mix of public and private funding towards achieving water security for all in the context of the SDGs.
- How will the water sector adapt to a financing context characterized by high financial needs and scarce public finance?

Program

- Session 1. Enhancing the enabling environment
- Session 2. Increasing and improving resource mobilization

6. Roundtable 6: Adaptation to Climate Change and Management of Water- related Disaster Risks

Moderators and Participants

- Moderators : Costa Rica, Republic of Korea(Minister of Land, Infrastructure and Transport), the Netherlands
- Participants: China, Denmark, Mexico, Thailand, Turkmenistan, USA, Egypt, Monaco, Gabon, Indonesia, World Youth Parliament for Water, UNSGAB, League of Arab States, International Centre for Water Hazard and Risk Management

Session Description

This Roundtabletargeted policy makers and experts working on climate change adaptation and water hazard management in a sustainable development context.

Climate change increases the risks and exacerbates the effects of water-related hazards, jeopardizing human security and hampering socio-economic activities.

There are increasingneeds for closer interactions between water hazard risk reduction and sustainable development.

The participants discussed topics on climate change adaptation for water hazard and risk management to mobilize a broad range of stakeholder reactions in order to encourage commitment onachieving the goals.

Program

- Session 1. Emerging Issues on Water Hazard and Risk Management
- Session 2. A preventive approach towards Risk Reduction
- Session 3. Climate Change Adaptation Strategies for Water Hazard and Risk Management

7. Roundtable 7: Culture, Education and Capacity Development

Moderator and Participants

- Moderator : Hungary
- Participants: South Africa, Tajikistan, Bahrain, Gabon, Mongolia, IWA, International Council on Monuments and Sites

Session Description

- Water-related status and development of culture
- Water-related culture influenced by cross-border impacts and cross-fertilization, continental as well as global characteristics
- Education in water sector to meet professional and scientific demands at various levels (primary, secondary and vocational school, university continuing education, lifelong learning and training). Country, region, continent and globe specific features
- Education incorporating adaptation skills to climate change and variability

- Capacity development – current status and future trends, domestic sources and external support, rural and urban, social and economic aspects, needs for planned capacity building.

Program

- Session 1. Water related status and development of culture specific to countries, cross-border regions, continents and the globe
- Session 2. Education and capacity development in the Water Sector to meet professional and scientific demands at different levels, incorporating adaptation skills to climate change and variability, expression of views

8. Roundtable 8: Water for Peace and Co-Prosperity—Trans boundary Water Cooperation

Moderators and Participants

- Moderators: Tajikistan, USA, South Africa
- Participants: Australia, Austria, Egypt, Ethiopia, Estonia, Jordan, Kenya, Kyrgyz Republic, Palestine, Russia, Sudan, Switzerland, Turkey, Turkmenistan, Tunisia, Finland, Israel, Kazakhstan, Uzbekistan, World Wide Fund for Nature, Stockholm International Water Institute, Global Environment Facility, UNESCO,UNSGAB

Session Description

Throughout the world, water lies at the center of sustainable development and community. Despite its importance, much of the world's freshwater resources are threatened. Increasing demands, mismanagement and pollution are putting our surface and groundwater resources at risk. Water is becoming a limiting factor to growth and, as competition between uses – and users – grows, an increasing factor in state fragility and failure and regional insecurity.

There are cases where one country has conflict with another due to different legitimate views on how their shared water resources within a particular basin should be managed. These differences frequently push communities and countries towards cooperation and to the benefits that are accrued from basin-wide management. In some cases, these differences occur within the context of a broader set of geopolitical issues, or reinforce long-standing animosities, resulting in heightening tensions.

The goal of this Roundtable was to identify drivers for collaborative dialogues over shared water resources and to explore steps countries can take to fully realize the benefits of cooperation on water.

The discussions were organized around two themes:

- Challenges and Opportunities on Trans boundary Waters – what are the benefits of cooperation? What are the costs of not cooperating? What are the challenges that need to be overco. me? How are the benefits communicated, and by whom?
- Ways Forward – What defines a "successful" cooperation, in terms of scale and time horizon? What are the examples of successful cooperation and how can they be duplicated? What are the tools available for countries seeking support?

Program

- Scene Setting Presentation on the challenges and opportunities around transboundary waters, by Stockholm International Water Institute (SIWI)
- Session 1. Challenges and Opportunities on Transboundary Waters
  - Key Questions : (1) What makes effective cooperation? (2) What are the costs? (3) What are the impediments to cooperation? (4) How can discussions on transboundary water issues be framed in a more positive manner?
- Session 2. Ways Forward
  - Key Questions : (1) How do we define success? (2) Examples of institutions for promoting cooperation on transboundary waters. (3) How do we ensure mechanisms for cooperation are flexible and robust enough to respond to changing environmental and political conditions? (4) What are the tools available to support country efforts to improve cooperation?

IV. Parliamentarian Process

1. Overview

Parliamentarian Process, HICO Gyeongju

The Conference of Parliamentarians for Water took place on April 15th, 2015 at the HICO convention center in the city of Gyeongju, Republic of Korea. 71 members of Parliaments from 27 countries participated to the conference, including 6 Speakers of Parliaments, and 4 Vice Speakers of Parliaments. Participants renewed their commitments in the necessities of the Water Legislation Helpdesk, which was proposed during the Parliamentarian Process of the 5th World Water Forum in Istanbul. They also agreed that active participation of the youth can be an important factor in solving water issues. Participating parliamentarians adopted the Parliamentarian

Statement which urged the international community to consider the water issue more during budget allocation. Furthermore, they jointly declared to make commitments in advancing cooperation in fields such as legislation against clime change, transboundary water management, and water as a human right. In addition to the plenary sessions, there was a special cross session between various stakeholders – parliamentarians, international organizations, NGOs.

[The Program of the Parliamentarian Conference]

Time	Category	Details
09:00 ~ 09:50 (50 min)	Opening Ceremony	Welcoming Speeches Benedito Braga, President of WWC Ju-young Lee, Korea Jiko F. Luveni, Fiji (Speaker) Abdulla Maseeh Mohamed, Maldives(Speaker)
09:50 ~ 10:00 (10 min)	Photo Session	
10:00 ~ 10:40 (40 min)	Parliamentarian Helpdesk	Presentation of the Helpdesk for Parliamentarians and its objectives Organizer : World Water Council Sophie Auconie Jeong-woo Kil, Korea Michel Lesage, France Mlungsi Johnson, South Africa Lambert Kahiba, Cote D'Ivoire
10:40 ~ 11:40 (60 min)	Plenary Session I	Topic : Water & Climate Change Jean Launay, France(Facilitator) Laszio L. Simon, Hungary OMAR Fassi Fihri, Morocco Wan-young Yi, Korea
11:40 ~ 13:10 (90 min)	Lunch	Venue : HICO VIP Lunchspace (4th Floor)
13:10 ~ 14:20 (70 min)	Plenary Session II	Topic : Water Governance Joshua Newton, Water Consultant(Facilitator) Sung-kull Yoo, Korea Christine Defraigne, Belgium(Speaker) Aaron Irizar Lopez, Mexico Sybe Schaab, Netherlands Abbas Rajaei, Iran Ha Huy Thong, Vietnam
14:20 ~ 15:20 (60 min)	Plenary Session III	Topic : Right to Water Stephane Dion, Canada(Facilitator) Jasmine Lee, Korea Juntin B. Muturi, Kenya(Speaker) Cavay Yeguie Djibril, Cameroon(Speaker)
15:20 ~ 15:40 (20 min)	Coffee Break	
15:40 ~ 16:40 (60 min)	Shaping an ideal national Water Law	A Special Cross Session Multi-Stakeholder Dialogue Organizer : WaterLex Yoon-ok Park, Korea J.J. Mwimbu, Zambia Luc Recordon, Switcherland Jan Van de Venis, WaterLex Zaki Shubber, UNESCO IHE Chantal Demilecamps, UNECE
17:00 ~ 18:00 (60 min)	Closing Ceremony	Presentation of the Parliament Statement Jeong-woo Kil, Korea Closing Comments Juntin B. Muturi, Kenya(Speaker) Woo-taik Chung, Korea Jung-moo Lee, Chairman of the National Committee
18:30~	Official Dinner	Venue : Hotel Hilton Gyeongju Host : Woo-taik Chung, K-water

2. Outputs and Achievements

Participating parliamentarians adopted the Parliamentarian Statement by consensus. The Parliamentarian Statement focused on the importance of water legislation, plans and actions to advance water-related budgets. As a result of a special cross-session in which parliamentarians, NGOs participated, they reaffirmed commitment to the human right to safe drinking water and sanitation and ensuring progressive access to water and sanitation for all. Regarding the global sustainable development agenda, they supported the inclusion of one dedicated water goal and water-related targets in the post-2015 Development Agenda.

tion of the Parliamentarian Statement, HICO Gyongju

Local and Regional Process Opening Plenary, HICO Gyeongju

Parliamentarian Process Official Dinner, Hilton Gyeongju

V. Local and Regional Authorities Process

1. Overview

The Local and Regional Authorities Conference took place in April 13th – 14th, 2015 in the city of Gyeongju, Republic of Korea. Delegates and government officials from 95 local and regional authorities from 26 countries participated to the conference. Also, 330 participants from international organizations and civil society were present.

Highlights included the Study tour of Daegu and Gyeongbuk water management sites, a Mayor's Panel, a roundtable dialogue for Water and Cities, and the Daegu-Gyeongbuk Water Action for sustainable cities and regions.

2. Opening Plenary

The aim of the 4th Local and Regional Authorities Conference was to monitor progress under the title of "Towards a Roadmap for Implementation." Water management needs to transform from the existing linear system to a recycling and integrated system which combines the cycles of water and energy resources. This transformation can lead to future resolutions to water issues.

"Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions" reflects better water management and policy which are expected to be derived from this conference. The Action is divided into the strategies for local authorities and central governments. The final document was confirmed after reviewing participants' opinions collected during the conference.

Water operators (private and public companies) need to play a main role in managing basic water services. This will allow local authorities and water operators to share the best practices through mutual interactions. This could in turn lead to reasonable and efficient solutions to provide clean water to all as planned.

The Local and Regional Authorities Conference produced four suggestions for more effective management of water resource and solutions for water problems. Firstly, there is general agreement on integrated water management to deal with water-related issues. Secondly, there needs to be policy transformation from river development to eco-friendly restoration of river which can reflect cultural and ecological features of individual regions. Thirdly, urban water management needs to be built upon a sound foundation of governance. Fourthly, a platform for water management needs be created to deal with urban water issues.

NGOs, local authorities and central government around the world face four challenges. First is climate change. Second is that out-

of-control urban sprawl have caused slums and poverty. Third is growing problems of water pollution and shortage. Fourth is how local authorities cope with the lack of infrastructure. This could affect the whole system since there is no cooperation between local and central governments.

3. Mayor's Panel

Local and Regional Process Opening Plenary, HICO Gyeongju

The management of water and sanitation at the local level remains one of the essential services that local authorities in all parts of the world are committed to providing to their citizens. In order to do this, local authorities need a clear institutional framework and adequate resources. In other words, effective decentralization and financial means that enable the provision of services to citizens.

Other mechanisms such as decentralized cooperation and voluntary commitments, like the Istanbul Water Consensus, can complete this approach to service delivery. Several cities have adopted the Istanbul Water Consensus, and the session allowed participants to review the situation and see how this mechanism has improved the management of water and sanitation at the local level.

In France, all citizens have free access to water up to 20m^3, but there is a fee charged for water use that exceeds 20m^3. For water security, the French government has made efforts to consolidate the connectivity between different water resources so if water supply from one source has problems, alternative sources can make up for use. Furthermore, there has been an increase in water and sewage treatment plants and improvements which increases the effectiveness of public water treatment system. 1% of the profit from water supply service has also been used to support sister cities in Senegal.

In Africa, it is customary to build 450m deep well facilities to access water, which costs about 1 million dollars for excavation. Thus, in Africa, it is necessary to have practical projects rather than theoretical ones. Tahoua city, for example, has built four water towers which supply 15m^3 per person with support from the World Bank. This project has significantly improved the quality of citizens' lives in Tahoua. However, there are still a large number of people who need financial support for the project.

Uberlandia city has set two objectives: one is that water as public good needs to be supplied by public service providers, and the other is that water as an environmental good needs to be managed from the perspective of environmental conservation. The city has made various educational and promotional materials in order to achieve the objectives, and has encouraged water reuse.

Gyeongju opened a water resource research center and introduced for the first time environmental technology for water treatment. The center acquired three patents including one for GJR method which enables water treatment in 15 minutes and also received the Technology Innovation Award from the government. As the host city, Gyeongju wished to share the latest technology and its experience to solve water-related issues such as water restoration.

Water-related issues are closely bound up with governance issues. In Turkey, metropolis and administrative departments, which have rapidly grown for the last few years, are responsible for ensuring access to water resource to urban citizens. The association of local authorities in Turkey not only has made joint efforts to improve matters but also to transfer as much information about water management as possible to new metropolis. In the case of Istanbul, a progressive tax system was introduced for the purpose of reducing water use.

4. Roundtable: Water and Cities

Local and Regional Process Roundtable, HICO Gyeongju

The Istanbul Water Consensus(IWC), which was presented at the World Water Forum in Istanbul in 2009, acknowledges the need for concerted efforts in urban water management, and commits its signatories to taking stepwise action to do so. A series of Dialogue for Water and Cities starting in May 2013 at the 3rd World Urban Forum, which was proposed by GWOPA/UN-Habitat as a process to facilitate the implementation of the IWC, reaffirmed the necessity of further coordination between land and water planners, municipalities and their service providers for integrated urban water management(IUWM). This dialogue session was the

final one to conclude this process and discussed how to address the challenges to facilitate IUWM in the spirit of the IWC.

The dialogue session started at GWOPA in the end of 2013, and focused on strengthening water operators' capabilities from nonprofit perspective in the beginning, but later concentrated on integrated water management and governance related to water issues as one of the SDGs. Those cities which have already adopted integrated water management systems shared their experience with other local and regional authorities. The dialogue for further cooperation will continue and its progress will be announced at the 3rd UN-Habitat in 2016.

Cape Verde is undertaking the National Territorial Development Project, and there have been a quite number of dialogues between the principal agents of the project and water management. It was attempted to involve water management agencies as much as possible in the management of the whole water resource system.

Amiens in France dispatched water sanitation agents to Cape Verde and jointly worked to improve water and sewage grid in Cape Verde. In addition, the city invites Cape Verde technicians to France to receive education programs for water resource management.

Currently there are many companies in Mexico which provide advanced water-related services. However, cooperative projects rarely succeed due to lack of management system and regulation. In the future, more effort will be needed to integrate various operators to achieve more efficient cooperation. In addition, central and local government should strengthen their capabilities for cooperation and make continuing efforts to keep the channel for dialogue open.

eThekwini is preparing a plan for water and sewage and wastewater treatment under the spatial development plan. Sewage and waste water treatment facilities have deteriorated but there is no land to build new facilities. Thus, there are strong needs for new technology which can increase capacity for sewage and waste water treatment while taking as small land as possible.

In Palestine, the water service sector manages 100% of water resource. The Water Resource Management Agency has no authority to manage water resources but has established policy and strategies to improve water management. After reform to improve the water management system, the Agency acquired three main functions: to have governmental authority on water-related issues, to manage waste water and to manage water resource.

Papua New Guinea has abundant water resources but water quality is seriously impaired by the extraction of natural resource such as oil. In addition, 90% of the population inhabits in rural areas and thus people are in dire need of safe drinking water.

At present, there are 45 WOPs (Water Operator Partnerships) in Asia. Among successful cases of WOP cooperation, the case of Malaysia and Indonesia is particularly noticeable as an effective partnership.

Most of all, the cooperation between water operators is essential for sustainable water management. It is believed that the cooperation between GWOPA and local and regional authorities can produce sustainable outcomes for the future where civil society also participates under the title of "Remunicipalization".

5. Conclusion

After reviewing participants' opinions for two days in the Local and Regional Authorities Conference, "Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions" was amended in 2 sections; First, historical and traditional value of water was added and second, it required sharing experiences in innovative financing mechanisms.

In the Korea's "Pilot Initiative on Sustainable Basin Management in Urban Area," under Kyeyang stream basin comprehensive plan, the River Basin Management Council was established to coordinate plans of central and local governments and related institutions.

There have been 4 meetings for basin governance where various alternatives were developed and a new paradigm for flood control measures was suggested. This enabled projects operated by each department of the government to be optimally coordinated and thus, a new concept of flood control to be developed.

The Council activities will become systematically organized and standardized. Furthermore, the projects will be applied to 10 other basins which need to develop a new plan to solve flood problems and 11 basins of which initial plans were set similar to the plan for Kyeyang Stream but need to be revised due to insufficient management.

Local and Regional Process Closing Plenary, HICO Gyeongju

Regional Process

I. Overview

1. Role and Goal of the Regional Process

The Regional Process was organized at the pan-regional, sub-regional, national, and local level to offer regional perspectives on global issues. Interested parties discussed current region-specific water and related issues while exploring potential solutions.

Regional water issues should not only align with global agendas such as the overall framework of the 7th World Water Forum and Sustainable Development Goals (SDGs), but also with other components of the World Water Forum, so as to facilitate future discussions.

The Regional Process is critical as regional issues are likely to persist due to their deep-rooted nature. Unlike the global process, which is subject to changing trends, the regional process is more likely to realize 'implementation', which is the core value of the 7th World Water Forum.

2. Characteristics and Operational Structure

It was crucial for the Regional Process to encourage practitioners and workers that engage directly with water-related challenges at both the local and regional level to participate in the World Water Forum.

Seven regions were selected and each designated a Regional Coordinator (RC) responsible for overall management of regional programs, while Session Coordinators (SC) served under the RC and were responsible for the operation of each session.

Seven Regions

Seven regions were selected by geographic and environmental classification for the 7th World Water Forum:

- 4 Principal Continents: Africa, Americas, Asia-Pacific and Europe
- 3 Cross Regions:
  Arab, Mediterranean, and Economically Water Insecure (EWI)

Africa, Americas and the Asia-Pacific were further subdivided into sub-regions with designated Sub-Regional Coordinators to oversee geographically and culturally divergent water issues within the continents.

Regional Coordinators, Sub-Regional Coordinators, and Session Coordinators were selected according to ability to oversee programs and representation of diverse stakeholders.

The regional processes, unlike other processes, received financial assistance through the International Steering Committee (ISC) which was funded by the host country (Republic of Korea) to ensure wide participation of various water-related stakeholders.

The Regional Sessions consisted of Inter-Regional Sessions (one common issue of multiple regions), Regional Issue Sessions (one issue of one region), and Regional Final Sessions (regional issue synthesis).

3. Regional Process Commission

The Regional Process Commission (RPC) was responsible for developing the overall framework of the Regional Process and managing the entire process. It was the decision-making body to determine regional/sub-regional classification, to approve Working Groups (Design and Session Groups), to decide on financial assistance for Working Group activities, and establish session guidelines.

Regional Process Commission Members

RPC in Forum Week	Name	Profile
	Byung Man Choi **Co-Chair**	Executive Director, K-water Institute
	Torkil J. Clausen **Co-Chair**	Chief Policy Adviser, DHI Group Senior Adviser, GWP Chair, Scientific Programme Committee for the WWWS

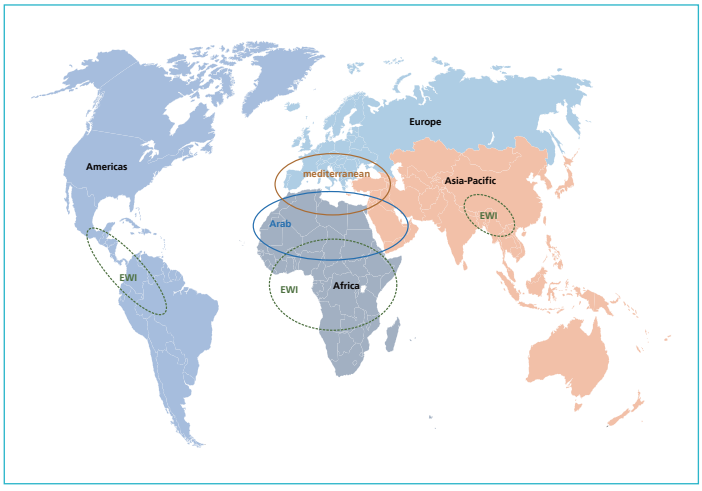
** Last name alphabetical order*

RPC in Forum Week	Name	Profile
	Un-il Baek	Executive Vice President, DAELIM industrial Co. Ltd.
	Daesu Eo	Director, Korea Rural Community Corporation Institute, Secretary General, NOC for 2014 ICID Gwangju Congress
	Dale Jacobson	Board of Director, AAWRE International Council, AWWA
	Hachmi Kennou	Executive Director, Mediterranean Water Institute (IME)
	Joong Hoon Kim	Professor, Civil, Environmental and Architecture Engineering, Korea University
	Avinash Tyagi	Secretary General, International Commission on Irrigation and Drainage (ICID)

II. Key Components

1. Regions

The Regional Process is comprised of 4 Principal Continents (Africa, Americas, Asia-Pacific, and Europe) and 3 Cross-regions (Arab, Mediterranean, and Economically Water Insecure). The regions are shown on the following map.



2. New and Innovative Content Introduced at the 7th World Water Forum

The Regional Process is comprised of 4 Principal Continents (Africa, Americas, Asia-Pacific, and Europe) and 3 Cross-regions (Arab, Mediterranean, and Economically Water Insecure)

Inter-Regional Sessions

The purpose of these sessions was to share experience and knowledge from each continent to facilitate common understanding and implementation. After the Inter-Regional Sessions, participants expressed their desire to see this platform be used in the future for global knowledge sharing.

Regional Common Issues and Inter-Regional Sessions

Inter-Regional Sessions	Regional Issues (Theme No. of the Thematic Framework)	Africa	Americas	Asia-Pacific	Europe	Arab	Mediterranean	EWI
1	Adapting to Change (1.3)	X	X	X	X		X	
2	Water and Food Security (2.1)	X(2.2)	X	X		X		X
3	Safe Water and Sanitation (1.2)	X(1.1)	X	X(1.1)			X(1.1)	
4	Water in Cities (2.3)			X	X	X		
5	Transboundary Water Management (4.3)	X			X	X		
6	IWRM (3.4)			X		X	X	
7	Effective Governance (4.2)		X				X	X
8	Linking Science&Technology				X		X	
9	Infrastructure (1.4)	X						X
10	Caribbean & Pacific		X	X				
11	Green Growth (3.1) & Water Efficiency			X	X			

** In total, 11 Inter-Regional Sessions were composed of 34 individual sessions by region.*

Economically Water Insecure (EWI) Region

This World Water Forum introduced cross-regional sessions on an experimental basis. The EWI sessions brought together participants from four regions to share experiences and lessons from countries and regions facing similar water and economic constraints, without having session participation limited by geographic proximity.

Following the session, feedback from participants on this newly introduced cross-regional process was resoundingly positive, with EWI session participants lauding it as a positive learning experience of sharing across geographical divides, and with virtually unanimous wishes to see this session again in future World Water Forums.

III. Regional Major Outcomes

1. AFRICA

Regional Overview

Africa is the world's second-largest continent with a land area of 30.2 million km2, 54 countries and a population of 1.17 billion, of which about 44.5% live below the poverty level.
The continent of Africa faces serious economic water insecurity due to very low level of water infrastructure development.

- 69% of the population has access to improved drinking water, while only 45% has access to improved sanitation facilities (2014)
- Only 31.8% of potential irrigable land is in use, while only 8% of the region's hydropower potential has been developed.

A large proportion of Africa's water resources (both surface and ground water) is transboundary in nature.

- 80% of the world's 200 major transboundary river and lake basins are located in this region.
- Africa also has 83 transboundary ground water aquifers.

Africa, which makes a low contribution to greenhouse gas emissions, is likely the most affected by the impact of climate change.
Africa aspires to host the 9th World Water Forum in 2021.

Regional Progress

The African Minister's Council on Water (AMCOW), a specialized technical committee of the African Union, coordinated the Africa Regional Process.
The host country (Rep. of Korea), based on the decision of the ISC, and the African Development Bank (AfDB) provided technical and financial support for the Africa Regional Process. The African Regional Economic Communities (RECs) played an active part in the 5 regional meetings.

The Africa Regional Process aimed to raise awareness among a broad range of stakeholders, including political leaders, on the enormous challenges that remain in Africa on various water issues. It also sought to rally support for increased efforts to tackle water sector issues and unlock the sector's potential as an engine of economic growth and social prosperity, as well as contribute to achieving The Africa Water Vision for 2025. The Process emphasized domestic solutions and focused on implementation.

Africa Sessions

1) *[Water and Food Security in a Changing World: Regional Perspectives]** Water for Food Security and Energy in Eastern Africa

2) *[Transboundary Water Management : In Search of Excellence in Europe, Africa and the Arab Region]* Africa Region

3) *[Climate Change Adaptation and Mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean Region]* Risk Management and Water-related Disasters: Solutions for better resilience and crisis preparedness in Africa

4) Strategic Water Infrastructure Development for Sustainable Water Resources Management and Services: An African Perspective

5) Managing Shared Aquifer Resources in Africa – a side event

6) Enough Safe Water and Integrated Sanitation for All: Where we are and what's next?

7) (Final Session: Regional Issues Synthesis) Africa Regional Process - High Level Ministerial Panel

The climax of the Africa Regional Process was the Final Session convened by AMCOW. This session recapped the outcomes of the Africa Regional Session and provided a platform for deliberation on the future of water and sanitation needs in Africa.
During that session, Africa Water Ministries confirmed the readiness of Africa to host the 9th World Water Forum.

Key Messages

1) Africa has made steady progress in increasing access to adequate water and improved sanitation, but hundreds of millions of people on the continent remain without access to these services. Therefore, Africa needs to keep up momentum in water and sanitation development to serve the millions of people without access.

2) Sustainable financing is critical in bridging the large infrastructure gap and securing sustainable water resources management and development in Africa. A mixture of financing approaches needs to be pursued to reach this goal. Central to the mixture is public finance (i.e. - funding from the African governments to the water and sanitation sector). African governments must be prepared to increase public spending on water and sanitation. Increased financing is also sought from the international community.

3) Greater sharing and exchange of experiences across Africa will help to improve performance of countries with respect to meeting water and sanitation targets.

4) Africa strongly supports the adoption of an SDG on water and sanitation. This will help Africa maintain a high level of priority for water and sanitation.

5) Africa aspires to host the 9th World Water Forum and is ready to showcase successes to the rest of the world.

Recommendations from the Final Session

1) Countries needed to pay greater attention to the emerging challenge of increased need for financing, maintenance and replacement in water and sanitation systems.

2) The final session re-iterated the need to raise awareness amongst political leaders to increase budgetary allocation for disaster risk management, and strengthen climate and water resources observation and early warning networks and systems.

3) African governments need to increase and sustain budgetary allocations for water infrastructure development.

4) African countries need to explore and utilize various climate funds that offer new opportunities for water sector framing.

5) African governments need to mainstream water for food security and energy in their national water visions and long-term strategies.

6) The final session re-iterated messages of the earlier African Regional Process to support the establishment of new River Basin Organizations (RBOs) to manage transboundary river, lake, and groundwater basins, and strengthen the existing transboundary RBOs.

** Session title in the square brackets ([ ]) refers to the Inter-Regional Session title.*

2. AMERICAS

Regional Overview

The Americas extends from the northern end points in Canada and the US to the southern most points in Argentina and Chile, including the island states of the Caribbean. It has a surface area of over 40.6 million km2, accounting for just over 30% of total global land area. The region includes 35 countries and 41 economies; in 2013, its total population was estimated at more than 982 million, or 13.5% of the world population.

Any discussion of water in the Americas must take two facts into consideration: first, its national diversity and second, the complex interaction of water with social, economic, and political realities of an increasingly globalized world.

National Diversity The region encompasses great landscape diversity, a wide variety of natural resources, and considerable biodiversity, as it extends from the North to the South Pole. While the largest rivers of the Americas carry more than 30% of the world's surface water including 20% in the Amazon River basin, 30% of the area receives less than 3,000 mm of rain per year.

Due to its geographical location and changing climate conditions, the region is also vulnerable to natural disasters, specifically in the Gulf of Mexico, the Caribbean, and Central America.

Society, Economy and Politics More than 80% of the population live in or around cities making the region the most urbanized in the world.

The diverse average GDPs in the Americas illustrates some of the challenges the region faces: the average per capita GDP in North America is $41,042, compared to $4,050 in Central America, $10,098 in South America, and $7,191 in the Caribbean.

Out of the 622 million people living in Latin America and the Caribbean (LAC), 167 million live in poverty. Almost 2/3 of the poor in LAC live in cities. Many live in vulnerable areas that hinder access to basic water and sanitation services.

Poverty is directly linked with the unequal distribution of income, the fragile working conditions, low salaries, underemployment, and informality, affecting especially the most vulnerable groups, including women and indigenous people.

Transboundary Waters About 71% of the surface flow of the Americas is produced in transboundary basins; most notably the Amazon River and the Rio de la Plata in South America, the San Juan River and Lempa River in Central America, and the basin of Rio Grande/Bravo and Great Lakes in North America. These systems cover 55% of the total area of the continent. Transboundary basins account for 75% of total flow in South America and 24% in Mexico and Central America.

In the Americas, there are several agreements and treaties on water systems and transboundary water bodies; the individual arrangements for the basins of Canada-US and US-Mexico particularly stand out.

Irrigation and Hydropower Irrigation has played an important role in the development of many countries in the Americas, mainly in Argentina, Brazil, Chile, Mexico, and Peru. Almost 100% of Chile's agricultural exports and 50% of Mexico's come from irrigated areas. With some exceptions, agriculture is the main consumer of water, accounting for 70% or more of water extracted.

A common feature of all countries in Central and South America is the high proportion of hydropower in the energy matrix, with an average of over 56% of electricity generated by hydroelectric plants. While hydropower has played an important role in many countries in the region, on average only 26% of economically exploitable hydropower potential has been developed in Latin America, which is higher than the potential developed in Asia (20%) and Africa (7%).

Regional Progress

The ISC and the RPC decided that the Americas would be divided into sub-regions and thus, the region would have a Pan-regional Coordination, under the responsibility of the National Water Commission (CONAGUA) and the National Association of Water and Sanitation Utilities of Mexico (ANEAS), and four organizations coordinating the sub-regional work: ASCE-EWRI (North America), IMTA (Mexico), GWP (Central America and the Caribbean) and CAF and ABDIB (South America).

Based on the 16 themes of the World Water Forum and after various exchange and consultation meetings, 6 regional themes were developed: Water and sanitation for all; Water for Food; Water and Energy; Adapting to Change and Risk Management; Managing Ecosystems for humans and nature; and Governance and Financing for sustainability.

Americas Sessions

The Americas Regional Sessions at the 7th World Water Forum were as follows:

1) *[Water and Food Security in a Changing World: Regional Perspectives]* Successfully Addressing the Challenges

of Food Security with Available Water Resources in the Americas Vastly Diverse Regions while Contributing Expertise and Technology to Others

2) Ecosystems and Water Services: the Connection for Water Security

3) *[Climate Change Adaptation and Mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean Region]* Americas Region

4) *[Effective Governance]* Challenges and Solutions to Achieve Strengthened Water Policies, Multi-stakeholders Participation and Informed Decision Making for Effective Governance in the Americas

5) Water-Energy Optimization for Future Water Security

6) *[Enough Safe Water and Integrated Sanitation for All: Where are we and what's next?]* Americas region

7) Inter-regional Session for the Caribbean and the Pacific: facilitating the Inter-regional Cooperation for Better Water and Sanitation Service Provision through Information and Experience

8) (Final Session: Regional Issues Synthesis) What Does the World Can Learn from America about Water?

Key Messages

1) Governance and funding sustainability

- Countries have created the legal and institutional reforms in order to achieve adequate water governance under which the management of water resources is carried out in an integrated and sustainable manner, contributing to a productive economy and environmental protection.

- The models of decentralized water management, aligned with the realities of each country, have developed significantly to include the effective participation of users and concerned society members, as well as supporting financial mechanisms.

- To promote a reform of the Bilateral Investment Treaties (BIT), in order to guarantee each state that the regulation of use and efficient supply of water is considered legal and therefore compensable economically, as well as to allow the design and implementation of public policies that promote and protect the general interest.

- To encourage the participation of industry and other private sector actors and partners of government agencies and civil society in the implementation of programs that help in the effort to achieve the goals in the Water Agenda of the Americas.

2) Water and sanitation for all

- The countries of the Americas have met or are close to achieving universal access to water and sanitation in terms of quality, affordability, accountability, citizen participation and acceptability that integrate and enforce the human right to water and basic sanitation.

- With the support of public policy based on population size, water and sanitation service provider are moving towards financial sustainability by increasing efficiency. Providers are also setting rate structures that reflect the actual cost of services and greater rationality in the use of resources and subsidies.

3) Water for food

- Countries have eradicated or are close to eradicating hunger. They have also contributed to global food security by developing an of economically viable and competitive agriculture that conserves land, water, plants and animal genetic resources.

- Countries have increased water productivity through: programs targeted toward increasing efficiency in all stages of the production cycle; the application of technology and software innovation; and strengthening user organization programs.

- The expansion of the agricultural irrigation priorities, which was necessary to meet the needs of the population and other productive activities, relies heavily on the reuse of treated and/or low quality water.

4) Water and energy

- The countries of the region are moving towards developing their hydropower potential in harmony with other energy sources and with due consideration of the affected communities and the environment.

- The introduction of new technologies and management systems allows for efficient use of water required for energy production and the energy required to provide water

services.

5) Adapting to change and risk management

   - Countries in the region have developed and implemented stronger climate services and integrated their products in the decision-making process of the socio-economic sectors through effective dialogue between suppliers and users.

   - Countries have developed comprehensive risk management programs (including both structural and non-structural measures) in watersheds and aquifers that are more vulnerable to extreme weather phenomena.

6) Managing ecosystems for human nature

   - Countries recognize the fundamental role that ecosystems play to guarantee water security and provide water services, which are essential to sustain life.

   - Policies for allocation of water resources have incorporated mechanisms to ensure the necessary reserves that guarantee the ecological flow required for conservation of vital ecosystems and the provision of environmental services.

The Americas Regional Process, under a common vision, sought to create synergy to overcome existing challenges using lessons learned.

The 7th World Water Forum was an opportunity to analyze the priorities and aspirations of the countries that make up the Americas. Representatives presented, from their own perspective, the development paradigm that will govern the New Development Agenda Post 2015, with a focus on sustainable development, equality and structural change, and that will support the decisions for a new paradigm shift within the region and the global community.

Recommendations from the Final Session

1) Internalize the concept of IWRM in regulatory frameworks, recognizing the need to promote a coordinated use of water, and adopting basins and aquifers as units of planning and management of water

2) Foster the stability of water rights with necessary regulations to prevent the transfer of negative external factors and promote flexibility of relocation as needs and economies evolve, while maintaining natural supply stability.

3) Link efforts to achieve universal water services and sanitation with programs for food security and poverty eradication.

4) Prioritize public and government support to improve the physical and commercial efficiencies of water and sanitation providers. Support appropriate rate and subsidy structures, which form the basis for advancing the financial sustainability of services.

5) Conserve agricultural water use by reducing losses along the chain of production and consumption, including supporting Global food waste reduction and the adoption of diets with less water.

6) Support applied research and development of techniques for sustainable agriculture, boosting the dissemination of sustainable technological and managerial innovations, which are adaptable and accessible to all farmers.

7) Support the strategy for hydroelectric potential exploitation with a dialogue between business, government, users, and communities that allows the establishment of the procedures to define a program that is enforceable.

8) Update existing inventories of hydroelectric potential to be compatible with the environmental and social standards of each country, and strengthen long-term indicative planning, including regional participation and identification of potential conflicts.

9) Encourage strengthening legal and institutional in adapting water resources to climate change.

10) Integrate national emergency systems with technologies designed for monitoring climate change and water resources.

11) Improve the capacity to access vulnerability and risk conditions.

12) Support the design and implementation of local adaptation actions along with institutional support to make these actions sustainable.

3. ASIA-PACIFIC

Regional Overview

The Asia-Pacific region accounts for 40% of global land area and 60% of the world population. The current population of 4.4 billion is expected to grow to 5.1 billion by 2050. Asia's expanding population will increase demands for water for drinking, hygiene and food production, and increase waste water discharge, severely impacting the environment and national resources.

In addition, the Asia-Pacific is one of the most rapidly urbanizing areas in the world. Asia is today home to 53% of the world's urban population. By 2050, Asia's urban population will likely to increase to 61%. The rapid urban population growth has outpaced the investment capacity of new urban administrations, and waste water is often released into rivers, lakes and ground water aquifers. Furthermore, 80% of Asia's rivers are in poor health, jeopardizing economies and the quality of life.

Food security remains an urgent and significant concern in the region. Agriculture in Asia accounts for over 80% of annual average water withdrawals. Global trends such as population increase, economic growth and climate change will impact the agriculture sector the most

During the last two decades, over 2.3 billion people gained access to improved sources of drinking water, mostly in India and China. Despite overall regional achievements, there were still 360 million people without access to safe drinking water in 2011.

Improved access to basic sanitation still remains as the bigger challenge. Although over 2 billion people have gained access to improved sanitation facilities during the last 20 years, 1.67 billion people in the region continue to live without access to improved sanitation and more than 750 million people still suffer the indignity of practicing open defecation.

Regional Progress

For the 7th World Water Forum, the Asia-Pacific Water Forum (APWF) and the Korea Water Forum (KWF) were designated as the coordinators of the Asia-Pacific Regional Design Group and hence, led the Asia-Pacific Regional Process according to the policies and roadmaps presented by the RPC.

The APWF and the KWF organized a series of preparatory meetings, stakeholder consultation meetings and a regional kick-off meeting (Preview Session). Afterwards, the Asia-Pacific Regional Process identified its priorities around the following themes: Water and Cities; Water and Green Growth; Water and Food security; Water related Disaster; Integrated Water Resources Management (IWRM); Rural Water and Sanitation; Development of Cooperation in the Aral Sea Basin; Transboundary Rivers in Northeast Asia; Korea-Japan-China Trilateral Cooperation; Hydrological Services; and Inter-regional cooperation between the Caribbean and the Pacific. Theme leaders and team members were selected accordingly.

In addition to the formal regional preparatory meetings, there were a number of informal/formal consultations and preparatory meetings involving the Regional Design Group, Session Groups and Sub-regional Coordinators.

Asia-Pacific Sessions in Korea

1) *[Living with Water in Cities of Tomorrow: Challenges and Ways Forward towards Implementation of Solutions Based on Cases from Europe, Asia-Pacific, Americas and Arab Countries]* Asia-Pacific Regional Session

2) *[Water and Energy Efficiency for Green Growth]* Water and Green Growth in the Asia-Pacific

3) *[Water and Food Security in a Changing World: Regional Perspectives]* Successfully Managing Asia's Transitions to Achieve Food and Nutrition Security for All and Build Vibrant Rural Communities in a Water Secure and Prosperous Asia Pacific Region.

4) *[Climate Change Adaptation and Mitigation in Africa, Americas, Asia-Pacific, Europe, and the Mediterranean Region]* Building Resilience to Water-related Disasters in the Asia-Pacific Region.

5) *[SMART Implementation of IWRM]* Future IWRM in Asia-Pacific - What We Have Achieved and Outlook by Focusing on River Basin Level-

6) Special Issue Session: "Development of Cooperation in the Aral Sea Basin to Mitigate Consequences of the Environmental Catastrophe"

7) Integrated Ecosystem Management of Transboundary River in Northern Asia.

8) Korea-Japan-China Trilateral Forum on Water Resources: "Trilateral Cooperation for Water Policy Innovation in Response to Persistent and Emerging Water Challenge"

9) Hydrological Services in Asia under Rapidly Changing Conditions

10) *[Enough Safe Water and Integrated Sanitation for All: Where we are and what's next?]* Asian Sanitation Solutions Debate: Youth and Civil Society Accelerate Progress in Sanitation and Hygiene in Asia Pacific

11) *Inter-regional Session for the Caribbean and the Pacific:* Facilitating the Inter-regional Cooperation for Better Water and Sanitation Service Provision through Information and Experience

12) (Final Session: Regional Issues Synthesis) Asia-Pacific Regional Synthesis and Commitment Session at the 7th World Water Forum

Key Messages

1) The Asia-Pacific region is very socially, economically, culturally, politically, and geographically diverse, with varying sizes and different stages of development and transition that present both opportunities and challenges. The region is also experiencing rapid change that poses yet more challenges to sustainable development.

2) There are, however, some common principles that underpin regional water security. Those principles are policy development that focuses on infrastructure and institutional and information support that leads investment and capacity building to implement policies. Technology is also necessary to support policy implementation.

3) Moving from insights to action requires the identifying what is to be done, who is to do it, and how to do it. Apex organizations should continue to play a crucial role as they operate in multiple locations with a wide range of actions and partners, including government. In order to do so, they need to be called "lateral" and "linear," meaning they should work widely across the region as well as deep inside each country. Moreover, building credible case studies as the basis for recommendations is essential, for no case can be made without examples.

4) Messages should be crafted smartly. Cases should be made on economic, social, and political grounds to appeal more to decision-makers - both bureaucratic and democratic. Monetizing benefits and losses and/or other non-monetary indicators and tracking methods should be employed. Each of these processes should be measured.

5) Governments should take a larger role in setting regulations, incentives and targets by using tools such as the IWRM and efficient water resource management, as well as engage a range of stakeholders with the benefits of good up-to-date information. They should manage these factors against the background of transition in the Asia-Pacific region and trade-offs between economic, social, and political objectives.

Recommendations from the High-level dialogue at the Regional Synthesis Session

1) Involve other decision makers, such as the Finance and Planning Ministers, who allocate resources, in tackling water issues.

2) Improve infrastructure investments and water tariffs to achieve an economically sustainable model for water security.

3) Scale up capacity investment in water-related institutions.

4) Emphasize importance of governance for effective policy implementation.

5) Develop the concept of alliances and partnerships beyond customary friendship. Incorporate youth movements and civil society so they can contribute significantly to solving the regional current and future water challenges.

6) Implement a good monitoring platform using indicators for reviewing, and measure the progress in reaching the internationally agreed targets.

4. EUROPE

Regional Overview

Europe is often considered leader in the water sector. It is home to most of the world's top water companies, and European countries have developed some of the most advanced political and regulatory tools, considered by many water experts as models that should be adapted and replicated in other regions.

European Water Directives are a case in point: the Water Framework Directive, for instance, sets very ambitious environmental objectives for the IWRM at the basin level.

This assessment is equally true for other European instruments such as the 1992 Water Convention which gives a clear framework to foster transboundary cooperation, or the Protocol on Water and Health, which states that water should be affordable for all since it is no ordinary good (solidarity principle).

However, Europe faces numerous daunting challenges. It is not spared from the effects of climate change and the frequency of extreme weather events such as floods is increasing throughout the region. Persistent water scarcity and drought are increasing in the southern countries, and the northern countries and delta cities are faced with flooding from extreme rain, storm water overflows and sea level rising.

In Europe, as in anywhere else, it has proven difficult to develop economic activities such as hydropower and agriculture without negatively affecting the water quality and related ecosystems. A significant percentage of European freshwater resources suffer from poor wastewater treatment or poor management of fertilizers from the agricultural sector.

In the EU, there is a well-developed, comprehensive policy

framework in place - the Water Framework Directive, which is complemented by:

- Groundwater Directive
- Floods Directive
- Urban Waste Water Treatment Directive
- Drinking Water Directive
- Bathing Water Directive

But many countries are still facing water governance and policy challenges when it comes to implementation of these at national levels.

Regional Progress

The European Preparatory Process for the 7th World Water Forum was implemented in close cooperation between the French Water Partnership (supported by IOWater) and the Danish Water Forum (supported by DHI), representing Northern and Southern Europe, and with individual competence and networks to be included in the process.

At the Preview session (in May 2014) the following 6 themes were selected: Transboundary Water Management; Implementation of EU Directives; Climate Change; Integrated and Innovative Urban Water Management; Linking Science and Technology; and Water Efficiency.

After the pre-view session, 19 international meeting and events were organized. To save costs most were held back to back with key events in the European water sector. Only one, a conference on Water Efficiency, held in Copenhagen with broad European participation, was carried out primarily for the World Water Forum process.

The idea of organizing inter-regional sessions was adopted by the European facilitators to contribute very actively to the preparation 5 inter-regional sessions, excluding the session on EU Directives.

Europe Sessions

1) *[Transboundary Water Management: In Search of Excellence in Europe, Africa and the Arab Region]* Successful Experience of European International Basin Organization for Better Managing Transboundary Rivers, Lakes, Aquifers in Europe.

2) The EU Water Directives: Efficient Tools to Reach the Ambitious Objectives of European Joint Policy to Safeguard Water and Aquatic Environments.

3) *[Climate Change Adaptation and Mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean Region]* European Examples and Instrument for Effective Adaptation to Climate Change

4) *[Living with Water in Cities of Tomorrow Challenges and Ways Forward towards Implementation of Solutions Based on Cases from Europe, Asia-Pacific, Americas and Arab Countries]* European Regional Session

5) Linking Science and Technology for Managing Global Water Challenges – Finding Ways to Overcome the Barriers for Improved Research Uptake, Presenting European and Mediterranean Experiences and Sharing Knowledge Globally (S&T)

6) *[Water and Energy Efficiency for Green Growth]* Water efficiency in Europe

7) (Final session : Regional issue synthesis) Recommendations for water management in Europe

Key Messages

1) Under the impetus of regional organizations such as the European Commission (EC) and UNECE, the European region has developed some of the world's most advanced political and regulatory tools for water management.

At the pan-European level, 40 parties have ratified the UNECE Water Convention and therefore, have legal obligations to cooperate and jointly manage transboundary resources.

2) Although the European region benefits from relatively abundant water resources managed wisely through comprehensive legal and policy frameworks, it still has to tackle serious challenges.

3) Climate change is undoubtedly one of the main causes for concern as it is likely to increase the frequency of extreme weather events (in particular floods and droughts) and aggravate chronic shortages already experienced throughout Europe.

4) Adaptation to climate change did receive a growing attention and some useful guidelines have been issued on how to tackle the problem of basin level (e.g. UNECE/INBO platform and publication), but the objective should now be to translate these guidelines into the implementation of programs of action.

5) Old patterns of food production and insufficient wastewater treatment capacities are another matter of concern: agriculture fertilizers and untreated wastewater end up in European river and lakes and result in excessive nutrient concentration that greatly affects the ecological health of European water bodies.

6) The EU Water Framework Directive now provides relevant answers to the difficult conciliation of multiple-uses. It sets good ecological status as an objective for all European water bodies by 2027 at the latest. The call expressed during the World Water Forum for a more integrated approach of all European water-related directives opened up a brighter future for the achievement of this objective and for healthier aquatic ecosystem.

7) In this World Water Forum, as in previous ones, Europe has expressed its willingness to develop its international cooperation programs (such as support to cooperation for transboundary basins) and to share with other regions the lessons learned from the challenges it faces and the solutions it has developed.

   Important inter-regional discussions were started at the 7th World Water Forum. They can be taken forward in Brazil and the Regional Process can continue to fulfill its role as a facilitator of inter-regional knowledge sharing.

Recommendations from the Final Session

1) Promote the ratification of the UNECE 1992 Water Convention and the UN 1997 Water Courses Convention and implement their provisions, which provide good frameworks for transboundary cooperation.

2) Promote integration and consistency of inter-dependent policies (water, energy and food production) through the implementation of the "Food-Water-Energy Nexus" concept based on the basis of the operational principles of IWRM at basin level.

3) Promote water as a core focus of United Nations post-2015 Development Agenda.

4) Promote adequate financing for the implementation of water-related SDGs, through national budget when possible and through international development aid when necessary.

5) Ensure that water management is designated a key target sector for international climate funding, such as the Green Climate Fund and the Adaptation Fund.

6) Promote the establishment of a New Global Partnership based on a multilateral approach, rather than the traditional North-South model, and on the principles of shared responsibility, mutual accountability and respective capacity.

7) Promote the adoption of a universal, ambitious, and legally binding agreement to reduce greenhouse gas emissions that will limit the rise in average global temperature to less than 2°C above pre-industrial levels.

5. ARAB

Regional Overview

The Arab countries are home to 5% of the world population, but have less than 1.5% of the world's renewable fresh water resources. The 22 Arab countries, members of the League of Arab States, are situated in an arid and semi-arid zone.

Renewable water resources, no matter how they may be developed in the future, will not be able to fully meet the challenges of water security and food security since nearly 80 % of water resources originate from outside the Arab region and are mainly conveyed through international rivers. Most of these rivers remain without just agreements based on international water laws and historic agreements.

Water scarcity within the region is, therefore, a constraint to enhance water security as well as good security. Water demand is expected to increase by about 50% between 2010 and 2030, which is a difficult challenge to overcome. Water scarcity represents the risk of exposure to unsustainable development.

Regional Progress

The preview session was held in April 2014 to set a roadmap for the Regional Process and to share progress worldwide in preparing for the 7th World Water Forum. The Arab Water Ministerial Council meeting (with representatives from 22 countries) was held in May 2014. The meeting endorsed the session and design process, and designated the Technical Secretariat of the Council to coordinate and streamline the process and activities to be implemented in the roadmap, and report to the Ministerial Council and its Technical and Scientific Advisory Committee

The Ministerial Council designated the Regional Design Group that consists of the following Organization and Representatives:

- Arab Water Council (AWC)
- Center for Arab Water Studies and Arab Water Security (COFWS)
- Arab Center for Studies of Arid and Dry lands (ACSAD)

- Arab Network for Environment and Development (RAED)
- Eight countries' representatives nominated by the Arab Water Ministerial Council

The Technical and Scientific Advisory of the Arab Water Ministerial Council selected four priority themes: Water for Food; Water for Cities and Energy; Smart IWRM; and Cooperation for Transboundary Water Management.

Arab Sessions

Altogether, 5 regional sessions were held in Gyeongju, of which 4 sessions were inter-regional.

- Four Inter-Regional sessions

1) *[Water and Wood Security in a Changing World: Regional Perspectives]* Food Security under Condition of Water Scarcity in the Arab Region
2) *[Living with Water in Cities of Tomorrow, Challenges and Ways Forward towards Implementation of Solutions Based on Cases from Europe, Asia-Pacific, Americas and Arab Countries]* Arab Countries Regional Session
3) *[Transboundary Water Management: In Search of Excellence in Europe, Africa and the Arab Region]* Cooperation on Transboundary Water Resources: Key Aspects and Opportunities for the Arab Region
4) *[SMART Implementation of IWRM]* Arab Region

- One Regional Session

5) (Final Session: Regional Issues Synthesis) Water Security Under Scarcity: Solutions for Challenging Future

Key Messages

1) The Arab region needs to adopt policy changes to maximize the return of available water resources in agriculture.
2) Regional cooperation through using the comparative advantage of each Arab country will reduce the food security risk.
3) Improve efficiency of water utilities by:
   - Reducing the Non-Revenue Water (NRM) and consider it as a free source of water
   - Reducing the cost of drinking water production through different ways such as energy efficiency
4) Define a transition strategy to move from the current scenarios and link to other national plans and strategies for sustainable development.
5) Secure funds for implementation of creation of incentives to public-private sections and civil society.
6) Dialogue is essential to build trust and to understand the needs of the downstream countries; political will and commitment of riparian countries is the basis for any cooperation on transboundary water resources.
7) Upstream countries should coordinate closely with downstream countries when constructing dams and power plants, and should not cause harm (as defined by International Water Law) to downstream countries.
8) Permanent, just, and equitable agreements with neighboring upstream countries are essential for reliable and stable cooperation on transboundary water resources based on the International Water Law and Historical Agreements.

Recommendations from the Final Session

1) Adopt approaches beyond the conventional coping strategies of increasing water use efficiency to increase water productivity, providing more economic, social and environmental benefits per drop.
2) Develop regulatory bodies and regulations to govern the water sector and all stakeholders.
3) Target poor people through a proper tariff system and access to safe drinking water and sanitation.
4) Ensure endorsement and adoption of Smart IWRM at the highest political level.
5) Secure sustainable environmental services and focus on poverty reduction.
6) Approve ratification and entry into force of the Framework Convention of shared, Water Resources between Arab countries.
7) Improve knowledge on transboundary water resources.
8) Reinforce institutional and human capacities and establish a national body of expertise in water diplomacy and negotiation.

6. MEDITERRANEAN

Regional Overview

The Mediterranean region encompasses Africa, Europe and Asia, and involvement of some countries may be relevant in more than one region. As the Mediterranean is at the cross roads of three continents, it is a particularly water-stressed region with specific geographical, ecological, geopolitical and cultural features.

Currently the Mediterranean faces an economic crisis, with socio-political unrest and armed conflicts in the southern and eastern regions. These factors, along with an influx of refugees is aggravating the pressures on natural resources, including water, in many countries,

Climate, geography and culture are similar across the region, providing grounds for broad cooperation by a considerable number of regional and international partners to improve water management practices. Although action is underway by a variety of stakeholders at local, national, regional and transboundary levels, still more is needed.

Regional Progress

The Mediterranean Preparatory Process began in June 2014 and introduced the themes and modalities of the Regional Process. The Steering Committee was formed, integrated National Authorities in charge of water in the Mediterranean countries.

Stakeholders from all Mediterranean and neighnboring countries were invited to participate in the process.

Over the last year, a series of milestone meetings took place, structuring the work in six working groups focused on identified themes: effective water governance; integrated water resources management (IWRM); sanitation for all; adaptation to climate change; improving education and capacity building; and science and technology. These working groups formed the Mediterranean Regional Process dedicated session during the World Water Forum with a concluding session of the overall process.

Consultations with related Design Groups were carried out to identify options to prepare joint sessions during the 7th World Water Forum. Similar consultations were sought within the other processes of the 7th World Water Forum (Thematic, Political, Science and Technology) to enhance the impact of the Mediterranean messages beyond the Region.

Mediterranean Sessions

1) *[Smart Implementation of IWRM]* Mediterranean Region
2) Water Education and Capacity Building: Powerful Policy Tools in Addressing the Water Agenda
3) Linking Science and Technology for Managing Global Water Challenges – Finding Ways to Overcome the Barriers for Improved Research Uptake, Presenting European and Mediterranean Experiences and Sharing Knowledge Globally (S&T).
4) *[Effective Governance]* Effective Water Governance a myth? Challenges, Opportunities and Responses from the Mediterranean
5) *[Enough Safe Water and Integrated Sanitation for All: Where we are and what's next?]* Mediterranean region
6) *[Climate Change Adaptation and Mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean Region]* Mediterranean Region
7) (Final Session: Regional Issues Session) Towards a Regional Water Knowledge Platform

Key Messages

1) Land use planning, agriculture, urban development, hydropower, navigation, and flood protection can all have an important impact on water resources.
2) The development of River Basin Management Plan must include user and stakeholder participation for decision-making.
3) Education has been identified as a prerequisite and tool for management in all sessions of the Mediterranean Process (Governance, Science and Technology, Climate change etc.). It should be emphasized that the Mediterranean is the only region in the 7th World Water Forum that recognized the indispensable role of water education for achieving Sustainable Development and organized a special session on the subject.
4) Water science and technology should correspond to all characteristics of water, not only as a commodity, but also as a resource bearing intrinsic cultural and social value.
5) Governance is essentially contextual; a case-by-case approach

which respects the countries' particularities and allows for a constructive learning process is needed.

6) Overall, water governance needs to consider three core elements: appropriate organizational mode; effective regulation of the overall water sector; and sustainable financing.

7) Significant shifts have occurred in the conceptual approaches to water governance, and a new paradigm is in the making calling for behavioral changes and learning towards a new water culture.

8) Sanitation is a factor of peace and progress in Palestine in particular. The region has capacity building and the awareness of young people who are the future of the country.

Recommendations from the Final Session

1) Make information readily available for all stakeholders and the general public.

2) Emphasize the need for an integrated multidisciplinary water resources management in order to balance environmental protection and sustainable economic development.

3) Develop management frameworks for transboundary water.

4) Strengthen water education to achieve the necessary new water culture and to cover the entire spectrum from water ethics, sound understanding of water issues to specific technical skills of water professionals.

5) Develop innovative science and technology for water knowledge sharing, also with relation to climate change.

6) Further emphasize the institutional setting, as this is core to governance issues, and further look into the linkages with financing along with innovative financing mechanisms.

7) Encourage the concept of shared water governance, including the private sector and other unconventional actors.

7. ECONOMICALLY WATER INSECURE (EWI)

Regional Overview

Economic Water Insecurity is a novel concept. The EWI consortium has developed a working definition of economic water insecurity as "the condition of lacking water security due to economic factors such as lack of investment in water infrastructure, water data monitoring and low water management" (K-water and GWP 2014).

The concept of EWI derives from the well-established concept of water security. UN-Water defines water security as "the capacity of population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and stability" (UN-Water 2013).

The term "Economically Water Insecure regions (EWI)" refers to regions that face similar conditions with both economic and water insecurity. Generally the regions are those that are most disadvantaged and most of EWI are those in lowest income category.

Regional Progress

As part of the Regional Process of the 7th World Water Forum, a series of 5 sessions were held with a focus on Economically Water Insecure (EWI) regions. This was the first time in the World Water Forum that cross-regional sessions were included and thus, an experimental approach for the World Water Forum.

The EWI sessions brought together participants from 4 regions to share experiences and lessons from countries/regions facing similar water and economic constraints without being constrained by traditional regional geographical boundaries,

The sessions included input from Africa, Asia, the Americas and Europe. These Sessions were organized by a Design Group Partnership of Global Water Partnership and K-water (co-coordinators), the African Development Bank, the Asian Development Bank and the Development Bank of Latin America. Each organization was responsible for preparing one session.

EWI Sessions

The EWI sessions aimed to:

- Refine understanding of the characteristics themes and issues of EWIs;
- Facilitate information sharing, knowledge generation, and collaboration across stakeholders from different continents;
- Share cross-sectional solutions and best practices
- Inspire enhanced action in these vulnerable regions.

With these aims, the following 5 sessions were held:

1) Economically Water Insecure regions (EWI): Framing the Issues

2) *[Water and Food Security in a Changing World: Regional Perspectives]* Tackling the Nexus in Economically Water Insecure Regions -Challenges and Innovations

3) *[Effective Governance]* Governance and Policy to End EWI

4) Infrastructure for Sustainable Water Resource Management and Services

5) Sustainable Development in Economically Water Insecure Regions - Post 2015

Key Messages

1) A majority of countries facing water insecurity coincide with the poorest income category. Countries are trapped by low growth and water resources limitations and cannot easily escape this trap

2) It is important that the international community provide support, expertise, experience and funding to help these countries

3) Water insecurity is about much more than domestic water supplies (the usual focus of the water "sector"). Water brings much wider benefits to society through the food and energy production on which people and economies depend.

4) Water insecurity is costing the earth. A recent study indicated that water insecurity is a drag on global growth in the order of US$ 500 billion per year. The EWI countries are more fragile and suffer greater impacts and risks, including from climate change

5) The new cross-regional process introduced at the 7th World Water Forum has been a positive learning experience of sharing across geographic divides and should be followed at future World Water Forums.

IV. Conclusions and Major Emphasis by Region

Water is the most basic of necessities in the lives of all people and society. It has long been the foundation of civilization and today is more essential than ever for the agricultural, economic and industrial activities that help societies to develop.

Lack of access to water for meeting basic needs such as health, hygiene and food security undermines development and inflicts hardships on communities across the globe.

Today's water challenges are increasingly complicated and compounded due to the rapid population growth and urbanization, lack of water infrastructure, severe impact of climate change, urgency of water-food-energy security, weak water governance and transboundary water conflicts, etc.

However, increasingly countries with expertise in the management of water basins and flood plains or with experience in efficient management of water resources are sharing that knowledge and technology with others. Scientists from many nations and disciplines are pooling their efforts, assessing risks and working to bring about much-needed solutions for the identified problems. Policymakers as well can and should draw on their experiences, which have generated a rich inventory of lessons and best practices.

The Regional Process of the 7th World Water Forum offered another dimension of regional perspectives for the 7 regions – Africa, Americas, Asia-Pacific, Europe, Arab, Mediterranean and Economically Water Insecure Regions, highlighting certain regional specificities leading to their own key messages and recommendations. It also embraced and launched the ideal of shared experience by introducing Inter-Regional Sessions.

These regional processes are important solution-searching conferences, which over time evolve into building blocks for global solutions.

To follow up for each of the seven regional processes, three core messages were selected based on regional context and for comparative purposes in points of emphasis for the regions.

Africa

The poorest continent with lowest access to safe drinking water and adequate sanitation expressed sanitation as one of its highest priorities in water management.

The following key messages were emphasized:

- Sustainable financing is critical in bridging the huge infrastructure gap and ensuring sustainable water resources management and development in Africa – African governments must be prepared to increase public spending on water and sanitation.

- Greater sharing and exchange of experiences across Africa to help improving performance of countries with respect to meeting water and sanitation targets.

- Strong support for the adoption of Sustainable Development Goals on water and sanitation.

Africa also expressed its strong wish and desire to host the 9th World Water Forum.

Americas

Because the two Americas are so different, with the North being significantly more advanced and the South being far less developed, the majority of attention was given to the water problems of Latin America and the Caribbean (South).

The following key messages were emphasized:

- Creation of legal and institutional reform to achieve adequate water governance under which the management of water resources is carried out in an integrated and sustainable manner.

- Development of hydropower potential in harmony with other energy sources, and also update existing inventories of hydroelectric potential to be in compliance with environmental and social standards.

- Comprehensive risk management programs with stronger climate services by integrating national emergency systems with technologies designed for monitoring climate change and water resources. And also by supporting the design and implementation of local adaption.

Of special emphasis to this Regional Process was management of ecosystems for the good of both humans and nature.

Asia-Pacific

The most populated and rapidly urbanized region expressed concern with polluted and untreated wastewater and suggested both the apex organizations and the governments should play crucial roles.

The following key messages were emphasized:

- Asia's common principles, underpinning the regional water security are built around the ideal of policy development
  - Which focuses on infrastructure, institution and information.
  - Which leads investment and capacity building.

  So that policies can be implemented.

- The apex organizations should continue to play a crucial role as they operate in multiple locations with a wide range of partners.

- Governments should take a large active role by setting regulations, incentives and targets by utilizing tools such as the IWRM and efficient water resources management. They should also engage a wide range of stakeholders.

Europe

Europe is the most advanced continent in terms of water-related infrastructure development, as well as political and regulatory tools. This region expressed its eagerness to share experiences, knowledge and legal/regulatory frameworks with other regions.

The following key messages were emphasized:

- Willingness to develop its international cooperation program such as support for transboundary basin cooperation and to share with other regions the lessons learned and solutions developed.

- Climate change is a main concern and as a result climate change adaption receives growing attention, which results in some useful guidelines.

- The old pattern of food production and insufficient wastewater treatment capacities are another matter of concern: agricultural fertilizers and untreated wastewater end up in European rivers and lakes.

Arab

The world's driest region, with 5% of the world population getting less than 1.5% of the world's renewable fresh water resources, is struggling to meet the challenges of water security – water scarcity is the dominant feature.

The following key messages were emphasized:

- The Arab region needs to adopt policy changes
  - To maximize the return of available water resources in agriculture
  - To reduce non-revenue water
  - To reduce the cost of drinking water

- Regional cooperation through usage of respective comparative advantages in Arab countries to reduce the risk of food security.

- Permanent, just and equitable agreements with neighboring upstream countries are essential for reliable and stable cooperation regarding transboundary water resources.

Mediterranean

The region is located at the crossroads of three continents: Africa, Europe and Asia, and is experiencing severe water stress with specific geographical, ecological, geopolitical and cultural issues. The region currently faces and economic crisis with socio-political unrest and even some armed conflicts in the south and east.

The following key messages were emphasized:

- Education has been identified as a prerequisite and tool for management of all segments of the Mediterranean process (governance, science & technology, climate change, etc.): the only region to recognize the indispensable role of water education.

- Governance is essentially contextual; a case-by-case approach is necessary, respecting the countries' particularities and allowing for a constructive learning process.

- The development of River Basin Management Plans must include user's associations and stakeholder participation for decision-making.

Economically Water Insecure (EWI)

Economic water insecurity is "the condition of lacking water security due to economic factors such as lack of investment in water infrastructure, water data monitoring and/or water management" and EWI refers to regions that face similar conditions with both economically and water insecurity-wise – generally the most disadvantaged and low-income nations.

The following key messages were emphasized:

- EWI countries are trapped by low growth and water resource limitations and are unable to easily escape from this trap.

- It is imperative for the international community to provide support in the areas of expertise, experience and financing to the EWI.

- The EWI countries are more fragile, suffer greater impacts and are a higher risk from climate change as an example.

This new cross-regional process introduced at the 7th World Water Forum has been positively received and was recommended to be included in future World Water Forums.

Appendix) Preparatory Progress of the Regional Process Commission

The Regional Process Commission (RPC) held around 10 General meetings starting from October 2013 when the commission was formed. In the first meeting held in Budapest, Hungary, discussion centered on how to divide regions, which would become the basic framework of the Process. Over time, the program and content were fleshed out and the Commission made important decisions at every meeting. In addition, the RPC set the main operation methods at meetings and submitted them to the ISC for approval. This was pursued in harmony with overall forum preparation process through cooperation and coordination with other Processes, WWC and the National Committee for the 7th World Water Forum.

General meetings of the Regional Process Commission		
Preparatory meeting	Jun.12.2013 Seoul, Korea	*Preparatory meeting between co-chairs prior to official formation of the Regional Process Commission* • Shared and reviewed discussion result of Regional Process during Kick-off Meeting • Shared implications of Regional Process of previous World Water Forums • Discussed regional division and direction to select regional coordinators
1st	Oct.07.2013 Budapest, Hungary	*General meeting of the 1st Regional Process Commission* • Specified Concept Paper of the Regional Process • Divided regions and selected sub-groups by region • Reviewed how to select coordinator institution by region • Reviewed details of working group ToR (Terms of Reference)
2nd	Feb.26.2014 Gyeongju, Korea	• Selected coordinator institution by region • Reviewed Roadmap (draft) of the Regional Process and reflected SCM meeting result • Discussed budget for the Regional Process operation

General meetings of the Regional Process Commission		
3rd	Jun.24.2014 Mexico City, Mexico	• Interim review of 'Preview Session' by region (Examined status of issue list selection and working group structure) • Confirmed financial support for working groups and discussed budget allocation (schedule, proportion, etc.) plan for each of 7 regions • Discussed session operation plan: how to arrange a session for regional common issues and separate issues • Prepared interim review meeting plan of working groups
4th	Sep.01.2014 Stockholm, Sweden	*Joint meeting between the Regional Process Commission and the Regional Coordinators* • Confirmed how to link sessions by region • Discussed budget allocation plan among coordinators by region • Discussed session proposal and session operation plan
5th	Oct.24.2014 Marseille, France	*Joint meeting between the Regional Process Commission and the Regional Coordinators* • Confirmed budget payout plan for working groups and MOU signing plan • Specified how to link sessions (link within the Process or with other Processes)
6th	Oct.25.2014 Marseille, France	• Prepared guideline including contents of interim report • Shared focal point to facilitate session link
7th	Feb.23.2015 Paris, France	• Reviewed session proposal and complemented liaison session among regions • Discussed link between regional issues and Political Process

General meetings of the Regional Process Commission		
8th	Mar.05.2015 Video conference	• Confirmed session composition plan and session group by region • Confirmed program of Regional Process during the forum
9th	Apr.11.2015 Gyeongju, Korea	• Final review of Regional Process sessions - Session type: Opening Session, Inter-Regional Session, Regional Issue Session, and Regional Final Session • Discussed Implementation Roadmap (IR) participation • Confirmed format and contents of Process final report
10th	Apr.12.2015 Gyeongbuk Province Office, Korea	*Joint meeting between the Regional Process Commission and the Regional Coordinators* • Attended Concluding Session of the Thematic Process • Shared support fund settlement plan of working group • Notified deadline and format of final report for the Regional Process

Science and Technology Process

I. Overview

1. Role and Goal of the Science and Technology Process

The primary objective of the Science and Technology Process (STP) was to promote global discussions on the importance of scientific and technological solutions for global water challenges on various scales. STP was designed to provide practical and informative guidelines based on lessons learned from best practices and successful water policy implementation cases. The process also sought to provide market places for emerging science and technology and engineering services to actively engage in global water issues. The STP activities were created to develop and promote a robust and practical network for international water sector cooperation. Based on all these objectives, the STP aimed to promote innovation in the water sector, building on sound and effective links between science, technology, policy and practice.

According to primary objectives, the sub-objectives of the STP in the 7th World Water Forum were to:

- Improve the understanding of the roles of science and technology in innovating the water sector, covering cutting-edge, state-of-the-art, and appropriate science and technology development and application;
- Develop guidance on the use of science and technology to implement and innovate water policies and realities, building on global know-hows and lessons learned;
- Create market and network opportunities for water problem owners and science, technology and engineering solution providers.

2. Distinctiveness and Operational Structure

As solutions from the 6th World Water Forum were collected, participants indicated a need for momentum-bolstering practical action. Thus, the STP was newly introduced to the 7th World Water Forum in order to propose and develop a new framework devoted to introducing applicable technologies and to provide a platform for global partners to share tangible solutions. The launch of the STP attracted diverse stakeholders who hold implementable water technologies and best practices. Furthermore, it enabled participants to share and exchange know-hows and practices for implementation of solutions.

The STP in the 7th World Water Forum was organized according to its three objectives to produce tangible results. Through collaborative action between all sectors before, during and after the 7th World Water Forum, the STP was able to achieve expected results. Outcomes from collaboration were incorporated into the overall 7th World Water Forum program of activities in various ways, for example in the form of a session, a special panel discussion, or as a topic in various programs of the Process including Focus sessions and Special Programs (STP White Paper, CEO Innovation Panel, and World Water Challenges)

Early on, the STP developed a coherent framework for the role of science and technology in innovating in the water sector. This framework addressed the processes of innovation and linked them to the size, scale, and timing of the challenges we will face in the future. The STP Framework also elaborated on innovative cooperation between the 'triple helix' organizations – industry, government and R&D institutions. In addition, examples of innovation within and outside the water sector were reviewed to create model processes that can be used around the world.

STP Reflecting Multi-stakeholders' Views

Throughout the process, the STP encouraged participants not only to focus on introducing and connecting water-related science and technology to relevant users or decision makers, but also to encompass political and business perspectives in the process of discussing leading examples of water policy, frameworks, economic incentives and regulation, and the role of science, technology and innovation in implementing these measures. This developed an evidence base, showing how science and technology play a key role in developing and implementing innovative water policies and strategies by both public and private entities. The STP enabled participants to share successful cases in urgent policy implementation areas, as well know-how from local and on-the-ground experiences. The Process also drew insight from socio-economic and political sciences to facilitate discussions.

STPC Meeting, National Committee, Seoul Korea

STP Session, Lisbon Portugal

3. Science and Technology Process Commission

The STP Commission led both the overall and detailed preparation and operation of the STP. Composed of water experts from academia, international organizations, and global enterprises, the STP Commission members lent their keen insight and experiences to select the major themes and design the framework for the new STP. During the entire process of preparing the 7th World Water Forum, the STP Commission made importance decisions to develop programs and encourage more relevant participants and engaged in the follow up actions to reach the goals of the STP stated above.

Science and Technology Process Commission Members

STPC in Forum Week	Name	Profile
	Glen Daigger **Co-Chair**	Professor, University of Michigan President, One Water Solutions Former Vice President, CH2M Hill, Former President of International Water Association (IWA)
	Sangman Jeong **Co-Chair**	Professor, Kongju National University President, Korean Society of Hazard Mitigation

** Last name alphabetical order*

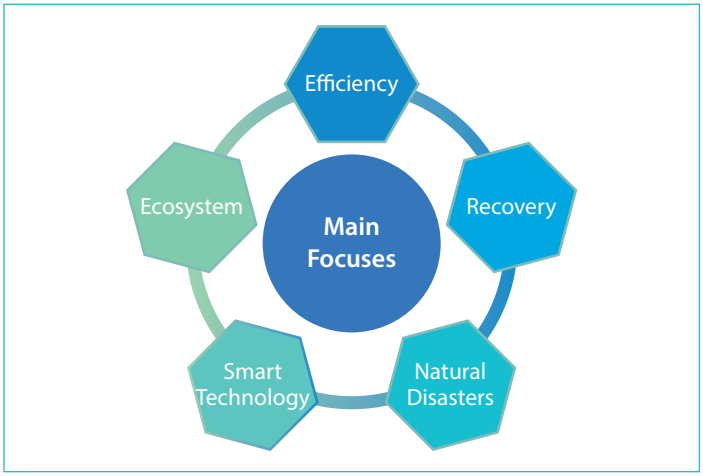
	Ick-hoon Choi	Director, Department of Sewerage, Korea Environment Corporation (KECO)
	Kyungsoo Jun	Professor, Graduate School of Water Resources, Sungkyunkwan University
	Hyeonjun Kim	Director, Water Resources and Environment Research Department Korea Institute of Civil Engineering and Building Technology (KICT)
	Gustav Migues	Director, Oil and Gas Projects, Latin America, Veolia Former CEO, Veolia Korea
	Rabi Mohtar	Professor, Dept. of Biological and Agricultural Engineering University of Texas A&M
	Pierre-Alain Roche	President, Association Scientifique et technique pour l'eau et l'environment

II. Key Components

1. Main Focus, Focus Session

- Main focus 1: Efficient Water Management
- Main focus 2: Resource Recovery from Water and Wastewater System
- Main focus 3: Water and Natural Disasters
- Main focus 4: Smart Technology for Water
- Main focus 5: Understanding and Managing Ecosystem Services for Water

* Primary Water Issues from Scientific and Technological Perspectives



Five focus areas were selected by the STP Commission as the most imminent primary issues among diverse water-related issues. Unlike other Processes, the STP had a concise list of five themes to focus on and applied those to the other STP programs as well. Thematic sessions dealt the five sub focus areas for each main focus. Each main focus was dealt by design groups and each sub focus was dealt by the session groups so that they closely communicate each other and organize the sessions. Each session was organized with the guidance of the following criteria:

- Balanced participation (region, organization)
- Quality of discussions (Interaction between presenters, panelists, and audiences)
- Session title (media friendly wording)
- Coherency (titles, sub focus, contents)
- Session structure
  - Minimum 30 minutes of discussion per session
  - Ideally maximum 45 minutes of presentation before discussion slots
- Mix of technical and policy contents, avoiding one-sided contents

Based on these criteria, the working groups planned and prepared sessions with concrete scenarios and information. A total of 31 sessions were convened at the World Water Forum and participants showed interest in the differentiated content and concise and impactful presentations.

2. STP White Paper: Strategic Insight and Foresight

Based on expert consultations, the main areas for innovation in the water sector were defined and highlighted throughout the process of making the STP White Paper. The selected areas follow the STP Main Focuses and cover cutting-edge, state-of-the-art and appropriate science and technology development and application.

The White Paper provides accessible knowledge and information on the past, present and future of science and technology associated with the STP Main Focuses. It facilitates public and World Water Forum participant understanding of imminent water issues through accessible content on the science and technology for each Main Focus, differentiating it from other STP outcomes.

The STP White Paper provides stakeholders with the knowledge and information necessary to understand the importance of science and technology for resolving global water challenges.

3. CEO Innovation Panels: Gaining Momentum behind Science, Technology and Innovation

As another major component of the STP, the CEO Innovation Panels were organized to promote innovative and applicable science, technology and innovation in the water sector. Moreover, it aimed to bring together cross sector high level stakeholders to discuss the urgent international agenda that should be considered for integrated solutions, considering 'hurdles' and 'enablers' from stakeholders across different fields and levels. The STP - CEO Innovation Panels included high-level water experts, business and government leaders to catalyze proper usage and application of water science, technology and innovation in global water problems. It also contributed to developing guidance on the use of science and technology to innovate and implement water policies based on global know-hows and lessons learned, reflecting proper requests and needs.

4. World Water Challenge: linking problem owners with solution providers

The World Water Challenge, as a special program of the STP, was a kick-started with consultations to define global imminent water challenges. The STP World Water Challenges identified the most challenging water issues the world is facing today. The program aimed to create market and network opportunities for water problem owners and science, technology and engineering solutions providers. During the process of identifying problem owners and solution providers, field experts selected the most applicable and accessible technological solutions to common problems.

For each of the defined STP World Water Challenges, problem owners were invited to submit specific urgent cases. Ten cases were selected from the submissions for each World Water Challenge. This process enabled the engagement of a wider group of water end-users from various spheres outside the water sector.

Solution providers then submitted proposals to tackle each of the cases. These proposals were reviewed and finalists were selected to present their solution at the 7th World Water Forum; the final winners were announced at the World Water Forum. The solution providers and the problem owners engaged in further discussions on the implementation of the proposed solutions.

III. Science and Technology Process Major Outcomes

1. Focus Session

Based on the 5 Main Focuses, the STP managed a total of 30 Focus Sessions (five for each Main Focus) and 1 joint session with 5 concluding sessions. Experts from international water corporations, international organizations, academia, and other sectors as working groups of the STP led the Focus Sessions from preparatory process to the World Water Forum Week events.

STP List of Main, Sub Focus, and Session Title

Main Focus 1	***Efficient Water Management***
Sub Focus	1.1 Urban water efficiency 1.2 Agricultural water efficiency 1.3 Industrial water efficiency 1.4 Energy efficiency in water and waste water systems 1.5 Holistic approaches to water and energy efficiency
Session	1.1 Urban Sewer & Drainage System for Efficient Treatment and Discharge
	1.2 Rice Paddies: Ecosystem services provider, or sources of nonpoint pollution?
	1.3 Creative City with Sustainable Water-Cycle: Understanding and Implementing GI with LID Technology over the World
	1.4 Getting research into policy and practice (GRIPP): a path to efficient water and wastewater management
	1.5 Efficient water management in the Post 2015
	MF1 Concluding Session
Main Focus 2	***Resource Recovery From Water and Waste-water Systems***
Sub Focus	2.1 Nutrient recovery and wastewater reuse in agriculture 2.2 Energy and heat recovery from water and wastewater 2.3 High-value resources recovery from water and wastewater 2.4 Advanced technologies and scientific innovations in water and wastewater reuse, Resource Recovery, and desalination 2.5 Social and economic aspects of wastewater reuse and resource recovery
Session	2.1 Safe reuse of wastewater and nutrient recovery in agriculture
	2.2 Desalination and Wastewater reuse for municipal uses as a necessity to preserve natural resources
	2.3 Energy recovery and efficiency in water and wastewater systems
	2.4 Advanced technologies and innovation in water reuse and resource recovery
	2.5 Water Reuse and Resource Recovery: "Utilities of the Future" and the Market Economy
	MF2 Concluding Session
Main Focus 3	***MF2 Concluding Session***
Sub Focus	3.1 Climate change: impact assessment and adaptation 3.2 Drought analysis and management 3.3 Urban floods and damage reduction studies 3.4 RS and GIS applications for natural hazards 3.5 Water related disasters: risk management and sustainability
Session	3.1 Tools and methodology development on the climate change impact and vulnerability, and scientific collaborations in Asia and Pacific regions for robust and resilient water management
	3.2 Advances in Drought Analysis Tools and Coping Strategies
	3.3 Flood Damage Reduction in Urban Area by Improvement of Flood Forecasting
	3.4 Remote Sensing and GIS-assisted Management of Water and Natural Disasters
	3.5 Managing Extremes - Decision support systems and risk management for floods and droughts
	MF 3 Concluding Session
Main Focus 4	***Smart Technology for water***
Sub Focus	4.1 Advanced monitoring technology for water management 4.2 Integrated and intelligent water resources management and ST (Smart technology) 4.3 Smart urban water management 4.4 Smart Water Grid and standardization of ST (Smart Technology) 4.5 Water resources management and Big Data

Session	4.1 Understanding Water cycle; Advanced monitoring technology for water management
	4.2 The Experience and Future of Integrated Water Resources Management: Solutions presented by Science & Technology
	4.3 New Era of Urban Water Supply System Built on Smart Technology
	4.4 Smart Water Management for the Public by using ICT: Design, Implementation and Standardization
	4.5 Overcoming Water Management Challenges with Data and Technology
	MF4 Concluding Session
Main Focus 5	***Understanding and Managing Ecosystem services for water***
Sub Focus	5.1 New paradigm for NPS management: (LID) and green storm water infrastructures (GSI) 5.2 Role of science, technology and innovation for cost effective water ecosystem services and the payment of t these services 5.3 Integration of modeling and monitoring techniques for successful management of ecosystem services for water 5.4 Pending research questions linked to the Water-Energy-Food-Ecosystems Nexus 5.5 Implementation of green infrastructure for city of future
Session	5.1 LID and GI techniques for NPS management and aqua-ecosystem protection
	5.2 Role of STI (Science, Technology and Innovation) for ensuring ecosystem services
	5.3 Integration of Modeling and Monitoring Techniques for Successful Management of Ecosystem Services for Water
	5.4 Pending research questions linked to sustainability assessment: an analysis based on integrated perspectives from the Water-Energy-Food-Ecosystems (WEFE) Nexus
	5.5 LID & Green Infrastructure for Urban Regeneration; Water Cycle, Climate Change and Cooperation
	MF 5 Concluding Session with Young Water Professionals

1.1. Main Focus 1: Efficient Water Management

Background

Efficiency water management is defined as using improved technologies and practices that deliver better service with less water. Water conservation is considered the curtailment of water use, typically during a water shortage. Recently, many crises have reduced water management efficiency in the industrial, urban, and agricultural sectors and energy efficiency in water and wastewater systems. To overcome these challenges, presenters proposed and tested innovative technologies for immediate use.

As water efficiency is essential to all aspects of human activity, Main Focus 1 focused on the water management fields that significantly impact our daily lives. Main Focus 1 outlined the past and present and suggested techniques to use in the future.

Overview

Main Focus 1 focused on the methods and best practices for improving the water use efficiency in the industrial, urban and agricultural sectors.

Session 1.1 titled 'Urban Sewer and Drainage System for Efficient Treatment and Discharge' focused on the current situation of the sewerage systems in Asian countries. Participants also discussed the difficulties these countries face and possible solutions to overcome challenges.

Sewer and drainage systems are closely linked to human activity. Facilities treat a wide range of not only industrial waste, but also residential and commercial waste as well. Nowadays, due to rapid urbanization, adequate treatment and discharge of such facilities has become increasingly crucial. This session examined the prevailing techniques dealing with proper treatment and discharge in Korea and Mongolia. Presenters also shared on-going research on storm sewer design criteria, urban deterioration model and various sewer pipelines foundations.

Session 1.2 titled 'Rice Paddies: Ecosystem services provider, or sources of nonpoint pollution' addressed the current status and difficulties in expanding the environmental role of paddies and the lessons learned from recent and current field research and modeling efforts.

Rice paddies are heavily irrigated and fertilized during the growing seasons in Asian countries. There have been continuous debates on the role of paddies in the context of environmental protection. Paddies provide ecosystems with flood control similar to wetlands, but paddies also discharge water contaminated with sediment, nutrient, and pesticide. The impact of Greenhouse gas

emissions from paddies versus carbon sequestration is another point of debate. In this session, a group of paddy research scientists collaborated on developing a comprehensive yet reliable paddy simulation model that properly addresses the bio-physical processes and the effects of agricultural management in paddy fields. Scientists explained recent paddy research activities, including challenges and outlooks, in Korea, Japan and other countries during the session.

Session 1.3 titled 'Creative City with Sustainable Water-Cycle: Understanding and Implementing GI with LID (Green Infrastructure with Low Impact Development) Technology over the World' introduced specific GI and LID technology applied in Japan, USA and Korea. The session also covered implementation and the management process.

GI with LID is a sustainable technology for cities to make the transition from grey to green with sustainable water-cycle recovery. In this session, presenters, panelists, and the audience discussed overall concerns about GI with LID technology from regulation to industry. The value and vision of GI with LID implementation to recover our grey cities was highlighted as an important factor for our future generations. The presentations covered green technology, best management practices, and implementation methods and hurdles.

Session 1.4 titled 'Getting Research into Policy and Practice (GRIPP): a Path to Efficient Water and Wastewater Management' emphasized the need to transform technology into feasible policy and practice. Presenters referred to case studies on sanitation, toilet challenges, bridging gaps in various regions and also proposed recommendations to accomplish GRIPP.

There are different views regarding technological development. Some organizations promote technology development by researchers and the private sectors without policymaker involvement. Other organizations decide to involve all stakeholders from the beginning of the technology development process. This session promoted a multi-stakeholder dialogue on how stakeholders, and in particular policy makers, influence the effectiveness of the uptake and scaling up of technologies in practice. Researchers, policymakers and decision makers exchanged their perspective and experiences with the common goal of turning research into policy and practice.

Session 1.5 titled 'Efficient Water Management in the Post 2015' highlighted the need to make progress towards the implementation and improvement of water-use efficiency in the context of the Post 2015 Development Agenda. The session focused on the indicators and measurability to monitor Target 6.4 of the Open Working Group (OWG) Sustainable Development Goal (SDG) proposal for a Global Goal for Water.

Currently, there is no global monitoring mechanism to track progress for the entire water sector. Monitoring for Water, Sanitation and Hygiene (WASH) is well established. Water Resources Management (WRM) and, in particular, monitoring water efficiency are, however, more complex and global monitoring capacity is relatively weak. There is a need to develop a WRM monitoring mechanism linked to the Post 2015 Global Goal for water and to ensure a coherent approach for the sector. Recently, the OWG for SDGs approved a proposal for a Global Goal for Water, i.e., "Ensure availability and sustainable management of water and sanitation for all" (OWG, 19 July 2014). Under this goal is Target 6.4: "By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity."

Progress towards the implementation and improvement of water-use efficiency requires a clear delineation and agreement of appropriate indicators and measurability to monitor results. Better strategies, tools and indicators are needed for efficient and equitable water allocation between users, including the environment. The Swiss Development Cooperation (SDC) has initiated a process to design and implement a global monitoring mechanism to track progress on water resources management, and, specifically, on water withdrawals and productivity (addressed in Target 6.4). The task team on water withdrawals and productivity is one of the seven task teams of the initiative, which will provide insight on procedures and development.

Key messages

Sessions in Main Focus 1 touched on various topics related to Efficient Water Management. An inspiring keynote address was delivered during the concluding session by Estevan Lopez, Commissioner of the United State Bureau of Reclamation, one of the largest water supply management agencies in the world. Commissioner Lopez discussed the Reclamation's history of water conservation and improving water management efficiency. He stated that effectively implementing improvements in water efficiency requires management at the watershed scale, and that there must be greater effort to engage all water users in the development of plans and actions.

The audience, speakers, and session group coordinators, discussed the need to ensure efficient water management in terms of both quantity and quality. They noted that a large water source of insufficient quality is not an efficient water source. Three key messages were produced in this session. First, to improve water management efficiency requires water management be undertaken in an integrated fashion. Second, water management agencies must engage the interests of all water users in developing new water management strategies, especially those that are often

silent, such as the environment or economically disadvantaged groups. And finally, approaches to improving water management efficiency can vary significantly from one situation to the next, and the technologies and strategies to improve water management efficiency should be adapted to social, economic and physical circumstances.

1.2. Main Focus 2: Resource Recovery from Water and Wastewater Systems

STP Focus Session 2.1, EXCO Daegu

Background

Increasingly, water and wastewater systems are recognized as potential sources of recovering water, energy, nutrients and other materials. At the same time, wastewater reuse in agricultural, industrial and urban applications is gaining momentum. The development of reuse and recycling within the water and wastewater sectors provides major opportunities for improving environmental performance, creating climate benefits and reducing costs.

Resource recovery from water and wastewater systems is now a rapidly developing field where science, technology and practice come together. The sessions in Main Focus 2 introduced a number of advanced technologies that are implemented at scale. Many of these are ready to be used around the world in a wide variety of urban and industrial settings.

Overview

Main Focus 2 focused on the general need to efficiently reuse water supplies and the current status and future prospective on methods to derive necessary resources from water and wastewater.

In Session 2.1 titled 'Nutrient Recovery and Wastewater Reuse in Agriculture' participants introduced techniques to disseminate the idea of safe reuse of reclaimed agricultural wastewater and demonstrated the importance of monitoring water quality parameters in irrigation water.

Agriculture requires large quantities of good quality water for irrigation. Modern irrigation technologies are being used more around the world, but these measures cannot match the increasing demand for water. Wastewater is a valuable resource of water and nutrients, which can close the gap in the water cycle. However, utilization of wastewater without proper treatment for irrigation causes health risks in many countries. Thus, development of necessary treatment technologies should be prioritized to guarantee safe use of reclaimed wastewater. This session elaborated on wastewater reuse for agricultural purposes, taking into account that good water quality is crucial for safe food production. Treatment process selection and system optimization to maximize nutrient recovery are vital elements of this system. Although agricultural reuse has been added to the agenda of many countries in recent years, there is still a lack in water quality monitoring. Furthermore the session addressed the need for the integration of quality monitoring with smart irrigation systems to ensure safe supply of reclaimed water for agriculture. The participants also discussed the importance of treatment process selections, alternative disinfection methods, removal of emerging contaminants and wastewater reuse from desalinated water.

In Session 2.2 titled 'Energy and Heat Recovery from Water and Wastewater' the core objectives and outcomes were: demonstrating how desalination provides practical solutions to provide high quality water in water shortage and scarcity areas; possible scientific and technological innovative solutions to major problems associated with desalination; displaying practical cases from different parts of the world; and discussing the affordable and environmental friendly methods of desalination.

With development comes an increased need for water (at home, in agriculture and in all type of industries); and in the last decades water consumption has grown exponentially. This unsustainable use of water degrades water quality by discharging large quantities of domestic and industrial pollutants into water with untreated or insufficiently treated wastewater, in addition to putting the reliability of future water supplies at risk.

Wastewater reuse is becoming more than a necessity in many countries due to reduced availability of natural water resources and growing water demands. Many wastewater treatment technologies for reuse in diverse applications are available today, and they depend on wastewater as a source and the final use of the recycled/reclaimed water. With advanced and innovative technologies, wastewater reuse for municipal uses is becoming a feasible solution to meet water shortage problems. This

technology is becoming increasingly important to supplement drinking water supply needs, while satisfying health considerations and protecting the environment by preventing the disposal of wastewater.

Desalination is not a dream, it is a reality today. Desalination can increase the fresh water available for development, especially in resource-poor regions. 18,000 plants built in more than 150 countries are able to produce over 90,000,000 m3/day for human consumption, industrial use or agricultural irrigation. This huge progress has been achieved in the last 40 years. Desalination is the perfect complement to water reuse in water plants. This session focused on desalination and wastewater reuse for municipal uses (including drinking water) and discussed the conditions associated with the applications for municipal purposes as a main factor to consider, as well as different technologies and solutions. In addition, the session included presentations on practical cases on desalination and wastewater reuse from different parts of the world.

Session 2.3 titled 'High-value Resources Recovery from Water and Wastewater' dealt with the current technology using microalgae to produce valuable materials from water and wastewater. Participants discussed the feasibility of developing countries adopting this technology, increasing profitability, and methods to simultaneously clean water sources in an environmentally friendly way. Energy can be extracted and recovered from different water and wastewater systems. This session addressed cutting-edge, scientific and technological approaches to energy recovery from water and wastewater systems, including biogas production, solar biofuels and hydraulic energy production. It discussed technological solutions to improve energy efficiency in water and wastewater systems.

In addition to the increasingly prominent technological solutions for energy recovery and energy efficiency from wastewater, this session emphasized the role of water recovery and recycling to promote sustainable solutions to reduce energy consumption in water systems, thus reducing greenhouse gas emissions and increasing the overall efficiency of society. Participants shared experiences on energy recovery from wastewater treatment facilities from America, Asia and Europe.

Moreover, wastewater is a valuable resource. Many valuable productive materials can be removed from wastewater. This session focused on scientific and technological innovations for production of high-value bio-energy and bio-materials, such as transportation fuel, bio-plastic and bio-chemicals. Presenters shared examples of innovative methods of recovery of other types of high-value resources, such as metals from wastewater and industrial brine water.

In Session 2.4 titled 'Advanced Technologies and Scientific Innovations in Water and Wastewater Reuse, Resource Recovery, and Desalination' participants actively shared case studies of state-of-the-art technology trends and membrane, RO and FO technologies. They discussed whether developing countries can apply these technologies and if this technology is the best choice for society today. Representatives from diverse water-related fields also passionately discussed the role of scientific innovation and technology in clean water and water security.

Science and technology will play a crucial role in advancing resource recovery from water and wastewater. Stakeholders need to promote and further develop innovative scientific and technological solutions for water recycling, wastewater reuse and reclamation, desalination and energy and other resource recovery from water systems and disseminate relevant technologies and knowledge to developing countries. The transfer of available scientific knowledge and existing technologies to developing countries will significantly increase water, energy and materials recovery and reuse opportunities.

This session addressed scientific innovations and advanced technologies for water and wastewater treatment, including desalination, which may have promising applications for water reuse and resource recovery from wastewater. Participants focused on the state-of-the-art technologies and scientific approaches to water reuse and reclamation for various uses, such as reuse for drinking water, industrial water recycling and reuse, and other beneficial uses. There was an emphasis on promising novel and innovative technologies for water and wastewater treatment, including those that will facilitate access to safe drinking water in areas with no energy and infrastructure and will maximize resource recovery from wastewater, as well as sanitation and sludge beneficiation. Participants also addressed innovative non-technological approaches, such as matching water quality to uses on a "fit-for-purpose" basis with the aim to reduce water treatment costs, while also increasing water reuse and recycling opportunities and maximizing the overall quantity of usable water.

Session 2.5 titled 'Water Reuse and Resource Recovery: Utilities of the Future and the Market Economy' elaborated on the drivers and benefits of the global wastewater sector's transformation to resource recovery to cost effectively produce useful and valuable products for our society. Moreover, it explored market possibilities on recovered resources, including pros and cons, and concluded with suggestions on how to narrow the gap between science and markets.

Globally, we are experiencing the leading edge of a renaissance in our leadership role as water stewards. Collectively, we are transforming wastewater treatment and disposal to valuable resource recovery to produce useful products for society, such

as clean renewable energy, recycled water, fertilizer, nutrients, even transportation fuel. Water technologists across the globe are developing many promising processes and products for future use. However, the market economy restricts success to those emerging technologies that can successfully meet the challenges of economically scaling up to full-scale, while meeting all specification requirements, including on-time delivery and system start-up. The session explored cases which have implemented applicable science and technologies and successfully navigated the markets.

Key messages

As water is the most essential factor for the survival of mankind, Main Focus 2 linked session topics with the theme of implementation for future practice. The sessions determined that the industry's challenge is to appropriately implement resource recover technology. Participants mentioned the needs and potential of technology evolvement to brainstorm ways to develop our resource recovery capabilities for the future.

1.3. Main Focus 3: Water and Natural Disasters

Background

Considering how vulnerable humans are to extreme weather events, such as floods and droughts, and that climate change has contributed to a rise in unusual natural patterns of weather events and the water cycle, the link between climate change and water-related natural disasters is clear. We are already facing serious consequences of climate change, which are expected to have a long-term impact. Therefore, advanced technologies and measures are needed to cope with natural disasters.

Overview

Based on the importance of advanced technologies to water and natural disasters, five sessions were coordinated under five Sub Focuses.

- Climate Change: Impact Assessment and Adaptation

Session 3.1 titled 'Tools and Methodology Development on the Climate Change Impact and Vulnerability, and Scientific Collaboration in Asia and Pacific Regions for Robust Resilient Water Management' introduced topics such as climate change impact, vulnerability assessment, and scientific collaborative research for climate change adaptation.

- Drought Analysis and Management

Session 3.2 titled 'Advances in Drought Analysis Tools and Coping Strategies' covered analysis tools, water cycle integrators, drought disaster risk assessment based on regional disaster system theory, event analysis, and desalination and drought mitigation in developing countries.

- Urban Floods and Damage Reduction Studies

Session 3.3 'Flood Damage Reduction in Urban Area by Improvement of Flood Forecasting' overviewed multi-criteria decision-making using Fuzzy TOPSIS, uncertainty of flood forecasting, advanced flood risk modelling and forecasting analysis, urban flood forecasting during typhoons, urban storm water integrated management, and hurricane flood damage assessment .

- RS and GIS Applications for Natural Hazards

Session 3.4 titled 'Remote Sensing and GIS-assisted Management of Water and Natural Disasters' covered current science and technology issues and emphasized our responsibility for water and natural disasters. The session introduced the particular involvement of government and industry sectors, LIDAR mapping in Taiwan, and on-going international projects, including integration and networks. Participants discussed challenges regarding natural disaster management and international collaboration for data sharing, along with other information and technology with case studies.

- Water-Related Disasters: Risk Management and Sustainability

In Session 3.5 titled 'Managing Extremes – Decision Support Systems and Risk Management for Floods and Droughts' participants introduced observation models and risk analysis, and highlighted resolutions to be developed.

Key messages

Further steps for implementation to prevent increasing disasters and impacts are necessary. Furthermore, as urbanization is one of the most important factors to climate change discussion for the risk map and modeling, forecasting is important. Therefore to minimize natural disasters, appropriate technologies, global cooperation and standard policy establishment are needed.

1.4. Main Focus 4: Smart Technology for Water

Background

Due to global warming, which is exacerbating water shortages, and rapid urbanization, water resources are being depleted at a staggering pace. The imbalance of water resources has resulted in increased human affliction from famines and diseases, as well as

endless water-related conflicts. Resolving these problems requires innovative water management technologies.

Considering the objective of the STP, cutting-edge ICT technology was included as part of the newly created Process. Smart Technology for Water based ICT can be a key solution to maximize efficiency of water management and provide insight into the future of water. Main Focus 4 introduced case studies from around to verify the applicability of smart water management.

Overview

In session titled 4.1 'Understanding Water Cycle: Advanced Monitoring Technology for Water Management' each speaker introduced advanced monitoring technology systems and discussed the applicability of technologies, such as rainfall radar; Acoustic Doppler Current Profilers (ADCP), which is state-of-the-art acoustic technology for river flow measurement; automatic discharge measurement technique with Integrated Real-time Discharge Measurement System (IRDIMS); a portable surface image velocimeter using a smart phone; the water quality monitoring technology with Earth observation, and more.

Water is one of the most basic elements for life and water issues are not matters of a single region or nation. Nowadays, climate change is expected to lead to change in precipitation and stream flow measurement. In addition, the importance of efficient water management is gradually increasing. For efficient management and utilization of water, understanding the water cycle is very important. Finally, good water management is founded on reliable stream flow information, and this information depends on field measurements.

In this session, participants reviewed the status of measuring techniques. Presenters introduced the development and application of advanced field investigation technology to measure hydrological data with smart technology for effective water management.

The topic of this session was composed of six categories related to monitoring and measuring techniques of river information, including subjects such as rainfall, discharge, soil moisture, evapotranspiration, measuring techniques of water intake and drainage to better understand water cycle, which includes IRDIMS, rainfall radar, ADCP, mobile measurement method, and satellite that can be associated with Smart Technology.

The session reaffirmed that understanding the water cycle is important to determine available water resource. Smart solutions for water cycle information use and development of advanced monitoring and measuring techniques and data quality improvements (data processing, analysis and application) through enhancement of accuracy and reduction of uncertainty within water cycle are necessary. Furthermore, smart technology application should become easier and more convenient to provide hydrological information to government, organizations, and the public.

Session 4.2 titled 'The Experience and Future of Integrated Water Resources Management: Solutions Presented by Science and Technology' introduced Integrated Water Resources Management (IWRM) systems and technologies. In particular, non-structural measures, such as flood control system, river management and service systems, sediment monitoring and sluicing operation in reservoirs were introduced. These IWRM technologies and systems using ICT help operate reservoirs and rivers efficiently.

IWRM considers multiple dimensions of water: from groundwater to surface runoff; from facilities to human beings; and from engineering, economics and society to the environment. Nowadays, we are facing a wide range of water challenges due to changing climate, society and environment. IWRM is expected to offer solutions to the problems we encounter. Science and technology's potential to improve IWRM implementation needs to be explored. This session discussed the complexity of IWRM, and introduced the application of science and technology to improve IWRM. Presenters introduced cases from different countries where technology was used in strategies for groundwater, river, reservoir, watershed management. Participants presented the status of Smart Technology and experiences in integrated water management systems. The session reviewed the past and present of IWRM with science and technology to create a complete framework and roadmap for the future.

Session 4.3 titled 'New Era of Urban Water Supply System Built on Smart Technology' introduced various urban water supply systems and cases using smart technology, such as decentralized water supply system, smart water city to supply healthful drinking water, and eco-smart management system for waterworks.

Water supply systems is facing several challenges, such as increasing demand and water shortage, environmental impact by climate change, aging infrastructure, and water quality problems. The global water shortage and uneven water supply demand problems are growing more serious. Smart technology using ICT and ET (Environmental Technology) is emerging as a key solution to solve the challenges on water supply.

In this session, presenters introduced smart water supply technologies and case studies from Korea, France, and Morocco. The session included discussions on the design, establishment, operation, maintenance and promotion of smart technologies developed and implemented within industry and academia. Many countries have developed and implemented smart technology

such as smart metering, remote monitoring and control of the whole water supply and urban water supply distribution, which will be the norm in the near future.

Development of cost-effective unit technology, integration of ICT and ET, and comprehensive solutions covering water from source to tap were suggested as key actions for utilizing smart technology in urban water supply. Affordability, privacy and cyber security issues still remain to be explored. By resolving these problems, smart water technology can be a key solution to efficiently providing safe drinking water to customers.

Session 4.4 titled 'Smart Water Management for the Public by using ICT: Design, Implementation and Standardization' focused on the future of smart water grid technology through effective design and implementation. Moreover, participants discussed the necessity for standardizing smart water management technology.

Today, the global urban population is growing, while urban infrastructure is aging. At the same time, people expect a higher level of service in terms of reducing urban flooding, curbing water pollution, and creating a cleaner environment with higher amenity value. Additionally, the global financial crisis has forced cities to review their spending and make spending more effective and efficient. Smart technology for water management provides alternatives to traditional solutions by applying intelligent ICT, such as the use of automated real-time control and informed decision-making systems.

This session presented the potential of Smart Water Grid (SWG) technology to contribute to global water security and welfare through the compilation of state-of-the-art technology and best design and implementation practices. Currently, water sector stakeholders are trying to incorporate ICT technology into water management, pursuing smart water management to satisfy a variety of demands based on regional needs and economic conditions. Also, this session not only produced schemes of cooperation for global advancement and dissemination of SWG technology, but also concluded that standardization of smart technologies and the development of appropriate technology are necessary.

Session 4.5 titled 'Overcoming Water Management Challenges with Data and Technology' covered methods to collect data on water management and big data on drinking water quality for customer service.

Data and technology are crucial elements for effective water resources management. More industries are utilizing big data, but the water industry and water resources management are slower than others in using big data. In this session, participants presented case studies and technologies which monitor and collect water-related data, and discussed the future direction of big data in water resources management.

City and utilities representatives explored how city managers can harness the power of real-time control, use of predictive models, spatial data analysis, social media integration, Software-as-a-Service delivery modes, cloud-based services, among other measures to protect water resources, improve operational efficiency of water systems and improve service-quality to their constituents, while optimizing capital and operational expenditures. This session presented a few examples of successfully implemented Advanced Metering Infrastructures as well as real-time operational platforms for water networks.

Key messages

Climate change, population growth, aging infrastructure, and high energy consumption are some of today's water-related challenges, which call for a new paradigm. Fortunately, ICT-based advanced technology can alleviate the stress on water resources that these challenges cause. This is why most water industry insiders agree on the need for innovative technology. Smart technology for water can provide water stability, safety, and efficiency. Presentations by international experts over five sessions clearly demonstrated the benefits of smart technology for water. However, ICT-based water technology cannot be universally applied to all countries; it is particularly difficult for less developed countries to utilize ICT-based water technology without a strong ICT infrastructure. Thus, participants discussed standardization of technologies and appropriate technologies.

Participants also discussed topics relating to smart water management, including water resource data monitoring, integrated water management, urban water management, smart water grids, standardization of smart water management, and big data. Smart technology for water will not only lay the foundation for smart water market's fast growth, but also solve water-related problems.

1.5. Main Focus 5: Understanding and Managing Ecosystem Services for Water

Background

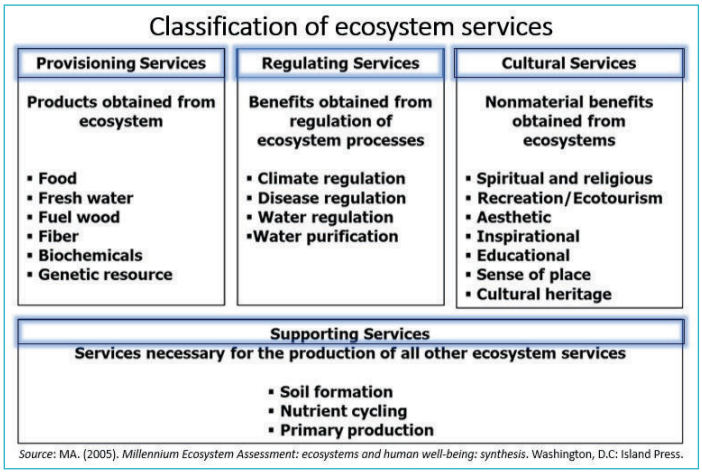
Rivers have been, and remain, our most vital water infrastructure. Headwaters collect water from the rivers. Forests retain it. Meadows control its extremes. Currents deliver it. Eddies produce food from it. Aquifers store its surplus. Wetlands filter it. Wind and sun desalinate it all over again.

What should nature charge us for this endless work on our behalf? Until now the answer was, "nothing." However, water professionals

have begun to approach this question in radical ways, developing new valuation tools and seeking answers with an increased sense of urgency.

Humans tend not to value what comes for free. We claim water is 'priceless' but treat it as worthless. Our cities take reliable upstream flows for granted, and convert downstream flows into open sewers. However, that is changing, fast. This change illustrates why, how, where, and for whom watersheds yield dramatic benefits – most recently defined as "the direct and indirect contributions of aquatic ecosystems to human well-being" –that enhance what we've built. Successful outcomes emerge if we:

- **Move Nature from 'Red' to 'Black':** Shift aquatic ecosystems across the policy framework from the column of 'fixed liabilities' that we avoid into 'liquid assets' that generate yields.
- **Monetize what's priceless:** Deploy clear analytical tools that give explicit value to the hidden ways natural infrastructure adds value to society.
- **Slow, Spread and Sink It:** Decompress and decentralize urban runoff techniques to bring back a watershed's former health, rhythm, velocity, and reliability.
- **Seek Symbiosis:** Convert the reactive 'environmental impact assessment' into a proactive evaluation of how much development can benefit from naturally functioning water flows.
- **Scale Economies:** Encourage and reward investments in natural water infrastructure at every level, from backyards to river basins, and rooftops to reefs.
- **De Risk Development:** Leverage nature as a fast, secure, and cost-effective insurance policy against escalating shocks to our manmade systems.
- **Redefine Relations:** Transform nature, neither our subordinate nor superior, into an equal partner with which to build a mutually dependent, resilient and productive future.



Source: MA. (2005). *Millennium Ecosystem Assessment: ecosystems and human well-being: synthesis*. Washington, D.C: Island Press.

Ecosystem services are defined as the contributions that ecosystems make to human well-being. They are seen as arising from the interaction of biotic and abiotic processes, and refer specifically to the 'final' outputs or products from ecological systems. That is, the things directly consumed or used by people. Following common usage, the classification recognizes these outputs to be provisioning, regulating, cultural, and supporting services.

The provisioning services include all material and energetic outputs from ecosystems; they are tangible things that can be exchanged or traded, as well as consumed or used directly by people in manufacture.

The regulating services include all the ways in which ecosystems control or modify biotic or abiotic parameters that define the environment of people, i.e. all aspects of the 'ambient' environment; these are ecosystem outputs that are not consumed but affect the performance of individuals, communities and populations and their activities.

The cultural services include all non-material ecosystem outputs that have symbolic, cultural or intellectual significance.

Finally, the supporting services are treated as part of the underlying structures, process and functions that characterize ecosystems. Since they are only indirectly consumed or used, and may simultaneously facilitate the output of many 'final' outputs, it was considered that they were best dealt with in environmental accounts in other ways.

Overview

To raise awareness of the role of science, technology and innovation playing in addressing water challenges and promoting water solutions, the 7th World Water Forum had a new focus on science, technology and innovation (co-led by the International Water Association (IWA)). The focus was particularly on synthesizing

scientific information and technologies used by the early adopters and the early majority.

Main Focus 5 'Understanding and Managing Ecosystem Services for Water' sought to identify the opportunities to further scale-up and/or replicate technological innovations.

Session 5.1 titled 'Low Impact Development (LID) and Green Infrastructure Techniques for Nonpoint Source (NPS) Management and Aqua-ecosystem Protection' introduced a new perspective for the protection and restoration of watershed hydrology and a practical understanding of how to apply this new technological solution for watershed and water resources protection objectives.

The two-hour session included five presentations highlighting new and continuing work including policy and research developments and implementation of LID and GI. The presentations provided the regulations and framework of using new storm water management principles and practices to create a hydrologically functional landscape, new paradigms, principles and practices of LID watershed management technology in pollution prevention. The session also included concrete examples and more detailed information on current research findings and applications of new technologies. Urban applications are used to demonstrate and review the principles and practices for applying LID and GI to address water quality problems. The session gave the participants insight into the philosophy, design and administrative approach, and implications of LID and GI technologies.

Session 5.2 titled 'Role of STI (Science, Technology and Innovation) for Ensuring Ecosystem Services' explored the role of science and technology in managing and preserving the ecosystem.

This session was organized to help open the paradigm lock between the science and technology community and water policymakers who are struggling to manage complex interactions between biological diversity, climate change, land use change and freshwater use limits and constraints. The discussions focused on how science and technology can help us avoid crossing four of the nine planetary boundaries that once crossed, will cause unacceptable environmental change. The conceptual and theoretical discussions and case studies presented during the session guided participants, experts and member states in devising river basin management plans for maintaining and enhancing the multifunctional productivity of water and ecosystem resources to optimize physical, economic, social and environmental benefits without compromising the quality of these resources.

Session 5.3 titled 'Integration of Modeling and Monitoring Techniques for Successful Management of Ecosystem Services for Water' aimed to identify the importance of citizen participation in implementing policies and regulation for preserving the ecosystem.

Sustainable water resources management requires understanding of transportation of water and pollutants in watershed areas since watersheds are a source of water and pollutant to urban streams. Information on water and pollutants is essential for water resources management, but it is difficult to find sufficient information because of the temporal and spatial irregularities of water. Therefore, it is necessary to develop methods for appropriate monitoring systems deployment. Monitored information needs to be used as inputs of models to assist in decision-making processes. Since there are many models available, level of complexity must be considered. This session discussed optimal application of monitoring and modeling methods for successful management of ecosystem services for water.

This is deeply related to infra-structure management and application of state-of-the-art technology for monitoring and decision-making processes. Participants in this session included stakeholders interested in application of in situ engineering methods, such as storm water control and in stream control.

Session 5.4 titled 'Pending Research Questions Linked to Sustainability Assessment: and Analysis Based on Integrated Pevrspectives from the Water-Energy-Food-Ecosystems (WEFE) Nexus' presented an interconnection between the three elements of water, energy, and food and proper assessment and analysis on the WEFE concept to increase the sustainability of the system.

Assessing sustainability of systems (e.g. industries, cities, river basins, and countries), products and services is often based on rather superficial and particular criteria. A (food) product is for instance often claimed to be more sustainable if the impact on the ecosystem is reduced during production or use, or if part of the energy, water and elements can be recycled, or if it can be produced in a more efficient manner e.g. by using less energy, water or other environmental resources. We need to develop more consistent criteria to assess the sustainability of products, services and systems. Additionally, policy developers must apply these standards to the market and influence both producers and consumers. The most difficult step in sustainability assessment is finding good system and process boundaries to make a proper assessment in time and space at a relevant level of detail. This session set the scene via an introductory presentation on how these elements are interconnected in most of our daily activities and the choices we make, and why each of the elements are needed for a proper assessment of products, services and systems. It also covered what we are currently missing. Participants analyzed the Water-Energy-Food-Ecosystems (WEFE) Nexus from the perspective of cities, river basins and ecosystems, respectively.

Each presentation introduced current tools and provided a critical analysis of needed instruments and technologies to increase the sustainability of systems, products and services at the level of these structures.

Session 5.5 titled 'LID and Green Infrastructures for Urban Regeneration; Water Cycle, Climate Change and Cooperation' aimed to identify the importance of citizen participation in implementing policies and regulation for preserving the ecosystem.

To solve various problems caused by climate change and urbanization, we need a green infrastructure for urban regeneration. Heat waves, heavy rainfall, urban flooding and droughts are some examples of urban issues. Our cities consume significant energy and resources. Currently, cities are unidirectional consumers, requiring long distance transportation of energy and water resources. Amenities, sustainability, safety, natural environment, and circularity in urban areas are worsening. Increase in urban impervious surfaces decreases soil moisture and evapotranspiration rates and increases heat islands. The distortion of the urban water cycle affects the overall urban environment. Urban safety issues have become chronic problems. Additionally, it's important to note that a city is an organism, one that requires organic solutions and mutual relationships between infrastructure facilities. Thus, we have to pay more attention to the interconnection of urban infrastructure, urban planning and design. In other words, the conventional grey infrastructure should be converted to green infrastructure with LID to make sustainable cities. This session introduced policy, technology, and cooperation examples of LID in Asia, America and Europe. Participants discussed ways to enable interdisciplinary and international cooperation of LID technologies developed in each country.

The solutions through ecosystem services illustrate that when we secure, value, and invest in natural capital, we receive healthy, long-term dividends. Each solution introduces the most effective way that 'natural infrastructure' of aquatic ecosystems can support water, energy, and food security for all and forever.

Key messages

Main Focus 5 provided a clear view of how people want to preserve the water ecosystem by introducing methods and techniques that will help in the reduction of water pollution. The sessions also provided the integration of water in different sectors such as food and energy. Also, it provided an overview in the policies, regulations and ordinances made by different organizations, and stressed the importance of citizen participation in the effective implementation of the policies. Lastly, the session emphasized the importance of public-private partnership for the proper execution of methods and policies.

In all the sessions, key motives were derived from identifying both the problems and solutions. The main problem identified was the high rate of urbanization that will increase contaminants (eg. nutrients) and harmful toxic materials. Basic solutions identified were to limit to hard-grey infrastructure and to make more efficient, more resilient and more robust systems.

Some examples of good ecosystem services included: the adoption of a 'green-blue network' where small systems were utilized for de-centralized treatment; low impact development or the restoration of pre-development hydrology; surface and sub-surface restoration and contaminant reduction; managing aquifer/recharge to protect the natural environment; and potable water production.

However, challenges still remain, and the session called for more research in promising areas. For example, 'ecological drainage systems' or 'innovative sustainable drainage systems, defined here as ecologically sustainable development focusing on a 'source control' approach, will help restore the natural environment. Replacing grey infrastructure with green infrastructure, which provides comparable benefits at reduced cost, makes the financial case for investing in conservation, sustainable management, and natural ecosystem restoration to achieve development goals. Demonstration projects are needed as well as business cases to acquire evidence of risk reduction. However, the underlying question from the session was, "who's going to pay?" New technologies of future green cities (i.e., cities as biological organisms) need partnerships and collaboration between ecologists, engineers, city planners and other stakeholders.

2. Three STP Special Programs

2.1. STP White Paper

Background & Progress

In order to improve understanding of the five Main Focuses and raise public awareness on those five imminent primary global water challenges with accessible materials, the STP White Paper, covering each selected Main Focus of the STP, was produced as a special program of the process. Experts of each area from Korea and abroad, made the STP White Paper as easy to understand as possible by having several consultation meetings and reviews. The STP White Paper was structured to provide technology trend information from the past and present and an outlook of the future of water related science and technology. The STP White Paper contains detailed descriptions of each of the five Main Focuses: Water Efficiency; Resources Recovery; Water and Natural Disasters; Smart Technology for Water; and Ecosystem Services for Water. It was written and amended by a total of 10 authors (5 local and 5 foreign authors), 13 sub-authors and 12 reviewers. Afterwards,

the structure and details were modified and complemented by a review of each area. The entire STP White Paper was proofread to check its direction, structure and redundancy.

Proposed members for White Paper production (draft)
Jan.31.2014
Hague, Netherlands
3rd STPC

▶

Discussed White Paper production budget
Jun.04.2014
IWA Secretariat
4th STPC

▶

Submitted White Paper authors and table of contents per Main Focus
Sep.23.2014
Lisbon, Portugal
5th STPC

▼

Discussed White Paper structure, table of contents and direction
Dec.17.2014
Seoul, Korea
6th STPC

◀

Submitted White Paper draft and reported progress
Feb.14.2015
Seoul, Korea
7th STPC

◀

Submission of White Paper final version, publication ceremony, and White Paper distribution
Executive Summary: 1,000 copies, Flash memory: 10,000 units
Apr.12.2015
Seoul, Korea
8th STPC

STPC Meeting on the STP White Paper, IWA HQ, Hague Netherlands

Key Content

Major contents of the STP White Paper can be summarized as follows:

* Efficient Water Management

Water stress and water scarcity are global challenges with far-reaching economic and social implications. Driven by increasing population, growing urbanization, changing lifestyles and economic development, the total demand for water is rising: from urban centers, from agriculture and from industry. But efficiency gains lie within our grasp, and can put us on track to achieve water security for all. Security won't arrive by itself. The status quo of single digit incremental efficiency falls well short of the mark. And the imperatives of climate change add urgency to current water crises. Yet right now we possess the tools and experience to design and implement a new paradigm of efficient water use, and scale it up quickly to sustain urban, agricultural, industrial and energy systems everywhere.

This Policy Brief shows why, how, where, and for whom water and energy efficiency goals became real:

1. City Solutions. Urban water managers who control water losses and combine firm incentives with flexible innovations can quickly close the projected 40% gap between supply and demand.
2. Agricultural Advances. Farmers who slash waste throughout irrigation systems can grow more food, and earn more per drop, even with 43% less water.
3. Industrial Innovations. Corporations that push for internal and external efficiency both increase outputs and reduce exposure to risks, even within zero increases in water supplies.
4. Power Shifts. Judicious early investment can achieve carbon and energy neutrality, or generate net gains, through efficient water and wastewater processes.
5. Smart Systems. Advanced water technologies – when nested within rigorous legal, administrative, and economic institutions – enable and accelerate 'smart systems.'
6. Standard Metrics. More inclusive, exacting, and uniform ways of measuring water will yield efficient outcomes both quickly and affordably.
7. Stress Relief. The fastest, fairest, cleanest and cheapest path to efficiency involves carefully optimizing water pressure to maintain priorities while eliminating excessive strains.

These Seven Keys ensure vital systems do more with less. Each reveals effective tactics and techniques to reduce leaks and losses, boost food security, increase productivity, conserve (or generate) power, and build resilience to escalating shocks. They highlight what has already been achieved and what can be replicated at scale quickly. Efficiency aligns ecological and economic outcomes so that further waste is not only unacceptable, but also unnecessary.

* Resource Recovery from Water and Waste-Water Systems

Civilizations developed water and wastewater systems with a focus on treatment technology. The goal was simple: pull clean water in, push dirty water out, and make odours disappear as fast as possible. But our larger and more affluent populations demand far more resources from far fewer supplies. Budgets have shrunk and climate change is forcing cities and industries to reassess every aspect of our resource life cycles.
As a result, leaders have begun to develop a more sophisticated philosophy and methodology of resource recovery and reuse – towards a low-carbon 're-appearing act'. These concepts are neither new nor radical. But they highlight the troubling gap between theory and practice, which prevents us from capturing valuable benefits at
a large scale. A fundamental shift in our approach and mentality can lead us beyond conservation, efficiency, or treatment toward the optimal recovery and reuse of resources. The keys to success lie in

1. Bottom-Line Benefits. Resource recovery and reuse dramatically saves electrical currents and financial currency, effectively earning money that can be reinvested elsewhere in water utilities.
2. De-carbonization. As governments seek to meet greenhouse gas emissions targets, resource recovery and reuse can slash per capita carbon emissions by 4% annually.
3. Effluent Mining. Apart from water, energy and nutrients, such as phosphorous, resource recovery and reuse extract new wealth from an old pool of other compounds and substances.
4. Cyclic Economies. Judicious early investments in reuse and recovery help close the loop in water and wastewater systems, eliminate externalities and build resilience to escalating risks.
5. Imaginative (Re) Branding. Much as 'used cars' are now highly valued as 'previously owned vehicles', water and nutrients can be judged not by their history but by their quality.
6. Linked Outcomes. Water reuse may top the agenda, but the hottest topic relating to resource recovery is connected to energy efficiency and recovery in water and wastewater systems.
7. Centralized Control. While efficiency and conservation gains may come from devolving authority, recovery and reuse take advantage of concentrated water, energy, and nutrients.

The Keys to Resource Recovery not only ensure lateral transfer of existing best practices, but raise the bar by enabling new innovations to emerge. Each key reveals the most effective tactics, tools and techniques to generate more energy, enhance food security, increase productivity, secure more water, bring more nitrogen and phosphorous to market, and build resilience to escalating shocks.

* Water and Natural Disasters

In recent years, water related disasters – floods, droughts and storms – have grown frequent, affected 4.2 billion people, caused USD 1.8 trillion economic losses, and accounted for 90% of all natural hazards. Climate change is not coming. It is here. It's underway. And it will only intensify. Our mitigation depends on green energy sources that reduce greenhouse gas emissions. But our adaptation depends on water. Water is the medium through which climate change becomes real. No city or nation is immune from extremes of protracted droughts punctuated by sudden urban floods. Negative impacts of natural disasters include loss of life, displaced families and livelihoods, and destruction of billions of dollars in property. We can't predict the degree, extent or timing of impacts. But water professionals today far better understand our escalating vulnerability, and take steps to reduce risk exposure through building resilience. Success comes if we

1. Play Offense, Not Defense. Don't wait and react to future impacts; adopt a proactive approach to water system reforms that reduce waste, build integrity, and lower exposure to rising risks.
   the 7th World Water Forum 12 / 13
2. Make Drought the Norm. Consider severe and protracted aridity the new rule, with rainfall the rare exception, in order to reach a new equilibrium heading into perpetually drier future.
3. Embrace Floods, Naturally. Rather than push runoff elsewhere, ease its intensity by slowing it up, spreading its risks out, and sinking its waters down through low-impact development.
4. Help Living Cities Breathe. Take the lead in turning

urban areas into dynamic living organisms, by linking natural water infrastructure in ways that enhance the built environment.

5. Buy Low (Tech), Sell High (Yields). Invest early in a menu of affordable and interactive options that generate stable, adaptive outcomes over the many volatile years ahead.

6. Reform Institutions. Explore drought insurance, dam re-optimization, water rights, internal markets, trade in virtual water, pricing, policy, devolution of authority.

7. Link Silos. Integrate the water-energy-food-health nexus to achieve higher adaptation, mitigation, and valuation of water across sectors.

The Solutions to Resilience illustrate the value of taking early, deliberate and judicious measures to calmly confront an uncertain and troubling future – a future that has already arrived, is growing ever more volatile, but to which we can adapt.

* Smart Technology for Water

For millennia Egypt gathered water data from step-like infrastructures. Strategically sited along the river, these durable instruments measured the seasonal pulse of currents; recorded water quantity and quality; calibrated how much flood irrigation would benefit all subjects; determined taxation rates based on flow pattern; and detected early potential for risky extremes of drought or deluge. The Nilometer may be the oldest information and communications technology (ICT) applied to water. Pharaoh and farmer alike depended utterly on this 'smart' tool. Each recognized it as a means to their own water security. With time it fortified the social contract through layered scientific understanding. Since then, our end goals have changed little. We still seek to collect, analyse and share water quality and quantity data in a quest for security. Our urbanizing, water-stressed world demands faster, smarter, more precise knowledge. Vital data supports equitable, efficient and ecologically sustainable governance. But the means at our disposal – the fast-evolving spectrum of clever, complex, costly, and sophisticated tools
– may complicate decisions. This Executive Summary helps professionals leverage ICT to achieve their desired outcomes. 'Smart' water solutions lie in:

1. Nexus management. Intelligent decision-making at systemic levels can incentivise efficient and sustainable use of water and energy, and reduction of greenhouse gases emissions.

2. Transparent Trust. The most valuable information needs to be free, so any smart water system must be willing to share information globally and across sectors and segments.

3. Open Doors. The success of any smart water management lies not only in improving the technology, but also in involving, persuading and preparing multiple stakeholders to adopt it.

4. Empowered Options. Real time monitoring and diagnosis, as well as automatic controls, can improve the supervision and optimization of water demand-supply management.

5. Appropriate Scales. To enable robust management of big data, support smart monitoring and metering at scales ranging from basins to households.

6. Broad(band) Foundations. Rapid, reliable decisions require web and mobile-based networks to monitor, acquire and process real-time data on water level, rainfall, runoff and water quality.

7. Driving Efficiencies. Smart systems, linked to wise legal and economic institutions, can help professionals achieve water and resource efficiency goals.

The Solutions to ICT seeks to build on best practices and enable new innovations. Information may be power, but only if anchored by those with the wisdom of to use it. Each solution outlines the most effective ways to generate better results, for more people, in a shorter time, with fewer resources.

* Understanding and Managing Ecosystem Services for Water

Headwaters collect water. Forests retain it. Meadows control its extremes. Currents deliver it. Eddies produce food from it. Aquifers store its surplus. Wetlands filter it. Wind and sun desalinate it all over again. What should nature invoice us for this endless hard and productive work on our behalf? Until recently the answer was: 'No charge'. But water professionals have begun to approach this question in radical new ways, developing new valuation tools, and seeking answers with an increased sense of urgency. Humans tend not to value what comes for free. We claim water is 'priceless' but treat it as worthless. Our cities take reliable upstream flows for granted, and convert downstream flows into open sewers. That's changing, fast. This Executive Summary illustrates why, how, where, and for whom watersheds yield dramatic benefits – most recently defined as "the direct and indirect contributions of aquatic ecosystems to human well-being" –

that enhance what we've built. Successful outcomes emerge if we:

1. Move Nature from 'Red' to 'Black'. Shift aquatic ecosystems across the policy framework from the column of 'fixed liabilities' that we avoid into 'liquid assets' that generate yields.

2. Monetise what's Priceless. Deploy clear analytical tools that give explicit value to the hidden ways natural infrastructure adds value to society.

3. Slow, Spread & Sink It. Decompress and decentralize urban runoff techniques to bring back a watershed's former health, rhythm, velocity, and reliability.

4. Seek Symbiosis. Convert the reactive 'environmental impact assessment' into a proactive evaluation of how much development can benefit from naturally functioning water flows.

5. Scale Economies. Encourage and reward investments in natural water infrastructure at every level, from backyards to river basins, and rooftops to reefs.

6. De-Risk Development. Leverage nature as a fast, secure, and cost-effective insurance policy against escalating shocks to our manmade systems.

7. Redefine Relations. Transform nature, neither our subordinate nor superior, into an equal partner with which to build a mutually dependent, resilient and productive future.

Solutions through Ecosystem Services illustrate that when we secure, value, and invest in natural capital, it repays healthy long term dividends. Each introduces the most effective ways that 'natural infrastructure' of aquatic ecosystems can support water, energy, and food security, for all, forever.

As the STP White Paper presented the most imminent issues on water based on Main Focuses of the Science and Technology Process and tended to elaborate how the relevant technologies, scientific methods, best practices are currently available and will be developed. The STP White Paper truly contributed to raise public awareness on the primary issues of water and its tangible solutions. It also became a legacy of the 7th World Water Forum that is expected to be followed up through the next World Water Forum.

2.2 CEO Innovation Panel

Background & Overview

The CEO Innovation Panel was designed to introduce development and application cases of latest water-related technologies, discuss the current status of the water industry, policy needs and the corporate role. Going further, the panel aimed to introduce innovative science and technology areas and produce key messages for future innovation in the water industry. The panel strived to improve the awareness of global water challenges and how the private sector should respond to the requests of their responsibilities and roles in resolving global water problems by the global water community.

One of main achievements of the 7th World Water Forum was planning and achieving corporate involvement in the STP in connection with solutions to global water problems. Corporate involvement was carried out in diverse forms. In particular, the CEO Innovation Panel, which drew the most attention, was praised for significantly contributing to creating a venue for discussing development and application of water-related policy and facilitating business exchange.

Additionally, a foundation was established for global water industries to consider universal water challenges and contribute to solve those problems with innovative and applicable technologies and past experiences. Participants discussed cooperation with CEOs and leaders of leading water-related corporations, institutions, and water related government ministries from different countries.

The CEO Innovation Panel went through a process of selecting themes and participants for over two years. CEOs of representative water-related companies from Korea and abroad participated in the panel to discuss the corporate role, related policies and cooperation for each theme.

It was the only event where water industry CEOs participated throughout the whole preparatory process to develop content and increase the quality of the program of which they are also participants.

Progress

The CEO Innovation Panel was the only program in the four major processes where water industry CEOs participated as main agents, being actively involved from the preparatory process through the week of the World Water Forum. The STP Commission aimed to raise the status of the STP through the high participation of high-ranking figures such as CEOs of leading water-related companies

and water-related academics from Korea and abroad.

The table below chronologically shows the meetings of STPC and what the STPC pursued to implement the Panel.

Title of meeting	Date & Venue	Findings
1st STPC meeting (meeting of co-chairs)	Sep.09.2013 (Mon) Hotel Riviera Daejeon	CEO Innovation Panel and Concept Paper
2nd STPC meeting	Oct.09.2013 (Wed) Budapest, Hungary	Operation of High Level Panel to lead science and technology and innovation in the water sector Water and Novel Laureates Panel, CEO Innovation Panel How to organize panel and do casting
3rd STPC meeting	Jan.31.2014 (Fri) Hague, Netherlands	Operation of CEO Innovation Panel Discussion themes of STP and Concept Paper
4th STPC meeting	Jun.04. 2014 (Wed) Marina Bay Sands, Singapore	Role allocation of element chair of the STP Focus Session -Rabi Mohtar, Kyung soo Jun CEO Innovation Panel - Glen Daigger, Sangman Jeong White Paper - Pierre Roche, Hyeonjun Kim World Water Challenge - Gustavo Migues, Ick-hoon Choi
5th STPC meeting	Sep.23.2014 (Wed) Lisbon, Portugal	Panel themes and speakers are decided by close dialogue between Korea Water Forum and International Water Association. Proposal draft shall be submitted in the mid October.
6th STPC meeting	Dec.17.2014 (Wed) National Committee Secretariat (Teleconference), Seoul	Co-chairs select panel session themes and complete the process Complete theme selection ASAP prior to panelist casting Select moderator of each session after completing theme selection; panelist casting done in consultation with moderator
7th STPC meeting	Feb.14.2015 (Sat) National Committee Secretariat, Seoul	Need to define and divide roles of moderator and facilitator Discuss moderator and facilitator selection Complete panel formation in Feb. 2015
8th STPC meeting	Apr.12.2015 (Sun) Daegu EXCO Design Center	Final check-up meeting of panel operation: Reviewed operation details Confirmed session scenario Completed casting of session panelists Operation of CEO Innovation Panel

Basic direction and structure

The CEO Innovation Panel was held in Grand Ballroom A (B1) of Hotel Interburgo Daegu on April 13th, 2015 (Monday). World-renowned pioneers in water innovation attended the Panel, which was comprised of three themes:

- **Session 1. Fostering innovation**
- **Session 2. Sustainable Development Goals and Stewardship**
- **Session 3. Building Water Resilience for Cities**

The CEO Innovation Panel proposed a vision for water and produced key messages to set a direction of innovation for the water sector by sharing insight from CEOs of global water industries.

Panelists exchanged their views on themes presented by the moderator and answered questions from session attendees. Approximately thirty people attended the CEO Innovation Panel, including five to six CEOs per session. The Panel consisted of distinguished water stakeholders such as CEOs of global water companies that own or use water-related technologies, high-ranking government officials and water-related academics. Each session had one moderator, one facilitator and four to five panelists.

As Korea's representative water-related organizations, K-water and the Korea Environment Corporation discussed water, innovation and the role of companies at the Panel. CEOs of global water companies such as Veolia of France and Suez Environment Company, as well as global companies such as Coca Cola and Nestle participated in the event. In addition, CEOs of global research centers such as International Institute for Applied Systems Analysis (IIASA) and the Worldwide Fund for Nature (WWF) participated in

the Panel. Representing different countries, Public Utilities Board (PUB) of Singapore, KWR Water Cycle Research Institute (KWR) of The Netherlands and American Water Works Association were also in attendance.

Prior to the World Water Forum, panelists examined the themes and shared their views to facilitate an effective Panel based on actual experiences. The basic framework was based on five Main Focuses of the STP developed with significant global primary agenda such as SDGs.

The Panel considered themes carefully and prepared criterion for theme selection. Themes were chosen based on: ability to trigger discussion on the development and application of advanced, latest and appropriate water-related technology and current status and needs of the water industry; ability to discover innovative science and technology areas in response to future change and come up with key message for future innovation in water industry; relation to five Main Focuses and Sub Focuses of STP; relation to SDGs, in light of 2015 being the target year of the MDGs set by the United Nations. Practical preparation was made by direct involvement of discussants and thorough review of each theme.

Panel Composition and Sessions

The Panel composition for the three sessions

Session	Panel
Session 1. Fostering Innovation	Moderator **Dr. Si-Jin Lee,** CEO of Korea Environment Corporation, Rep. of Korea Facilitator: **Dr. Glen Diagger,** Co-Chair of Science & Technology Process (STP), President of One Water Solutions, Professor of University of Michigan, USA Panelists: **Mr. Antoine Frerot,** Chairman & CEO of Veolia, France **Mr. Peter JooHee Ng,** CEO of PUB, Singapore **Dr. Wim van Vierssen,** Chairman & CEO of KWR, The Netherlands **Dr. Pavel Kabat,** Director General and CEO of IIASA, The Nederlands **Dr. Jakob Granit,** Center Director and Deputy Director of Stockholm Environment Institute, Sweden
Session 2. SDGs and Stewardship	Moderator: **Dr. Ger Bergkamp,** Executive Director of International Water Association, Netherlands Panelists: **Mr. Ahmet Bozer,** Executive Vice President and President of Coca-Cola International, USA **Mr. Gyewoon Choi,** CEO of K-water, ROK **Mr. Claus Conzelman,** Vice President Safety, Health & Environment of Nestle, Switzerland **Ms. Yolanda Kakabadse,** President of WWF International, Ecuador **Mr. Jean-Paul Paddack,** Co-Chairman of WWF Korea, Switzerland **Mr. David LaFrance,** CEO of American Water Works Association, USA
Session 3. Building Water Resilience for Cities	Moderator: **Mr. Jean-Louis Chaussade,** CEO of SUEZ ENVIRONNEMENT COMPANY Facilitator: **Prof. Sangman Jeong,** Kongju National University, Co-chair of STP, President of Korean Society of Hazard and Mitigation Panelists: **Mr. Maarten Smits,** CEO of Deltares, Netherlands **Mr. Ed McCormick,** President of Water Environment Federation, USA **Mr. Sergio Ayrimoraes,** Superintendent of Planning in Water Resources in the National Water Agency of ANA, Brasil **Mr. Mamadou Dia,** CEO of Senegalaise des Eaux, Senegal

Summaries of Panel discussions

Session 1: Fostering Innovation

Session 1 facilitated discussion among technology developers, water industry companies and venture entrepreneurs to examine challenges and policy alternatives for water innovation and explore solutions. Discussion centered mainly on successful new investment cases that achieved innovation in the water sector and the role of finance and insurance sector to facilitate innovation of successful ideas.

- Consensus was built that social and cultural growth should take place in parallel with the development of science and technology to apply science and technology development and achieve practical growth. In addition, the session concluded this objective can be achieved through participation and close cooperation of businesses, government, civil society organizations and politicians.


CEO Innovation Panel Session 1

Session 2: SDGs and Stewardship

Session 2 covered how companies can contribute to achieving water-related SDGs effectively. Panelists discussed the responsibility of water-related companies, correlation with SDGs and feasible target selection.

- Panelists in this session discussed how companies can contribute to the realization of water-related SDGs as well as realize corporate responsibility. The session introduced a case study where water consumption was reduced and product manufacturing increased through the innovation of science and technology in the entire process of water-related corporate activities. Discussion touched on the direction of Corporate Social Responsibility (CSR) activities of leading companies. Participants agreed that it is critical for companies and civil society organizations to communicate on CSR activities (water stewardship).


CEO Innovation Panel Session 2, Interburgo EXCO Daegu

Session 3: Building Water Resilience for Cities

It is increasingly being recognized that cities can provide services for humans, including water services, in a highly resource efficient fashion. This provides a significant opportunity for utilities and businesses in a range of sectors to engage in management of the urban water cycle and develop innovative products and services to realize this potential. This session delved into specific areas, such as ICT innovations, resource recovery, and water reuse, to advance the development and implementation of science and technology to improve water resilience for cities.

- Discussion in this session focused on water management issues in urban areas, which is important considering already half of the global population lives in cities. The session reminded participants of the fact that cities are the largest water suppliers and consumers as well as the main source of national finance. The session emphasized the importance of big data, green technology and financial support to enhance resilience of urban water management.


CEO Innovation Panel Session 3, Interburgo EXCO Daegu

*** CEO Key Messages**

CEO Innovation Panel 1. Fostering Innovation

- To respond to rapid population growth and urbanization, it is very important to secure water resources by reusing wastewater which is an alternative water resource.
- Drinking water supply technology through wastewater treatment has been already developed but social and cultural development is needed in parallel with the development of science technology.
- Considering the characteristics of drinking water, social and cultural consensus is absolutely needed until consumers can drink reclaimed water without resistance through the application of the latest science and technology.
- The development of science and technology is expected to remarkably reduce the 'water footprint' of companies. That is, the application of new technologies will reduce water consumption of companies dramatically through agricultural methods requiring less water.
- Such objectives can be achieved through the participation and close cooperation of companies, government, civil society organizations and politicians.
- Countries in Asia call such reclaimed water 'New Water' and have solved water supply problems through continuous innovation of science and technology.

- The advance of water-related science and technology should be pursued by comprehensively considering ecosystems and regional characteristics along with new technology.

CEO Innovation Panel 2. SDGs and Stewardship

- Water is a key business area, which is working on an ambitious project of returning back to nature as much water as the company uses.
- By pursuing 'Back to Nature' and 'Water Neutral' projects, companies are working to return water back to nature through rainwater reuse.
- Companies could work for reducing water consumption significantly while increasing product manufacturing quantity through the innovation of science and technology.
- Communication and link between companies and civil society organizations are very important.
- Nature is the origin of life and should be considered first in all development plans.
- The final destination of water stewardship is not certain, but it is important for companies and civil society organizations to constantly communicate.
- CSR activities should be interesting, attractive and challenging.
- Successful water management history could be made possible through constant innovation of science and technology.
- Now it is essential to secure safe and reliable water supply; this will be achieved with the development of science and technology.
- For water-related discussions, trust is very important. That is, it is crucial to build trust among water suppliers, government and consumers regarding water-related science and technology.
- Education for the general public is needed on the process of water creation, supply and treatment.
- There are many people who believe that 'water comes from faucet and disappears down the drain.'
- It will be possible to draw attention to water issue solutions based on the understanding of Water Production and consumption process by final consumers.

CEO Innovation Panel 3. Building Water Resilience for Cities

- The development of science and technology will increase the efficiency of water use dramatically, resulting in the reduction of companies' water consumption (water footprint).
- For example, the application of advanced farming techniques will reduce the amount of water used for coffee production.
- Cities are the largest water supplier and consumer and main sources of national financing.
- Securing efficiency of urban water management through big data, green technology and financial support is necessary.

2.3 World Water Challenge

Background

The World Water Challenge was created to identify diverse water problems the world faces and select optimal solutions keeping in mind implementation, the core value of the 7th World Water Forum. The program aimed to present science and technology that are applicable to the real world and come up with optimal feasible solutions to water problems, ensuring that the 7th World Water Forum is more than just a venue of discussion.

The Science and Technology Process Commission and field experts selected urgent problems with the highest priority based on the five Main Focuses and awarded the most appropriate solutions. Awarded solutions will be given practical and immediate help when applicable. Additionally, follow-up measures are being planned as a bridge for sustained development. Thorough and specific preparation was undertaken for the World Water Challenge, one of the highlights of the STP. To this end, separate meetings were conducted several times in addition to STPC meetings.

Background

Date	Progress by stages	Outcome
Aug 2014	Implementation of World Water Challenge web system	

Date	Progress by stages	Outcome
Sep 2014	Shared water problems	
Nov 2014	Completed receipt of water problems	Received 35 cases of water problems
Dec 2014	Selected challenges and public contest of solutions	Selected 15 challenges
Feb 2015	Completed receipt of solutions	Received 78 solutions
Mar 2015	Selected excellent solutions and invitation	Selected 10 excellent solutions
Apr 2015	Final contest, evaluation and awards ceremony	
May 2015	Submitted final report	

Challenge Sessions during the World Water Forum

Main achievements of the World Water Challenge were presented by the sessions as follows.

- **Final session of World Water Challenge**

The final session of World Water Challenge was held at Daegu EXCO (Room No. 322) on April 14, 2015 (Tue) from 9:00 AM to 1:20 PM (2 sessions for 120 minutes each).

It was attended by about 120 people in total: 5 members of World Water Forum STP; 10 evaluation members from Korea and abroad; 9 presenters proposing selected solutions; 10 operation members; 70 general participants (including challenge proposers); and 20 journalists (Korean News Agencies including KBS, SBS, YTN, Environment TV, Chosun Daily, JoongAng Ilbo, and Yonhap News, etc.).

Gillian Martin Meher, a professional facilitator, hosted the Challenge to ensure fairness of the final contest and facilitate smooth presentations and Question and Answer sessions.

Nine cases were invited to the final session after being selected through the first round of online evaluation. Furthermore, a 'World Water Challenge Special Session' was organized to present invited solutions as a venue of practical discussion among solution providers of the facing water problems and World Water Forum participants. Through this Special Session, solution providers had a final contest and final award winners were confirmed by the final evaluation committee after the session.

World Water Challenge Final Session, EXCO Daegu

- **Final evaluation committee meeting of World Water Challenge**

The final evaluation committee of World Water Challenge met for approximately one hour after the end of the final session on April 14, 2015 (Tue) from 2:20 PM to 7:00 PM (2 sessions for 120 minutes each).

The final evaluation committee of World Water Challenge was composed of 15 members, including 10 evaluation members from Korea and abroad and committee staff for the meeting. The Committee discussed the presentation results from the Special Session and evaluated each proposal to decide the final winners. The awards were: 'The best' (1 candidate), 'Excellent' (4 candidates) and 'Outstanding' (4 candidates).

- **Award ceremony of World Water Challenge**

On April 15, 2015 at 5:00 PM, there was an award ceremony to award trophies and prizes to winners in the Grand Ballroom of Interburgo EXPO, Daegu.

This event was attended by 180 people in total including the CEO and employees of Korea Environment Corporation, Director of Water Environment Policy of the Ministry of Environment of the Republic of Korea, members of the STPC, members of the evaluation committee, STP design group and around 120 general participants.

This award ceremony, as the finale of World Water Challenge, was arranged to introduce its progress, significance and final results and to praise the efforts of those involved.

Achievements

The World Water Challenge first identified water problems faced by the world and shared solutions. The World Water Challenge went through a process of identifying challenges concerning global water problems and selecting optimal solutions. This was possible as a venue was prepared to fully share advanced cases of policy implementation and knowhow in order to improve the role of science and technology in solving global water problems.

Second, it identified water-related challenges. The World Water Challenge received a total of 35 new water-related challenges: water problems requiring measures to secure water resources; water management capacity improvement measures such as water treatment and water reuse; technology to prevent water disasters including flood; solution to tackle lack of technology such as desalination and membrane filtration; and request for solution to water dispute.

The 35 challenges were classified into a total of 15 challenges under the 6 categories - water dispute, securing water resources, prevention of water disaster, and water problems requiring improvement of water management capacity and water treatment technology and water problems occurring in Asia, Africa, Europe and 11 South American countries.

Among these, 15 challenges were selected as below:

Classification of selected challenges

Category	Sub-category	Main Focus	Title	Country
Water disaster prevention capacity improvement	Disaster prevention	MF3	Flooding of Citarum River	Indone-sia
	Disaster monitoring	MF3	Development and operation of early flood warning system including capacity development	World-wide
Securing water resources	General	MF4	Safe water sources for coastal slum	Nigeria
Securing water resources	Geographical	MF1	Water shortage in Rajasthan desert community in Western India	India
	Geographical	MF4	Dry island in southern Aegean Sea facing water shortage and overloaded energy system	Greece
	Geographical	MF4	Difficulty of water use in highlands and farm	World-wide
	Rain-fed paddy field	MF2	Securing water for food: grand challenge to respond to food risk	Pakistan
	General	MF5	Abakaliki, Nigeria's potential ecological polis	Nigeria
	General	MF2	Water at risk	Cambo-dia
	Small scale village	MF1	Water problem in a rural area	Colom-bia
Technology improvement	Desalination	MF1	Self-desalinator for all families in remote area	world-wide

Category	Sub-category	Main Focus	Title	Country
Water management capacity improvement	-	MF2	Wastewater case in Izbet El Islah	Egypt
	-	MF1	Need for quality water source for citizens of Gwangju Metropolitan city	Korea
	-	MF3	What are the positive and negative effects of constructing sewerage [interceptor, P/S, CSOs] in an area with combined drainage system?	Vietnam
Water dispute in border areas		MF1	Distrust relief and complexity management in border area: example of Aral Sea in Central Asia	Uzbeki-stan

As for solutions to the 15 challenges specified in the table above, a total of 78 solutions were received from 22 countries from December 8, 2014 to February 9, 2015.

The 78 cases mainly concerned measures to secure water resources, water management capacity improvement measures such as water treatment and water reuse, flood and other water disasters prevention technology, desalination and membrane filtration technology and solution to water dispute.

In terms of Main Focuses, Main Focus 1 (Water Efficiency) had 25 cases followed by Main Focus 2(Resources Recovery from Water and Waste-water systems) with 19 cases, Main Focus 4(Smart Technology for Water) with 18 cases, Main Focus 3(Water and Natural Disasters) with 12 cases and Main Focus 5(Ecosystem Services for Water) with 4 cases.

Mr. Ricardo Alba, the winner of the World Water Challenge consequently became the winner of the Daegu Gyoengbuk Water Prize at the Closing Ceremony of the 7th World Water Forum. As the winner was from an NGO and the technology presented included easily applicable methodology that can be immediately being adopted in small villages, his winning was even more meaningful to the participants of the World Water Forum from developing countries and small towns. As the winner of the Daegu Gyeongbuk Water Prize, Mr. Alba promised to commit himself to develop his study and use the prize money (USD 30,000) to disseminate the solutions he presented at the 7th World Water Forum to the world. As an innovative competition for water for our future, the World Water Challenge, along with other programs of the STP, became a symbol of implementation which will be followed up in the international water week which will be held in Korea in 2016 as a follow up to the water week of the 7th World Water Forum.

Ricardo Alba, the winner of the World Water Challenge and his family, Interburgo EXCO Daegu

III. Conclusion

STP Commission, Working Groups, National Committee, Coordinating Organizations, EXCO Daegu

The Science and Technology Process was born out of a need to follow through on solutions produced at the previous World Water Forum; it was designed to serve as a solid bridge connecting the 7th World Water Forum with the 6th. The previous World Water Forum had produced over 1,000 solutions requiring implementation through new opportunities, and participants requested that the 7th World Water Forum include a platform to share implementation methods and case studies. Thus, the Science and Technology Process was created by stakeholders who worked tirelessly over three years to ensure the new process was a success. The STP was a symbolic platform for 'implementation,' particularly focused on scientific and technological methods that have contributed to the world's awareness on the important role of science and technology in solving water problems. Also, it provided a very timely information and communication, technologies (ICT) platform that people and places vulnerable to diverse water challenges had long needed.

The science on which water solutions must be based is truly multidisciplinary and inherently interdisciplinary. Therefore, the STP optimized outcomes in the 7th World Water Forum by bringing together diverse but relevant stakeholders, including governments, international organizations, corporations, institutions, academia, and NGOs. The STP, as the symbol of the 7th World Water Forum, strived to communicate the interconnectedness of science, technology, policies and governance. Throughout the entire Forum preparatory period and the Forum week, the STP promoted the role of science and technology in cooperation with other fields to resolve water issues.

Most importantly, all the activities, achievements and overall success of the Science and Technology Process would not have been possible without the strong support and participation of representatives from corporations, governments, international organizations and academia. Their valuable insight highlighted where we are today and what we should do in the future. The Working Groups, the main actors of the Process, were at the fore of making this whole process a success. In other words, every stakeholder's and participant's effort in each step of creating this new pillar of the World Water Forum clearly demonstrated that collective action truly works; it has the power to change our path towards our established goals.

The STP selected five major areas (Main Focuses) concentrating on science and technology. This allowed participants to focus more on primary issues, rather than discuss dispersed topics. In addition, to facilitate understanding, the STP White Paper was written by global experts in each area to enhance public awareness of imminent water issues with technological and scientific solutions. The CEO Innovation Panel, one of the highlights of the World Water Forum, was also very successful in facilitating practical discussions between corporate decision makers, policy analysts, and high-level government officials. Participants were given chances to consider the roles of all the actors in the water community, particularly the role of corporations and joint actions between multi-stakeholders through appropriate policies. It was indeed meaningful that they built a consensus on their collective action for the future of water. During the World Water Forum week, the World Water Challenge, which had already been discussed to be followed through in the Daegu Gyeongbuk Water Week (the tentative follow-up Water Week of the World Water Forum in Korea) in 2016, presented outstanding cases that matched water problem owners with solution providers. In this program, citizens' voices were well reflected, which is crucial as they are the actual victims of water challenges. The winner of the program was from an NGO who stated he will devote himself to developing his program (addressing small villages' water shortages) and disseminating the methodologies for which he was awarded the World Water Challenge Best Prize and the Daegu Gyeongbuk Prize. It was not an easy task to manage or even take a small step forward in creating all the special programs of the STP. This entire process was made possible by the hard work of the Process Commission members, coordinating organizations, and most of all, the Working Groups and participants of the special programs.

STPC and Delegate from the Host Country (Brazil) of the 8th World Water Forum, EXCO Daegu

Follow-up on the 7th World Water Forum is essential in order to build on what we have accomplished and create new opportunities. Looking towards 2018, the Science and Technology Process blueprint should be made more concrete with feasible plans for the next World Water Forum. Finally, for sustainable implementation which bears in mind the spirit of the World Water Forum (democratic participation and respect for all water stakeholders), the Science and Technology Process's objective should be further developed to the path of the World Water Forum.

Citizen's Forum

Overview

The Citizen's Forum encompassed programs involving key members of civil society such as women, youth and NGOs as well as diverse theme-oriented programs such as 'water education' and 'water and culture'. In an effort to raise awareness of water problems and seek solutions together, civic groups acted as the main agents to create diverse programs such as session discussion, lecture, exhibition and performance. Such diverse voices and solutions from civic society were evenly reflected in programs by focusing on 'implementation ', the core value of the 7th World Water Forum.

Operation Process

The collected proposals from NGOs, individual participants including youth, children were evaluated by the criteria such as the relevance to water problems and resolutions to them, influence of the key messages and other potential factors facilitate heightening the awareness of water issues. Each of session organizer prepared their sessions for more than a year and they closely communicated with the session participants to collect each participant's voice more effectively.

Citizen's Forum Participation Process

Idea sharing

Citizens who wished to share their ideas were encouraged to take part in the conversation on a variety of themes in the Virtual Forum found on the World Water Forum website. Opinions proposed in the Virtual Forum were reflected in related sessions.

Program planning and execution

Civic groups that wished to plan and organize programs directly were asked to refer to the announcement and submit proposals.

Program operation

Operation results

The Citizen's Forum was held in Gyeongju HICO from 9AM to 6PM between April 13th (Mon) and April 16th (Thu), 2015. The four-day Forum for civic groups from around the world and the general public was attended by 15,200 people in total, which was the largest turnout in its history. Of the total 15,200 attendees: 4,000 people visited the Citizen's Forum on the same day as the Opening Ceremony of World Water Forum; 3,000 participants on April 13th, the first day of the Citizen's Forum; 2,500 on April 14th; 2,200 on April 16th, the last day of the Citizen's Forum.

Main content

The Citizen's Forum consisted of 29 Korean programs and 32 foreign programs. Diverse programs were created with the same theme. The themes and number of programs for each theme were as follows: 13 programs related to water ethics and culture; 10 programs dealing with water-related sub-themes; 7 programs relating to youth; 4 programs with the theme of women and gender equality; 8 programs dealing with civic society group network and civic society itself; 6 programs related with water education; 2 programs about children; and 11 programs covering local community participation and complicated interests.

Number of programs per theme

	Theme	No. of programs		Theme	No. of programs
1	Water ethics/ culture	**13**	5	Civic society group network/ civic society	**8**
2	Water-related sub-theme	**10**	6	Water education	**6**
3	Youth	**7**	7	Children	**2**
4	Women/ gender	**4**	8	Local community participation /complex com-plicatedinterests	**11**

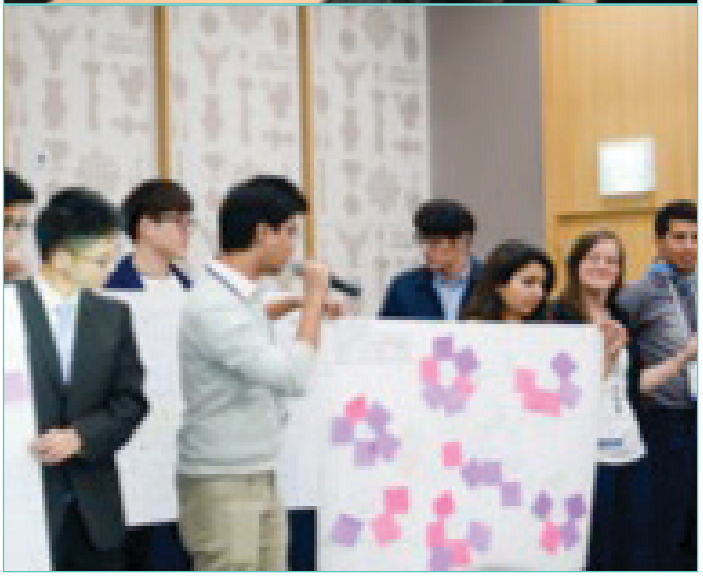
There were diverse types of programs as well: out of 61 total programs, there were 31 session programs, followed by 21 exhibition programs, 6 event programs, and 3 other types of programs.

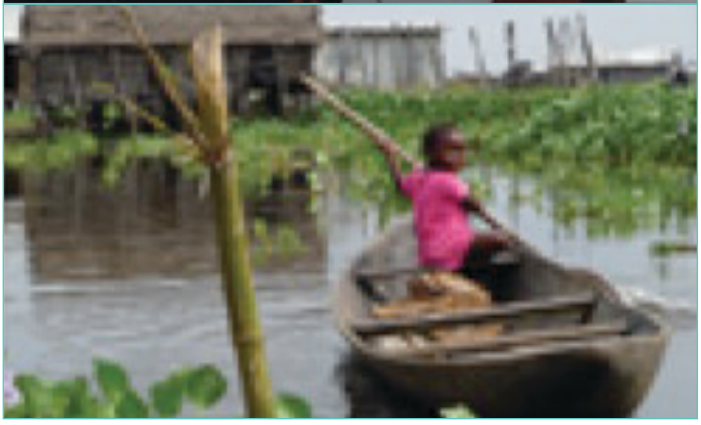
No. of program by type

Type	No. of program
Session	**31**
Exhibition	**21**
Event	**6**
Others	**3**
Total	**61**

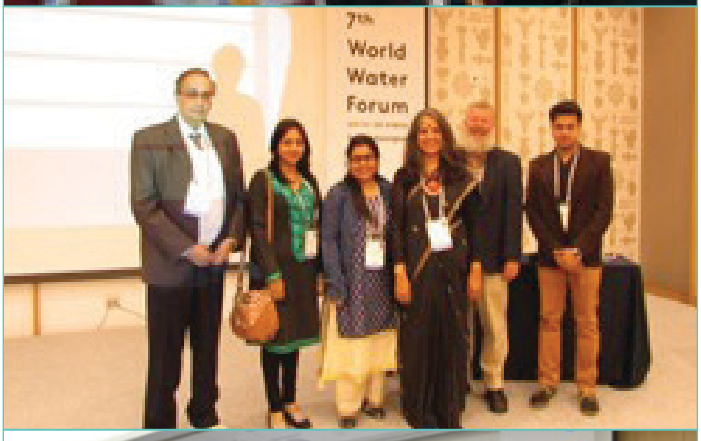
The final program of Citizen's Forum was as follows. 31 sessions

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
1	A01 Development of Global 'charter of water ethics' (Water-Culture Institute) International group Date: Apr.15, 09:00-11:00	- Presentation and panel discussion about global 'charter of water ethics' - Discuss mainly how to engage indigenous people in proposing charter of water ethics - In-depth discussion through small group discussion	
2	A05 Negotiation game with Asia Pacific Youth Parliament for Water (Asia Pacific Youth Parliament for Water) Korea Date: Apr.15, 11:20-13:20	- Select 3 water-related themes - Allocate themes to each table; discussion after allocating roles of 6-7 stakeholders and goals; a team of achieving goals the most wins the game - Understand position of suppliers and users and seek solutions through the simulation of water resource negotiation	
3	A07 Gender equality to achieve future water security (Women for Water Partnership) International group Date: Apr.10, 09:00-19:00 Apr.11, 09:00-19:00	- Preparatory conference regarding gender equality to achieve future water security - Female leaders and experts from various countries and organizations gather together to discuss how to implement sustainable development and how to cooperate with diverse stakeholders in water sector.	WOMEN FOR WATER PARTNERSHIP

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
4	A16 Youth Parliament for Water -4th AP Youth Parliament for Water -3rd World Youth Parliament for Water (KWF, ISW) Korea & international group Date: Apr.15, 09:00-11:00	- Presentation and panel discussion about global 'charter of water ethics' - Discuss mainly how to engage indigenous people in proposing charter of water ethics - In-depth discussion through small group discussion	
5	A22 Platform for indigenous people (Butterfly Effect NGO coalition) International group Date: Apr.16, 09:00-17:40	- Establish platform for indigenous people to attend World Water Forum and have water-related discussion	
6	A25 Youth workshop - employment information provision in water sector (International Youth Steering Committee) International group Date: Apr.12, 09:00-13:00	- Hold workshop of youth group participants the day before Opening Ceremony to prepare for the 7th World Water Forum - Appr.150 global youth participants share their culture and water-related career each other - Invite water-related experts from international organization, NPO and companies to satisfy curiosity of youths about water-related career	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
7	A27 Future water leader forum (International Youth Steering Committee) International Group Date: Apr.12, 14:00-16:00 Apr.16, 09:00-13:00	- Discuss innovative ways to achieve water security for all stakeholders by linking local community with international society - Operate youth forum through 10 sessions a day for 2-3 hours - More than 100 youths develop declaration and action plan through discussion	
8	B10 Water project education case of Indonesia's Java, traditional dance performance (Indonesia Green Action Forum, IGAF) Indonesia Date: Apr.15, 17:00-19;00	- Show dance, drama and water project education of Java region - Link and exchange with GAF group partners	
9	B11 Success case sharing of IWRM (AfriWater Cop) Togo Date: Apr.14, 17:00-19:00 Apr.15, 17:00-19:00	- Introduce success cases of IWRM(Integrated Water Resource Management) - Invite working-level people from 9 countries to introduce each group and share project - Select 3 villages or groups for award	
10	B17 Role of women and governance in local water management (CEAMUJER-FANCA) Nicaragua Date: Apr.14 09:00-11:00	- Introduce governance establishment and role of women in water management in rural community of Nicaragua and Central Africa	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
11	B18 Water web (on-site training by web platform for water sector development) (Water and Sanitation Media Network) Nigeria Date: Apr.13, 11:20-13:20 Apr.14, 17:00-19:00 Apr.15, 09:00-11:00	- Hands-on practice to use web platform in water sector - A total of 36 participants receive hands-on training along with certificate, training manual and CD containing related information.	
12	B29 Appropriate technology and sustainable water consumption (Green Gyeonggi 21) Korea Date: Apr.14, 14:40-19:20	- 3 presentations on themes current status of local water consumption and future outlook; water-related human right infringement, war and harmful effects; water and appropriate technology - Video footage of appropriate technology and information sharing - Discuss code of conduct of civil society for sustainable water consumption in Korea	
13	B30 Communication and role of civic society in water sector (IIED-AL-FANAS) Argentina Date: Apr.14, 11:20-12:20	- Introduce communication method between civic society and decision makers through social network - Provide an opportunity to exchange and communicate with civic organizations	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
14	B31 Civic education on water reimagification-water solution realization (Mara Alper) USA Date: Apr.14, 14:40-16:40	- Small group discussion to elicit 'water reimagification' through citizens	
15	B33 "Innovation: young entrepreneurs of 'Gender & WASH" - winner of GWA student contest (Global Water Alliance) USA Date: Apr.13, 17:00-19:00	- Organize a contest prior to World Water Forum by young experts from advanced countries and the Third World under the theme of Gender and Water (water-related gender inequality)	
16	B34 Sustainable water management-water resource culture of urban agriculture (Centre for Built Environment) India Date: Apr.14, 14:40-16:40	- Presentation by a team of women (architect, urban designer) that the use of urban sewage is helpful for environment - Share an Indian case and show related documentary image	
17	B37 Experience sharing of self-supporting water development in a developing country by GyeongbukSaemaul ODA (Saemaul Globalization Foundation) Korea Date: Apr.14, 14:40-16:40	- Organize a seminar by inviting leaders of African villages or form GyeongbukSaemaul ODA partnership - Presentation of success cases of water development in African developing countries by African leaders and village representatives	

No.	Program name (name of organization/group)	Program contents and outcome
18	B40 Gender and water -experience sharing of women's organization to secure safe drinking water in a poverty area of Nepal (Women in Environment) Nepal Date: Apr.15, 14:40-16:40 Apr.16, 14:40-15:40	- Experience sharing of irrigation facility expansion to secure drinking water and civic education - Share education experience of water and sanitation in rural area of Nepal - Discussion to share positions and cases of diverse countries including Korea
19	B41 Water, climate change and peace (Indigenous World Forum on Water and Peace) International Group Date: Apr.15, 14:40-18:40	- Hold a conference on long-term water resource plan and more contribution to policy for indigenous people - Discuss MDGs and post-MDGs by indigenous people from 8 regions - Traditional musical instrument performance by indigenous people
20	B42 Water and community (Chuncheon Global Water Forum, Citizens' Coalition for Economic Justice Chuncheon) Korea Date: Apr.15, 11:20-13:20	- Soyang River clean water preservation campaign - Dong River preservation campaign - Establish private forum related with water resources and expand water education for local community

Activity photo

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
21	B46 Japanese citizens' participation in NGO/NPO activities for water environment protection and water resource management after the 3rd WWF (The 7th WWF Citizens' Network Japan) Japan Date: Apr.15, 09:00-11:00	- Knowledge and technology exchange for water environment protection - Share Japan's citizen campaign experience after the 3rd World Water Forum in Japan - Exchange with global water-related NGOs and mutual information exchange	
22	B47 Discussion on water problems in basin area among Asian countries, energy and climate change issues - focusing on legal aspects (China International Water Law) Date: Apr.15, 11:20-13:20	- Examine main issues concerning water-energy-climate among Asian countries; case study on the contribution of concerned legal management and water-related international law to relation improvement of Asian countries	
23	B52 Coalition formation centering around Marker Sadden, Senegal Delta and Java Coast for reclamation project and ecosystem restoration (Natuurmonumenten) Netherlands Date: Apr. 13, 14:40-1640 Apr.14, 17:00-18:00	- Presentation and panel discussion workshop on global points of view and alliance formation - Prepare a venue of discussion between experts and civic groups by arranging a session on world's renowned Dutch Delta Project (similar to Saemangeum case) and large-scale restoration status for the improvement of water quality and environment	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
24	B55 Citizens' scientific monitoring of river environment (GroundTruth) South Africa Date: Apr.15,14:40-15:40	- Civic education using diverse water science tools focusing on miniSASS - Hands-on training of miniSASS in river by citizens and students - Citizens go to a river in community to collect samples using miniSASS, which are included in global miniSASS map.	
25	B64 Effective solutions to water problems through the participation of stakeholders (Jal Bhagrathi Foundation) India Date: Apr.15,17:00-19:00	Share success cases of water-related civic activities and government-civilian cooperation model to solve water shortage problems - Propose holistic approach to water issues from policy perspective - Panel discussion among water experts and video footage	
26	B65 Urban water management - Lessons from California's 2009 water protection campaign and 2014 drought (Tracy Quinn, P.E.) USA Date: Apr.15, 09:00-10:00	- Group discussion on innovative ways to address water supply limitation and problems caused by climate change - Share lessons from California's 2009 water protection campaign and 2014 drought	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
27	B67 Latin America's water sanitation, community's water management and human right (Asociation Regional Centroamericana para el Agua y el Ambiente) Costa Rica Date: Apr.15,11:20-13:20	- Presentation on correlations among water, sanitation, community water management and human rights in Latin America - Venue of sharing experience and knowledge of diverse groups about practical solution development for water problems in rural area	
28	Han River, lifeline for 25 million citizens, and Korean Wave culture (Civic coalition for clean Han River preservation, Korean Association for Public Administration) Korea	- Forum-type seminar, declaration of 'Konuri' campaign - Declaration of environmentally-friendly 'Han River Hanmadang'	
29	2015 World Children Water Forum (Korea Water Forum, Green Future, Coalition of Bundang citizens for environment) Korea	- 130 adolescents (70 Koreans, 60 foreigners) exchange opinions and share cases under the theme of water and life and announce declaration.	
30	B77 Combination of indigenous/traditional knowledge, modern science, professional knowledge and technology for sustainable water management (BORDA, Germany) Germany Date: Apr.16,14:40-19:00	- Indigenous people and experts gather together to share cases of each area and discuss for sustainable water management.	

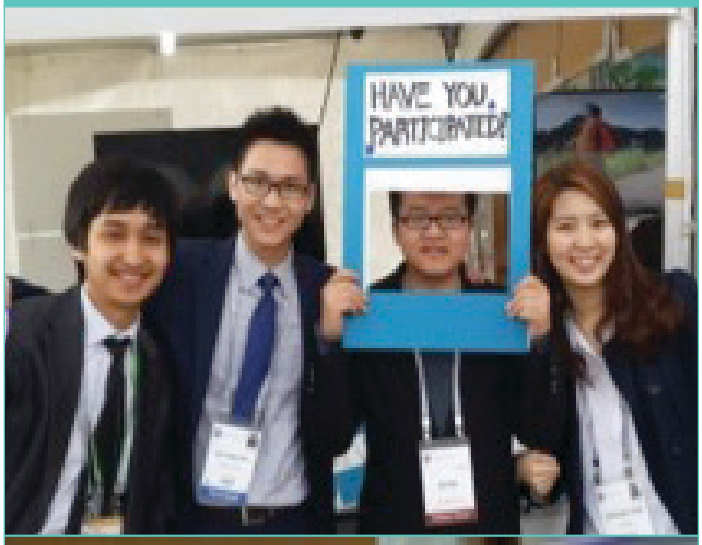
No.	Program name (name of organization/group)	Program contents and outcome
31	B78 Building cooperative partnership for harmony among water resource stakeholders (World Wildlife Fund & Coca-Cola Company) USA	- Panel discussion among businessmen, field experts and environmental protectionists involved with issues in basin area where WWF and Coca-Cola are cooperating
	Date: Apr.14, 14:40-17:40	

Activity photo

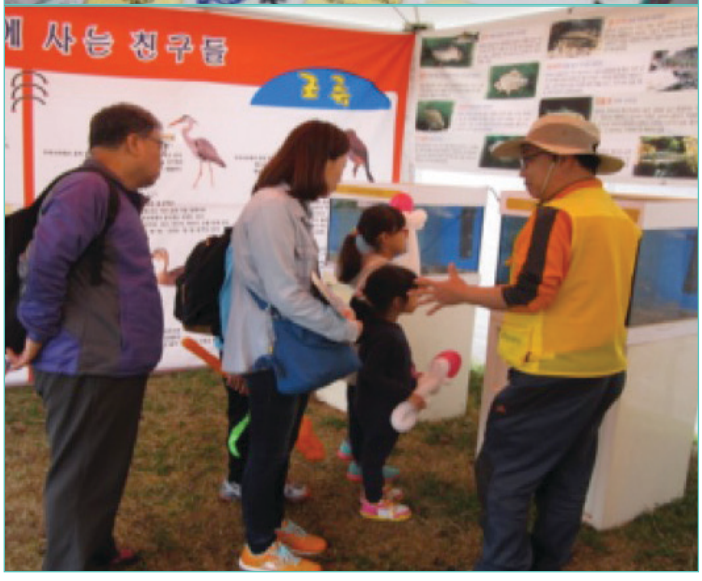

<21 exhibitions>

No.	Program name (name of organization/group)	Program contents and outcome
1	A02 Global 'water code of ethics' exhibition (Water-Culture Institute, UNESCO-IHP) International Group	- Introduce water code of ethics initiative and promotional exhibition - Discuss measures to engage Citizen's Forum participating groups and adolescents in this initiative more actively
	Date: Apr.13-Apr.16	
2	A04 Another water! Experience value of deep ocean water (Korea Ocean Research Development Institute, KIOST) Korea	- Experience industrial application of deep ocean water - Try products deep ocean water - Comparative exhibition of deep ocean water of diverse countries - Introduce value of deep ocean water to general public - Introduce how deep water is being utilized in Korea to respond to future water shortage
	Date: Apr.13-Apr.16	

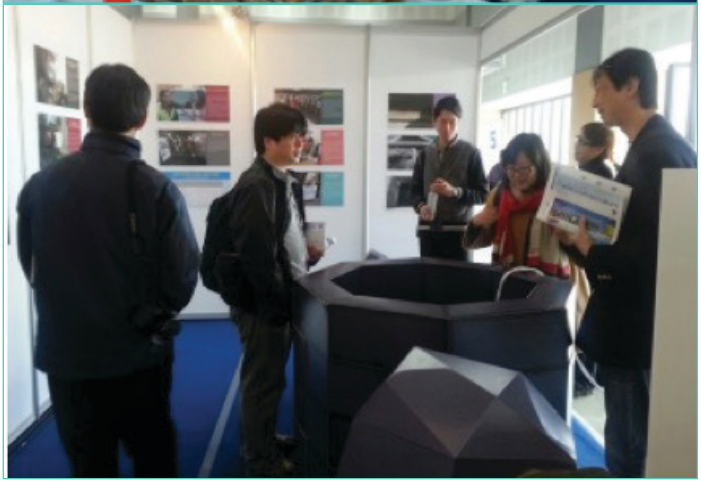
Activity photo

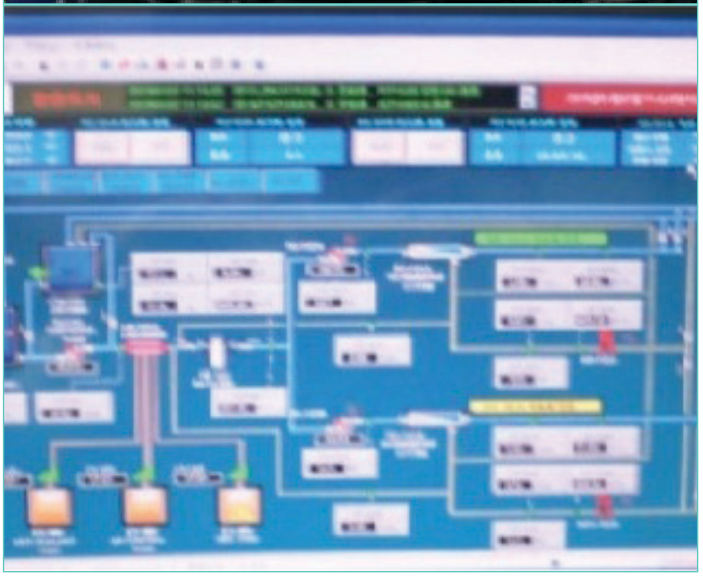

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
3	A06 Role & achievement of AP Youth Parliament for Water (AP Youth Parliament for Water) Korea Date: Apr.13-Apr.16	- Poster exhibition of activities carried out in the current and previous AP Youth Parliament for Water - Encourage visitors to vote by putting a sticker on impressive activities of AP Youth Parliament for Water; commemorative photo-taking	
4	A08+21+24 Role of civic society to achieve future water security (BE, IYSC, WfWP) International Group Date: Apr.13-Apr.16	- Exhibit activities of main stakeholders (groups) and promote water-related civic activities - Exhibit activity information and PR materials to show contact point and tangible aspects for international CSO/NGO and partner groups - Provide a venue of building network, communicating and sharing information among youths through booths	
5	A14 Water messenger campaign (International Secretariat for Water) Canada Date: Apr.13-Apr.16	- Select 20,000 messengers to announce water-related issues, themes, problems, solutions, ideas and experience through website - Make main messages in the form of image to exhibit in the venue of World Water Forum	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
6	A23 Water Awareness 2015 Solutions (Goodplanet Belgium) Belgium	- Visual installation and photo exhibition of Water Awareness 2015 Solutions (WAW2015)	
	Date: Apr.13-Apr.16		
7	B22 Exhibition to exchange children's pictures for Taehwa River preservation and Japan's Nigata (Taehwa River Preservation Association) Korea	- Exhibit Korea-Japan(Nigata) children's pictures - Image of Taehwa River preservation cases and discussion of future Taehwa River - Express children's affection for environment transcending border effectively	
	Date: Apr.13-Apr.16		
8	B24 Water education hands-on experience booth and contest(Green Future) Korea	- Operate NGO's water education booths in one place to award excellent booths through evaluation - Operate 7 programs - Booth program participation by 3,000 toddlers, children and adults	
	Date: Apr.13-Apr.16		
9	B25 Environmentally-friendly Shincheon restoration project through people Shincheon ESPAS model exhibition 'Memory' (Daegu YMCA) Korea	- Introduce cases of operating diverse eco-experience programs in downtown by reclaiming abandoned lands along river and exhibition of related material	
	Date: Apr.13-Apr.16		

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
10	B38 Water development project in a rural village of a developing country by GyeongbukSaemaul globalization initiative (Saemaul Globalization Foundation) Korea Date: Apr.13-Apr.16	- Raise awareness of citizens about global water problems and the importance of water - Raise awareness of the contribution of Saemaul movement to international society for international development cooperation and solving water resource problems	
11	B44 Water education program exchange (Chuncheon Global Water Forum, Citizens' Coalition for Economic Justice Chuncheon) Korea Date: Apr.13-Apr.16	- Provide an opportunity for mutual experience by putting together water education programs scattered by region, institution and theme - Exchange education programs between water environment education activities in Gangwon and experts of joint exhibition participating institution	
12	B48 Exhibition of freshwater fish inhabiting in Taehwa River (comparative exhibition with species from Nakdong River) (Ulsan River Restoration Network) Korea Date: Apr.13-Apr.16	- Exhibition comparing Taehwa River inhabiting freshwater fish with that coming from Nakdong River - Deduce ecosystem change of Taehwa River	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
13	B50 Women, gender and well - Photo exhibition (Gil Garcetti) USA Date: Apr.13-Apr.16	- Photo exhibition focusing on West Africa under the theme of women, water and well - Express challenges and hope of West African residents, especially women, in securing drinking water	
14	B53 Promotion of water quality improvement in MooncheonReservior (Gyeongsan) and pollution monitoring (Green Gyeongbuk 21 Committee) Korea Date: Apr.13-Apr.16	- Speculate problems occurring in Mooncheon Reservoir and exhibit pollution purification plan - Basic status of Mooncheon Reservoir, background of conducting water quality pollution monitoring and overview, explanation of measurement result - Show video clip monitoring landscape of Mooncheon Reservoir	
15	B72 Water sharing project (Water saving campaign office) Korea Date: Apr.13-Apr.16	- Share values by exhibiting projects to provide water wasted previously to water shortage country - Share measures to facilitate the project with water-related local experts - Introduce this to overseas groups and institutions requiring water sharing	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
16	B73/B74 Han River, lifeline for 25 million citizens, and Korean Wave culture (Civic coalition for clean Han River preservation, Korean Association for Public Administration) Korea Date: Apr.13-Apr.16	- Photo exhibition of Han River and Korean Wave culture	
17	B75 Good Water Project (Good Neighbors International) Korea Date: Apr.13-Apr.16	- Introduce Good Water Project targeting apprx.250 participants of Citizen's Forum of 2015 World Water Forum to make them pledge water saving by recognizing their own water consumption habit in daily life and sympathizing with the difficulty of drinking water supply in underdeveloped countries - News coverage of Good Water Project by 2015 Daegu Gyeongbuk World Water Forum's good neighbors	
18	B82 Wanton well -village girl, JejuHaenyo, a female diver 'dance with well' (Citizen's Forum TF in Honam area) Korea Date: Apr.13-Apr.16	- Folk tale and well sculpture, photo & image exhibition, photo zone installation, a variety of performance - Exhibition of gourd and water bowl and exhibition utilizing them	

No.	Program name (name of organization/group)	Program contents and outcome	Activity photo
19	B85 Dongjin River "Soil drawing" (River Restoration Jeongup City Network) Korea Date: Apr.13-Apr.16	- Express the story of Dongjin River residents; exhibit artworks of residents and artists	
20	B86 Measures to facilitate small basin restoration campaign in line with Korea's ditch restoration initiative (Water Forum Korea) Korea Date: Apr.13-Apr.16	- Presentation and discussion concerning Korea's ditch restoration and small basin restoration - Video footage, poster exhibition and distribution of English newspaper regarding Korea's ditch restoration project; hand out souvenir (shopping basket) for taking water-related quiz	
21	Increase water availability in daily life through portable reverse osmosis water purifying facility (Toray Chemical) Korea Date: Apr.13-Apr.16	- Suggest ways to increase water availability by supplying industrial water and improving drinking water treatment by introducing reverse osmosis filter that can be easily installed everywhere in the world	

EXPO & FAIR

I. Objective and Direction

The EXPO & FAIR of the 7th World Water Forum was a venue to exhibit the latest technologies and products of global water companies and introduce water management policies and technologies of each country. It was held to strengthen business cooperation and networking among water stakeholders. It also introduced policies and technologies to solve water problems discussed during the World Water Forum and served as an avenue for policymakers to exchange information with representatives from the private sector. Moreover, national pavilions were created for major countries to promote their competitiveness in the water industry. Korean companies utilized these pavilions as an opportunity to make a foray into overseas markets. Around 30,000 people from Korea and around the world attended the EXPO & FAIR of 7th World Water Forum, making this prestigious water exhibition truly a "water festival."

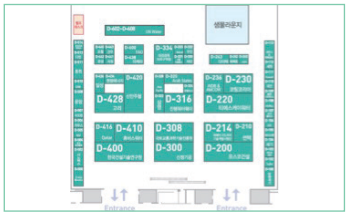
Date and Place

The EXPO started at the same time as the Opening Ceremony of the World Water Forum on April 12th, 2015 at 2PM. It was held for 6 days in Daegu EXCO and ended on April 17th. On the first day, general visitors were restricted from entry to allow World Water Forum participants and exhibitors to focus on networking. From April 13th to the last day, the EXPO was open to the general public free of charge to encourage local residents and students to visit the exhibition.

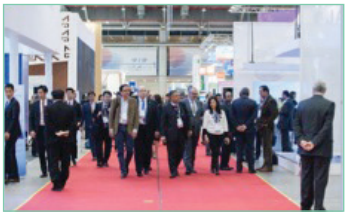
Exhibition halls were located on the first and third floor of EXCO. A 6m-wide main corridor was placed on the first floor, creating a pleasant exhibition environment with a strong sense of openness.

Layout of exhibition halls

Drawing of 1st floor exhibition halls of EXCO – Hall 1, 2, 3



Drawing of 3rd floor exhibition halls of EXCO – Hall 4



Main Corridor (red carpet)

Scale

In terms of exhibition scale, 910 booths were installed by 294 exhibition hosts in total with 731 booths from 213 hosts on the first floor exhibition halls, 164 booths from 73 hosts on the third floor exhibition hall and 15 booths from 8 hosts in the first floor lobby. In addition, 105 booths were installed in auxiliary facilities such as the rest lounge and Water Vision Center, which makes the total number of booths to 1,015.

Participating exhibition hosts came from 40 countries in total with 111 Korean hosts installing 470 booths and 183 foreign hosts installing 440 booths. The proportion of participation was higher among foreign hosts (62%) compared to local hosts (38%). This was because many foreign companies and institutions participated in their national pavilion as well. Meanwhile, local hosts outnumbered foreign hosts in number of booths, which was attributable to active participation of large companies and public institutions. The EXPO originally aimed to host 700 booths, but thanks to the active participation of local and foreign exhibition hosts, the exhibition sold all booths by the end of early registration on November 30th, 2014. Applications poured in even after the deadline, and at one point the number of booths on the waiting list exceeded 100.

Size of exhibition hall

Category	No. of booth	Exhibition space
1st floor exhibition halls	731 booths	14,415m^2
3rd floor exhibition hall	164 booths	3,872m^2

Category	No. of booth	Exhibition space
1st floor lobby	15 booths	135m^2
Sub-total	910 booths	-
Auxiliary facilities	105 booths	Exhibition halls on the 1st & 3rd floors
Total	1,015 booths	18,422m^2

Size of exhibition hall

Serial No.	Country	No. of programs
1	Korea	111
2	Japan	31
3	US	28
4	Switzerland	19
5	Netherlands	13
6	Taiwan	13
7	China	10
8	Spain	9
9	France	9
10	Denmark	8
11	Mexico	5
12	South Africa	4
13	Brazil	2
14	Arab Emirates	2
15	Algeria	2
16	Turkey	2
17	Morocco	2
18	Sri Lanka	2
19	Cote d'Ivoire	1
20	Egypt	1
21	Tajikistan	1
22	Ghana	1
23	Qatar	1
24	Slovakia	1
25	Italy	1
26	Palestine	1
27	India	1
28	Belgium	1
29	Sudan	1
30	Singapore	1
31	UK	1
32	Austria	1
33	Iran	1
34	Kenya	1
35	Kuwait	1
36	Tunisia	1
37	Vietnam	1
38	Nigeria	1
39	Lesotho	1
40	Jordan	1
Total		294

II. Exhibition Halls

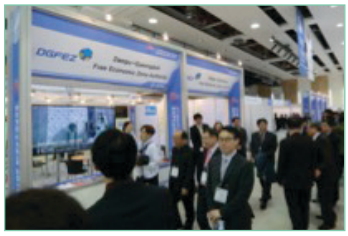
Basic Booth

Out of 294 exhibitions, 86 (29%) installed basic booths, which amounted to 165 booths of 910 booths (18%). Mainly small and medium sized companies, international organizations and NGOs installed basic booths, while mostly national pavilions, public organizations and global companies installed island booths. Basic booths had a simple and practical design and were made with recyclable octanium and recycled plywood to create an environmentally-friendly exhibition hall.

In addition, the EXPO provided a premium type based on the basic booth design. The booth front was edged with a frame 1m wide and 3.5m high maxima system with the company name and logo were printed on a sign, giving the premium type a more polished look compared to the basic type. Out of 86 exhibitions, 64 installed

basic type booth while 22 installed premium type booths.

[Basic Booth]
Standard type



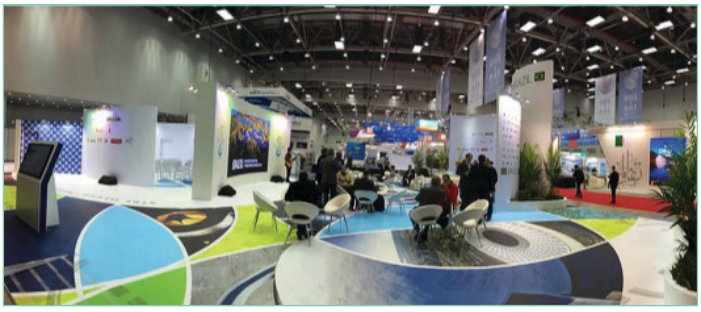
[Basic Booth]
Premium booth

Island booth

Out of 910 booths in total, 82% or 745 booths were installed as island booths and local companies and public organizations were encouraged to install these open-type booths. Open-type booths attract more visitors compared to closed-type and make intimate networking with visitors possible. Furthermore, because presentation, discussion and reception all take place within booths at EXPO& FAIR, this space was composed of mostly open-type booths. Foreign exhibition hosts installed booths with unique designs in harmony with rigging, which provided another spectacle to local visitors.

The Netherlands, the host country of the 2nd World Water Forum, created its pavilion under the exhibition theme of "Be prepared." It adopted the concept of 'let's be prepared for water problems as if preparing umbrellas for rain'. The pavilion was rigged with dark blue umbrellas, catching the eye of visitors. On the last day, the Netherlands pavilion handed out the display umbrellas, attracting the participation and interest of visitors.

Brazil, the host country of the 8th World Water Forum, installed an extensive booth in a strong and glamorous green that reminded visitors of the Amazon rainforest. A local singer entertained with song and guitar performances, delighting all those who visited.



Creation of Auxiliary Facilities

Auxiliary facilities were supposed to accommodate 200 booths, but the number was scaled down to 105 booths in total due to lack of exhibition space with early closing of booth sales. The Water Vision Center and Rest Lounge were installed mainly for relaxation and networking.

Water Vision Center

The Water Vision Center was created as a communication space to promote products and technologies of participating companies. It was made as a place for business and networking for 27 companies conducting 40 programs. The Water Vision Center was linked with the PR hall of the World Water Challenge to continuously attract visitors.

Water Vision Center

World Water Challenge Hall & bird's eye-view of Water Vision Center

Three rest lounges were installed in total: a major group lounge and an open lounge on the first floor of the exhibition hall; and a spring water lounge on the third floor of the exhibition hall. These spaces provided a place for World Water Forum participants, visitors, and participating exhibition hosts to relax and converse freely with each other.

Water Vision Center

World Water Challenge Hall & bird's eye-view of Water Vision Center

Side Events

Organization	FAO, (with UNESCO IHP, IAH, World Bank, GEF)
Event Title	Shared Vision and Framework for Action for Groundwater Governance
Brief description	The objective of the event was to present a "Shared Vision" and a "Framework for Action" on Groundwater Governance. The session aimed to consult with participants on the scope for this GEF supported initiative to address groundwater issues at global, regional and national levels. The Shared Vision points to much needed improvements in groundwater governance to meet global demands for water and protect the integrity of aquifers. The Framework for Action is designed to raise political awareness of the issue and promote key policy messages to advance governance approaches that can sustain the set of groundwater and aquifer services upon which humankind now depends. In addition, the Framework aims to focus investments through the governance lens in order to generate a set of global benefits. The Vision and Framework for Action have been developed over the past three years by the Food and Agriculture Organization (FAO) of the United Nations, the United Nations Educational, Scientific and Cultural Organization International Hydrological Programme (UNESCO IHP), the International Association of Hydrogeologists (IAH), the World Bank (WB) and the Global Environment Facility (GEF). The event consisted of a presentation of the Shared Vision and Framework for Action, including the process of their preparation, followed by a moderated discussion to interact with participants and respond to questions. This session was part of a wide communication and outreach program aimed at reaching the endorsement of the Vision and Framework by a large number of specialists and stakeholders.

Organization	OECD
Event Title	OECD Side event on water security and cities
Brief description	Cities in both developed and developing countries face new or emerging challenges regarding water management (aging infrastructure, increasing risks from climate change, new consumption patterns, new institutional frameworks). Responses to these challenges combine finance, innovation, co-operation between cities and their rural environment and governance arrangements. Drawing on new work and extensive consultation on these and related issues, the OECD, with a panel of partners, teased out policy messages that emerge from successful urban water management initiatives taken by cities and governments. The interplay between national and local initiatives on water management will shape the cities we will live in, including their capacity to thrive and contribute to better lives and the cost of urban water management. The discussion was relevant for local and central governments, city administrators, land use planners and property developers, investors, utilities, agriculture organisations, and civil society.

Organization	UNEP-DHI Partnership
Event Title	UNEP-DHI Eco Challenge Asian Finals
Brief description	UNEP-DHI Eco Challenge Asian Final is the final round of the annual UNEP-DHI Eco Challenge. Winners of the national round of the UNEP-DHI Eco Challenge from countries in Asia will gather and compete to become the winner of the 2015 UNEP-DHI Eco Challenge. The competition involves teams of high school students from the Asia Pacific playing a serious game called Aqua Republica. Students played the role of a catchment manager overseeing the development of a catchment where they had to balance the use of water for agriculture, industries, ecosystems and cities.

Organization	UNESCO
Event Title	Post 2015 Water-related actions in Asia Pacific
Brief description	The Asia Pacific region has the largest total and urban population with one of the fastest development rates in the world, but is also home to the most polluted rivers and is highly vulnerable to a wide range of water-related disasters from drought to floods, storm surge and landslides. Hence, this region has not realized water security as it is defined in the UNESCO International Hydrological Programme Eight Phase Strategic Plan document: "capacity of a population to safeguard access to adequate quantities of water of acceptable quality for sustaining human and ecosystem health on a watershed basis and to ensure efficient protection of life and reduce property against water related hazards" (IHP VIII-2014-2021). This 2 hour session addressed the current situation of the Asia Pacific region on water matter issues from integrated water resource management, urban water management, and connections inside the water, food and energy nexus and showcase achievements, and challenges in order to formulate actions for the region towards the post -2015 Development Agenda.
Brief description	This is also the occasion for the celebration of the 40th anniversary of IHP and look back at past contributions and how they relate to the future.

Organization	ONE DROP
Event Title	"In troubled Water", a feature Bollywood film by ONE DROP
Brief description	ONE DROP invited World Water Forum guests to a unique side-event: the screening of a feature Bollywood film on water. Recognizing Bollywood as a core element of Indian culture with a huge following,

Brief description	ONE DROP commissioned a respected Indian film-maker to produce a feature Bollywood film to raise awareness of WASH issues among the public at large, in India and beyond, with the potential to reach millions. Titled "Kaun Kitne Paani Mein" ("In Troubled Water"), the movie is directed by famous movie director Nila Madhab Panda and showcases four very popular Bollywood actors. It tells the story of two villages that are poles apart in everything, from core values to economic development. When a water crisis hits, the balance of power shifts from one to the other. The rest is pure Bollywood: love, politics, multiple plot lines, humor, music and dance. Participants enjoyed this touching and entertaining movie that highlights the power of water and shows the potential of arts and culture to raise awareness. Along with refreshments, a question and answer period followed the film screening.

Organization	WWF (Living Amazon Initiative)
Event Title	Pan-Amazon, Green Hydropower Development and Freshwater Ecosystems
Brief description	The event engaged public, private and finance decision makers to organize a regional approach for green hydropower development keeping the Pan-Amazon alive, providing ecosystem services to the whole continent. Two assessments of the state of the Pan-Amazon freshwater ecosystems were launched. The Tapajos case of hydropower and biodiversity integrated planning methodology were presented. Key stakeholders (private companies, national energy authorities, finance agents, politicians, international organisations, scientists and others) presented their view for a Pan-Amazon approach for green hydropower planning and development.

Organization	Ministry of Agriculture, Food and Environment
Event Title	Water Governance in scarce environments. The case of Spain
Brief description	Spain is characterized by an irregular temporal and spatial distribution of water resources and a fragile balance between water resources and demands. Although national mean values reflect enough available resources for all uses, a regional approach shows water scarce areas aggravated by drought episodes. Spain presents an average precipitation of approximately 670 mm/yr, varying from 2.200 mm in northern areas to 120 mm in south-eastern ones, has a population of 44,7 million inhabitants (year 2006), which mainly concentrates in urban (such as Madrid, Barcelona, Valencia, Sevilla) and coastal areas. The coastal economic and tourist development (mainly in the Mediterranean side), coupled with highly productive agricultural areas, translates into a higher demand of water in areas where this resource is scarce, and often during lower availability periods, e.g. summer time. Approximate distributions of water demand per sector are 68% for irrigation, 13% for urban uses, 14% for refrigeration and 5% for industrial purposes (Ministerio de Medio Ambiente 2000). There is a clear unbalance of water availability in Spain between northern, central and south-eastern areas (Ministerio de Medio Ambiente 2000). The high variability, uneven distribution of water and its scarcity throughout the territory, more persistent in the Mediterranean regions, has lead to an intensive control for water to supply the different water demands, especially those coming from the agricultural sector, through hydraulic infrastructures, such as dams or irrigation channels. In fact, Spain is the fifth country in the world in terms of number of large dams (approximately 1.200) after China, the USA, India and Japan. Spain has succesfully faced the challenge of supplying water to 45 million inhabitants and 60 million tourists. Spain also has the most competitive agriculture in Europe, located in the Southeastern region,

Brief description	the driest area. It has a water management system that can be an inspiration to other countries.

Organization	CONAGUA
Event Title	DISCUSSION AND IDEA EXCHANGE OF INTERNATIONAL HYDROLOGICAL PROGRAMME MEMBERS AND NATIONAL COMMITTEES
Brief description	Water is essential for life. The capacity of having access to this resource and efficiently protecting life and material possessions against risks related with water (floods, droughts, soil flooding and other hydrological repercussions) result in a growing concern in the demographic growth, urban unmeasurable expansion, great changes in the use of soil and the degradation of the quality of water.

Organization	K-water
Event Title	Asian Water High Level Roundtable AWHoT
Brief description	For the success of 7th World Water Forum, K-water managed the Regional Process and Coordinate designing and publishing of th STP White Paper. K-water invited representatives from organizations responsible for regional water security issues and encouraged them to engage in the commitment to the Asian Water High Level Roundtable. The Roundtable aimed to contribute to the success of the 7th World Water Forum as well as to the establishment of a global consensus on the way to tackle water issues. As a result of the AWHoT, there was publication, 'Insights into Asia', that integrated insights on Asian water issues. In addition, there was a consensus on establishment of Asia Water Council among AWHoT members, the Asian regional water network for implementing solutions that is aligned with the core value of the 7th World Water Forum. The AWC is expected to be a regional body that serves as the action facilitator for regional water challenges as the representative follow up product of the 7th World Water Forum.

Communications and PR Activities

I. Overview

The Korean National Committee for the 7th World Water Forumcarried out the following Communications and PR activities to promote the World Water Forum objectives and inform the public of the beneficial impact of hosting the World Water Forum. With the enthusiastic support of the public and of participants, the National Committee in close collaboration with the World Water Council succeeded in making the 7th World Water Forum the largest water event in World Water Forum history.

Three-stage roadmap of PR implementation

> ***Stage 1:*** *Lay the foundation to increase awareness by establishing PR infrastructure and boom-up in advance*
>
> ***Stage 2:*** *Achieve public agreement on the value of water and promote participation through public campaign*
>
> ***Stage 3:*** *Suggest outcomes and inspire actionthrough intensive media promotion*

Stage 1: Until Apr.2014

Objective: 'Establish PR infrastructure → lay the foundation to increase awareness Events were planned to raise the interest of opinion leaders from all backgrounds. They also aimed to influence public opinion and form public consensus about the water challenges we are currently facing and shed new light on the seriousness of future water challenges that can be caused by climate change.

First, a webtoon about water was produced and distributed on a popular portal site and an expert symposium was planned in commemoration of D-500. On D-365 and D-300, events were planned to wish success for the World Water Forum and opinion writers made written contributions and features.

Forum Preparatory Symposium with experts - giving presentation

Forum Preparatory Symposium with experts - group photo

Second, PR programs such as the installation of outdoor advertising and production of PR video footage were launched for the public.

A month-long PR program targeting ordinary citizens in their daily lives, such as ads in subways and banner ads on portal sites, raised public awareness for the 7th World Water Forum beyond expectation.

Third, a press release was distributed to enhance awareness of the World Water Forum overseas.

Stage 2: May 2014 - Dec.2014

Objective: 'Public campaign' → Increase public awareness for the value of water and promote participation

First, an event was organized where the public could voluntarily experience and participate in the World Water Forum preparation; examples included a drawing contest for elementary school students, a global mural drawing activity, and an online event.

Additionally, 'Water industry familiarization tour for journalists' and 'Participation in water-related international conferences and operation of promotional booths' were created as PR events to draw a positive response from diverse stakeholders such as journalists and the general public, in addition to local residents and experts.

In addition, the National Committee for the 7th World Water Forum distributed online content through YouTube. The National Committee regularly uploaded user created content about main events and promotional activities, attracting netizen interest. (See below.)

7th World Water Forum YouTube channel conten

Date	Video content
8.26	Blueroad Supporters' visit to water company
9.11	MOU signing ceremony between National Committee and Child Fund Korea
10.1	'Water love' drawing contest of Andong children
11.18	Agreement between National Committee and Construction Media Publisher Forum
11.27	National Assembly seminar for the success of 7th World Water Forum
12.4	Starting ceremony of 2nd Blueroad Supporters
12.4	Ceremony to create memorial street of 7th World Water Forum
12.11	Meeting among the heads of water-related groups

Stage 3: Jan.2015 - Jun.2015

Objective: 'Intensive media promotion → Suggested outcomes, inspiring action

'Commemorative event to wish success on D-100' was held to gather public support for the World Water Forum. Celebrities, main stakeholders and the general public appeared in a video clip to cheer for the 7th World Water Forum and share their water saving tips and water-related knowledge. From one month before the World Water Forum, a total of 15 video clips were produced with 1 clip a week distributed through the 7th World Water Forum's official YouTube channel and Facebook page.

From D-30, intensive promotional activities were carried out such as press conferences, advertising in major daily newspapers and publication of features. TV and radio advertising was also carried out.

There were a total of 111 broadcasts: 12 for TV between April 1st and April 13th, 2015; and 111 for radio between March 24th and April 17th, 2015. World Water Forum coverage was broadcast on SBS TV and radio broadcasts through MBC and CBS radio.

Print advertising image

Feature in major daily newspaper


朝鮮日報 2015년 04월 09일 목요일 A16면 사회

'물 올림픽' 6일간 대구·경주 적신다

170여개국 참여 '세계물포럼' D-3

제7차 세계 물포럼 개요

각국 정치인 등 1만7000명 참석
세션·시민포럼·엑스포 등 열려
물 부족·관리 문제 해결책 논의
개최국인 한국 체험존도 운영

On the opening day of the 7th World Water Forum, a Familiarization Tour was provided for members of major press corps led by the Ministry of Land, Infrastructure and Transport, one of the supporting organizers of the World Water Forum. Coverage was supported for the Opening Ceremony in Daegu and the Political Process (Ministerial Process) in Gyeongju.


Le Monde.fr

Le 13/04/2015

Le stress hydrique au menu du Forum mondial de l'eau

L'événement, qui a lieu tous les trois ans, tient à la fois du sommet politique, du salon professionnel, du rendez-vous citoyen où se retrouvent les ONG spécialisées, des rencontres scientifiques et même du festival culturel. On y attend une dizaine de chefs d'Etat, 120 ministres, ainsi que moult parlementaires, représentants de collectivités locales, experts, dirigeants d'entreprises privées ou publiques et autant de lobbyistes. Du 12 au 17 avril, plus de 20 000 personnes devraient se rendre à la 7ème édition du Forum mondial de l'eau qui vient de débuter à Daegu et Gyeongbuk, en Corée du sud, qui a pour thème : « L'eau pour notre avenir ». Il y sera beaucoup question de droit d'accès à la ressource hydrique et d'équité dans la façon de la répartir.

Dès la veille du Forum, l'agence de l'Organisation des Nations unies (ONU) pour l'alimentation et l'agriculture (la FAO), l'Unesco, la Banque mondiale, le Fonds pour l'environnement mondial et l'Association internationale des hydrogéologues ont ouvert le chapitre politique, en appelant *« la communauté internationale à agir d'urgence pour empêcher la dégradation et l'épuisement des ressources en eaux souterraines. »* Les cinq organisations devaient présenter le 13 avril leur *« diagnostic global »* et un cadre d'action pour 2030.

Host broadcasting and host news agency

Host broadcasting - KBS

KBS was selected to broadcast televised special programs of the 7th World Water Forum. In a pre-Forum broadcast (April 4, 2015, 7th World Water Forum Preview), KBS introduced ongoing water challenges, the background of hosting the World Water Forum and the World Water Forum's solutions to water challenges. In the live broadcast of the Opening Ceremony (Apr 12, 2015), KBS focused on the Ceremony and introduced the World Water Forum's main programs.

In a closing broadcast (Apr 19, 2015. What is the legacy of the 7th World Water Forum?), KBS looked back on the overall 6-day event and covered the implications of Korea hosting the World Water Forum along with future challenges. This enhanced the general public's understanding of the event and increased their interest in water.

Prior to the World Water Forum, commercials were televised around the world about 200 times via KBS World channel. Moreover, infrastructure was established to broadcast 14 main sessions overseas by videotaping them and sending an international signal worldwide.

After the World Water Forum, broadcasting records of the 7th World Water Forum were collected to produce the7th World Water Forum White Paper, which was distributed to local governments, schools and libraries across Korea.

Host news agency - Yonhap News

Host news agency Yonhap News provided the following services for the 7th World Water Forum: produce Korean articles and multi-lingual news and news releases; photographt; terminal provision for news research; and operation of news archive system.

In terms of article production, Yonhap produced a total of 230 Korean articles and 35 multi-lingual text articles to release to local and foreign press. In addition, it produced photos through 675 on-the-spot coverage events, which were utilized by local and foreign press with the credit of 'provided by the 7th World Water Forum National Committee'.

Operation of Blueroad Supporters

Who are Blueroad Supporters?

Blueroad Supporters are 'Youth Goodwill Ambassadors of the World Water Forum.' This program aimed to establish a World Water Forum online network of tech and social media-savvy youths and attract online interest in the 7th World Water Forum through PR activities utilizing their creative ideas.

Blueroad Supporters created water-related content from diverse perspectives; through Blueroad Supporters, young people actively promoted the World Water Forum prior to the event. This activity is seen as having played a crucial role in expanding involvement in the World Water Forum from just water experts to the entire public.

II. Operation of Media Center

What is the Media Center?

The Media Center was created to provide a convenient working space and facilitate smooth World Water Forum coverage for local and foreign members of the media visiting event venues. To this end, the Media Center was broadly divided into the Press Center, press conference room, individual interview room, official daily editorial office and PR office.

One of main roles of the Media Center was supporting article content. Advance planning was necessary to provide quality Forum-related PR content in a timely manner. To this end, press releases were distributed twice a day or more and uploaded on the online Media Center in real time to provide timely information. Press releases were distributed to local and foreign media registered in advance via email or text message, which aided rapid article production. In particular, information on the speakers of each Process, World Water Forum results and information of main participants were provided in real time to facilitate coverage of the World Water Forum. Meanwhile, the media was notified in advance of the event schedule and interviewees and coverage request letters were received to support interview of local and foreign participants, a function which was well received by reporters.

A total of 873 members of the media registered in advance with 727 from the Korean media and 146 from foreign media.

The Financial Support Program of the World Water Forum allowed foreign reporters from low-income countries to travel and attend the event through various types of grants.

Operation of Press Center

The Media Center was mainly in charge of writing and distributing press releases. During the 6-day World Water Forum, more than 65 press releases were distributed (26 in Korean and 24 in English). Beyond media invitations and save-the-dates, press releases were sent under embargo before the opening of the World Water Forum to the press worldwide, to announce the World Water Forum Prizes winners and to ensure attention on key topics such as green growth, financing, food, IWRM or the Sustainable Development Goals.

Date	Press Releases
	7th World Water Forum press kit was produced in Korean and English
4.11	The 7th World Water Forum begins its historic journey to address global water challenges
4.12	King Hassan II World Water Prize Winner
	Science and Technology Process
	Regional Process Opening
	Implementation Roadmaps & DGIC
4.13	Science and Technology Process White Paper
	World Water Forum Ministerial Declaration
	World Water Expo & Fair Opening
	Dialogue with Global water industry CEOs
	Local & Regional Authorities Declaration
4.14	World Water Council and OECD call for global action
	World Water Council and K-water announce 'Water and Green Growth': a new path to sustainability
4.14	Cultural Events
	Local and Regional Authorities Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions
	IWFF International Water Film Festival
	Water Showcase
	World Water Challenge
4.15	Parliamentarian program Declaration
	Korea Pavilion
	Water Prize
	World Parliaments Declare New Cooperation to Resolve Global Water Issues
	Concluding session of Asia Pacific region of Regional Process
4.16	The result of the World Water Challenge Announced!
4.17	Kyoto World Water Grand Prize Winner
4.17	Science & technology Closing Session Proposals
	Achievements of 7th World Water Forum in numbers
	Closing of the 7th World Water Forum "the 7th World Water Forum, rewriting history of global water"
	Closing ceremony Implementation Roadmaps & Daegu-Gyeongbuk Implementation Commitment
	Press release on the 7th Forum Closing and Achievements, and Handover to Brasilia

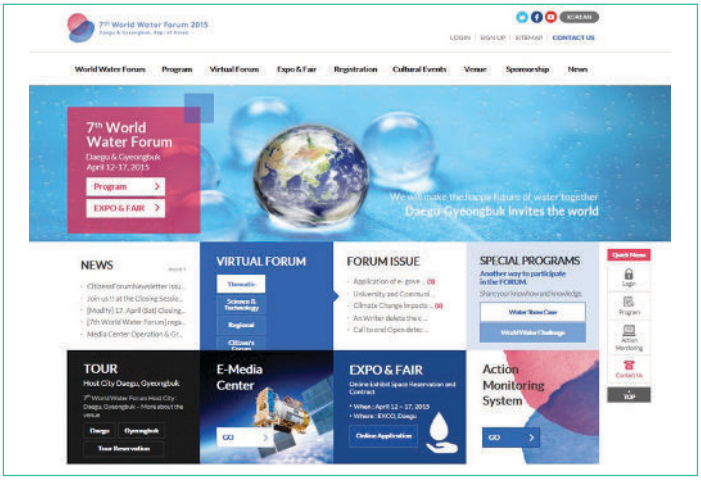
The total number of cases of press coverage was over 3,600 clippings (based on search results in the Navel portal site for each day of the World Water Forum) to which can be added the coverage of 2013 and 2014, mostly around the political and the regional preparation of the World Water Forum

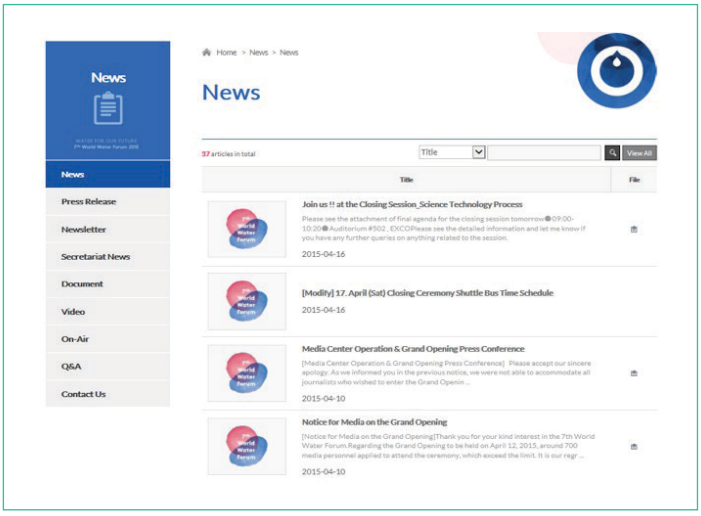
Operation of online media center

The online Media Center was operated within the official website of the 7th World Water Forum to provide real-time information to local and foreign journalists and encourage World Water Forum

coverage. The Media Center aimed to facilitate timely reports by providing Forum-related information and KBS and Yonhap News broadcasting content in addition to the official press releases. It focused on disseminating results by uploading contact points, speaker information and media briefing data per session and providing data needed for reports both in Korean and English simultaneously. It also provided summaries of the key remarks of the CEO Panel and provided the outcome of the day's events as well as information on press conferences.

Online Media Center





Support and facilitation of journalists

Daily briefing

The Media Center had briefing sessions on World Water Forum themes and daily schedules, the Citizen's Forum, cultural events and visiting VIPs as main coverage for the following day. Daily briefing was conducted for 10 minutes every day around 4PM with Q&A for another 10 minutes. Briefing data and a morning press releases were sent to the entire press corps prior to the daily briefing by email and text messages were sent to inform journalists in advance.

The Media Center was also in charge of event photos. The host news agency Yonhap News took 675 photos on site to distribute to local and foreign media with the credit of 'provided by the 7th World Water Forum National Committee,' which increased work efficiency

President Park gives congratulatory remarks in the Opening Ceremony of the 7th World Water Forum held in Daegu EXCO. (April 12, 2015)

President Park and VVIPs from around the world take a commemorative photograph after the welcoming lunch of the 7th World Water Forum held in Daegu Keimyung University.(April 12, 2015)

Chairman Jungmoo Lee, the National Committee for the 7th World Water Forum gives opening remarks at the Opening Ceremony (April 12, 2015)

President Benedito Braga, World Water Council gives welcoming speech at the Opening Ceremony (April 12, 2015)

In the 2nd Korea-Japan-China water resource ministerial meeting' of the 7th World Water Forum held in Hotel Hyundai, representatives of the 3 countries hold joint declarations. (April 13, 2015)

Press Conferences

The Media Center hosted press conferences with opening remarks and Q&A, which enhanced understanding of the World Water Forum.

Press Conference, Professor Benedito Braga, President of World Water Council

Apr 12 2015

Date	press conference
Apr 12, 2015 (Sun) 11:45	World Water Council Press conference by President Benedito Braga of the
Apr 12, 2015 (Sun) 16:30	7th World Water Forum Press conference with the National Committee for the7th World Water Forum and the World Water Council
Apr 15, 2015 (Wed) 09:00	Press conference of '4th Asia water-related high-level meeting'

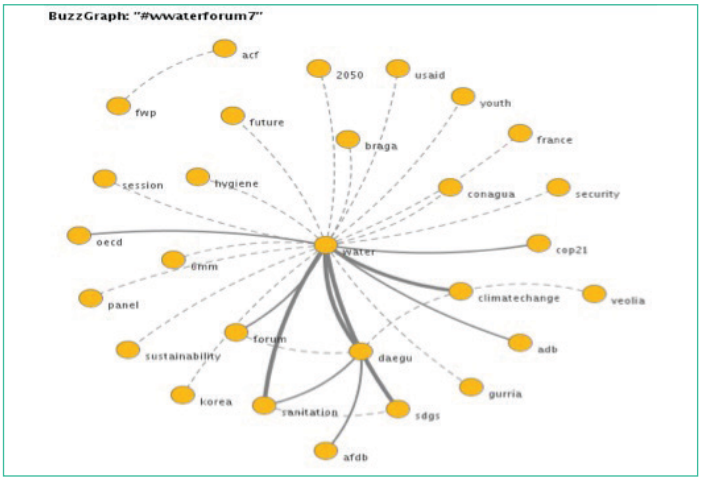
Other supporting tasks of the Media Center included promoting the 7th World Water Forum by publishing features introducing the World Water Forum under the theme of environment and economy in major daily newspapers, such as the JoonAng, DongA, and Chosun Dailies.

III. Media exposure and evaluation of press coverage

- Nearly 900 reporters on site
- Over 3,600 TV, radio and press clippings in one week
- 3 special TV programs dedicated to the World Water Forum
- 15 video clips
- 230 Korean and 35 multi-lingual feature stories
- 1,000 photos
- Over 6,700 tweets and over 100,000 impressions

There was significant positive coverage of the World Water Forum. Participating media included major global wires, TV channels and dailies such as Bloomberg, AFP, BBC, Skynews Arabia, Globo Vision, Medias 24 TV, RTVslo, Le Monde, Huftington Post, Le Matin, Xinhua, China Daily, Times of India. As for Korean media, main broadcasting media such as Chosun Daily, JoongAng Daily, DongA Daily, Maeil Business Newspaper, Hankyung, Yonhap News, KBS, MBC, SBS and YTN as well as local press in Daegu and Gyeongbuk showed deep interest for water issues and the the World Water Forum.

In terms of social media worldwide, the official hashtag of the World Water Forum on Twitter had a phenomenal impact on social networks thanks to intense outreach during the event, including via the participants, the World Water Council and the press.



Source: Grayling Agency for the World Water Council

The Twitter BuzzGraph positions key words most associated with the #wwaterforum7 hashtag. The strongest associations are indicated by darker lines and being situated closer to the centre of the graph.

You can find the follow-up actions of
the 7th World Water Forum through the website.
www.worldwaterforum7.org.