

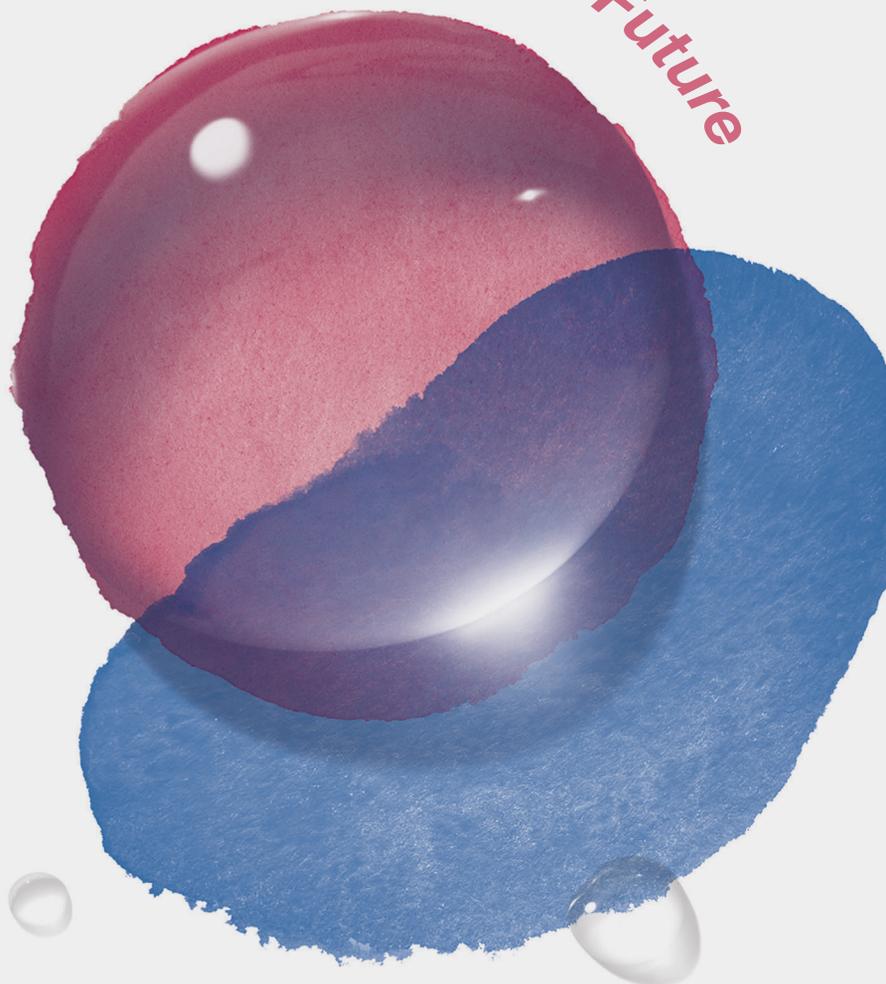
Synthesis Report



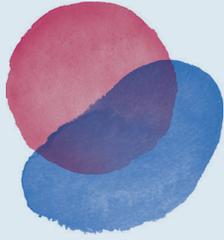
# Global Water towards 'Implementation'

7<sup>th</sup> World Water Forum  
2015

*Water for Our Future*



National Committee for the 7<sup>th</sup> World Water Forum (Republic of Korea)  
World Water Council



# 7<sup>th</sup> World Water Forum 2015

Daegu & Gyeongbuk, Republic of Korea



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## Executive Summary

At a moment when the global community is creating a new vision for the future of the planet, the 7<sup>th</sup> World Water Forum drew the world's attention to the vital importance of water within that paradigm. The 7<sup>th</sup> World Water Forum was ground-breaking in a number of ways:

- Mechanisms were created to enhance support for continuous collective action on water.
- Greater political commitment was generated for water within policy dialogues.
- The pivotal role of science and technology as a sustainable engine for implementation of water-related solutions was highlighted.
- Dialogue and exchange was enhanced among different regions.
- Case studies demonstrating lessons on implementation were showcased.

### Creating Mechanisms to Support Collective Action for Water

One of the main achievements of the 7<sup>th</sup> World Water Forum was the creation of 16 "Implementation Roadmaps" (IRs), aligned with each of the Forum's main themes and launched during their concluding sessions. Collectively, they represent a concrete vision and strategic plan for shared action to overcome water-related challenges, galvanized by over 90 organizations and hundreds of stakeholders from around the world. Recognized within the Ministerial Declaration, the IRs put forth an action-oriented agenda for change that can be used by all stakeholders to align their actions.

In addition, the IRs present an opportunity for the global water community to proactively contribute to the operational achievement of the SDGs under the UN's post-2015 Development Agenda. In this way, the World Water Forum can be seen to support an on-going change process, as opposed to being a single, week-long event held every three years.

The continual progress related to the goals identified in the Implementation Roadmaps will be tracked through the Action

Monitoring System (AMS), an interactive online platform launched during the 7<sup>th</sup> World Water Forum. The AMS was established to identify the actual implementation achievements of the IRs in accordance with the established strategies. At the same time, it seeks to create a network of exchange for communities of practice who will contribute to progressing on the IRs. (Visit <http://ams.worldwaterforum7.org>)

The 7<sup>th</sup> World Water Forum culminated with the signature of the Daegu-Gyeongbuk Implementation Commitment, a voluntary pledge made by 21 different organizations that intend to drive progress on the IRs during the interim period between Forums. The signatories agreed to review progress on the IRs, update the AMS regularly and participate in an annual review, together with the international community.

### Generating Greater Political Commitment

This year, 2015, holds special meaning in formulating actions for the global water agenda. It is the target year of the Millennium Development Goals, which will be followed by a new global sustainable development agenda to be confirmed at the UN Summit on Sustainable Development in September. It is also a unique opportunity to strike an ambitious agreement towards a climate-resilient world in the UNFCCC CoP21, in December in Paris.

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 an extensive preparation process stretching over a year aiming to generate greater political commitment for water. The product of these efforts were translated in the form of the Ministerial Declaration and 8 High-Level Roundtables, the Parliamentary Statement, and the Daegu-Gyeongbuk Water Action for Sustainable Cities.

The Ministerial Declaration focused on plans and actions to advance water-related cooperation at a global scale in order to ensure progressive access to water and sanitation for all. It was accompanied by the Daegu-Gyeongbuk Recommendations to Ministers, formulated by the global water community, offering concrete, novel and innovative suggestions on how to translate the commitments and political will expressed in the Declaration into policies and actions. In addition, the Ministers reinforced the need for a dedicated water goal in the Post-2015 Development Agenda, and 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).

The Ministerial segment was complemented by the Conference of

Parliamentarians for Water, in which 71 members of parliaments from 27 countries participated, and the International Conference of Local and Regional Authorities, boasting 95 participants from 26 countries.

## Implementing Water Solutions through Science and Technology

There is little question that science and technology can play a critical role in successfully implementing solutions to the world's existing and emerging water problems. As the largest multi-stakeholder gathering on water, the 7<sup>th</sup> World Water Forum, with its core value of implementation, was the perfect place to focus on science and technology's role in resolving water challenges.

By introducing a new Science and Technology Process at the 7<sup>th</sup> World Water Forum, participants were able to improve their understanding of the role of science and technology in innovating the water sector, to develop guidance on the use of science and technology to implement and innovate water policies and realities, and to create market and network opportunities.

A total of 40 sessions were organized around the 5 main focus areas of Efficient Water Management, Resource Recovery from Water and Wastewater Systems, Water and Natural Disasters, Smart Technology for Water, and Understanding and Managing Ecosystem Services for Water. In addition, the launching of a Science and Technology White Paper, drafted by water experts, international water institutions, and leading academics in a language accessible to the general public, served to converge the thinking around science and technology within each of these focus areas. This process also organized three CEO Innovation Panels where CEOs of global companies, high-level government officials, and international organizations were invited to discuss the application of water-related science and technology within business development and policy making.

## Enhancing Inter-regional Dialogue

In addressing the issue of global water management, it is crucial that discussions reach all regions across the globe. To this end, the 7<sup>th</sup> World Water Forum sought to reinforce its existing regional process by the creation of a new transversal category, called Economically Water Insecure (EWI) Regions. Economic Water Insecurity describes a situation where water availability is low, not because of a lack of the resource, but because of economic factors. The process, therefore, delved into the paradox of scarcity despite abundance and sought to unite stakeholders experiencing these

conditions across geographic boundaries. It explored concrete solutions for developing countries that have abundant water resources but still suffer from water scarcity due to economic instability, inadequate infrastructure or other factors.

The 7<sup>th</sup> World Water Forum's Regional Process also innovated a new type of cross-regional dialog called Inter-Regional Sessions. By offering a mechanism for stakeholders to discuss the same challenge, such as climate change or food security, from different geographic perspectives, participants were able to share their experience and expertise and learn from each other, resulting in a more fruitful outcome. Inter-Regional Sessions strengthened cooperation among different regions while bettering understanding of how to deal with similar challenges in different contexts.

## Showcasing Implementation Expertise

The 7<sup>th</sup> World Water Forum also saw the creation of the Daegu & Gyeongbuk Water Prize, established by the local governments of Daegu City and Gyeongbuk Province. The international prize aimed to highlight the importance of actual implementation and the role of science and technology in the water sector. Two special programs provided the basis for the prize: The Water Showcase, a competition of innovative case studies demonstrating implementation in water fields; and the World Water Challenge, a contest of technical solutions based on science and technology for overcoming the world's water challenges.

# New Mechanisms Created to Support Collective Action on Water: Implementation Roadmap and Action Monitoring System

## Background to the Process

In the early stages of the preparatory process for the 7<sup>th</sup> World Water Forum, after reviewing the outcomes from previous World Water Forums, particularly the 6<sup>th</sup> World Water Forum, it became apparent that while there were many ideas and solutions for addressing water challenges, there was a lack of examples of actual implementation. In light of the core value of the 7<sup>th</sup> World Water Forum, the necessity of a creative tool for implementing actual practices and actions that go beyond discussion was raised.

The Implementation Roadmaps (IRs) contribute to a global action agenda to resolve water challenges. It sets out a strategic plan to implement solutions for major water-related challenges relating to the 16 themes established by the 7<sup>th</sup> World Water Forum's hundreds of stakeholders.

### Action Goals and 16 themes for Roadmaps

| Action Goals and Tools    | 16 Themes for Roadmaps   |
|---------------------------|--|
| 1. Water Security for All | 1.1 Enough Safer Water for All   |
|                           | 1.2 Integrated Sanitation for All  |
|                           | 1.3 Adapting to Change: Managing Risk and Uncertainty for Resilience and Disaster Preparedness |
|                           | 1.4 Infrastructure for Sustainable Water Resource Management and Services                      |

| Action Goals and Tools                                     | 16 Themes for Roadmaps  |
|--|---|
| 2. Water for Development and Prosperity                    | 2.1 Water for Food  |
|  | 2.2 Water and Energy  |
|  | 2.3 Water and Cities  |
| 3. Water for Sustainability: Harmonizing Humans and Nature | 3.1 Green Growth, Water Stewardship and Industry  |
|  | 3.2 Managing and Restoring Ecosystems for Water Services and Biodiversity                                   |
|  | 3.3 Ensuring Water Quality from Ridge to Reef   |
|  | 3.4 SMART Implementation of IWRM  |
| 4. Constructing Feasible Implementation Mechanisms         | 4.1 Economics and Financing for Innovative Investments  |
|  | 4.2 Effective Governance: Enhanced Political Decisions, Stakeholder Participation and Technical Information |
|  | 4.3 Cooperation for Reducing Conflict and Improving Transboundary Water Management                          |
|  | 4.4 Water Cultures, Justice and Equity  |
|  | 4.5 Enhancing Education and Capacity Building   |



The IRs are a common vision that ensures continuous execution of plans after the 7<sup>th</sup> World Water Forum. In this way, the World Water Forum can be seen to support an ongoing change process, as opposed to being a single, week-long event held every three years. The IRs aim to realize the ideas of stakeholders from all over the world who must identify and directly contribute to solving water issues. Moreover, the IRs include the strategy for progress, and assessment criteria and procedures to monitor progress on each action until the 8<sup>th</sup> World Water Forum in 2018.

To inspect and monitor the outcomes of the IRs, the 7<sup>th</sup> World Water Forum also launched the Action Monitoring System (AMS). The AMS is an interactive online platform which contains the IRs and tracks their achievements until the next World Water Forum.

The IRs reflect the extensive efforts of the global water community, including governments, intergovernmental organizations, academia, private and public enterprises, civil society, and NGOs. Additionally, the IRs, as a global tool to contribute to the achievement of the SDGs and post-2015 Development Agenda, promote the importance of water as a prerequisite for all sustainable development. The IRs aim to highlight initiatives with meaningful progress by compiling various water activities from around the world and sharing their success and failure factors, rather than judging only the results.

## Contribution to Establishment

The IRs were mainly developed by the working group members from approximately 90 organizations in the water sector who participated in the preparation of the Thematic Process as Design Groups. In addition, many stakeholders from other Processes were involved in establishing the IRs to enhance the linkages among diverse global stakeholders representing regional, political, scientific, and technological interests. The Design Group Coordinators Meeting held in October 2014 solidified this linkage. In particular, the key messages and recommendations from the Regional Process were incorporated into the IRs. Through this discussion, the key message at the regional and local level for the IRs was 'Action for Implementation,' and regional strategies were established based on this concept.

The Concluding Sessions of the Thematic Process were designed to officially launch the IRs. Major stakeholders from the Regional and Science and Technology Processes were invited to the launch to encourage their participation in future IR activities. Thus, the IRs represent a common vision of the global community and commitment by diverse stakeholders for the resolution of water-related problems.

In particular, it is very encouraging that the ministers and heads of delegations from the Political Process have recognized the urgent need to solve major global water-related challenges in a sustainable manner. The distinguished leaders noted the IRs in the Ministerial Declaration of the 7<sup>th</sup> World Water Forum to emphasize that the actions and solutions produced from the World Water Forum should be implemented in the future.

*"We support the results of the 7<sup>th</sup> World Water Forum and look forward to the **Implementation Roadmap**, along with its relevant **Monitoring System**, which could be considered as a reference for establishing implementation and monitoring guidelines for water-related goals in the Post-2015 Development Agenda."*

**Ministerial Declaration of the 7<sup>th</sup> World Water Forum, 2015**

Although the four major Processes of this World Water Forum were developed in parallel, there was strong cooperation on common water issues, providing a multifaceted approach to implementation and the establishment of the IRs. This mutual exchange was noticeably effective and smooth, which distinguished the 7<sup>th</sup> World Water Forum from previous World Water Forums, and manifested itself in the joint Concluding Sessions for relevant topics in each Process.

## Components

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. To achieve this objective, the IRs reflect the following 6 principles (A-SMART).

*\* A-SMART is a management framework applied to goal setting and its implementation planning.*

### Aligned

The IRs should be aligned to the extent possible with the SDGs. At the same time, the IRs should also seek coherence with the Political Process, Regional Process, and Science & Technology Process.

### Specific

The IRs should be specific. The IRs should clearly state what needs to be done, by when, and under what objectives.

**Measurable**

The progress of the objectives set out in the IRs should be defined with measurable indicators. Quantitative indicators are the best, but factors can be qualitative depending on the topic.

**Action-oriented**

The IRs should include clear action plans. Goals and objectives are implemented and met through actions.

**Realistic**

The IR should formulate practical goals and objectives that can realistically be achieved. Overambitious goals will threaten the feasibility of tasks and increase the risk of underachievement.

**Timely**

The IRs should be planned to ensure that each action is implemented and completed in a timely manner. These time-bound actions will constitute the milestones to reach the goals.

The IRs are composed of three main parts that are described below: Goal, Progress, and Execution:

- **Part I: Goal**

- Why does the international community 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.
- The section consists of two modules: Theme Goal and Rationale and 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 a better performance?
- Identify effective communication strategies with stakeholders and performance metrics to monitor progress.
- The section consists of 2 modules: Action Monitoring and Communication

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## Distinctiveness of IRs

The IRs, as a strategy to integrate the global water community's implementation experiences, are a voluntary commitment by multiple stakeholders for global progress, without formal obligation.

This year marks the end of the UN's Millennium Development Goals (MDGs). It is also the year when the global community establishes its joint vision and objectives for the next 15 years. At the point where governments will confirm the formulation of the Goals at the UN General Assembly in September of 2015, there is the opportunity for a close connection between the water sector and SDGs.

It is important to understand how the IRs differs from the SDGs. The SDGs present long-term goals for the next 15 years as well as government commitments to monitor and achieve a set of targets related specifically to the eradication of poverty in a sustainable manner. They encompass various areas, including water issues. The IRs, focusing solely on water issues, is much more specific (for 16 themes) and includes operational commitments for implementation partnerships that are not found in the SDG process. The two are, therefore, very complementary.

The IRs can contribute to SDG-related initiatives in the global development community. In order to highlight water issues among the various agendas discussed within the SDGs and drive shifts in policy making and resource mobilization, valid and solid references are needed. In this regard, the IRs can support the SDGs and become a clear foundation for water policy development and reasoned allocation of financial resources.

The IRs may be used as a guide in the process of making water-related SDGs operational while also creating a mechanism for tracking progress of the World Water Forum process until the 8<sup>th</sup> World Water Forum in 2018. In order to do so, however, strong leadership and commitment from the government of Korea and World Water Council is needed. The former is expected to host regular progress meeting for IR stakeholders to evaluate and collect feedback on the progress of their respective IRs. The latter is expected to manage the AMS and encourage the IR contributors to update the AMS on a regular basis.

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## Action Monitoring System

The AMS was established to identify the actual implementation achievements of the IRs and to monitor progress. It is an on-line platform which tracks execution of implementation goals against the established strategies and revises visuals after receiving updates.

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

- Formulating a theme IR based on World Water Forum discussions;

- Recording and tracking feasible activities and progress within the implementation process;
- Monitoring the outcomes and fulfilment of an IR for future action

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



Action Monitoring System

Basic principles of monitoring and assessment criteria are essential to achieve productive implementation through the system. The two principles of monitoring the AMS by the supervising body are as follows:

### Engagement of Stakeholders

Throughout all the phases of monitoring, assessing, improving and sharing, it is vital for all stakeholders to get involved and be motivated to act. The monitoring process should encourage stakeholders to consider their objectives and how they can make further progress in the IR.

### Focus on Achievements

Monitoring, assessing and improving the system should be results-oriented, focused on what has been achieved and implemented, not on pointing out what is missing and what hasn't been achieved yet.

Taking the above principles of monitoring into account, the progress assessment criteria and indicators for the IR will be established by the Design Groups who initially created the Roadmaps.

In order to enhance the effectiveness of the IRs and AMS, the government of Korea will strengthen the network among different water-related organizations and governments concerned by holding annual progress meetings to evaluate IR execution and regularly posting detailed information regarding IR execution and performance. With this, it is expected that innovative ideas from the 7<sup>th</sup> World Water Forum will be successfully put into practice while attracting consistent attention from the global water community. 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 the AMS and confirmed at the 8<sup>th</sup> World Water Forum event to be held in 2018 in Brazil.

## Daegu and Gyeongbuk Implementation Commitment (DGIC)

To strengthen the power of executing the 16 Roadmaps and to express a strong will for implementation, the Daegu & Gyeongbuk Implementation Commitment (DGIC) was signed at the Closing Ceremony of the 7<sup>th</sup> World Water Forum. The DGIC emphasized: the significance of the IRs and AMS; the pivotal role the World Water Forum plays in the global water sector; the need to consider sociological, economic and environmental aspects in water-related challenges; the need to resolve problems; and the establishment of the solution execution mechanism, all of which were topics discussed in the 7<sup>th</sup> World Water Forum.

It is noteworthy that the declaration of the DGIC is not just the result of discussion between the National Committee for the 7<sup>th</sup> World Water Forum and the World Water Council, but also includes signatures of 20 different global water-related agencies that participated in the preparation of the IRs and have volunteered to become champions for moving action plans forward.

The establishment of the IRs and declaration of the DGIC were very meaningful achievements of the 7<sup>th</sup> World Water Forum. However, the pressing issue today is the actual execution of the IRs. Through execution, it is necessary to confirm that the world's water-related challenges can be overcome and transformed in a positive direction, no matter how small the change may be. Working Groups of the 7<sup>th</sup> 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 progress recorded in the AMS should be closely linked to the 8<sup>th</sup> World Water Forum, resulting in sustainable activities. Furthermore, it is also necessary to try to utilize the IRs by closely associating them with the objectives, strategy implementation, and evaluations of the water-related SDGs after 2015.



Daegu-Gyeongbuk Implementation Commitment Ceremony, EXCO Daegu

## Conclusion

The DGIC is not a treaty signed between two governments, but rather a voluntary commitment made by a variety of stakeholders. Supported by the IRs, it is a concrete vision for shared action organized under 16 main themes to overcome water-related challenges. The IRs represent an opportunity for the global water community to proactively contribute to achieving the SDGs under the UN's post-2015 Development Agenda.

The IRs and AMS in and of themselves will make significant contributions to solving water issues, but they can also serve to support networks of exchange for water-related communities of practice. Holding annual IR progress meetings will call upon leaders from industry, academia, and research institutions to come together and address key water sector agendas.

The IRs are a monumental achievement which builds upon international networks galvanized over nearly twenty years of World Water Forum history. Looking to the future, utilizing and nurturing these networks will expand the IRs' role in overcoming global water challenges.

# Envisioning the Future of Water with Water (Ministerial, Parliamentary, and Local and Regional)

## Background of the Political Process

The objectives of the Political Process include facilitating dialogue between national governments, parliamentarians, and local and regional authorities on water issues that are relevant to national agendas 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, holds special meaning in formulating actions for the global water agenda. It is the target year of the Millennium Development Goals, which will be followed by a new global sustainable development agenda to be confirmed at the UN Summit on Sustainable Development in September. It is also a unique opportunity to strike an ambitious agreement towards a climate-resilient world in the UNFCCC CoP21, in December in Paris. 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.



Ministers came together at the 7<sup>th</sup> World Water Forum, EXCO Daegu

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 an extensive preparation process stretching over a year, which culminated in the Ministerial Declaration and High-Level Roundtables, Parliamentary Statement, and Daegu-Gyeongbuk Water Action for Sustainable Cities

## Declarations of the Political Process

The three unanimous declarations, representing the political will of each Conference’s participating policy makers, acted as a symbolic opportunity to highlight the uniqueness of the 7<sup>th</sup> World Water Forum – at the frontline in bridging practice and policy.

The World Water Forum, since its birth in 1997, differentiated itself from other water events in that politicians participated directly, voiced their opinions, and established important milestones in water issues during the World Water Forum. This time, was no different. Actually, the 7<sup>th</sup> World Water Forum went a step further.



Speakers of Parliaments having a small teatime before the Parliamentary Conference, HICO, Gyeongju

The other Processes of the 7<sup>th</sup> World Water Forum provided direct input into the declarations of the political process – in particular, the Ministerial Declaration and its annex, which contained important messages from the Thematic, Regional, and Science and Technology Processes.

The Ministerial Declaration focused on participating governments’ political will and commitments as well as national policies, plans and actions to advance water-related cooperation at 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, ensuring progressive access to water and sanitation for all. Regarding the global sustainable development agenda, the heads of delegations supported the inclusion of a dedicated water goal and water-related targets in the Post-2015 Development Agenda.



Ministerial Roundtable, Hyundai Hotel Gyeongju

Implementation, the core value of the 7<sup>th</sup> World Water Forum, was emphasized throughout the Conference. In particular, the heads of delegations were particularly interested in the “Implementation Roadmaps”, along with the Action Monitoring System, which could contribute to implementation and monitoring for water-related goals in the Post-2015 Development Agenda. They also underscored Integrated Water Resources Management (IWRM) and its relation to food and energy needs as an effective approach for harmonizing increasing water, food and energy requirements in a sustainable way in the future.

Recognizing that water is one of the major issues in tackling climate change, the heads of delegations also 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).



Ministerial Plenary, HICO Gyeongju

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 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.



Ministerial Plenary, HICO Gyeongju

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 appropriate technologies in line with policy enactment. Delegates 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, 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 7<sup>th</sup> World Water Forum”, an outcome document finalized by consensus through discussion

among government delegates during the course of the three 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 16 themes of the Thematic Process, the Recommendations incorporated novel and innovative suggestions to overcome water-related challenges. The need to reinforce the ongoing process to create an intergovernmental panel on water-related matters as well as a robust intergovernmental institutional mechanism to establish an innovative platform to bring together science and 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 and in achieving equitable access to water for all and for all uses, including sanitation.

Ministerial Roundtables were 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.

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. Seventy-one members of parliaments from 27 countries participated in the conference, including 6 Speakers of Parliaments, and 4 vice-speakers of parliaments. Participants reaffirmed the need for reinforced means of access to information and experience among actors and also agreed that active youth participation can be an important factor in solving water issues. Participating parliamentarians adopted the Parliamentarian Statement which urged the international community to give water issues more consideration during budget allocation. Furthermore, they committed to advancing cooperation in fields such as legislation related to climate change, transboundary water management, and water as a human right.

The Local and Regional Authorities Conference took place in April 13<sup>th</sup> – 14<sup>th</sup>, 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.

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.



# Creating Sustainable Engine for Implementation: Scientific and Technological Solutions

## Rationale behind the Science and Technology Process: *Understanding the Multi-faceted Aspect of Water Science and Technology*

There is little question that science and technology must play a critical role in forming successful solutions to the world's existing and emerging water problems. However, the science on which solutions must be based does not fall within a limited single discipline, but rather is truly multidisciplinary and inherently interdisciplinary. As the largest multi-stakeholder gathering on water, the 7<sup>th</sup> World Water Forum, with the core value of implementation, was the perfect place to define science and technology's role in resolving water challenges.

By introducing the Science and Technology Process, the 7<sup>th</sup> World Water Forum provided practical and informative guidelines, based on lessons learned from best practices and successful applications of relevant water science and technology where they are needed. This new Process was expected to provide opportunities for innovative and appropriate science and technology and engineering services to actively engage in global water issues. In addition, activities throughout the World Water Forum preparation led experts to develop and promote a robust and practical network for international water sector cooperation. Furthermore, interlinking policymakers and corporate decision makers was a distinctive characteristic of the new Process.

In this regard, it was very meaningful that Dr. Pavel Kabat, in his inspirational speech at the Opening Ceremony of the Science and Technology Process, emphasized that water should be considered an opportunity, not a problem. If we tackle water issues wisely and practically, current global water challenges could indeed be our opportunity to develop water-related technologies, bolster water governance, and consequently narrow global disparities in water supply and scarcity. In order to meet those goals, the Science and Technology Process had the following objectives:

- Improve the understanding of the role of science and technology in innovating the water sector, covering cutting-edge technologies, 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-how and lessons learned;
- Create market and network opportunities for water problem owners and science, technology and engineering solution providers.



STPC Co-Chairs (Dr. Sangman Jeong, Dr. Glen Daigger)  
Science and Technology Process Opening Session, EXCO Daegu

In order to achieve these objectives, as it was highlighted in every Process during the whole World Water Forum, the Science and Technology Process emphasized that scientists and policy-makers alike should improve communication and education for water managers, decision makers and members of the public. Through effective communication and outreach programs, existing science can be used to its fullest potential in the development of comprehensive strategies for addressing various global water problems.

The importance of effective outreach and communication extends beyond the challenge of fashioning new and innovative scientific solutions to the water problems of today and tomorrow. These problems are daunting, and existing science will fall short of solving them. New scientific advances necessary for managing intensifying water scarcity and other emerging global water problems will also have to be expanded and communicated to form the basis for new technologies, management strategies, and policies.

Undoubtedly, solving water issues will require innovative research and new scientific information.



Dr. Pavel Kabat, Director General/CEO - IIASA  
Inspirational Speech at the Science and Technology Process Opening  
Session, EXCO Daegu

As Process Commission Co-Chair Professor Sangman Jeong highlighted in the Opening Session of the Science and Technology Process, water will become more and scarcer as populations grow and the developing world seeks new levels of economic growth. The fundamental scientific understanding of hydrologic processes and climatological processes must grow apace. New developments in science and its applications will also need to extend to the social sciences in order to enhance understanding of human behavior towards water resources and improve institutions for governing and managing water. Innovative science must be focused not just on filling the gaps in knowledge, but also on correcting many of the misunderstandings about the fundamental nature and behavior of water. In addition, a new science of sustainability will be needed to brighten prospects for managing and solving the world's emerging water problems.

The Science and Technology Process, as the symbol of the 7<sup>th</sup> World Water Forum, strived to communicate the interconnectedness of science, technologies, policies and governance and promote the role of science and technology in cooperation with other fields in resolving water issues throughout the entire World Water Forum preparatory period and the World Water Forum week.

## Enhance Awareness of Scientific and Technological Solutions for Five Primary Global Water Issues

To enhance awareness of the role of innovative and appropriate science and technology, the Science and Technology Process structured its process around five primary issues, called Main Focuses. These aimed to provide accessible information and knowledge to World Water Forum participants to improve

understanding of imminent water issues, notably through the commissioning of a Science and Technology Process White Paper.



Science and Technology Process White Paper Launching  
Ceremony, EXCO Daegu

The five Main Focuses were the pillars on which science and technology has continuously been developed for water supply and management. A total of 40 sessions were organized around the five Main Focuses of the Science and Technology Process which are summarized below:

### • 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. Water security won't achieve 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 can scale it up quickly to sustain urban, agricultural, industrial and energy systems everywhere.

Efficient water management is defined as using improved technologies and practices that deliver better service with less water. Recently, many crises have reduced water management efficiency in the industrial, urban, and agricultural sectors and energy efficiency in water management systems. Main Focus 1 outlined the past and present of water management and suggested techniques to use in the future for efficient water management. Presenters from the five sessions, under the proposed theme, tested innovative technologies for immediate use based on their experiences and know-how.

- Estevan Lopez, Commissioner of the US Bureau of Reclamation, 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.

#### • Resource Recovery from Water and Wastewater 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 odors 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.

Resource recovery from water and wastewater systems is recognized as a potential source of recovering water, energy nutrients and other materials. At the same time, wastewater reuse in agricultural, industrial and urban applications is gaining momentum. This area is now a rapidly developing field where science, technology and practice come together. The Sub-Focus areas brought together a number of advanced technologies that are implemented in various fields: nutrient recovery and wastewater reuse in agriculture; energy and heat recovery from water and wastewater; high-value resources recovery from water and wastewater; advanced technologies and scientific innovations in water and wastewater reuse, resource recovery, and desalination; and social and economic aspects of wastewater reuse and resource recovery. The five sessions discussed the sub-themes in depth and stressed the crucial role in advancing resource recovery from water and wastewater.

#### • Water and Natural Disasters

In recent years, water related disasters – floods, droughts and storms – have grown more frequent, affecting 4.2 billion

people, causing USD 1.8 trillion in economic losses, and accounting 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.

According to the UN World Water Development Report, the Asia-Pacific region is the most vulnerable region to natural disasters on the planet. For example, Malaysia and Indonesia are known for their rich water resources. But the increase in population and demand for water, environmental degradation and excessive use of underground water supply disruptions in major cities in these countries deteriorates water quality. Additionally, from 2000 to 2009, excluding deaths from the 2004 tsunami, an average of 20,451 people died in this region from water-related disasters annually. Disasters such as the 2004 tsunami and 2004 floods in Thailand exponentially exacerbated damages. In order to minimize the impact of water-related disasters, science and technological efforts are needed more than ever.

In terms of climate change, the link between climate change and water-related natural disasters is clear. The serious consequences of climate change are already being discussed throughout the international water community. During the 7<sup>th</sup> World Water Forum, Main Focus 3 overviewed advanced technologies and measures to tackle climate change and water. Under the five Sub-Foci (Climate change: impact assessment and adaptation; Drought analysis and management; Urban floods and damage reduction studies; RS and GIS applications for natural hazards; Water-related disasters: risk management and sustainability), experts engaged in deep discussion of practical and applicable technologies for preventing and managing water-related natural disasters.

- Dr. Young-il Song, the Co-coordinator of Main Focus 3, strongly emphasized in the Concluding Session that among many pressing issues, climate change and natural disasters are the major challenges requiring interlinked mechanisms led by both scientific experts and policy makers with the consensus of the international water community.



Science and Technology Process White Paper

### • 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. Pharaohs and farmers alike depended utterly on this 'smart' tool. They 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.

New water management technologies which are differentiated from conventional methods are required to tackle current global water problems. Thus, Smart Technology for Water based on Information and Communication (ICT) was selected as one of the Main Focuses

for the Science and Technology Process. Smart technology can be a key in maximizing water management efficiency and provide insights into the future of water. International experts presented over five sessions on the Sub-Focuses: Advanced monitoring technology for water management; Integrated and intelligent water resources management and smart technology; Smart urban water management; Smart water grid and standardization of Smart Technology; and Water resources management and big data. The presentations clearly demonstrated the benefits of smart technology for water, particularly ICT-based water technology, and standardization of smart technology as a solution to water challenges.

- In particular, Session 4.1 Understanding Water Cycle: Advanced Monitoring Technology for Water Management (coordinated by NASA, HSC, Colorado State University, Pusan National University, and Dongeui University) focused on appropriate infrastructure and monitoring technology and management. In Session 4.4 Smart Water Management for the Public by using ICT: Design, Implementation and Standardization, the Working Groups (IBM, DHI, PUB, @AQUA, ETRI, and K-water) emphasized the process of standardization to make smart water management applicable across regions.

### • Understanding and Managing Ecosystem Services for Water

Water is essential to life. Headwaters collect it. 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.' However, 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.

Main Focus 5 sought to identify the opportunities to further scale-up and replicate technological innovations. It proposed a new paradigm for Nonpoint Source (NPS) management, Low Impact Development (LID) and the Green Storm Water Infrastructures (GSI). In response to growing awareness, new regulatory requirements are being set and applying LID and GSI wherever feasible was strongly encouraged in the sessions. Moreover, Session 5.2 focused on providing information and place for discussing to open the paradigm lock between science and technology community and water policy makers who have struggled to manage complex interactions between biological diversity, climate change, land use change and freshwater use limits and constraints. Presenters and participants discussed using science and technology to avoid crossing the critical four (of the nine) planetary boundaries. In addition, Main Focus 5 introduced the WEFE NEXUS concept to

the stage as a primary theme and explored the role of science and technology in applying the NEXUS and understanding each sector in a holistic manner.

- Professor Lee-hyung Kim, Co-coordinator of Main Focus 5, emphasized at the Concluding Session that urban LID policies to integrate retention, infiltration, and circulation could aggregate across groups and collaborative efforts to yield massive regional benefits; he also stressed that recognizing people and nature as inextricably linked is the prerequisite condition for development. Policy and research were also considered closely related to advanced technologies in the sector of ecosystem services for water.

The Science and Technology Process identified these 5 Main Focuses as critical areas requiring coordinated efforts by stakeholders to optimize results and realize implementation of solutions.

Along with organizing six sessions for each Main Focus to present what Working Groups had discussed over the past two years, the Science and Technology Process Commission of the 7<sup>th</sup> World Water Forum distributed the STP White Paper which was designed to supplement understanding of the Main Focuses. The STP White Paper was designed by water experts, international water institutions, and leading academics to be accessible to the public. The STP White Paper reviewed past technologies, summarized the present, and illuminated the vision of relevant technology for the future; it will serve as a guide of relevant science and technology for each Main Focus.

- As Dr. Glen Daigger, Co-chair of the STP Commission, emphasized in the STP White Paper Launching Ceremony, the STP White Paper is the legacy of the Science and Technology Process that provides the most efficient way to understand the imminent water issues that we are facing now in very accessible and comprehensible way.

## Creating Nexus Thinking among Stakeholders for Implementing Solutions

'Nexus thinking' in policy and academic discourses now seeks to challenge traditional distinctions between sectors. Cooperation is necessary not only between sectors or themes, but also between actors from different levels (for example, from working-level to high-level, on-the-ground practitioners to decision makers) and different fields. In this sense, policymakers' involvement in applying science and technology to regional issues and corporate involvement in the process of policy decision-making are strongly encouraged. Currently, the international community faces many

different and often interconnected urgent issues which can only be solved with multi-faceted approaches.

The Science and Technology Process, driven by this perspective of seeking a nexus approach among relevant stakeholders and fields that were previously disconnected, aimed to provide a venue to construct the nexus mechanism, facilitating the necessary steps and involvement of actors from various fields to set a common goal and execute tangible, collective action. In this regard, one of the meaningful aspects of the Science and Technology Process was that the process attracted actors with technology, experience and know-how that is immediately applicable to other areas. It is important to note that the private sector is increasingly recognizing the nexus concept. It is now clear that joint approaches with business can result in increased efficiency. Nexus thinking is compatible with the way that many businesses now approach corporate social responsibility and sustainability.

In order to realize this nexus thinking between sectors and actors, the Science and Technology Process introduced the CEO Innovation Panel, a program that was highly praised for creating a venue for discussing development and application of water-related policy and facilitating business exchanges. CEOs of global water-related companies, high-level government officials, and international organizations with water expertise were invited to three panel sessions.



Science and Technology Process CEO Innovation Panel,  
Hotel Interburgo EXCO Daegu

The following themes were selected in order to attract both corporate participants and policy analysts and policymakers and address their needs together.

- Session 1. Fostering Innovation: Technology developers, water industry companies and venture entrepreneurs examined challenges and policy alternatives for water innovation in this session. Discussion centered on successful new investment cases that achieved innovation in the water sector and the role

of the finance and insurance sectors to facilitate innovation of successful ideas. The session concluded that social and cultural growth should take place in parallel with the development of science and technology to achieve practical growth. In addition, the session concluded that this objective can be achieved through participation and close cooperation between businesses, government, civil society organizations and politicians.

- Session 2. Sustainable Development Goals and Stewardship: This session discussed how companies can contribute to achieving water-related SDGs effectively from the science and technological perspective. Panelists discussed the responsibility of water-related companies in correlation with SDGs and feasible target achievement. To find a truly sustainable way to manage the water cycle, companies around the world have started to adopt a water stewardship approach that takes into account water use and management across their value chain. To do so requires leadership, cultural change, and innovation within the company and beyond company boundaries in working with many stakeholders. Governments have agreed upon the SDGs as common goals; now both corporations and governments, along with the leadership of international organizations should explore ways to join the effort to achieve collective action. 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 also touched on the direction of CSR activities of leading companies. Participants agreed that it is critical for companies and civil society organizations to communicate on CSR activities (water stewardship).



Interaction between Panelist and Audiences during the CEO Innovation Panel of the Science and Technology Process, Hotel Interburgo EXCO Daegu

- Session 3. Building Water Resilience for Cities: It is increasingly 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.

#### • 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 has 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.*

Throughout three CEO Innovation Panels, the 7<sup>th</sup> World Water Forum tried to make a place where stakeholders could simultaneously discuss the role of corporations and government towards the common goal for water and our future, emphasizing the important role of science and technology implementing plans to achieve common goals.

By doing so, actual decision makers and analysts from corporations, government and academia not only discussed practical methodologies, but also enhanced their understanding of the interconnected mechanism for collective action. We believe this program constructed a solid foundation for building the nexus concept, incorporating actors of all levels from various fields, including businesses and corporations, in dealing with world water issues and practical solutions.

## **Conclusion**

Introducing the Science and Technology Process, a new concept and framework, as a major pillar of the World Water Forum was not an easy process. It required a multi-disciplinary and inter-disciplinary approach, encouraging diverse actors from various spheres to engage in the process and consider the role of science and technology in solving water issues. This cross-sector cooperation and collaboration is a prerequisite for achieving our common goals. Most importantly, all the activities and achievements of the Science and Technology Process would not have been possible without the constant support and participation of representatives from corporations and governments who did not hesitate to be involved in this tough journey. Their valuable insight presented where we are today and what we should do in the future. Additionally, the Working Groups 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 works. The 7<sup>th</sup> World Water Forum successfully highlighted the role of science and technology within the current interconnected context, illustrated what areas of the nexus structure need more awareness, and promoted cooperation between sectors and actors.

# Enhanced Regional Balance

## Background

The 2015 UN World Water Development Report describes achieving 'The Future We Want' for water:

"Water management is the responsibility of many different decision-makers in public and private sectors. The issue is how such shared responsibility can be turned into something constructive and elevated to a rallying point around which different stakeholders can gather and participate collectively to make informed decisions (Water for a Sustainable World, UN WWDR 2015)."

In addressing the issue of global water management, it is crucial that all regions across the globe are well represented and more stakeholders are involved in discussing water issues faced by the international community.

To this end, the World Water Forum invited political leaders from as many countries as possible, involved a variety of nations from developing countries to developed ones by providing financial assistance programs, and strived to directly involve people from different spheres, including the public and business sectors, academia, research organizations and civil society. Of the main pillars of the World Water Forum is the Regional Process, which classifies regions by geographic characteristics and recruits and involves Working Groups by those same categories. This system is one of the most fundamental arrangements to ensure input from around the world.

Going one step further, the 7<sup>th</sup> World Water Forum adopted a new category in the Regional Process to promote regional balance as well as a novel scheme to facilitate cross-regional dialogue, disseminating solutions to water issues across geographical boundaries and enhancing implementation capabilities.

## EWI-Classification Going beyond Geographical Proximity How EWI Was Developed

The previous regional classification divided the world into four large continental regions (Africa, Americas, Asia-Pacific, Europe) and two to three cross continental regions based on geographic boundaries, e.g. Arab and Mediterranean. It allowed regional Working Groups to identify and develop issues of their respective regions.

With regard to this classification, however, suggestions were raised at the Kick-off Meeting of the 7<sup>th</sup> World Water Forum held on May 13<sup>th</sup>–15<sup>th</sup>, 2013 in Daegu that proper attention should be paid to not just different aspects of objective water issues, but to the political and social characteristics of each region. The suggestions prompted the Regional Process Commission (RPC) to review the possibility of adopting a new category. After rounds of preliminary meetings, the RPC decided to add the category of an Economic Water Scarce region. And then, the concept of water security was incorporated into the existing term, creating the new classification of Economically Water Insecure, or EWI.



EWS (EWI) regional break-out session, 2<sup>nd</sup> Stakeholders Consultation Meeting Hyundai, Gyeongju

## What is EWI?

Water scarcity describes inadequate access to water resources and is different from water stress, a term that describes insufficient availability of renewable water resources.

Water stress refers to the ratio of water use to total available water capacity – using more water increases water stress. In an EWI situation, however, access is limited not by the availability of water resources, but by human, institutional, and economic factors surrounding resource distribution.

While physical water scarcity refers to inadequate access due to high water stress, EWI describes a situation where access is limited despite low water stress levels.

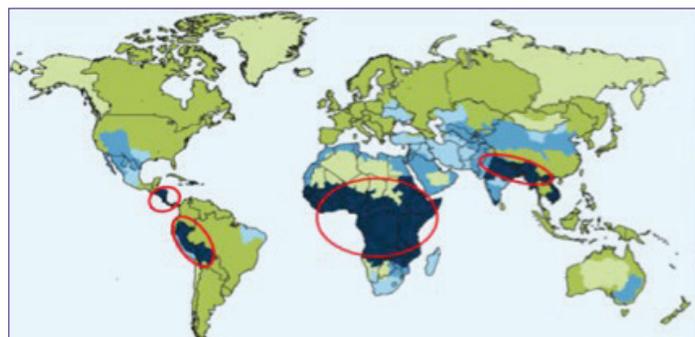
As for the concept of water security, the UN-Water defines it as, “The capacity of population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution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

Therefore, EWI encompasses the two concepts above and is defined 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).”

In order to address all the challenges above, the 7<sup>th</sup> World Water Forum discussed common issues and concrete solutions for developing countries that have abundant water resources but still suffer from water scarcity due to economic instability, a result of inadequate infrastructure and other factors.

Coordinated by the Global Water Partnership and K-water, with the support of the Asian Development Bank (ADB), Development of Latin America (CAF) and Africa Development Bank (AfDB), the EWI process identified a number of implications for regions.

The ever-increasing demand for water has placed many regions under varying degrees of water stress, necessitating a management scheme to ensure sufficient supply when water is limited. The concept of EWI, an overarching term that encompasses water stress and the paradox of abundance and scarcity, will likely serve as a basis for designing a water management schemes aimed at adequate supply for future economic growth and development.



World Water Development Report 4<sup>th</sup> edition  
 – Global Economically Water Scarce Regions Source -  
 Comprehensive Assessment of Water Management  
 in Agriculture (2007, map 2.1, p. 63, © IWMI,  
<http://www.iwmi.cgiar.org/>)

## Present and Future

This broader regional classification system adopted at the 7<sup>th</sup> World Water Forum is designed to address cross-regional water issues. The new category was created to include previously marginalized stakeholders who, despite being plagued with water issues, had difficulty participating in key discussions. It paved the way for enhancing regional balance and provided a new venue for discussing and sharing solutions to water issues.



Dr. Thomas Panella, ADB , EWI Regional Session  
 – Economically Water Insecure regions (EWI):  
 Framing the issues, HICO Gyeongju



Mr. Haksoo LEE, Vice President of K-water,  
 EWI Regional Session – Sustainable Development in Economically  
 Water Insecure Regions, HICO Gyeongju

## New Inter-Regional Sessions

While it is important to ensure regional balance, it is equally important to continuously improve the overall balance through constructive discussions.

With different regions having different priorities in their discussions, it is important to remember that key global issues, such as climate change adaptation and mitigation or water and food security - although they manifest themselves differently from region to region - stem from the same causes. As each region explores solutions to water-related challenges, sharing and leveraging experiences and ideas from other regions will deepen and enhance the level of discussions.

In line with this understanding, the 7<sup>th</sup> World Water Forum launched Inter-Regional Sessions to bring various stakeholders together to share their current states as well as their experiences and success stories around common themes.

## Dialogue between Regions

While Regional Sessions took place separately, the Inter-Regional Sessions included joint Opening and Closing Sessions where regions with similar issues could share their experiences and ideas.

For example, the issue of water and food security brought together the five regions of Africa, Americas, Asia-Pacific, Arab and EWI, and the five sessions assigned to those regions were integrated into a single session. Participants presented their ideas on food security discussed in their respective regions at separate segments and jointly held Opening and Closing Sessions on Water and Food Security in a Changing World where they worked towards a more fruitful outcome.

- Inter-Regional Session example: Water and Food Security Session for five regions

| Inter-Regional Session<br>(a series of sessions on the same date at the same location) |                 |   |
|--|-----------------|---|
| Order  | Session Code    | Region  |
| 1  | INR.2.1.opening | 5 regions<br>(Africa, EWI, Arab,<br>Asia-Pacific) |
| 2  | INR.2.1.AF      | Africa  |

|   |                 |   |
|---|-----------------|---|
| 3 | INR.2.1.AM      | EWI   |
| 4 | INR.2.1.EWI     | Arab  |
| 5 | INR.2.1. AR     | Asia-Pacific                                      |
| 6 | INR.2.1.closing | 5 regions<br>(Africa, EWI, Arab,<br>Asia-Pacific) |

*\* One Inter-Regional Session is composed of five regional sessions*

- Regional themes for Inter-Regional Sessions
  - Climate change adaptation and mitigation (Africa, Americas, Asia-Pacific, Europe and Mediterranean region)
  - Water and food security in a changing world (Africa, Americas, Arab, Asia-Pacific and EWI regions)
  - Enough safe water and integrated sanitation for all (Africa, Americas, Asia-Pacific and Mediterranean region)
  - Living with water in cities of tomorrow: challenges and ways forward towards implementation of solutions (Asia-Pacific, Arab and European regions)
  - Transboundary water management (Africa, Arab and European regions)
  - SMART implementation of IWRM (Asia-Pacific, Arab and Mediterranean regions)
  - Effective governance (Americas, EWI and Mediterranean region)
  - Linking science & technology for managing global water challenges (Europe and Mediterranean region)
  - Strategic water infrastructure development for sustainable water resource management and services (Africa and EWI region)
  - Facilitating the interregional cooperation for better water and sanitation service provision through information and experience for the Caribbean and the Pacific (Americas and Asia-Pacific)
  - Water and energy for green growth (Asia Pacific and Europe)



Inter-Regional Session for 5 regions  
 – Climate change adaptation and mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean region, HICO Gyeongju



Inter-Regional Session for Americas, Mediterranean, and EWI regions – Is Effective Water Governance a myth? Challenges, opportunities and responses from the Mediterranean HICO Gyeongju



Inter-Regional Session for Africa, Americas, Asia-Pacific, Arab and EWI regions – Water and food security in a changing world, HICO Gyeongju



Inter-Regional Session for Africa, Americas, Asia-Pacific, Arab and EWI regions – 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 HICO Gyeongju

## Present and Future

The adoption of Inter-Regional Sessions strengthened cooperation among different regions while maintaining the independence of Regional Sessions. It also paved the way for better sharing of experiences and ideas by facilitating dialogue between different regions and promoting exchange of solutions and success stories.

It is felt that Inter-Regional Sessions would be of benefit to future World Water Forums. This will require active communication and discussions among regions from the early stages of World Water Forum preparations, which will, in turn, lead to deeper interaction among stakeholders and better use of the framework.

Another important challenge is to develop clear solutions to water issues by region to address their specificities, while emphasizing concrete plans and results so the Regional Processes can further strengthen the characteristics that sets it apart from other Processes.

Please find the produced documents and join in 'follow-up actions' of the 7th World Water Forum at [www.worldwaterforum7.org](http://www.worldwaterforum7.org)