

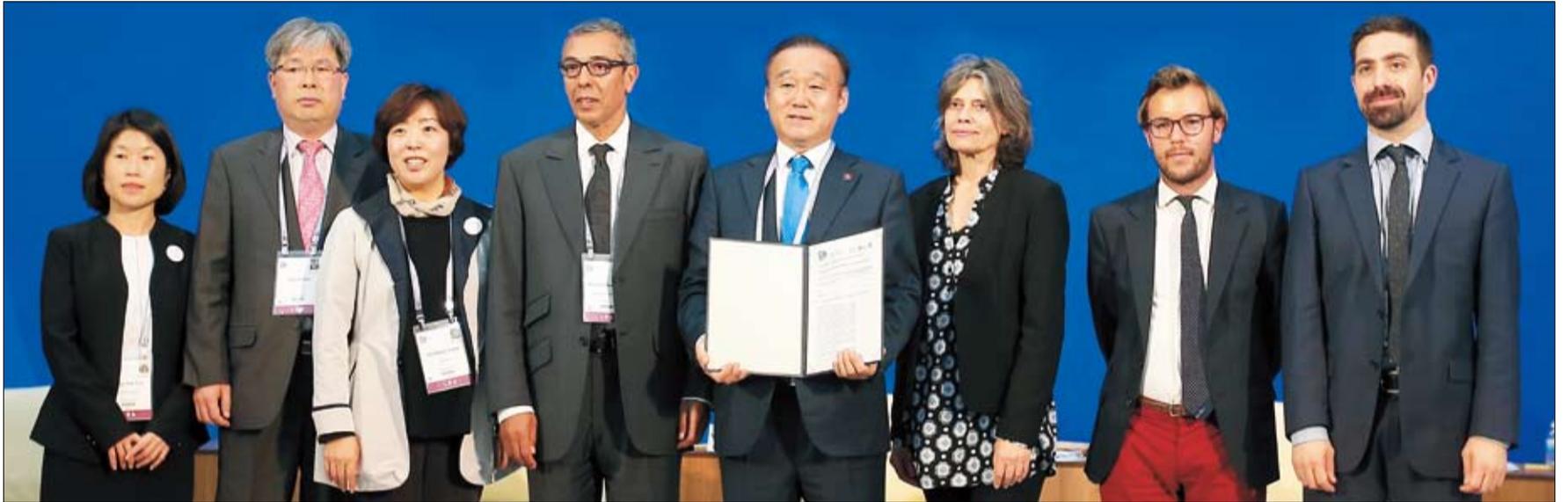
April 12-17, 2015, Daegu & Gyeongbuk, Republic of Korea

# 7<sup>th</sup> WORLD WATER FORUM

Water for Our Future

<http://eng.worldwaterforum7.org>

Wednesday, April 15, 2015 | Day 4



Participants in the 4th Local and Regional Authorities Conference, including Choi Yang-sik, Mayor of Gyeongju (fifth from left) at HICO yesterday with their new 'Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions' document, which emphasizes the role of local governments in addressing water issues.

## Water action plan foresees national-local links

Local and provincial governments from 26 countries endorsed the “Daegu-Gyeongbuk Water Action for Sustainable Cities and Regions” document yesterday as a result of a two-day conference which discussed ways to promote sustainable water management at the municipal level.

The document acknowledged the importance of local governments’ roles in resolving water issues at the national and global levels. It also called for collaboration with central governments to work on water challenges more effectively.

Ninety-five local and provincial governments’ representatives attended the conference, which is part of the political process program at the 7th World Water Forum. The document announced by the local governments group focused on two themes: building on strategies at the municipal level, and asking national governments to allow local governments to help create enabling environments.

Among many strategies set out by the document, the most imminent issue was how to take advantage of the announcement of the Sustainable Development Goals, which will be selected in December, and increase the awareness of water challenges on the global stage. The conferees pledged to cooperate with their national governments to make sure that happens.

After the SDGs are selected, the local governments pledged their best efforts to achieve the goals by the 2030 deadline through close consultations and cooperation with national officials.

They also promised to promote further development by creating an alliance with

other parties related to water industries.

The group also stressed the need for locally feasible solutions, a reference to the principles included in the “Istanbul Water Consensus,” the outcome document of the Local and Regional Authorities Conference at the 5th World Water Forum in Turkey in 2009.

The water action document said local government officials would strengthen existing water laws and work closely with other management sectors such as urban planning.

### *Municipal plans for water security are necessary, group said, but with national government backing*

It also contains a pledge to do more to work with relevant stakeholders, including small water plant operators and especially to work with people in vulnerable positions: those affected most severely by poor water management or who are living in informal settlements.

Another important outcome of the two-day meeting was the launch of a Korean initiative “Sustainable Basin Management in Urban Areas,” a Korean government pilot project that promotes sustainable watershed management for urban areas.

Korea will be an early implementer of the decisions made at the conference as it organizes a joint effort by all levels of government bodies that are related to water management and the prevention of flood damage by rivers.

The launch of this project follows Korea’s abnormal weather conditions of late because of climate change. The unusual weather increases the size of areas subject to torrential rain; in addition, Korea’s rapid urbanization has meant an expansion of land area impermeable to rain.

Although big streams in Korea have seen continuous maintenance by the government that has worked out well so far, investment in the maintenance of small and medium streams are still lagging.

The existing support programs have

been separately established by local and national governments and private companies, resulting in overlapping financing and ineffective management.

The government’s objective is to decrease those budgets by 20 percent by coordinating the separate projects carried out by different ministries into a unified one.

The implementation of this pilot project will be led by the Ministry of Land, Infrastructure and Transport and a special Watershed Management Committee comprised of the Ministry of Environment, Ministry of Agriculture and Forestry, Ministry of Public Safety and Security and private companies.

A total of 21 rivers has been selected for this project, including Sin-cheon in Gyeonggi Province, the Joman River in South Gyeongsang Province and Cheonan-cheon in

South Chungcheong Province.

The development plan will be finished by the year of 2018, allotting a budget of 2 billion won for each unit. Full-fledged implementation of the project, such as building river maintenance facilities, flood channels and riverside undercurrent facilities, modifying drains and extending pumps will be completed by 2025.

The outcome of this pilot project will be talked about at the next World Water Forum in Brasilia, the capital of Brazil.

“Rivers that are managed by the national government are securely maintained, but if something happens in local [rivers], the restoration project has to be financed by the national budget. If the central government, local government and private companies jump in together to propel this business, it would be very cost-effective,” explained Kim Jung-gi, director of the River Division of Gyeonggi Province.

Remarks at the closing of the conference at HICO in Gyeongju showed the satisfaction that organizers and hosts took from the results.

“Although it was only two days, it was a precious opportunity in the sense that people gathered at one place to discuss the water problems that the earth is facing. Following the Mayors’ Panel on the first day and a heated discussion in the breakout session, we were able to approach the problem in a diverse and in-depth way. I regard it highly that such a consensus came out as a result. We should implement what was talked about here into real policy,” said Joo Nak-young, the vice governor of Gyeongbuk.

## Interview with World Bank Senior Director

## Clean water keys: partnerships, financial leverage and citizen input

Water challenges have emerged as one of the primary problems that global society must solve. At the 7th World Water Forum, the urgency is apparent, as shown in the active participation of leaders and senior officials from more than 100 countries, all discussing possible solutions and plausible methods to implement them.

One of the participants sharing his expertise in water management and water services delivery is Junaid Ahmad, the senior director of the Water Global Practice at the World Bank Group.

He has more than a decade of experience in the field, especially in water economics. He said in an interview at the forum that water is a fundamental factor in all aspects of society and the economy. In the future, he added, when natural disasters such as floods and drought will increasingly loom over us, appropriate strategies for resilience are urgently needed to avoid significant economic costs.

**Q.** Can you explain the significance of this year's World Water Forum?

**A.** The forum is an important gathering for nations to exchange their experiences and to reach a global consensus about the way forward in the water sector. This forum also is an important occasion for the world to discover the success of Korea's water management strategy.

Korea is one of the few countries to implement successfully a strategy for universal access to sanitation, and that was the result of this country's political commitment and its ability to implement that political commitment. Today countries like India are trying to emulate that example.

The second point is how Korea actually manages its water storage. It created a hydraulic infrastructure such as dams and reservoirs, which changed the country from one that is water-stressed to one that is successfully managing the linkages between water and its economy. Today we are moving into a growing world of water insecurity. Korea has, over the years, established a framework for securing water.

Having the World Water Forum here is a very important door or entry point for the rest of the world to discover Korea's water strategy.

**Which water-related issue is the most pressing at the moment?**

A decade ago I would have said water and sanitation services; in other words, the supply of water and sanitation to households. But today the challenges have changed. I see three important ones.

First is how to create universal access to services. Second, especially in the context of climate change, is the challenge of water security: where will be the water come from and how will nations manage groundwater, river basins, watersheds, etc.? The third challenge is resilience – how do you build resilience to address economic, climatic, and health shocks like Ebola?



**Junaid Ahmad**

Senior Director, Water Global Practice, World Bank Group

There is an important common theme in these challenges. I believe that the failure to achieve universal access, water security and resilience is a failure of public policy, not of technology or finance. The real challenge is how nations create a political consensus to address water issues.

**It is interesting that you emphasize political agreement more than financial issues, because you are a member of an international financial institution. Why is that?**

It's a myth that finance is the issue. Do I believe more money is needed to solve the problem? Absolutely. Do I believe that more resources are needed to build water utilities, hydraulic infrastructure, and access to sanitation? Absolutely. But what I am saying here is that money will flow where there is good governance. And the water sector, if it strengthens its governance, will attract the money. If you put money ahead of governance, you have put the cart before the horse.

**Can you discuss some of the water programs at the World Bank?**

The World Bank is the largest financier of water programs. We finance the building of hydraulic infrastructure, delivery services, irrigation and the cleaning of rivers among other things. While we provide finance, ultimately it is not our money that makes the difference but our support to countries as they build their water systems and institutions. Why does China, Brazil or Indonesia borrow from the World

Bank? They don't need the additional money but they see the bank as a partner to bring global knowledge and implementation ideas, which leads to a stronger capacity for countries to deliver water. As we often say, "Don't fix the pipes; fix the institutions that fix the pipes."

Whenever we do financing, we finance by lending money to governments. But we also finance by leveraging our political risk insurance instruments so that private money can come in to finance the infrastructure. We try to use our money to leverage not only the government-owned money but also the private money so that every dollar in World Bank lending can be leveraged to three to five times that amount.

**Can you explain more about the process of how private money comes in to help build the infrastructure?**

Our money can be used in two ways. The first is to fund basic infrastructure so the private sector can fund the remainder. Our money can act as a guarantor to reduce political risk and attract private sector investments. Either way, we are "crowding in" private capacity and resources.

For example, we have supported countries such as the Philippines, Burkina Faso, Senegal and Guinea in attracting private sector operators in the delivery of services. In Guinea, our funding was used to build the basic infrastructure and ensure the inclusion of poor households. Importantly, we helped with the gradual improvement of services and financial sustainability. We helped the country create private-public partnerships for water management. But the problem was that you had to increase the tariffs, and you couldn't increase the tariffs if people didn't see good services delivery. So the World Bank paid 100 percent of the cost of the delivery and over time we reduced the subsidy. As the private sector showed its ability to deliver, people got more interested in paying for the services. So each year, our subsidy would fall and the citizens would pay a little more. That helped the transition to bring in private operators.

**What do you think is the key point in implementation?**

There is no magic bullet to ensure successful implementation – no "one size fits all." There are several elements of a framework, however. First, there has to be political ownership by government to support a reform process. Second, there has to be a clear direction. Political ownership is translated into pragmatic strategy and it has to be supported by a legislative endorsement. But, importantly, implementation needs to be managed incrementally. You cannot, for example, turn an inefficient water utility into a well-functioning one overnight. The final lesson we have learned is that the key issue in implementation is building institutions that are accountable to citizens – where citizens can clearly tell you whether they are receiving quality services. Then, I think, implementation has a chance of succeeding. If you put citizens at the center of service delivery, then it will be implemented well.



**World Water Forum** The World Water Forum is the world's largest meeting about water. Every three years since 1997, The World Water Council has held this forum on or about World Water Day (March 22). The World Water Forum consists of the Political Process, the Thematic Process and the Regional Process (a fourth, the Science and Technology Process, has been added at this forum). Government officials, legislators and local and regional authorities from more than 150 nations gather for the forum. Topics are developed in cooperation with the private sector, governments, industry, IGOs, NGOs and academic groups, and are presented in a common framework of goals and concrete targets to reach.

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2015 Daegu & Gyeongbuk



The nation's leading English newspaper  
**KOREA JOONGANG DAILY**

## High-Level Panel

# Post-2015 development to falter without attention to water issues

The World Water Council co-organized a high-level panel discussion yesterday called "Water is the Key for Sustainable Development: High-Level Panel on Water in the Post-2015 Development Agenda."

The panel met yesterday morning at the Hotel Hyundai in Gyeongju. In attendance were water-related ministers from Denmark, the Netherlands, South Africa and Switzerland. The president of the WWC, Benedito Braga, joined representatives of other stakeholders at the discussion.

The council organized the session, it said, to "urge policy makers and water stakeholders from all nations to maintain the momentum for a dedicated Sustainable Development Goal for water in order to achieve water security in all domains." The council challenged the water community to focus attention on how such a goal would be implemented. According to the council, water problems are the greatest societal risk in the coming decade. The impact of water on populations and societies worldwide shows that water security is increasingly important as a pathway to sustainable development.

As dialogue and negotiations for the Sustainable Development Goals enter the last round, the concentration and mobilization of stakeholders' efforts are needed to make



sure water is appreciated, not only as an end in itself, but as a means for sustainable development overall. The year 2015 is a vitally important one for the water community, the council said.

Braga emphasized that theme in remarks at the panel discussion.

"The year 2015 is an opportunity the world cannot afford to miss: we must invent our water future together," he said. "Today,

we gather in Korea at the 7th World Water Forum; in September, the United Nations General Assembly will adopt the Sustainable Development Goals; and we will end the year debating a global climate agreement in Paris in which water is to be recognized as a major factor to reach consensus."

He continued, "Our ability to build a water-secure future will depend upon our capacity to turn future challenges into opportunities. To succeed, we need the political decision-makers and the international community to come together to implement changes. There is no time to waste."

At the session, the high-level panelists discussed how to set a dedicated water goal as part of the post-2015 development agenda. They called for measurable targets and indicators in support of life, well-being, economic development and the environment.

The panelists, Kirsten Brosbøl, Denmark's minister for the environment; Choi Gye-woon, the CEO of K-water; Michel Jarraud, the chair of UN Water; and Yolanda Kakabadse, the president of the World Wide Fund for Nature, also discussed how goals and targets related to water will be implemented and monitored in the coming 15 years, in particular at the national and regional levels, in order to ensure true progress in achieving them.

## Special Session: International Water Conventions

Four international groups organized a special session to promote political support for two international water conventions that have languished without ratification by most countries of the world. The two treaties are the 2014 Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention), and the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention). The session was held yesterday afternoon at Grand Ballroom A of the Inter-Burgo Hotel in Daegu. The sponsors of the session were the United Nations Economic Commission for Europe, the World Wide Fund for Nature, the International Union for the Conservation of Nature and Green Cross International.

The session began with a video message from Ban Ki-moon, the secretary-general of the United Nation, who reminded the guests that more than 130 countries around the

world still had not ratified either of the conventions. The pacts' value, he added, remains unclear to many stakeholders, including citizens at large.

During the session, water-related government and civic group leaders from many nations discussed several issues surrounding the two conventions. They included Nomvula Mokonyane, South Africa's minister of water and sanitation; Yolanda Kakabadse, the president of the World Wide Fund for Nature; Sulton Rakhimzoda, Tajikistan's first deputy minister of energy and water resources; and Donald Kasongi, secretary general of Tanzania's Nile Basin Discourse Board. They explored the rationale for the two water cooperation conventions, legal pathways to broadening the number of countries ratifying them, the goals of the conventions and the potential benefits for business, agriculture, the environment, ordinary citizens and the people most vulnerable if water problems are not solved.

## Daegu gets expert advice on creating a new Korea Water Cluster

The Daegu Metropolitan City Government and the Korean Ministry of Environment organized a special session yesterday with scholars and decision makers interested in regional water clusters. The two-hour session was held at EXCO, Daegu.

The goal of the session was to gather information for a new project, the Korea Water Cluster, an industrial zone for water-related companies in the Daegu-Gyeongbuk region. Officials involved in the project exchanged ideas with experts from other countries who have been involved in launching similar projects.

Yoon Seong-kyu, the minister of the environment; and Kwon Young-jin, the mayor of Daegu City stressed the importance of private-public partnerships for innovative water industry development.

With Chang Woo-jin, a professor at the University of Wisconsin-Milwaukee as the group's moderator, officials from water-related organizations presented case studies on building such partnerships for industrial clusters to the Korean officials and the audience. Speakers included Junaid Kamal Ahmad, the director of global water practice in the World Bank Group; Julia Taylor, the president of the Greater Milwaukee Committee; and Yun Zu-whan, the president of the Korea Water Partnership.

After the presentations, panelists offered additional comments. They included Mamadou Dia, the president of AquaFed; Shinichiro Ohgaki, the president of Japan Water Research Center;



Daegu Mayor Kwon Young-jin opens a forum session yesterday at EXCO Daegu to discuss the city's new regional water cluster.

Mads Warming, the global segment director of Water & Waste Water; and Preston Cole, deputy commissioner of the Department of Public Works of the city of Milwaukee. The panelists discussed the importance of private-public partnerships for the sustainable development of a regional water cluster and the roles of the private sector and the public sector in developing a water cluster.

The panelists discussed the importance of private-public partnerships for the sustainable development of a regional water cluster and the roles of the private sector and the public sector in developing a water cluster.

After the panel discussion, the cities of Daegu and Milwaukee, the Water Council and the Korea Water Partnership signed a partnership agreement for water industry development collaboration.



Albert II, Prince of Monaco (left), at a regional session on water education yesterday in Gyeongju.



Pak Hun-kyun of Korea (left) and Ricardo Alba of Colombia (far right) share their expertise in solving water issues at the World Water Challenge yesterday.

## World Water Challenge

# 10 participants vie to solve specific water problems

World Water Challenge, a competition to provide practical solutions for water challenges defined by problem owners as needing urgent solutions, was held yesterday morning at EXCO, Daegu.

The competition of part of the forum's Science and Technology Process. Solution providers shared their know-how and best practices in tackling the world's water challenges.

At the first session, in which five of the ten solutions were discussed, the first speaker was Ricardo Alba of Colombia. He presented a basic rainwater collector made from plastic bottles that can be set up easily at schools and in poor urban areas at negligible cost.

Pak Hun-kyun of Korea followed, describing a micro-solar desalinator and purifier. The solar still can create water with no fuel other than the sun and is very easy to install, making it accessible to the most vulnerable parts of a shoreline population.

Shin Jung-sub, also a Korean, shared his experience in raising water quality and protecting water sources using a sewage

treatment process called Onsemi, which provides cheaper and more efficient management of sewage.

Adnan Arshad, a Pakistani contestant, addressed problems in water-deficient rural areas and suggested a number of rain-collecting techniques such as rooftop rain water harvesting and the Groasis-Waterboxx, a simple device that can be installed around a plant to channel rainwater to it.

Lowine Hill from Canada described an open-source flood warning and forecasting system and demonstrated that it costs little to prevent floods, one of the most frequent natural disasters.

The presentations drew a flood of questions from the audience, which the presenters dealt with before the session concluded.

After a short break, the second session began, with five additional speakers.

Arie Setiadi Moerwanto from Indonesia was the first speaker at the second session. He described a case study of Bandung, a frequently flooded area, and how information technology was adapted to

collect data and devise a warning system for the area.

The second speaker, Dimistris Mentis from Greece, proposed the use of desalination facilities using renewable energy to provide water for islands; his study involved islands in the south Aegean Sea.

Han Moo-young, a Korean participant, showed rainwater harvesting technology and a boat delivery system for drinking water to coastal slum areas that lack government aid.

A Nepali contestant, Sagar Gnawal, introduced a solar pump which can be operated using only a small amount of energy, which could be a solution for women and children who have to carry water from distant sources to their homes.

Mohamed Gamal, an Egyptian speaker, made the final presentation, this one on a self-sufficient triple-stage treatment system that processes wastewater efficiently.

The best solution among the 10 selected presentations will be awarded a prize at a ceremony today at Grand Ballroom B at the Inter-Burgo Hotel, Daegu, at 5p.m.

## Accountability called the key to measuring project progress

Measuring progress in their sustainable development initiatives has been a major dilemma for developing countries as well as international organizations, for example when setting up the United Nations Sustainable Development Goals, because use of water is linked to economic growth. Growth, of course, is the highest priority for most developing countries despite the need for water management and conservation.

Although water-related indicators are developed and used by countries and international organizations, there has been lack of thought about the policy implications of a framework for reviewing, monitoring and being accountable for sustainable water use.

Experts and senior international organization executives held a panel discussion yesterday at EXCO Convention Hall, Daegu, to discuss policy strategies for substantial progress toward a water sustainability indicators framework in regional platforms.

Junaid Ahmad, senior director of water global practice at the World Bank, said each government should set up a solid policy progress measurement gauge that involves individual citizens.

"Citizens should be central in carrying out policies," said Ahmad, "because they have the ability to hold their leaders accountable."

Citing local governments in Bangladesh as a good example, Ahmad said citizens there played a crucial role in overseeing new policy implementation and the execution of projects receiving financial aid. When a city receives a water management grant from an international organization such as the World Bank, every six months all citizens of the town receive text messages on their mobile phones about the project. Thus, information is transparent and accountability raised, not only the accountability of government officials but that of each citizen for water management.

As for the quality and quantity of water measurement, Park Kwang-kook, president of the Korea Environment Institute, said the SDG indicators, which will be approved by the UN General Assembly late this year, should emphasize long-term goals, overcoming the temptation to try to produce results too quickly.

## Policy leadership, strong regulations cited in preparing for arriving water shortages

Strong policy leadership and the enforcement of regulations should be the first step in preparing a nation for water shortages and enhancing the quality of water supplies, according to representatives of countries who suffer from insufficient investments and poor water management policies.

Delegates from the United Arab Emirates, Thailand and the Philippines attended a seminar yesterday afternoon hosted by the Korea Institute of Civil Engineering and Building Technology and the Korean Ministry of Land, Infrastructure and Transport. The discussions centered on the government's role in water management and how good water management can contribute to economic growth. The seminar was a thematic special session, part of the thematic

process at the 7th World Water Forum.

The session featured seven speakers and panel discussions on effective linkages between good water management and economic development, along with recommendations for best practices. Representatives from international organizations involved in water management and financing, such as the Asian Development Bank and the World Bank, also were present.

Mohamed Yousef Al Madfaei, executive director of the environment agency of the Abu Dhabi government, emphasized the significance of government policy direction-setting in water supply issues, saying a government should develop strong and detailed legislation and long-term policy plans for the water supply.

Al Madfaei described the so-called "water budget" of the UAE, legislation that sets a water-use cap every year, breaks that cap out in a yearly national water plan and sets the year's water price.

"We are working for water security, not to react to a water shortage," said Al Madfaei. "Setting up a water budget for each water source prepares the nation with a sustainable water use system for the future."

He emphasized that rules had to be applied fairly to all sectors, not overlooking any industry.

A government should not hesitate to raise water prices as a way to control water demand, Al Madfaei stressed.

Sevillo David, executive director of the Water Resources Board of the Philippines,



Sevillo David, executive director of the Water Resources Board of the Philippines, speaks at the thematic process seminar yesterday.

described his country's strong government-led control and legislative system to limit water use.

The country saw an easing of water shortages after implementing a water-use licensing system, water conflict mediation system and separate legislation on water use.

## Special Podium

# 'Adaptable approaches' seen as a method of shoring up older dams

Experts from countries of the Asia-Pacific Group of ICOLD, currently chaired by Yum Kyung-Taek, stressed the necessity of sharing adaptable technology and strategies for strengthening aging dams at Thematic Session 1.4.6 and at a special session held Monday and yesterday at EXCO in Daegu.

More than 90 experts and officials from the United States, Nigeria, Sri Lanka, Sweden, Spain, Japan, Korea and Vietnam, including Adama Nombre, president of ICOLD, participated in discussions after the presentations.

Michael Rogers, the former president of the United States Society on Dams, stressed that aging of dams is a key problem to be investigated and solved taking into account societal factors as well as technological ones. Old age is the main cause of dam failure, which can result in catastrophic losses of life and property.

The participants from engineering societies and NGOs at the session underscored "adaptable approaches" as an option to solve the aging dam-related problems facing developed and developing nations by reflecting their own technological and societal environmental conditions.

As a step forward, the participants agreed to join collaborative activities such as joint research and development and the



Water experts from Asia-Pacific Group countries pose for a group photo yesterday after agreeing on the necessity of strategy for ageing dams.

implementation and dissemination of strategies that may make countries more resilient to dam failures.

The chairman of ICOLD-APG said that the results of this session are a milestone in setting up a framework for the exchange of adaptable technologies, encouraging the application of new technology and improving international collaboration to meet the challenges of aging dams.

In addition, the participants affirmed

their commitment to intensify joint efforts, including the following cooperative and collaborative activities:

Exchanging technological information, especially on technologies adaptable to the individual circumstances of developing countries,

Exchanging experts and other training and education activities,

Jointly organizing symposia, seminars, and other meetings,

Setting up an ad hoc committee on the development of adaptable technology on aging dams within an international society such as ICOLD.

Taking other steps necessary to meet the objectives of the joint declaration.

Organizers said they believed all nations would promote the sharing of scientific knowledge and innovative technologies, facilitate financing and develop and diffuse concrete business models.

## African experts describe challenges and successes in providing clean water

Forum delegates from African countries called for stronger international cooperation on both a global and regional scale to supplement national efforts in solving water supply and water sanitation issues in the rural parts of the continent.

The African Development Bank and the African Ministers' Council on Water yesterday hosted a special side event at the EXCO Convention Hall in Daegu, inviting high-level executives of regional organizations and government officials to share stories of progress and difficulties in water source development and to develop strategies for progress in water sanitation.

The Rural Water Supply and Sanitation Initiative, a group under the regional development bank, said it has provided water supplies to 88 million people and sanitation to 55 million more who live in rural Africa since its establishment in 2003. It used contributions to its trust fund to finance the work.

The fund was begun with contributions from Burkina Faso, Canada, Denmark, France, Italy, the Netherlands and Switzerland, with the goal of enhancing overall water management systems and resolving water hygiene problems in rural Africa. It will have spent \$20 million on the task by 2025.

Countries that have benefited from better water supplies and sanitation



Delegates from African countries at a special side event where they discussed water supply and water sanitation issues in rural parts of the continent.

thanks to the fund's help, including Senegal and Burkina Faso, described their success stories.

The Senegalese government drew up a master plan for its state-run water resource enterprise; the projects described in the plan started in 2013 and are scheduled for completion by 2025. The basis of the plan is to use underground water to increase the water supply; Senegal is building water-pumping and purification facilities and has an integrated management system for water and sewage. The government said it hoped to ship underground water from water-abundant regions to areas of the country that lack such a bounty. Legal system reforms are an essential element in making the process successful, the Senegal repre-

sentative said.

Burkina Faso, a landlocked country in West Africa, emphasized a bottom-up approach beginning at the village level as its recipe for success, especially in efficiently managing financial aid it has received from international organizations and regional funds like the France Development Agency and the African Development Bank. A Burkina Faso delegate said the bottom-up approach also helped the central government stay up to date about each community's water demand to prevent a waste of funds and to ensure that the water infrastructure is built according to plans prepared by the government.

But some speakers said there was still a need for more careful evaluation of projects now under way.

## Special Focus Session: Youth and the Water Sector

The International Secretariat for Water hosted a special session yesterday at EXCO in Daegu to review the status of youth participation in the water sector, a subject first added to the agenda of the previous World Water Forum in 2012. Then, the place and role of the youth was not clearly defined, but the situation has evolved over the intervening three years and international institutions and governments now recognize young people as valuable partners.

The two-part session began with an introduction of the strategic role youth can play at both nationally and internationally. That presentation was followed by a dialogue between young and senior leaders about past, current and future youth initiatives.

Roger Lanoue, the president of the International Secretariat for Water, reminded the group of the importance of investing in the new generation. Yoon Seong-kyu, Korea's minister of environment, provided his views on how to develop youth initiatives.

The panel at the session included Blanca Jimenez-Cisneros, Unesco's director of water sciences; Loic Fauchon, honorary president of the World Water Council; and Bart Devos of the World Youth Parliament for Water. They praised the achievements by youth in championing the cause of clean water and urged more efforts to that end.



Food production and water-related professionals discuss the efficient use of water for food production yesterday. The session was held at the EXCO Convention Hall in Daegu.

## High-Level Panel

# Efficient farms needed to save water, enhance food production

Because water's crucial role in food production doesn't change, experts said, all food production and water-related stakeholders should come up with technologies and policies to maximize the efficiency of water use in food production, both agriculture and livestock.

Senior representatives of international organizations, national governments, research and academia, the private sector and the farming community gathered at a panel discussion yesterday at EXCO Convention Hall in Daegu.

Many regions of the world are forecast to face serious water scarcity, which may constrain agricultural production and limit the incomes and livelihoods of not just farmers but food consumers as well. Persistent work is needed in policy and investments, the panelists said, particularly in developing countries that rely on the agricultural indus-

try, in order to extend and ensure access to water for household use and agriculture.

The policies and investments needed must take account of 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 to produce food and sustain their 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.

A white paper written by the Food and Agriculture Organization of the United Nations and the World Water Council and its partners was provided to the panelists

before being released.

The paper said that there will be enough water to help produce the food needed to feed an estimated 9 billion people who will be alive in 2050, but overconsumption, spoilage and accelerating climate change are expected to result in decreasing water supplies in many regions, especially in developing countries.

The paper, called "Toward a water and food secure future," called for government policies and investments by the public and private sectors to ensure that production methods are changed to more sustainable ones in raising crops, livestock and fish so as to use as little water as possible.

These changes are urgent in order to reduce poverty, increase incomes and ensure food security for many people living in rural and urban areas, the paper stressed.

"In an era of accelerated changes unparal-

leled to any in our past, our ability to provide adequate, safe and nutritious food sustainably and equitably is more relevant than ever. Water, as an irreplaceable element of achieving this end, is already under pressure by increasing demands from other uses, exacerbated by weak governance, inadequate capacities, and underinvestment," said Maria Helena Semedo, deputy director-general of knowledge at the Food and Agriculture Organization. Agriculture will continue to account for most water consumption, the paper emphasized.

By 2050, about 60 percent more food – up to 100 percent more in developing countries – will be needed to feed the world while agriculture will continue to be the largest user of water globally, accounting in many countries for about two-thirds or more of the supplies drawn from rivers, lakes and aquifers.

## Post-natural disaster resilience emphasized

Experts at a forum yesterday emphasized the importance of building post-natural disaster resilience in these times of accelerating climate change. They urged sharing the latest technology and research on urban infrastructure, stressing the need for mechanisms to recover quickly after floods or other natural disasters.

The Korean Ministry of Land and Infrastructure, the U.S. Woodrow Wilson Center and the Korean Research Institute of Human Settlements held a joint international seminar yesterday afternoon as a side event of the 7th World Water Forum at EXCO Daegu.

As climate change accelerates and to prepare for environmental changes in its wake, the American and Korean disaster research groups shared insights but focused on floods, the most frequently seen type of natural disaster during the past decade.

"It is significant to prepare ourselves to react

better when such events happen," said Blair Ruble, vice president of programs and director of the urban sustainability laboratory at the Wilson Center. "Resilience is not just about recovering the previous state [of national infrastructure], but a process of improving national infrastructure and making sure each community has well-trained people to respond to disasters to minimize the impact."

"Resilience" as a concept has evolved to include all processes associated with natural disasters, the Korean research institute emphasized. They include the immediate response, infrastructure recovery and citizens adaptation to the post-disaster environment.

Ruble said the U.S. president's office has formed a separate task force that deals only with post-disaster management customized to each community's needs.



Dr. Susan Mboya, president of The Coca-Cola African Foundation, discusses on water and sanitation across the African continent yesterday at EXCO Convention Hall in Daegu. The company announced the Replenish Africa Initiative for safe water access in Africa by the end of 2015.



The EXPO and Fair of the World Water Forum in Daegu includes pavilions of Mexico (left), the United Arab Emirates (center) and Turkey. The pavilions introduce government ministries and companies involved in water policies.

## Gyeongju - April 15 (WED)

Time	Venue Code	Session Code	Title	Coordinator	Process
09:00~09:20	INR.1.2.opening	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ?	Mediterranean Water Institute (IME)	Regional Process
09:00~10:55	INR.1.3.EU	GHH_B103	Climate change adaptation and mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean region / European examples and instruments for effective adaptation to climate change	International Office for Water (IOWater)	Regional Process
09:00~11:00	INR.1.4.EWI	GHH_B105	Infrastructure for Sustainable Water Resource Management and Services	African Development Bank (AfDB)	Regional Process
09:00~11:00	INR.WE.3.1.EU	GHH_B107	Water and Energy Efficiency for Green Growth / Water efficiency in Europe	Water Footprint Network and Danish Water Forum (DWF)	Regional Process
09:00~11:00	R.APHS	GHH_201	Hydrological Services in Asia under Rapidly Changing Conditions	Korea Institute of Civil Engineering and Building Technology (KICT)	Regional Process
09:00~13:20	SE-00139	GHH_B106	The 4th meeting of AWHO(T(Establishment of Asia Water Council)	K-water	Side Event
09:20~11:20	INR.1.2.AP	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ? / Asian Sanitation Solutions Debate: How Can Youth and Civil Society Accelerate Progress in Sanitation and Hygiene in Asia Pacific?	Asian Development Bank (ADB) Youth Initiative	Regional Process
11:20~13:20	INR.1.2.AM	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ? / Americas Region	Development Bank of Latin America (CAF)	Regional Process
11:20~13:20	INR.1.3.closing	GHH_B103	Climate change adaptation and mitigation in Africa, Americas, Asia-Pacific, Europe and the Mediterranean region	International Office for Water (IOWater)	Regional Process
11:20~13:20	INR.1.4.AF	GHH_B105	Strategic Water Infrastructure Development for sustainable water resource management and services: An African Perspective	Southern African Development Community (SADC)	Regional Process
11:20~13:20	INR.WE.3.1.AP	GHH_B107	Water and Energy Efficiency for Green Growth / Water and Green Growth in the Asia-Pacific	UN Economic and Social Commission for Asia and the Pacific (UN ESCAP)	Regional Process
11:20~13:20	R.EWI.Post2015	GHH_B108	Sustainable Development in Economically Water Insecure Regions - Post 2015	Korea Water Resources Corporation (K-water )	Regional Process
13:30~14:30	SE-0078	GHH_B107	MANAGING SHARED AQUIFER RESOURCES in AFRICA	Observatoire du Sahara et du Sahel	Side Event
13:30~14:30	SE-0086	GHH_B210	Ecosystem based Adaptation and Water Governance: Building evidence for Action	IUCN	Side Event
13:30~14:30	SE-0095	GHH_B108	Post 2015 Water-related actions in Asia Pacific	UNESCO	Side Event
13:30~14:30	SE-00102	GHH_202	The UNESCO'S International Hydrological Programme (IHP): Challenges and Opportunities	CONAGUA	Side Event
13:30-15:30	SE-00144	GHH_B106	The starting ceremony of A-WIN and the press conference	K-water	Side Event
14:40~16:40	INR.1.2.AF	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ?	Global Water Partnership Central Africa (GWP-CAf)	Regional Process
14:40~19:00	R.Final.AP	GHH_B105	Asia-Pacific Regional Synthesis and Commitment Session at the 7th World Water Forum	Asia-Pacific Water Forum (APWF)	Regional Process
14:40~19:00	R.Final.EU	GHH_B103	Recommendations for water management in Europe	International Office for Water (IOWater)	Regional Process
14:40~16:40	SE-0098	GHH_201	Pathways to a sustainable water future (WFaS Session 1)	International Organisation of Applied Systems Analysis (IIASA)	Side Event
14:40~17:40	SE-00509	GHH_B210	The 10th Asia River Restoration Network Governing Council Meeting	Korea River Association	Side Event
14:40~19:00	SE-00140	GHH_202	Seminar of North America water experts	K-water	Side Event
16:30-18:30	SE-00526	GHH_B108	Water Partnership and Education Workshop	K-water	Side Event
16:40~18:40	INR.1.2.MED	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ? / Mediterranean region	Mediterranean Water Institute (IME)	Regional Process
17:00~19:00	SE-0099	GHH_201	Improving Science-Policy interface for developing water futures and solutions (WFaS Session 2)	International Organisation of Applied Systems Analysis	Side Event
18:40~19:00	INR.1.2.closing	GHH_B104	Enough safe water and Integrated sanitation for all: Where we are and what's next ?	Mediterranean Water Institute (IME)	Regional Process


**Daegu - April 15 (WED)**

Time	Session Code	Venue Code	Title	Coordinator	Process
09:00-11:00	T.2.1.4	DEC_307	Adapting to change for sustainable water use in agriculture	Food and Agriculture organization of the United Nations (FAO)	Thematic Process
09:00-11:00	T.2.2.4	DEC_306	Multipurpose uses and services of hydropower reservoirs	Electricite de France(EDF)	Thematic Process
09:00-11:00	T.3.2.3	DIB_B101	Establishing the foundations for success: the science, benefits and relevance of eco-hydrology	European Regional Centre for Ecohydrology of the Polish Academy of Sciences(ERCE PAN)	Thematic Process
09:00-10:30	T.3.4.3	DEC_304	Catchment approach for decentralization of integrated water resource management	United Nations Educational, Scientific and Cultural Organization (UNESCO)	Thematic Process
09:00-11:00	T.4.1.6	DEC_311	Closing the Finance Gap for Sustainable Water Management: Opportunities, Models and Targets	Forest Trends	Thematic Process
09:00-11:00	T.4.2.3	DEC_309	Strengthening basin governance for efficient water resources management at all the relevant scale	International Network of Basin Organizations(INBO)	Thematic Process
09:00-11:00	T.4.4.4	DEC_310	Water Justices and Cooperation: perspectives and frameworks for fostering cultural diversity, society and nature	UNESCO International Hydrological Programme	Thematic Process
09:00-11:00	S.1.4	DEC_303	Getting research into policy and practice (GRIPP): a path to efficient water and wastewater management	Swiss Water Partnership (SWP)	Science & Technology Process
09:00-11:00	S.2.3	DEC_312	Energy recovery and efficiency in water and wastewater systems	UNESCO International Hydrological Programme	Science & Technology Process
09:00-11:00	S.3.3	DEC_305	Flood Damage Reduction in Urban Area by Improvement of Flood Forecasting	Korea Institute of Civil Engineering and Building Technology(KICT)	Science & Technology Process
09:00~16:40	SE-0076	DEC_502	Heart to Heart with Opened Mind	Korean Environmental Industry and Technology Institute	Side Event
09:00~11:00	SE-00512	DEC_308	WATEC- Israel Water Management solution	Newtech- Israel Water Management solution	Side Event
11:20-13:20	T.1.1.5	DEC_307	Enough Safe Water for All: Monitoring, Evaluation and Accountability in the Post-2015 Framework	African Development Bank (AfDB)	Thematic Process
11:20-13:20	T.2.1.3	DEC_304	Modernization of irrigation/drainage schemes for food security, rural prosperity and poverty alleviation	International commission on Irrigation and Drainage (ICID)	Thematic Process
11:20-13:20	T.2.3.1	DEC_303	Water security for Cities through integrated urban planning and services	International Water Association (IWA)	Thematic Process
11:20-13:20	T.4.2.6	DEC_311	Counting what counts: getting indicators right for better water governance	Organisation for Economic Co-operation and Development(OECD)	Thematic Process
11:20-13:20	T.4.3.2	DIB_B102	International water law demystified	United Nations Economic Commission for Europe(UNECE), International Union for the Conservation of Nature(IUCN), Green Cross International(GCI), World Wildlife Fund(WWF)	Thematic Process
11:20-13:20	T.4.5.6	DEC_312	Captivating the attention of the global population on water issues with innovative tools	World Youth Parliament for Water(WYPW)	Thematic Process
11:20-13:20	T.SS.21	DEC_310	[Special Focus Session] Women for a water secure world: past, present and future	Women for Water Partnership	Thematic Process
11:20-13:20	TWS	DIB_B101	Water Showcase World Final		Thematic Process
11:20-13:20	S.1.5	DEC_308	Efficient water management in the Post 2015	UNEP	Science & Technology Process
11:20-13:20	S.4.3	DEC_306	New Era of Urban Water Supply System Built on Smart Technology	Center for Eco-Smart waterworks System (SWS)	Science & Technology Process
11:20-13:20	S.5.3	DEC_309	Integration of Modeling and Monitoring Techniques for Successful Management of Ecosystem Services for Water	Chungnam National University	Science & Technology Process
11:20~13:20	SE-0089	DFC_101	Solution for water challenges of non-urban area with simple and low-cost technologies	Japan Water Forum	Side Event
13:30~14:30	SE-0075	DEC_306	Introducing New Micro Solar Desalinator and Portable Water Sterilizer Prototypes: Searching for Partners, Collaborators, Users or Fundings	H. Pak	Side Event
13:30~14:30	SE-0080	DEC_305	Regional Cooperation over the Management of the Shared Nubian Aquifer System	National Water Research Centre (NWRC)	Side Event
13:30~14:30	SE-0082	DFC_101	How to stop the fast run-off of water from the lands - the main cause of the climate change	Gratax Slovakia	Side Event
13:30~14:30	SE-0093	DEC_307	Water JPI: Scaling-up Water RDI Activities from Regional to Supra-Regional Level	Turkish Water Institute	Side Event
13:30~14:30	SE-00104	DEC_312	Learning from the global Nexus Dialogue	IUCN	Side Event
13:30~14:30	SE-00107	DEC_308	Communal Water Management for Coherence and Resilience	IX. Regional Directorate of Ministry of Forestry and Watter Affairs	Side Event
13:30~14:30	SE-00108	DEC_310	Japanese Water Governance with NGOs	7th world water forum citizens network Japan	Side Event
13:30~14:30	SE-00110	DEC_309	Sea Water Desalination ?Promising Option for Gaza Crises	Palestinian Water Authority	Side Event
13:30~14:30	SE-00131	DEC_303	Lessons learned and good practices for climate change adaptation in transboundary basins and restoration of aquatic ecosystems	International Network of Basin Organizations (INBO)	Side Event
13:30~14:30	SE-00176	DEC_311	Building Trust and Cooperation: Unprecedented Mexico - U.S. Transboundary Water Sharing	Bureau of Reclamation, U.S. Department of the Interior	Side Event
13:30~14:30	SE-00178	DEC_304	Maximising the impact of investment in water projects	Gold Standard Foundation	Side Event
14:40-16:40	T.2.1.5	DEC_312	Innovation in Water Smart Agriculture: Working From the Ground Up	Global Water Initiative (GWI)	Thematic Process
14:40-16:40	T.2.2.5	DEC_306	Off-grid Water and Energy Solutions in developing countries	International Water Association(IWA)	Thematic Process
14:40-16:40	T.3.1.5	DEC_305	Valuing freshwater ecosystems: Building the economic case for protection and restoration	World Wildlife Fund(WWF)	Thematic Process
14:40-16:40	T.3.2.4	DIB_B102	Available tools, methods, approaches and platforms for scaling improved management and restoration of ecosystems for water services and biodiversity	Ramsar Convention Secretariat	Thematic Process
14:40-16:40	T.4.1.5	DEC_303	Financing Agricultural Water Use	International Water Management Institute(IWMI)	Thematic Process
14:40-16:40	T.4.5.3	DEC_307	Ensuring sustainability of water infrastructures by investing in Water Training Centers:it pays back	International Office for Water(IOWater), International Network Water Training Centers( INWTC)	Thematic Process
14:40-16:40	T.SS.08	DEC_304	[High Level Panel] IWRM post-2015: A new way forward	World Water Council(WWC)	Thematic Process
14:40-16:40	S.2.4	DEC_308	Advanced technologies and innovation in water reuse and resource recovery	UNESCO International Hydrological Programme	Science & Technology Process
14:40-16:40	S.3.4	DEC_309	Remote Sensing and GIS-assisted Management of Water and Natural Disasters	Korean Association of Geographic Information Studies	Science & Technology Process
14:40-16:40	S.5.4	DFC_101	Pending research questions linked to sustainability assessment: an analysis based on integrated perspectives from the Water-Energy-Food-Ecosystems (WEFE) Nexus	International Water Association (IWA)	Science & Technology Process
17:00-19:00	T.1.3.2	DEC_306	Assessing, mitigating, and monitoring risk with use of innovative methodologies and technologies	Water Resources Agency,Ministry of Economic Affairs(WRA),Taiwan	Thematic Process
17:00-19:00	T.2.2.Con	DEC_304	Concluding Session 2.2 : Water and Energy	International Water Association(IWA)	Thematic Process
17:00-18:30	T.2.3.2	DEC_305	Adaptation to climate change : Increasing cities resilience	United Cities and Local Governments (UCLG)	Thematic Process
17:00-19:00	T.3.1.4	DEC_309	Co-optimized solutions that close the water-energy loop - reducing impacts and driving value from waste	World Business Council for Sustainable Development(WBCSD)	Thematic Process
17:00-19:00	T.3.3.1	DEC_303	Water Quality: Smarter Use for Water Security	International Water Resources Association (IWRA)	Thematic Process
17:00-19:00	T.4.3.1	DEC_312	Water Diplomacy and Multi-level Governance: Connecting levels to make a difference	Stockholm International Water Institute(SIWI)	Thematic Process
17:00-19:00	S.2.5	DEC_307	Water Reuse and Resource Recovery: "Utilities of the Future" and the Market Economy	Water Environment Federation (WEF)	Science & Technology Process
17:00-19:00	S.3.5	DEC_308	Managing Extremes - Decision support systems and risk management for floods and droughts	Korean Society of Hazard Mitigation(KOSHAM)	Science & Technology Process
17:00-19:00	S.5.2	DFC_101	Role of STI (Science, Technology and Innovation) for ensuring ecosystem services	UNESCO Regional Science Bureau for Asia and the Pacific	Science & Technology Process
17:00-18:30	S.VVWCC	DIB_B102	World Water Challenge ceremony session	Korea Environment Corporation	Science & Technology Process
17:00~19:00	SE-0085	DEC_310	UNESCAP/WMO Typhoon Committee/ the 4th Meeting of TC Working Group on Hydrology	Korea Institute of Civil engineering and building Technology (KICT)	Side Event
17:00~20:10	SE-00183.A	DEC_502	In troubled Water, a feature Bollywood film by ONE DROP	ONE DROP	Side Event
17:00~19:00	SE-00506	DEC_311	Partner meeting of the Action Platform on Source to Sea Management	Stockholm International Water Institute (SIWI)	Side Event
19:10~20:10	SE-0071	DEC_308	Achieving sustainable results in decentralised solidarity cooperation in water and sanitation sector	United Nations Development Programme-Global Water Solidarity	Side Event