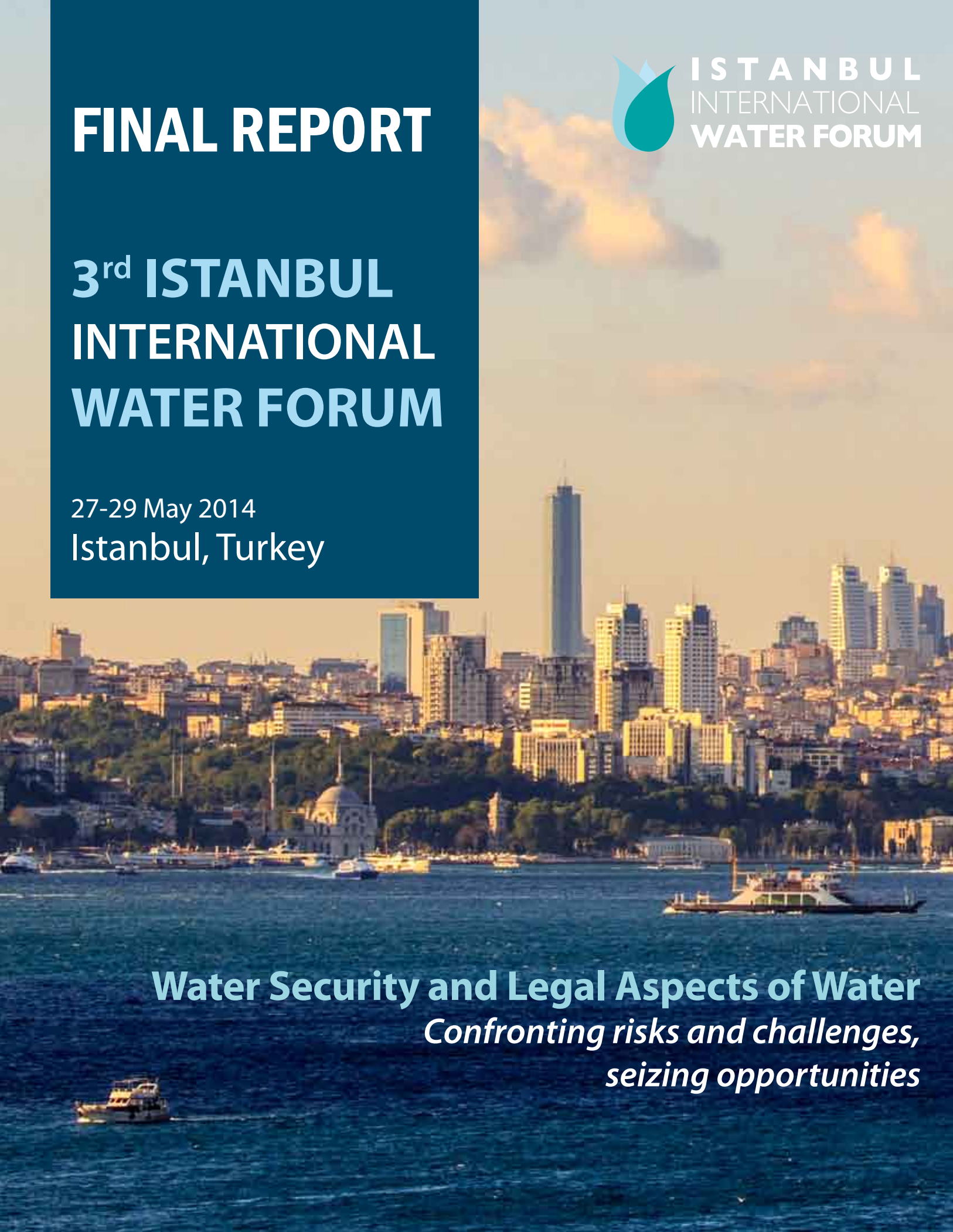
FINAL REPORT

3rd ISTANBUL INTERNATIONAL WATER FORUM

27-29 May 2014
Istanbul, Turkey

ISTANBUL INTERNATIONAL WATER FORUM



Water Security and Legal Aspects of Water

Confronting risks and challenges, seizing opportunities

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SUEN
TURKISH WATER INSTITUTE

Organisers

Ministry of Forestry and Water Affairs, Turkey
Turkish Water Institute (SUEN)

International Contributors

International Water Resources Association (IWRA)
World Water Council
International Network of Basin Associations (INBO)
International Commission on Irrigation and Drainage (ICID)
Organisation for Economic Co-operation and Development (OECD)
International Commission on Large Dams (ICOLD)
D-8 Organisation of Economic Cooperation

National Contributors

General Directorate of State Hydraulic Works (DSI)
General Directorate of Water Management (SYGM)
Istanbul Metropolitan Municipality (IBB)
Istanbul Water and Sewerage Administration (ISKI)
Turkish State Meteorological Service (MGM)

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27-29 May 2014

Haliç Congress Centre - Istanbul, Turkey

Water Security and Legal Aspects of Water

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seizing opportunities

Final Report

August 2014


ISTANBUL
INTERNATIONA
WATER FORU

The 3rd Istanbul International Water Forum addressed two all-important subjects: Water Security and Legal Aspects of Water. Water security globally poses great and complex challenges to us all, as water is central for economic development, environmental well-being and human health. Our future really depends on achieving water security as food security, energy security and ecosystems all rely on water. Decisions over water should therefore recognise its crosscutting role and integrate across all three domains. It is also imperative that water security is put higher both on the national and global agendas. It is essential to have an interdisciplinary collaboration and strengthened international cooperation especially on providing technical support and information. We need to develop cross-border and regional plans and programmes as well as national plans, for water does not recognise political boundaries and we all have something to learn from each other.

This 3rd Forum also discussed the legal aspects of water such as right to water and sanitation, national water law, legislation on protection of water resources and transboundary water cooperation. Transboundary waters is a very important issue in terms of Turkey's water policy. As the upper riparian country in the Euphrates-Tigris River Basin, we are very much aware of our responsibilities towards downstream countries and putting great effort in protecting the quantity and quality of water. We recognise the critical importance of freshwater for the region and therefore expect the same degree of sensitivity from the lower riparian countries as well.

We believe that water should be a key to peace rather than a cause for war. We believe in cooperation between riparian countries and the importance of using the already scarce water resources in our region in the most effective way possible. The first step to this cooperation is trust building, which can be reinforced through technology transfer and capacity-building activities. We give importance to the exchange of technical information on irrigation, water and wastewater treatment, water supply and sewerage infrastructure. Turkey has significant experience on treatment technologies, dam construction and water and sewerage networks. We are building many mega projects using our own technologies. Today we are pleased to be helping many African countries to access water and we are willing to share our experiences and technologies on water and sanitation with other countries and cooperate for any kind of investment and loans.

I would like to extend my gratitude to International Water Resources Association (IWRA), World Water Council, International Network of Basin Organisations (INBO), International Commission on Irrigation and Drainage (ICID), Organisation for Economic Co-operation and Development (OECD), International Commission on Large Dams (ICOLD), D-8 Organisation of Economic Cooperation, as well as the General Directorate of State Hydraulic Works (DSI), General Directorate of Water Management (SYGM), Istanbul Metropolitan Municipality (IBB), Istanbul Water and Sewerage Administration (ISKI) and Turkish State Meteorological Service (MGM) for their invaluable contributions. I would also like to celebrate Turkish Water Institute (SUEN) for hosting this highly successful Forum.

Prof. Veysel Eroğlu

Minister of Forestry and Water Affairs, Turkey



The Istanbul International Water Forum (IIWF), which is organised every three years one year prior to the World Water Forum, has become the flagship event of SUEN. This 3rd Forum gathered over 3000 participants from different regions of the world in Istanbul, the historical city bridging Europe and Asia. Moving from the United Nations (UN) Millennium Development Goals to Sustainable Development Goals, the Forum featured 8 thematic sessions under two main themes, "Water Security" and "Legal Aspects of Water". 20 special/side events were held in a wide range of water-related subjects. The Forum also hosted a Water Expo, where the participants explored the activities, services and products of various water organisations and firms. This report provides an overview of all meetings and activities of the 3rd Istanbul International Water Forum. The thematic outcomes and key messages of the sessions are also reflected in this report to give a better insight of the topics covered in the Forum.

We believe that securing sustainable water for all is a major target for the states and the international community. Water security is essential for food security, sustainable development and political stability. Strengthening water governance, achieving an integrated approach covering food, energy and ecology nexus, developing and adopting new water resources management paradigms such as urban water management, adaptation to climate change to reduce risks of water-related disasters are the main steps that need to be taken to achieve water security both at global and national level. These topics were elaborated in depth in the four sessions under the Water Security theme.

The interconnectedness between scientific knowledge and politico-legal implementation structures the global water agenda. Better water resources management is possible with improved interdisciplinary collaboration. A legal framework is needed to translate the discourse of water resources management, governance and water security into action on the ground. To this end, Legal Aspects of Water was chosen as a main theme for the 3rd IIWF. It was the first time that water law has become one of the two main themes of a major international forum of this size. The four sessions under this theme discussed legislation on protection of water resources, national water legislations, transboundary waters and cooperation, right to water and sanitation in detail and attracted wide attention.

We believe that the Forum was a definite success both in terms of the distinctive thematic discussions realised and the number of side events and participants. The thematic outcomes of the Forum will be carried to the 7th World Water Forum that will be held in Korea in 2015. Each year we are trying to improve the quality and radius of IIWF and we aspire to make it a major water event in its region. Henceforward, we state our commitment to continue to work for strengthening the interdisciplinary collaboration, international cooperation and the dialogue through scientific research and discussion.

Our gratitude goes to all our speakers who, with their distinctive and diverse viewpoints, contributed to the panel discussions. We would like to thank the Minister of Forestry and Water Affairs of Turkey, Prof. Veysel Eroğlu, the members of the Steering Committee, Advisory Committee and the contributing organisations for their support all the way through the organisation of the Forum. I finally would like to thank the devoted staff of SUEN for their vigorous efforts and sedulous work in the realisation of the Forum.

Prof. Ahmet Mete Saatçi
President of SUEN

About SUEN

Who we are

SUEN is a national think tank that aims to develop short and long-term strategies and national policies for good governance of water. Established in 2011, it is a special funded entity under the authority of Ministry of Forestry and Water Affairs of Turkey. SUEN works in close collaboration with national and international organisations on sustainable water management, development of water policies, sustainable energy issues and capacity building for the solution of local and global water problems.

Our history

The great success of the 5th World Water Forum held in 2009 in Istanbul with more than 30,000 participants from 192 countries awarded Turkey a new status as a country with a principal voice on water at global scale. The worldwide network, multifaceted knowledge and experience gained during the 5th World Water Forum became the basis of SUEN.

What we do

SUEN's role in Turkey's water management includes, but not limited to, conducting and supporting scientific research to develop national and international water policies, collaborating with national and international organisations and following the recent developments, organising national and international training programmes, contributing to national and international fora, conferences, meetings, seminars, symposiums and training programmes, carrying out activities to enable cooperation among national and international water sectors and collaborating in projects with institutions and persons distinguished in the water sphere.

Istanbul International Water Forum is the flagship event of SUEN. It is organised every three years one year prior to the World Water Forum. The first IIWF was organised as a preparatory meeting on 14-15 February 2009, one month prior to the 5th World Water Forum. The 2nd IIWF took place on 3-5 May 2011 on the main theme "An Istanbul Perspective on Regional Water Problems and Search for Solutions" and attracted more than 4,500 participants from over 100 countries.

Contents

Abbreviations

AFD	French Agency for Development
AIDA	International Association for Water Law
CBD	Convention on Biological Diversity
CEENBO	Central and Eastern European Network of Basin Organisations
CEO	Chief Executive Officer
CESCR	Committee on Economic, Social and Cultural Rights
CITET	Tunis International Centre for Environmental Technologies
DHI	Danish Hydraulic Institute
DSI	General Directorate of State Hydraulic Works
DWF	Danish Water Forum
ELI	Environmental Law Institute
ESMRE	High School of Water Resources Management
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FRMD	Flood Risk Management Directive
FWP	French Water Partnership
GAP	Southeastern Anatolia Project
GWOPA	Global Water Operators' Partnerships Alliance
GWP	Global Water Partnership
HSAP	Hydropower Sustainability Assessment Protocol
IASS	Institute for Advanced Sustainability Studies
IBB	Istanbul Metropolitan Municipality
ICBA	International Center for Biosaline Agriculture
ICID	International Commission on Irrigation and Drainage
ICLEI	Local Governments for Sustainability
ICOLD	International Commission on Large Dams
IDRC	International Development Research Centre
IEA	International Institute for Water and Sanitation
IFAD	International Fund for Agricultural Development
IHA	International Hydropower Association
IIWF	Istanbul International Water Forum
INBO	International Network of Basin Organisations
IOWater	International Office for Water
IPCC	Intergovernmental Panel on Climate Change
IRSTEA	National Research Institute of Science and Technology for Environment and Agriculture, France

ISKABIS	ISKI Infrastructure Information System
ISKI	Istanbul Water and Sewerage Administration
ITU	Istanbul Technical University
IWC	Istanbul Water Consensus
IWRA	International Water Resources Association
IWRM	Integrated Water Resources Management
JPI	Joint Programming Initiative
K-Water	Korea Water Resources Corporation
MDG	Millenium Development Goal
METU	Middle East Technical University
MGM	Turkish State Meteorological Service
MINECO	Ministry of Economy and Competitiveness, Spain
MoFAE	Ministry of Food, Agriculture and Energy, TRNC
MOI	Means of Implementation
NEU	Near East University
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
OIWater	International Office For Water
ONEE	Office National de l'Electricité et de l'Eau Potable
ORSAM	Center for Middle Eastern Strategic Studies
Q&A	Question and Answer
R&D	Research and Development
RCP	Representative Concentration Pathway
RDI	Research, Development and Innovation
ReSEES	Research Team on Socio-Economic and Environmental Sustainability
SDG	Sustainable Development Goal
SIAAP	Greater Paris Wastewater Treatment Authority
SPI	Science-Policy Interface
SRIA	Strategic Research and Innovation Agenda
SST	Sea surface temperature
SUEN	Turkish Water Institute
SYGM	General Directorate of Water Management
TAGEM	General Directorate of Agricultural Research and Policy
TRNC	Turkish Republic of Northern Cyprus
TUBITAK MRC	The Scientific and Technological Research Council of Turkey Marmara Research Center
TUCID	Turkish National Committee on Irrigation and Drainage
UCLG	United Cities and Local Governments
UN	United Nations
UNEP	United Nations Environment Programme

UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNICT	University of Catania
UNWC	United Nations Watercourses Convention
USM	University of Science, Malaysia
WFD	Water Framework Directive
WGG	Water and Green Growth
WIF	World Irrigation Forum
WWF	World Wildlife Fund
YODAK	Higher Education Planning, Evaluation, Accreditation and Coordination Council

Forum Committees

In alphabetical order

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Hayati Çetin
Berris Ekinci
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Overview of the Forum

The 3rd Istanbul International Water Forum was held on 27-29 May 2014 in Istanbul at Haliç Congress Centre, the same venue where the 5th World Water Forum was organised in 2009. The Forum was organised by SUEN under the Ministry of Forestry and Water Affairs of Turkey. Prominent international water-related organisations namely International Water Resources Association (IWRA), the World Water Council, International Network of Basin Organisations (INBO), International Commission on Irrigation and Drainage (ICID), Organisation for Economic Co-operation and Development (OECD), International Commission on Large Dams (ICOLD) and D-8 Organisation of Economic Cooperation contributed to the Forum by either actively participating in the thematic sessions or holding side and special events. The General Directorate of State Hydraulic Works (DSI), General Directorate of Water Management, Istanbul Metropolitan Municipality (IBB), Istanbul Water and Sewerage Administration (ISKI) and Turkish State Meteorological Service (MGM) also provided invaluable contributions to the Forum.

The Forum welcomed 3,095 registered participants from countries all over the world, primarily from Macedonia, Poland, Germany, France, Italy, United Kingdom, Portugal, Bulgaria, Sweden, Russia, Azerbaijan, Sri Lanka, South Korea, Iran, Iraq, India, Morocco, Yemen, Argentina, Australia, Brazil, Mexico, Japan, USA, Malaysia, Tanzania and Turkish Republic of Northern Cyprus (TRNC). The participant profile included a wide spectrum of water professionals ranging from academics, scientists to representatives from governmental institutions, international organisations, non-governmental organisations (NGOs) and the private sector. Participants had the opportunity to share new and different views, approaches and experiences, network with other players within the water sector, establish collaboration with researchers, experts, government officials, business partners and gain knowledge about new water technologies.

The Forum started with an Opening Ceremony, which featured the speeches of the President of SUEN Mr. Ahmet Mete Saatçi, President of IWRA Mr. Doğan Altınbilek, President of World Water Council Mr. Benedito Braga, Chair of the National Committee for the 7th World Water Forum Mr. Jung Moo Lee, Founding Director of IASS Potsdam Mr. Klaus Töpfer, Minister of Water Supply and Drainage of Sri Lanka H.E. Dinesh Gunawardena and Minister of Environment and Forestry of Turkey H.E. Veysel Eroğlu. All speakers extended their congratulations to Turkey for the success of the Forum and emphasised the importance of cooperation to face the global water challenges. The important statements and views marked down in these keynote speeches are provided in the following chapter.

Following the Opening Ceremony, two plenary sessions were held. The first plenary on “Water Security and Sustainable Development Goals” discussed how water should be addressed adequately in the Post-2015 Development Agenda. This session addressed the key role of water in energy security, food security, ecosystems and development. Panellists strongly underlined that a dedicated water goal should be included in the Sustainable Development Goals (SDGs) framework in order to address these interlinked issues and called for smart(er) water targets. The second plenary entitled “Istanbul Water Consensus - A Global Movement for Cities, Local and Regional Authorities” was co-organised by the World Water Council and Global Water Operators’ Partnerships Alliance

(GWOPA). The session introduced the Istanbul Water Consensus as a tool for local decision makers to improve their water management strategies and services in the face of global changes, presented examples from signatories and also celebrated the launch of a new online tool for monitoring and benchmarking among local and regional authorities.

Different from the previous Forum in 2011, the thematic component of the 3rd IIWF was simpler in content, but more to the point. As the world is moving from the Millennium Development Goals to Sustainable Development Goals, this 3rd Forum chose to focus on responses to the issues of global water security and discuss the all-important issues of climate change, water-food-energy-ecology nexus, water governance and integrated basin management. Recognising that no progress can be achieved without legal frameworks, the Forum also discussed the legal aspects of water such as right to water and sanitation, national water laws, transboundary water cooperation and legislations on the protection of water resources. Eight thematic sessions were held under the Forum's main themes "Water Security" and "Legal Aspects of Water". The sessions were 105 minutes long and consisted of a keynote address followed by a moderated panel discussion featuring internationally prominent water experts. The panel discussions yielded some very important messages and insights, which were recorded by two rapporteurs assigned for each session. After the panel discussions, the audience was also given the opportunity to join the debate through Q&A's.

Next to the thematic sessions, a total of 20 side and special events were organised throughout the Forum by various national and international institutions and organisations on thematically relevant subjects. These events addressing a wide range of subjects complemented the Forum's thematic discussions and deepened its content. The subjects of focus ranged from water governance, water resources management in the face of climate change, capacity building, sustainable water and energy security, principles of national and international water law, science-policy interface and R&D studies in water sector. Some examples of good practices were presented to explain and illustrate the discussions. The 7th World Water Forum Secretariat and the World Water Council jointly held a side event to present the latest state of the Forum's preparatory processes. There was also a special event on the Forum's European Region preparatory process. The World Water Council also co-convened a side event with Korea Water Resources Corporation (K-Water) on green growth policies. DSI convened a side event to introduce the Water Ambassadors Project for raising awareness on the effective utilisation and protection of water resources. Other prominent institutions namely IWRA, ICID, OECD, WWF, SIWI and International Centre for Biosaline Agriculture (ICBA) also held their own meetings.

The Forum hosted a 3-day Water Expo, where a variety of water organisations and firms showcased their water-related activities, services and products.

A number of artistic performances and exhibitions were staged throughout the Forum showcasing traditional Turkish arts. On the last day of the Forum, a technical visit was held to a drinking water treatment plant and a wastewater treatment plant in Istanbul.

We hereby would like to thank all the participants and contributors for their parts in making the 3rd IIWF a success. We hope to continue and further this cooperation in the coming years.

Forum Programme

DAY 1 | 27th May, Tuesday	09:00-10:00	**Registration**			
	10:00-10:30	**Opening Ceremony**			
	10:30-13:00	**Welcoming Speeches**			
	Lunch				
	14:30-15:45	**Plenary Session: Water Security & SDGs**	**Side Event** 1 *K-Water, Republic of Korea*		
	Coffee Break				
	16:15-18:00	**Plenary Session: Istanbul Water Consensus - A Global Movement for Cities, Local and Regional Authorities** World Water Council; GWOPA	**Side Event 2** *YODAK,TRNC*		

DAY 2 | 28th May, Wednesday	09:00-10:45	**S-1. Adaptability of Water Governance at Different Levels and Regional Contexts**	**L-1. Legal Aspects on Protection of Water Resources**	**Side Event 3** *DSI, Turkey*	**Side Event 4** *Water Ambassadors*	
	Coffee Break					
	11:15-13:00	**S-2. Water-Food-Energy-Ecology Nexus: How to Achieve Interconnected Action**	**L-2. Transboundary Waters and Cooperation**	**Side Event 5** *SYGM, Turkey*	**Side Event** 4 *Water Ambassadors* (continued)	
	Lunch		**Side Event 6** *WWF-Turkey*	**Side Event** 7 *IWRA*	**Side Event** 8 *AQUA ForMed, France*	
	14:00-14:30	**S-3. Shift From Resources Management to Urban Water Management: A New Paradigm**	**L-3. National Water Legislation: A Comperative Perspective**		**Side Event** 9 *SYGM, Turkey*	
	14:45-15:45			**Side Event 10** *7th World Water Forum S.*		
	Coffee Break					
	16:15-18:00	**S-4. Climate: What Has Changed?**	**L-4. Right to Water and Sanitation**	**Side Event** 11 *ICID*	**Side Event** 12 *OECD*	**Side Event** 13 *IWRA*

DAY 3 | 29th May, Thursday	09:00-09:45	**Wrap-Up 1: Water Security**	**Side Event 14** *ISKI, Turkey*	**Special Event 15** *DWF; FWP*	**Side Event 16** *DSI, Turkey*	
	09:45-10:30		**Side Event 17** *ISKI, Turkey*			
	Coffee Break					
	11:00-12:30	**Wrap-Up 2: Legal Aspects of Water**	**Side Event 18** *MGM, Turkey*	**Special Event 15** *DWF; FWP* (continued)	**Side Event 19** *MINECO, Spain*	
	12:30-13:00	**Closing**				
	Lunch					**Special Event 20** *SIWI; ICBA* (closed meeting)
	13:30-18:00	**Technical Visit** (Water and wastewater treatment plants in Istanbul)				

Opening Ceremony

Speakers (in order of stage appearance)	**Ahmet Mete Saatçi**, President of SUEN **Doğan Altınbilek**, President of IWRA **Benedito Braga**, President of World Water Council **Jung Moo Lee**, Chair of National Committee for the 7th World Water Forum, Republic of Korea **Klaus Töpfer**, Founding Director of the Institute for Advanced Sustainability Studies (IASS Potsdam), Germany **H.E. Dinesh Gunawardena**, Minister of Water Supply and Drainage, Sri Lanka **H.E. Veysel Eroğlu**, Minister of Forestry and Water Affairs, Turkey

In Turkish culture water has had a major meaning throughout the history and an influence on arts. Hence, the 3rd IIWF had its start with an impressive artistic welcome by the Turkish Folk Dance Group Üsküdar, combining dances from different regions of Turkey.

Following this creative performance, Mr. Ahmet Mete Saatçi, the President of SUEN delivered his speech and inaugurated the Forum. Underlining the central location of Istanbul, he described Turkey as a country very close to Central Asia, the Balkans, the Middle East and North Africa, geographies with severe water shortages and problems. Saatçi stated that SUEN is willing to make IIWF a central water event and a platform for exchanging experience and best practices to solve major water problems around the world, just like the Stockholm Water Week in the North and Singapore Water Week in the East.

After this message of cooperation, honorary guests were consequtively invited on stage to deliver their speeches. They commonly pointed out that water security has multiple dimensions and this need to be dealt in cooperation with multilateral approaches.

Doğan Altınbilek, Vice President of the World Water Council, President of IWRA and member of the 3rd IIWF Advisory Committee, put stress on "good water management" and stated that it requires first a global approach that spans geographical and political boundaries, and a multidisciplinary approach that goes beyond traditional engineering and technical sciences to include economic, legal, social and institutional sciences. Altınbilek admitted that, recent global assessments of climate extremes, infrastructure and economic growth illustrate that water security risks are not being effectively addressed by current responses from science, government or enterprise.

80% of the global population faces a high level risk to water security. Many low-income countries face greater risks, but have the least ability to mitigate such risks through appropriate investments, infrastructure and institutions.

- Doğan Altınbilek

After Mr. Altınbilek's depiction of a general framework of water security, Benedito Braga, President of World Water Council, took the stage. Braga indicated that across all sectors, experts predict that climate change will amplify existing resource stresses. Braga also marked that, half of the world population will be living in water scarce countries by the end of the century and 35% of Sub-Sahara's cropland will become unsuitable for cultivation, with severe impacts on food security. At the same time, farmers around the world will need to produce 70% more food by 2050 to feed a population expected to exceed 9 billion people.

I recall it was during the (5th World Water) Forum that, for the first time a Heads of States Summit was held and that a Ministerial Declaration recognised access to water and sanitation as a human right, which opened the way to its recognition the following year at the United Nations General Assembly. This should be a great deal of pride for all of us involved here in Istanbul in 2009.

- Benedito Braga

The third speaker Jung Moo Lee, Chair of the National Committee for the 7th World Water Forum and former Minister of Land, Infrastructure and Transport of Republic of Korea, indicated that various issues and problems are included and interrelated when one discusses about "water security" and people are all well aware that it should be dealt within multi-faceted approaches in multilateral levels. Mr. Lee expressed his good wishes by stating: "The 7th World Water Forum will go above and beyond taking reliable and practical role for achieving our common goals to realise "sustainable water" for our future." Lee also expressed his hope that the processes and outcomes of the 3rd IIWF will closely link to the 7th World Water Forum.

Following Mr. Lee, Mr. Klaus Töpfer, Former Executive Director of the UN Environment

In every one year prior to the World Water Forum, I believe the Istanbul International Water Forum has made its crucial role to lead water colleagues under the imminent issues of the time.

- Jung Moo Lee

Programme (UNEP), Former German Federal Minister for the Environment, Nature Conservation and Nuclear Safety and Founding Director of IASS Potsdam took the stage and indicated that Turkey has been taking important steps in urbanisation and solving water problems of big cities. Töpfer also underlined that energy

The main challenges considering water agenda are technology, investment and political commitment. That is what we need again and again.

- Klaus Töpfer

and water nexus used to be mainly linked with hydropower for a long time, but it was a mistake. We need water as much as we need energy. Töpfer stressed that although there will not be any development without energy, we should question the possible consequences on the energy supply side if we disregard the actual water demand.

H.E. Dinesh Gunawardena, Minister of Water Supply and Drainage of Sri Lanka, emphasised his country's important experience on sanitation and level of improved water (85%). H.E. Minister stated that according to the Water-Food-Energy-

All riparian countries, let's come together to join in a commission and think about how to use the available water in our basin in the most efficient and effective way.

- H.E. Veysel Eroğlu

H.E. Veysel Eroğlu, Minister of Forestry and Water Affairs of Turkey

Climate Nexus published by the World Economic Forum Water Initiative, agriculture in Asia currently uses 70% of annual global freshwater withdrawals and up to 90% in some parts of the region. Governments across Asia will need an average of 65% more freshwater for their industry and energy sectors by 2030 to meet national growth aspirations. H.E. Gunawardena also stated that, there is a risk of water stress exacerbating future risks of conflict, but water scarcity may also help foster cooperation instead, within and between states and up to regional levels.

There is a risk of water stress exacerbating future risks of conflict, but water scarcity may also help foster cooperation instead, within and between states and up to regional levels.

- H.E. Dinesh Gunawardena

H.E. Veysel Eroğlu, Minister of Forestry and Water Affairs of Turkey, took the stage as the last speaker and gave important messages. H.E. Eroğlu explained that Turkey recognises her responsibilities towards lower riparian countries in the Euphrates-Tigris basin. As an upper riparian country, Turkey makes utmost effort to accomplish her duties not only on quantity but also on quality, and expects the same from all other riparian countries. H.E. Eroğlu addressed the neighbouring countries by stating: "In many of our big projects, we use our own technology" and invited them to share this knowledge. The Minister underlined that it is important to develop interdisciplinary cooperation and enhance international cooperation on technology transfer and training. H.E. also underscored the indispensability of developing cross-border and regional plans and programmes, because water ignores political boundaries and there are lots of things to learn from each other.

The Opening Ceremony in Haliç Hall was presented both in Turkish and in English, and simultaneously translated into Russian, French and Arabic.

Plenary Session:
Water Security and Sustainable Development Goals

Moderator	**Benedito Braga**, World Water Council
Keynote Speakers	**Loïc Fauchon**, Former President of World Water Council **Emre Yunt**, Ministry of Foreign Affairs, Turkey
Panellists	**Doğan Altınbilek**, IWRA **Torkil Jønch Clausen**, DHI Group, Denmark **Jean-François Donzier**, INBO **Akif Özkaldı**, DSI, Turkey

In this session, water security issues considering food, energy and ecological security, integrated water resources management (IWRM) and water governance were discussed together with a stress on the importance of a stand-alone water goal in the Post-2015 agenda.

Panellists explained the reasons of water security requirement in detail in the context of global water security for a changing world. Water security has 3 basic dimensions: human security, economic and social security, and ecological security. Water security cannot be imagined without access to safe water and basic sanitation for all. It requires improvement of water governance at all levels and also transboundary water management in a climate of peace and political stability. In other words, water security concept should be real, concrete, global, sustainable and equitable.

Importance of water security for energy security, marine security and food security was also highlighted. It was mainly discussed that, for secure water, there should be a good balance between supply and demand. Obviously there is no development without water. Water has an important role for the establishment of a balanced policy for achieving sustainable development, but not all the water should be used for development. On the other hand, water is an essential resource for nature, but water ecosystems have been damaged due to the growing pressure of population increase, rapid urbanisation and industrialisation, climate

Torkil Jønch Clausen, Benedito Braga, Akif Özkaldı, Doğan Altınbilek and Jean-François Donzier

change and changing consumption patterns that cause an increase in the amount of water used per capita. Herein, the question of "who will be the first victims of this change?" should be asked to decision makers.

Discussions also stressed the necessity of IWRM and stakeholder participation to achieve sustainable water resources management and protection. Herein, the basin scale should be accepted as the management unit of IWRM implementations, since the basins include the characteristics of water resource in their estuary including the natural and geographical environment of the water course (river, lakes, free charge of aquifers) wherever they are located (local, national or transboundary). Therefore the same model cannot be used for every basin. In general, the importance of good governance was emphasised as a pre-condition for successful and sustainable IWRM. Efficient monitoring systems, transparent data sharing among stakeholders, assigning real power to decision makers at all levels are very crucial for the success. Thus, adaptive water governance should be taken into account for effective solutions.

Panellists emphasised the need for a multidisciplinary approach towards water, food, energy, and ecology nexus. They also underlined the important role of water for generation, extraction and cooling-off in energy sector. Likewise, there is need for energy for the generation, transmission and purification of water. The link between water and energy makes the security of both resources highly essential. Water is also strongly linked to food security. Water should be managed well to achieve sustainable food production. However, the panellists also questioned why so much effort is put for better water management in agriculture, while 30-40% of produced food is wasted.

The history of SDGs starting from the UN Millennium Development Goals (MDGs), which will be expired in 2015 was explained. Following the MDGs, developing a set of SDGs were requested by member states to build upon considering the Post-2015 agenda with a need for new targets. According to the United Nations (UN) Water Statistics, 2.5 billion people still lack improved sanitation and 2.4 billion people will still lack improved sanitation facilities in 2015 (unwater.org). Therefore, sustainable access to sanitation should be safeguarded for human wellbeing. However, there is still a long way to reach this goal.

"You need water, but water needs you" is the slogan to drive our action to put water security as a global priority.

- L. Fauchon

Loïc Fauchon, Former President of World Water Council

The diagram shows the suggested goal and the key interlinked targets by UN-Water

The session emphasised the importance of a stand-alone water goal in SDGs with ongoing components on universal access to safe water

What will be the world if we have not enough fresh water in the rivers and lakes for dealing with all the human need?

- J. F. Donzier

and sanitation together with new components on wastewater management, wastewater reuse and water resources management. It was stressed in the 2013 Budapest Water Summit that there is a need for smart(er) targets that are specific, measurable, applicable, achievable, and time-bounded. These targets should address the main water-related issues including: improving integrated and cross-sectoral approaches to water resources management, reducing pollution and increasing collection, treatment and reuse of water, and increasing resilience against the water-related impacts of global changes.

Achieving SDGs highly depend on Means of Implementation (MOI) and monitoring the targets. The question is whether all countries with monitoring systems should actually achieve the goals or not.

Panellists highlighted that if water will be included in all targets, then it will not be a target itself. It was strongly indicated at the end of the session that, the way of making water a stand-alone goal in SDGs is by water experts taking water-related political decisions instead of experts from other sectors such as energy, food, transport, health and ecosystems.

Key Messages

- First victim of climate change is water.
- Develop key political decisions about water for each sector.
- Think global, act local and integrate at local level.
- Equitable and effective integrated water resources management should be the ultimate objective.
- Put smarter targets for water in the SDGs.

Plenary Session:
Istanbul Water Consensus - A Global Movement for Cities, Local and Regional Authorities

Moderator	**Faraj El-Awar**, GWOPA
Keynote Speakers	**Benedito Braga**, World Water Council **Jung Moo Lee**, National Committee of the 7th World Water Forum, Republic of Korea **Atilla Altay**, ISKI, Turkey
Panellists	**Bert Diphoorn**, GWOPA **Samir Bensaid**, Office National de l'Electricité et de l'Eau Potable (ONEE), Morocco **Torkil Jønch Clausen**, World Water Council **Henri Bégorre**, World Water Council

Faraj El-Awar, Henri Bégorre, Bert Diphoorn and Benedito Braga signing the Act of Agreement

Istanbul Water Consensus is important because it deals with local governments. When you get to the local governments, you can get to the stakeholders.
- T. J. Clausen

This plenary session had a wide target audience composed of local and regional authorities, including elected officials, water and sanitation operators and water managers.

During the Water World Water Forum in Istanbul in 2009, mayors and elected officials of local authorities expressed their readiness to take leadership in coordinating dialogue and implementing integrated water management approaches, by signing the Istanbul Water Consensus (IWC). The Consensus acknowledges the need for concerted efforts in urban water management, and commits its signatories to take stepwise action to do so. Currently, over 1100 cities, towns, local and regional authorities have committed to improve their water resources and their water and sanitation management. They have used the IWC as a framework for defining their commitments and galvanising change in their localities.

The plenary started by addressing the needs for a water consensus. The primary motivation for having such a network is the imminence of over-urbanisation process taking place across

The future of cities depend on rural areas. In an integrated approach, you have to keep the synergy between rural and urban.
- S. Bensaid

the globe. The future of human-beings will be structured by urban life. Already more than half of the world's population lives in cities, whereas rural areas have been abandoned gradually. This trend requires wiser water policies for cities. This is a great challenge that obliges us to consider competing water needs of rural and urban areas. It is preemptive to pursue the ecological and socio-economic needs of rural communities in order to ensure sustainable water management for urban areas. Another challenge is the suburbanisation of cities. Especially in developing countries, slum communities with inadequate means of welfare deprive even basic rights to domestic water and sanitation. These challenges, along with countless minor ones, pin down water authorities to develop innovative solutions at local level, yet in collaboration with identical communities from different regions.

Dialogue between local authorities is the key for cooperation. The panellists asserted that 90% of the water operators are public institutions that implement the plans developed at different levels, be it local or global. Local operators are the ones who will actually implement the SDGs on water. The IWC encourages local operators to take responsibility in specific issue areas, set tangible targets and work with different stakeholders to realise its goals. The IWC is embraced at varying intensities in different regions. For instance in Brazil, numerous water operators concentrated around Sao Paulo are engaged with the IWC, whereas notably in Asia only a few partners contributed to the process so far. It is expected that the 7th World Water Forum will inspire other countries and local authorities in the region to join this initiative.

Another key step for success is to incorporate the efforts of actors from outside the water sector into water policies. Organisations such as United Cities and Local Governments (UCLG) and Local Governments for Sustainability (ICLEI) support the IWC in this manner. The experience from outside the water box is of great value for making real change. Such approach is necessary to make participation count. The panellists pointed out that one of the best features of the IWC is its appraisal of grassroots in policy making. Local actors are genuine components of participatory decision making. The success of sustainable water management hinges upon stakeholder partnership. The IWC document itself is a product of stakeholder interaction, because it was developed in a collective manner throughout the 5th World Water Forum.

The plenary session presented the new online tool for monitoring and benchmarking among local and regional authorities. This new website will enable accountability, transparency and responsiveness. The panellists also emphasised the significance of the IWC with reference to different local cases. Water operators among the panellists highlighted good practices from their own work that could help streamline integrated urban water management. The plenary revealed that cooperation among local actors at global scale provides relatively greater potential compared to acting alone for the development of water and sanitation services. The plenary session came to an end with the signing of an Act of Agreement between UCLG, ICLEI, GWOPA and the World Water Council.

Access the Istanbul Water Consensus at www.istanbulwaterconsensus.org

To read the document, please see Annex.

Key Messages

- Local authorities and water operators are the primary implementers of policies.
- Actors from outside the water box are vitally important.
- Use Forums for developing applicable initiatives.
- Urban water management is meaningless without considering rural conditions.

Theme 1. Water security

Sessions

S.1. Adaptability of Water Governance at Different Levels and Regional Contexts

S.2. Water-Food-Energy-Ecology Nexus: How to Achieve Inter-connected Action

S.3. Shift from Resource Management to Urban Water Management: A New Paradigm

S.4. Climate: What has Changed?

Session S.1.
Adaptability of Water Governance at Different Levels and Regional Contexts

Moderator	**Doğan Altınbilek**, IWRA
Keynote Speaker	**Aziza Akmouch**, OECD
Panellists	**Henning Bjornlund**, University of South Australia School of Commerce, Australia **Ngai Weng Chan**, University of Science, Malaysia (USM) School of Humanities, Malaysia **İpek Erzi**, TUBITAK Marmara Research Centre (MRC), Turkey **James Nickum**, Water International **Recep Akdeniz**, Ministry of Environment and Urbanisation, Turkey
Rapporteurs	**Osman Tıkansak**, SUEN, Turkey **Ellia Guy**, IWRA

A water crisis may rarely stem from physical scarcity of water. It is frequently a matter of inadequate infrastructure and mismanagement. The future water agenda holds many uncertainties and risks of quality, access, shortage and disasters. Challenges as such necessitate greater interaction among multiplied actors, who compete for access to and use of certain amount of water and make trade-offs between risk factors with varying intensities. Increasing complexities enforce water community to utilise responsive concepts and tools such as governance.

The first topic addressed in the session was the development of governance as a relatively new concept. What can governance offer to enrich our conventional understanding of water management that ruled over until early 1980s? According to the conventional water management approach, governments were

Doğan Altınbilek moderating the session

the leading decision makers that left little or no room for other stakeholders in decision making process. Water management used to be largely an issue of supply management that put engineering at the centre of decision making for allocating more water for fragmented demands. Yet, misuse of water resources by different sectors started to cause risks of scarcity and degradation around 1980s both in developing and developed countries. As a consequence, the decisions that governments have to make became really complex and challenging, conflict driven and multidisciplinary. This caused politicians to be reluctant to take responsibility of making decisions, which would inevitably lead to unpopular reception among some segments of the society. Eventually, governments discerned the benefit of stakeholder engagement in terms of justifying decisions, sharing responsibilities and splitting the costs.

Aziza Akmouch explaining OECD's approach to governance

In many cases privatisation itself is not a problem. The problem is how we privatise and how we determine the tariffs.

- N. W. Chan

Enhanced interactions and negotiations between different water users through decision making process means a shift from top-down supply management to bottom-up demand management. In the session, it was stated that governance concept should emphasise participation of civil society and individual users, as well as administrative processes and institutions. In governance framework, governments still hold the leading position as planners and mediators who should guarantee that none of the stakeholders hijacks the management process by neutralising others. The session touched upon the similarity between water governance and IWRM as novel tools of management by referring to the involvement of multiple stakeholders in a multidisciplinary way in both processes.

The issue of private sector involvement and pricing of water and sanitation services on equitable access to water received a great deal of attention by the panellists. There was a general consensus that, as long as a well-functioning administrative system that allows room for transparency, monitoring and accountability, is in place, public-private partnerships can promote water services for all. The key aspect here is to assess geographical, social, economic and environmental particularities carefully, and develop a tailor-made governance model accordingly. OECD's case studies for instance, focus on OECD countries and Latin America countries separately to expose water governance gaps and institutional effectiveness, and draw lessons for the water sector. The case studies surprisingly reveal that several OECD countries, with no significant access problems, still encounter acute funding and capacity gaps. This means that there is a mismatch between the allocation of responsibilities and distribution of financial capabilities in OECD countries. A similar study on 13 Latin American countries showed that accountability and participatory decision making are the two main gaps in the region.

It was concurred in the session that investment and service provision costs go hand in hand with pricing policies. Irrigation water is heavily subsidised globally, regardless of the development rate of countries, whereas pricing

Shift to governance is very much shift to demand management from supply management.

- H. Bjornlund

of household water services dramatically varies from region to region. In developed countries and relatively prosperous urban settlements with established water infrastructure, penetration of private actors in water sector generally does not cause higher water tariffs, whereas in developing countries and rural areas, high investment costs for fundamental infrastructure cause increase in water tariffs. Doubled with sparsely populated nature of rural areas, per capita cost becomes even a greater burden over poor communities. In order to overcome the dichotomy between meeting the inevitable water service costs and providing access for all, panellists proposed some solutions including differential pricing according to water use amount, subsidising minimum water requirement of poor communities, and setting fair pricing and affordability criteria.

The session also attempted to respond to a hot topic about the applicability of governance models at different scales and political structures. The question was whether it is possible to develop and apply a global governance model for fresh water resembling Kyoto Protocol for climate change, Ramsar Convention for wet lands, or Convention on Biological Diversity. The answer was probably not. However, ratification of the 1997 UN Watercourses Convention (UNWC) was regarded as a good start that gives a legal framework to set out some principles. UNWC guarantees the sovereignty of the upstream country, while recognising their obligation not to harm the downstream countries significantly. Yet, it has many shortcomings to be regarded as a full-fledged governance model; it does not address the domestic waters, human rights and groundwater issues properly. The session also addressed the claim that governance model is essentially applicable to western democracies. Several historical cases were put forward from the East including China, Korea and Taiwan to challenge this claim with interesting practices of participatory decision making and financing methods.

Key Messages

- Neither the problems, nor the solutions about water governance are identical at different contexts.
- To cope with future water crisis, transparency, accountability, equity and participatory decision making will be used in a trending manner.
- Differential pricing should ensure that poor communities have access to water to meet their basic needs, whereas major water users should be subject to full-cost recovery.
- Global conventions are not all-inclusive governance tools, yet they can still be used as guidance documents.

Session S.2.
Water-Food-Energy-Ecology Nexus: How to Achieve Inter-connected Action

Moderator	**Benedito Braga**, World Water Council
Keynote Speaker	**Lütfi Akça**, Ministry of Forestry and Water Affairs of Turkey
Panellists	**Masum Burak**, General Directorate of Agricultural Research and Policy (TAGEM), Turkey **Ximing Cai**, University of Illinois at Urbana-Champaigne Department of Civil and Environmental Engineering, USA **Hüseyin Gündoğdu**, ICID **Karin Krchnak**, WWF US **Ali Ünal Şorman**, Near East University (NEU) Department of Civil Engineering, TRNC; Middle East Technical University (METU), Turkey
Rapporteurs	**Kozet Yapsaklı**, Marmara University, Turkey **Nuray Akalın**, SUEN, Turkey

It is impossible to analyse the elements of the nexus one at a time as if they are independent.
- A. Ü. Şorman

Human development and environmental sustainability is only possible when the complex linkages between water, food and energy security are acknowledged and understood in all their complexities. Systemic approach promises much, but still more effort is needed to enhance our local, national, regional and global policies, institutions and systems to better understand and act on these linkages. Ecology, on the other hand, should be acknowledged as the fourth pillar of this nexus approach as it supports each of the three securities. This session focused on the nexus connections, interdependencies and trade-offs, discussed the barriers to achieving integrated policy and management strategies, and demonstrated integrated approaches and solutions through case studies.

Ximing Cai pointing at the trade-offs between food and energy

If we want to be extremely holistic, we may not even start moving.
- B. Braga

The words "trade-off" and "synergy" were mentioned all through the session. At the outset, the panellists pointed out that water, food and energy policies are developed largely in isolation from one another and the political community lacks awareness about the nexus connections. Decision-makers should be guided with methodologies and conceptual models in order to build synergies and make right trade-off decisions among the nexus components. This type of systematic approach will reduce the costs and increase benefits for the ecosystems compared to individual systems approach.


Ali Ünal Şorman stressing the need for systematic thinking

Financing will be really critical if we want to see this nexus really operationalised.
- K. Krchnak

Panellists also underlined that the limiting factor is not the scarcity of resources, but natural resource management.

Lack of coordination, communication and cooperation between institutions was identified as a barrier to achieving integrated solutions. It was stated that water has to be raised to the highest political level for the nexus to really function. Power dynamics of institutions was also raised as a determinant, as there may be occasions where one decision made by a ministry is overridden by a more powerful ministry to the detriment of the nexus approach.

Panellists also addressed the issue of "fragmentation of laws". Water law is very much connected to other laws such as property, energy and agriculture, but there is a fragmentation and disconnection among these laws. The legal framework should be functional to take trade-off decisions and make synergy happen. It is important to have integrated policies and laws not in conflict with each other.

Besides local solutions, it was stated that virtual water flow and the global food trade may promise a global solution, which will help people achieve some global water saving and also benefit local people by allowing them to allocate their water for more efficient uses.

Private sector was mentioned as a key actor in the nexus. It was stated that more and more companies are making changes in their own operations to deal with their water risks. Panellists called for more collective action platforms where the governments, private sector, NGOs and the civil society work together to make trade-off decisions in dialogue with each other. The UN Global Compact's CEO Water Mandate, which is the first global water stewardship standard applied to companies and utilities, and the International Hydropower Association (IHA) Hydropower Sustainability Assessment Protocol were shown as two examples that actually can help the nexus dialogue on making decisions for the benefit of all the different uses for long term. The role of banks and international financial institutions and how they finance projects was also described as critical in terms of balancing the nexus components.

Innovation and technology were reflected as absolutely necessary to make sure the nexus is operated in an intelligent way. R&D activities in Turkey on finding crops that are more resistant

to droughts, more efficient irrigation methods and producing biofuels from non-edible plants and algae were given as good examples.

Changing of dietary habits and ways of consuming was also mentioned as a measure to reduce pressure on water resources and diminish the conflict between different uses.

Special emphasis was placed on climate change and it was criticised that the models that are being developed to inform the decision-makers on how to make the trade-off decisions do not fully take into account the changes in climate.

Panellists reflected that having a dedicated water goal in the Post-2015 Development Agenda is of utmost priority, but the financing of the implementation of these commitments is even more important to see the nexus really operationalised.

The session concluded that it may not be possible to achieve an extremely holistic solution that considers all the nexus components at once, but it is possible to start with solving some parts of the nexus and subsequently integrate the other parts.

Key Messages

- Introducing the ecology component in the water-food-energy nexus is important.
- Systematic thinking is a must and policy makers should better understand and act on the nexus approach.
- It is important to have integrated policies and have water-related laws not in conflict with each other.
- Lack of coordination and cooperation between institutions is an obstacle.
- Having the right tools (methodologies, approaches and models) is important to assess what we are trading-off.
- Models should take into account climate change.
- There is need for more collective action platforms where the governments, private sector, NGOs and the civil society work together and take trade-off decisions in dialogue with each other.
- Innovation and technology is extremely important to make sure the nexus is operated in an intelligent way.

Session S.3.
Shift from Resource Management to Urban Water Management: A New Paradigm

Moderator	**Tom Soo**, IWRA
Keynote Speaker	**Mark Redwood**, International Development Research Centre (IDRC)
Panellists	**İrfan Aker**, ICOLD **Ngai Weng Chan**, USM School of Humanities, Malaysia **James Nickum**, Water International **İzzet Öztürk**, Istanbul Technical University (ITU) Department of Environmental Engineering, Turkey **Azime Tezer**, ITU Department of Urban and Regional Planning, Turkey
Rapporteurs	**Burcu Yazıcı**, SUEN, Turkey **Meltem Delibaş**, SUEN, Turkey

The best and often the cheapest management options come from actively seeking connections between good water supply and sanitation, and bigger issues such as economic growth, poverty reduction and food security.

- M. Redwood

This session identified the existing problems in urban water management and contemplated on socio-economic and environmental impacts of rapid urbanisation on scarce water resources. The panellists overviewed the roles and responsibilities of the authorities, the tools for implementing sustainable and economically feasible urban water infrastructures, as well as the risks of extreme weather conditions on water demand and supply.

Rapid urbanisation was highlighted as the main challenge taking into consideration that 70% of the world population is expected to live in cities by 2050. Urban areas have always been the centre of attraction for citizens, offering better opportunities compared to rural areas. Yet, the new settlers are frequently confronted with some constraints, mostly due to higher prices encountered in cities. As a result, cities expand as illegal settlements, where providing services can

İrfan Aker of ICOLD delivering his speech

We have to change from water supply paradigm to water demand paradigm.
- N. W. Chan

be difficult and existing infrastructures cannot meet the demand. The undesired outcome of this pattern is urban poverty resulting in lack of trust between authorities and citizens. Lack of confidence may restrain people from paying their bills and raise the problem of insufficient funding to provide necessary services as encountered in many parts of the world today. Another factor that compounds urban poverty and insufficient water services was stated as the lack of legal clarity about the duties of different authorities. It was also emphasised that interdisciplinary collaboration is essential for effective urban water management.

Water loss should be regarded as a priority by water utilities.
- İ. Aker

The panellists also expressed that adequate quality and quantity of water are indispensable constituents of economic growth and development. However, it will not be possible to appraise the economic and ecological value of efficient water use unless water loss in distribution lines is minimised. The annual amount of non-revenue water worldwide is estimated to be around 50 billion cubic meters. Non-revenue water is more than 50% in developing countries, whereas this rate is around 10-15% in developed countries. As a matter of fact, nearly 200 million people could gain access to water, if annual losses in developing countries can be prevented. Furthermore, non-revenue water is a major loss of not merely scarce water resources but also energy, since facilities require substantial amount of energy for water treatment. The panellists stressed out that non-revenue water should be the top priority of authorities in order to achieve sustainable urban water systems.

The issue of wastewater collection and treatment was raised as another major issue and it was marked that discharge of wastewater opens a major gap in the water cycle of cities. Wastewater should instead be assessed as an alternative resource of water, energy and nutrients. The nutrient content, nitrogen and phosphorus, can actually be reclaimed as fertiliser, whereas energy can be utilised in wastewater treatment facilities to reduce the net energy demand and accordingly its carbon footprint. Recycled water, on the other hand, can be used for industrial applications or other purposes. Thereby, the net water demand can be reduced by 20-25% if only grey water is recycled, and more than 50% of water can be saved if treated wastewater is reused. This will, in return, provide more water for ecosystem and minimise the water footprint of cities. It was stated that ecosystems are vital assets providing multiple benefits for human welfare. The average value of world's ecosystem services is estimated to be US$33 trillion. However, without a proper adoption of an integrated and multi-functional water and land management approach, which takes into account the effects of climate change as well as vital functions of the ecosystem, the sustainability of these ecosystems is at stake.

The panellists agreed that a shift from water supply management to demand management is required in all sectors. This shift can be facilitated by using various tools, such as raising awareness and educating citizens to encourage water saving, using alternative water resources such as rainwater harvesting, grey water reuse, and water tariffs.

Key Messages

- Minimisation of non-revenue water is of primary importance for efficient water management.
- Water footprint should be adopted as an indicator of a city's level of development.
- Wastewater is a valuable resource of water, energy and nutrients. The gap in the water cycle can be closed by recycling wastewater.
- Ecosystem services should be integrated into water and land management to sustain healthy communities.
- Cooperation among stakeholders and taking a multi-disciplinary approach is vital for building trust between authorities and citizens.

Session S.4.
Climate: What has Changed?

Moderator	**Mark Redwood**, IDRC
Keynote Speaker	**Zekai Şen**, Water Foundation, Turkey
Panellists	**İsmail Güneş**, MGM, Turkey **Kun-Yeun Khan**, Kyungpook National University Department of Civil Engineering, Republic of Korea **Giuseppe Rossi**, University of Catania (UNICT) Department of Civil and Environmental Engineering, Italy **Paula Silva**, CH2M HILL, Mexico **Kaoru Takara**, Kyoto University, Japan
Rapporteurs	**Mete Tayanç**, Marmara University, Turkey **Seçil Karabay**, SYGM, Turkey

The main intention of the session was to debate on the impacts of climate change on water resources, management of the changes and to discuss the adaptation side of the equation. In this session, the panellists answered the following questions; "What are the main effects of climate change on water resources?", "How can climate change information be integrated in water resources adaptation planning?", "What examples of successful adaptation measures can be suggested for the water sector?", "How can the performance of adaptive water resource management be best assessed in the context of climate change?" and "What is the next main challenge for planners and researchers?".

It was indicated in the keynote speech that hydrological and meteorological cycles are going to be affected by climate change and the major reason giving rise to the issue is the over-consumption of non-renewable energy resources, such as fossil fuels. Population growth paired with increasing consumption, industrial investments, deterioration of the quantity and quality of water resources and mismanagement should be considered in order to understand

Use green infrastructure instead of grey, this is called "green for grey".
- P. Silva

Paula Silva from CH2M HILL, Mexico

Engineers and policy makers don't say so much, people don't know the facts.

- K. Takara

the climate change issue. The consumptive behaviours of humans cause changes in the chemistry of the atmosphere, and as a result, CO_2 concentrations and intensity of the extreme weather events, such as droughts, floods and tornedos, are constantly increasing. In order to face the effects of mismanagement, IWRM should be adopted and carried out by taking into account not only human activities but also the ecosystem, surface and groundwater resources altogether. Especially, groundwater resources should be considered as the main water resource, since thousands of wells have been and will continue to be drilled around the world. While some countries have the technology to dig deeper and reach high quality water, poor countries will encounter problems to do so. Besides, the rise in sea levels will have negative impacts on aquifers in coastal areas.

Provide new design criteria for disaster prevention measures such as infrastructures against flood and drought problems.

- K. Y. Han

It was mentioned by the panellists that one of the difficulties encountered in climate change studies is the uncertainty of climate change predictions and hydrological modelling. Most of the global climate models provide only coarse resolutions, but more accurate results can actually be obtained if each country develops its own climate model with a suitable "downscaling" procedure. Moreover, these models must be updated with new data every five years. Statistical approaches can be used as well to determine the frequency of extreme events, which are observed over very long time periods. It is therefore important to optimize these models with new, high resolution and reliable input data.

This session also provided a platform to discuss possible adaptation recommendations. Enlargement of the monitoring parameters was suggested. Not only hydrological data, but also chemical and biological indicators for water quality should be monitored and improved with technical and economic performance of service management. Certain adaptation actions for water demand management can be achieved by promoting water reuse and preventing water contamination. It was also recommended to expand green spaces in order to decrease surface runoff to prevent flooding, and to capture water by enhancing the infiltration of precipitation into groundwater. Aging infrastructures can be renewed and upgraded by taking into account the worst case scenarios. Furthermore, water-energy nexus should be a priority issue in operation practices and energy saving strategies should be implemented.

It was emphasised that water transfer is not an ultimate solution for solving the climate change problems of urban areas. New technologies such as desalination will help to supply more water especially to large cities. On the other hand, hydrogen energy was given as an example for a renewable energy source and it was claimed that it will help in making climate change less threatening for humanity.

It was also mentioned that governments should be encouraged to prepare master plans for water-related problems, develop adaptation policies and prepare legal frameworks. Strong collaboration and cooperation should be developed among different disciplines such as economy, hydrology and meteorology, and a working group should be created to share experiences at international level.

Key Messages

- "Risk Management Approach" is better than "Crisis Management Approach".
- Climate change will affect the hydrological cycle and we will have to combat the adverse effects of extreme hydrological events in some geographies.
- The most developed countries must reduce their industrial activities in order to give some chance to other countries.
- Countries should develop their own climate models with suitable "downscaling" procedures.

Theme 2. Legal Aspects of Water

Sessions

L.1. Legal Aspects on Protection of Water Resources

L.2. Transboundary Waters and Cooperation

L.3. National Water Legislation: A Comperative Perspective

L.4. Right to Water and Sanitation

Session L.1.
Legal Aspects on Protection of Water Resources

Moderator	**Jean-François Donzier**, INBO
Keynote Speaker	**Karin Krchnak**, WWF US
Panellists	**Carl Bruch**, Environmental Law Institute, USA **Torkil Jønch Clausen**, DHI Group, Denmark **Serap Perçin**, SYGM, Turkey **Raya Marina Stephan**, Water Law Expert, France
Rapporteurs	**Arnaud Courtecuisse**, Artois-Picardie Basin Authority, France **Tuğba Evrim Maden**, Middle East Strategic Research Centre (ORSAM), Turkey

We are missing the main principle in law, which is "not waste water, not waste resources".
- C. Bruch

In this session, it was aimed to investigate the evolution of the role of water legislation at both national and international levels over the last decades. The purpose of this session was not to make an exhaustive overview of the evolution of the water legislation, but to identify the key elements that will foster the effectiveness of legislation for ensuring protection of water resources in an integrated and sustainable manner. The illustrations and insights provided by the keynote speaker and the panellists gave a clear picture of the main elements that should be taken into account in order to develop water legislation and conditions for protecting water resources. The main discussion topics of the panel were the design of water laws, effectiveness of implementation, international frameworks on water resources and the importance of public awareness. In addition, role of governments and international organisations for protection of water resources, cooperation among stakeholders, needs for effective implementation of water law, main challenges on the prevention of water resources against degradation, awareness and public participation were discussed. The EU WFD and other regional instruments were also mentioned in comparison with UN regulations. It was underlined that water law should cover basic issues and other legal instruments like by-laws, communiques etc. should function as supportive instruments addressing specific water-related issues. Framework laws should be preferred rather than prescriptive legal instruments. On the other hand, groundwater dimension is mostly missing in water laws. Since aquifers are under stress, measures for groundwater should be a part of the laws.

The panellists asserted that the procedure of preparation, approval and adoption of new water laws could be so long, since it is a very slow process. During this period, existing situation of water resources can change. Different legal systems in different countries may also cause difficulties for the adaptation process. Therefore, water laws should be flexible to changes and the time allocated for their design should be reasonable in order not to have a law fully outdated before its adoption. Regarding the design of water legislation, it was recommended to keep a broad approach and use existing tools (e.g. polluters pays principle). While designing water legislation, interaction of water with other fields such as energy, food supply and economy should also be fully taken into account.

Effective and efficient implementation is even more challenging than the design of water law. The implementation of water law or a piece of legislation should be supported by adequate

Water law is to be implementable.
- T. J. Clausen

funding in line with universal principles that could generate revenues earmarked to water resources protection. Pricing of water services should be used as the major tool and beyond that, the basic principle should be "benefit sharing" over water resources. The polluter pays principle alone cannot prevent degradation, at that point valuation of ecosystem services is also needed to protect water resources.

Even if not legally binding for the states, the international conventions such as the 1997 UNWC, United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD) on water resources provide a positive signal and help to improve water governance among parties and upstream and downstream countries. In the context of international politics, economic aspects of water are taken into consideration, while the right to water use is mostly disregarded. In this framework, vertical and horizontal integration is also important in terms of collaboration among different sectors. Local governments should also cooperate for a successful river basin management.

Knowledge sharing is a crucial element among upstream and downstream countries. Since land use is important in terms of water quality, considering the pollutants upstream countries should use appropriate treatment facilities to improve water quality. Similarly, the route and criteria for water allocation or allocation of benefits should be clearly defined. The needs and the amount of water to be shared should be estimated.

Karin Krchnak presenting the distribution of water policy doctrines

Major challenges for implementation are funding of water laws and political interest.
- K. Krchnak

It was emphasised by the panellists that raising public awareness is also very crucial to ensure that water legislation is fully understood and supported. Water laws should be applicable and the key points should be understood by each stakeholder.

Key Messages

- Framework conventions provide baseline and positive aspects for the protection of water resources, thereof national laws should comply with international law.
- Priorities of national law should be to avoid water waste and promote saving water.
- Public awareness is a must for the effective implementation of water law.
- Adequate funding and political interest are the priorities for designing and implementation process of water law.
- EU WFD prevents waste of water and the programmes about capacity building can be assumed as a common framework.

Session L.2.
Transboundary Waters and Cooperation

Moderator	**İlter Turan**, Istanbul Bilgi University, Turkey
Keynote Speaker	**Yaşar Yakış**, Former Minister of Foreign Affairs of Turkey
Panellists	**Altay Altınörs**, Ministry of Foreign Affairs, Turkey **Stefano Burchi**, International Association for Water Law (AIDA) **Gabriel Eckstein**, Texas A&M University School of Law, USA **Lilian Del Castillo-Laborde**, University of Buenos Aires School of Law, Argentina **Raya Marina Stephan**, Water Law Expert, France
Rapporteurs	**Burcu Çallı**, SUEN, Turkey **Scott McKenzie**, IWRA

This session addressed the basic principles of international water law regarding cooperation in transboundary water basins and enabled a discussion on cooperation practices with reference to various examples from different regions of the world.

is a pressing need to enhance cooperation on transboundary water resources. Water is critical to fulfil the human right and also for economic development. The panellists stated that there are numerous case studies which can help move the current body of international law and practice

Cooperation must start with data, but data could only be obtained by calibrating the measurement tools.

- Y. Yakış

The session attracted a large audience

The keynote speech put forward the basic facts about water use, water cooperation, international watercourses conventions and agreements as well as water use and watercourses in Turkey. The panel discussion underlined that there

forward to address the needs of tomorrow without conflict. There are many success stories of states working together to jointly manage shared watercourses. Cooperation in the Senegal River Basin, the La Plata River Basin and the

transboundary cooperation between Mexico and the United States are defined as some of the good examples. States have a number of incentives to cooperate such as better utilisation, economic benefits, improved ecosystem and health services and regional peace.

Each region has its own particular water issues. It is important that each basin and the countries in the basin have their own agreements.
- L. Castillo-Laborde

of existing water resources, pollution control, data sharing, calibration of the measurement techniques, harmonisation of data and joint monitoring that states can take towards the cooperation goal, which will help to build technical capacity and political trust. Sound river

Yaşar Yakış, Altay Altınörs, Stefano Burchi and İlter Turan

The panellists brought the effectiveness and the relevance of international legal instruments into question, particularly with reference to the 1997 UNWC. There is still a debate about the terms and definitions of the principles and how to assess and weigh these key principles such as equitable use, significant harm and due diligence. The 1997 UNWC going into force is a step forward for international water law, but it does not mean that the Convention is corresponding or responding to the needs of all the parties/stakeholders and effective for all transboundary river basin cases. It is agreed that international instruments are the guidelines and the framework for transboundary waters, but basin-specific solutions are the key for better transboundary water management. A context-specific approach that takes the special needs and understandings of each basin into consideration is needed.

The whole point about international law is to facilitate and promote cooperation.
- S. Burchi

The explicit common view of the panel was that there are many small steps like identification basin commissions are needed to create a win-win situation for all parties and to achieve sound water resources management at basin level.

One of the main emphases of the session was that political will is a key for cooperation and joint management of transboundary waters requires significant political commitment. It was also agreed that sharing of the benefits would encourage and enhance cooperation. Economic dimension and joint investments can help foster the objective of cooperation by shifting the emphasis from sharing of water resources into sharing of benefits. States must continue working together to manage their transboundary water resources within and beyond the provisions of international law. The final outcome of the session was that the codification of international water law continues to evolve and will provoke arguments.

Key Messages

- Political will is a key for cooperation.
- Step by step approach for cooperation is needed.
- Harmonisation of data must be the first step.
- Sharing of the benefits would encourage and enhance cooperation.
- Basin specific solutions for better management of transboundary water resources.

Session L.3.
National Water Legislation: A Comperative Perspective

Moderator	**Aslıhan Kerç**, SUEN, Turkey
Keynote Speaker	**Stefano Burchi**, AIDA
Panellists	**Emmanuel M. Akpabio**, University of Uyo Deparment of Geography and Natural Resources Management, Nigeria; Kyoto University, Japan **Hüseyin Gökçekuş**, Higher Education Planning, Evaluation, Accreditation and Coordination Council (YODAK), TRNC **Naim Haie**, University of Minho, Department of Civil Engineering, Portugal **Hasan Z. Sarıkaya**, International University of Sarajevo, Bosnia-Herzegovina
Rapporteurs	**Carl Bruch**, Environmental Law Institute (ELI), ABD **Huriye İncecik Ceylan**, SYGM, Turkey

In this session, the scope, principles and sources of national water laws and the role of legal sanctions for an efficient water management were discussed by distinguished water experts from different countries.

Naim Haie from Portugal speaking in Session L.3

The discussion started with a keynote speech, which covered the main trends and the developments in domestic water resources legislation based on comparative analyses across different countries. There has been a shift from private ownership of water to public custodianship and accordingly, water abstraction and water pollution became subject to administrative licensing procedures. In this context, the licensing authority of the government regarding water abstraction is qualified by requirements related to Environmental Impact Assessment (EIA), ecological flows, planning, and human needs. Increasingly, charging for the use of water resources is sought by water law through the application of principles, for example the "user-pays" and "polluter-pays". It was stated that because of water's cross-cutting nature and importance to multiple sectors,

The laws have to be adaptable and flexible.

- S. Burchi

water law increasingly requires a broader view that extends beyond water-specific legislation to include the legislation governing the water-land interface, environmental protection, the "greening" of water law, and other sectors such as transportation and energy. The substantial expansion of participation of water users and other stakeholders was mentioned as another trend in the management of water resources. Furthermore, the growing recognition of the need to account for ancestral water rights and practices was indicated as a hot topic in national water legislation.

Assessment and enhancement of government capacity to administer water-related legislation, involvement of users and polluters in compliance monitoring, capacity building of law enforcement officers in water law, simplification of criminal procedures and coordination between the government and the judiciary were recommended by the panellists as some of the solutions to improve implementation and enforcement of water law. The session underlined the integration concept and despite defining it as hard, put particular emphasis on the integration of the quality and quantity issues; land and other sectors; surface and groundwater management.

Stefano Burchi, Emmanuel M. Akpabio, Aslıhan Kerç, Hüseyin Gökçekuş, Naim Haie and Hasan Z. Sarıkaya in Session L.3

Regional conventions, for example EU Acquis, have primacy and supremacy over the national laws, but sometimes national laws may also be a guide for regional conventions and laws.

- H. Sarıkaya

Examples of national water legislations from various countries were respectively presented by the panellists. The challenges faced in implementation and enforcement of water law were discussed with reference to specific cases; Nigeria, Turkey, TRNC, Portugal and the EU. Colonial legacies, specifically in African countries with a specific reference to Nigeria, complexity of the range of legislation at different levels and in different sectors, institutional fragmentation and lack of coordination, limited mechanisms for enforcement, lack of political will and public awareness; and lack of consultation were listed as main challenges.

It was also stated that national laws may inspire the development of other national laws, and can be a model for regional approaches. Countries need to review a wide range of legislation including land use planning, environmental law, mining, hydropower, irrigation and other sectors to prevent conflicts with the Water Act. All stakeholders and the media need to be involved in the development of water law from the beginning. It was emphasised that countries need to adopt legal frameworks to enable them to cope with the complexity of water dynamics and various uncertainties including climate, population, technology and economic changes.

Key Messages

- Water law increasingly requires a broader view that extends beyond water-specific legislation.
- The quality and the quantity issues; land and other sectors; surface and groundwater management should be integrated.
- Both efficiency and sufficiency must be ensured by national water laws.
- National laws can be a model for other national laws and regional approaches.

Session L.4.
Right to Water and Sanitation

Moderator	**Lilian Del Castillo-Laborde**, University of Buenos Aires School of Law, Argentina
Keynote Speaker	**Lilian Del Castillo-Laborde**, University of Buenos Aires School of Law, Argentina
Panellists	**Aynur Aydın**, Istanbul University Department of Environmental and Forest Law, Turkey **Gabriel Eckstein**, Texas A&M University School of Law, USA **Naim Haie**, University of Minho Department of Civil Engineering, Portugal **Bülent Selek**, DSI, Turkey
Rapporteurs	**Yusuf Güneş**, Istanbul University Department of Environmental and Forest Law, Turkey **Halit Yeşil**, Ministry of Foreign Affairs, Turkey

The main intention of the session was to address the basic concepts of water and sanitation rights. Water was regarded as a legal, financial, political and empirical issue that needs to be analysed in a broad scope with a priority given to the right to water and sanitation for all without discrimination.

The keynote speaker and the panellists addressed the basic legal instruments identifying right to water and sanitation and the evolution of these concepts from the 18th Century to the present day. Water use that is inherent to every human being and comprise the domestic and livestock uses and irrigation, got under the control of states after the Industrial Revolution. States

Right to water as a human right is necessary for life and human dignity.

- L. Castillo-Laborde

Aynur Aydın, Gabriel Eckstein, Lilian Del Castillo-Laborde, Bülent Selek and Naim Haie in Session L.4

We need to differentiate between the notions of commodification of water and human right to water.
- G. Eckstein

The human right to water and sanitation is a right that is held against your own government.
- G. Eckstein

became the providers of water. The provision of safe drinking water evolved into a human right. It was also emphasised in the session that only the governments have the duty of fulfilling human rights, not the corporations. Water necessity is a fundamental human right and has some legal aspects. Human right to water is not an issue between the governments, it is between the citizens and their own governments.

The right to water and sanitation is a part of the human rights to life, health and adequate standard of living. It was underlined by the panellists that law does not create the right to water, but just attributes a legal standard to these rights. There is a need to fulfill the human dignity. Most important legal development regarding "water right" is the "General Comment 15", which was accepted by the United Nations Committee on Economic, Social and Cultural Rights (CESCR) in November 2012. Although the comment is not legally binding, instruments of "right to water and sanitation" are based on this comment.

The key principles of right to water and sanitation were highlighted as being the tools for fulfilling the basic human rights. From this point of view, these principles such as availability, accessibility, affordability and safety are the key terms for ensuring efficient, safe and secure water for all. However there is no consensus on the definition of these concepts. Affordability, being one of the major concerns of the panel discussion and the Q&A session, was identified as a difficult issue that depends on the service providers. The panellists asserted that right to water does not mean providing water for free, because that might affect the financing of infrastructure investments negatively. The notion of commodification of water and human right to water need to be differentiated. Water is a public good and in general terms services are charged. Services might be privatised, but monitoring is the responsibility of the governments. There might be different tariff systems regulating the pricing regime.

It was agreed that not only the minimum water need, but also the maximum water use limit needs to be reckoned while discussing the right to water. However, it is not clear yet what uses are included in right to water and minimum water need concepts. Minimum water need changes according to geographical environment, climate, culture and habits. Net water consumption also varies from country to country.

The panellists mostly asserted that right to water and right to sanitation should be considered separately. Access to water differentiates from access to sanitation because sanitation is directly a matter of economy and infrastructure investments. As the last point, education for creating water awareness was stated as one of the most crucial issues for supporting other processes to achieve right to water and sanitation.

Key Messages

- States have the duty of providing safe water to their citizens.
- Water is a public good, services are charged. "Water right" does not mean providing water for free.
- Law does not create right to water, but just attributes a legal standard to water rights.
- Minimum water need changes according to geographical environment, climate, culture and habits.
- It is not clear what uses are included in right to water and minimum water need concepts.
- Not only the minimum water need, but also the maximum water use limit needs to be reckoned while discussing right to water.

Side & Special Events

1. Water and Green Growth
2. Current Water Challenges, Solutions and Rebuilding New Water Policies in TRNC
3. Adapting to Climate Change in the Water Sector in Turkey
4. 1st World Young Water Ambassadors Assembly
5. General Overview and Turkey's Perspective for Water Security on Basin Basis
6. Sustainability Assessment in Hydropower: HSAP - An Enhanced Tool
7. Towards a Global Compendium on Water Quality Guidelines
8. Aqua forMed: Invest in Vocational Training for Water Supply and Sustainability
9. International Water Law in Basin Concept
10. Progress of the 7th World Water Forum: from Istanbul to Daegu-Gyeongbuk
11. 1st World Irrigation Forum - Outcomes and Future Directions
12. Stakeholder Engagement for Effective Water Governance
13. Building a Science-Policy Interface Platform: Best Practices and Policies
14. Historical Water Ways in Istanbul
15. Special Event: World Water Forum 2015 - Europe Region Preparatory Process
16. DSI Wastewater Projects and Groundwater Evaluation in Ergene Basin in Turkey
17. Subscription Applications and Environmental Protection Activities for the Young Water and Sewerage Administrations
18. Climate Change Projection with New Scenarios for Turkey
19. Water Challenges for a Changing World - Water JPI and WatEUr
20. Special Event: SIWI and ICBA 2nd Country Partners Meeting (Closed Meeting)

1. Water and Green Growth

Convener(s)	**K-water, Republic of Korea**
Co-convener(s)	**World Water Council; National Committee for the 2015 World Water Forum Republic of Korea**
Panellists/ Speakers	**Doğan Altınbilek**, IWRA **Marcia Brewster**, Nautilus International Development Consulting, Inc. **Osiel González Dávila**, Research Team on Socio-Economic and Environmental Sustainability (ReSEES) **Karin Krchnak**, WWF US **Jung Moo Lee**, National Committee for the 7th World Water Forum, Republic of Korea **Tae-Sun Shin**, K-Water Institute, Republic of Korea **Burcu Yazıcı**, SUEN, Turkey

The side event showcased the practical experience of the Water and Green Growth (WGG) concept. The importance of the concept was emphasised for the future as more stress is put on water resources with population growth, urbanisation, food and energy shortage and effects of the climate change. WGG is mainly a concept that highlights the role of water in terms of achieving economic well-being and social equity coupled with environmental sustainability. The WGG project analyses several case studies all over the world to establish a policy framework for water and green growth. The final report with regard to these case studies will be launched at the 7th World Water Forum. It was stated that water and green growth will be one of the main 16 subjects to be discussed at the 7th World Water Forum in 2015.

To demonstrate the practical aspects of the WGG concept, three case studies (Lake Sihwa in Korea, Murray-Darling Basin in Australia and the Golden Horn in Istanbul) were presented in the side event. All case studies indicated that green growth is actually feasible not only in theory but also in reality, and participation of stakeholders is crucial for the accomplishment of projects. In addition, the significance of community involvement was underlined for the sustainability of green growth.

Jung Moo Lee, Chairman of the National Committee for the 7th World Water Forum, Republic of Korea

2. Current Water Challenges, Solutions and Rebuilding New Water Policies in TRNC

Convener(s)	**YODAK, TRNC**
Co-convener(s)	**Ministry of Food, Agriculture and Energy (MoFAE), TRNC; DSI, Turkey**
Panellists/ Speakers	**Hüseyin Gökçekuş**, YODAK **Ayhan Taşkın**, DSI, Turkey **Ahmet Polili**, MoFAE, TRNC

75 million m^3/year water will be transferred from Turkey to TRNC via a submarine pipeline

In this side event, following a brief review of existing water resources, water management and water-related problems in TRNC, and practices carried out to date for the development of limited water resources on the island were presented.

The technical details and the latest status of the "Water Supply Project from Turkey to TRNC" that was started in March 2011 were also presented.

It was also discussed that water, which will be transferred with a submarine pipeline method for the first time in the world will contribute to the economy of the island.

It was stated that half of the water carried from Turkey to the island (about 75 million cubic meters per year) will be allocated to drinking and domestic uses and the rest will be used for irrigation. In addition, new irrigated lands will be identified on the island. It was also highlighted that the transferred water is costly and valuable and it should therefore be taken into account to cultivate marketable crops in farming. It was also stated that many agricultural products that are more economic to be imported than cultivated can be produced in the island.

Finally, it was asserted that the project will contribute to the economic independence of TRNC, as well as the maintenance of peace in the region. It was suggested that a proactive role for Turkey to influence the hydropolitics in the Eastern Mediterranean would be for the benefit of the region. Besides, transfer of Turkey's water that flows into the Mediterranean Sea to nearby countries via pipelines was proposed as an option.

3. Adapting to Climate Change in the Water Sector in Turkey

Convener(s)	**DSI, Turkey**
Moderator	**Mikdat Kadıoğlu**, ITU Department of Meteorological Engineering, Turkey
Panellists/ Speakers	**Mikdat Kadıoğlu**, ITU Department of Meteorological Engineering, Turkey **Ömer Lütfi Şen**, ITU Eurasia Institute of Earth Sciences, Turkey **Sait Tahmiscioğlu**, DSI, Turkey **Metin Türker**, Ministry of Food, Agriculture and Livestock, Turkey

According to the 5th Assessment Report of Intergovernmental Panel on Climate Change (IPCC), as a result of reduced precipitation in the Mediterranean Basin, the region is becoming increasingly vulnerable. Global climate projections and scenarios reveal that Turkey will be involved in the category of water-stressed countries by the year 2050.

drought monitoring, transmission of irrigation facilities in digital form and implementation of farmer registration system in agricultural sector were also mentioned.

It was specifically emphasised that adaptation to climate change and disaster risk management should be discussed together during the

Mikdat Kadıoğlu presenting his speech

In this side event, the audience were informed about the studies carried out by DSI on adaptation to climate change and the National Climate Change Action Plan of Turkey, which was prepared in 2011.

Increasing the number of scientific studies, implementation of adaptation measures and determination of the crop pattern according to conditions of water-scarce regions were suggested as some precautions to be taken in the face of climate change. Importance of use and dissemination of closed irrigation systems, implementation of climate change risk management. Emission reduction, adaptation and socio-economic development should also be considered together in order to reduce the impacts of climate change. In addition, it was stated that high risks due to the decline in water quantity can be reduced through adaptation studies.

4. 1st World Young Water Ambassadors Assembly

Convener(s)	**DSI, Turkey**
Co-convener(s)	**United Nations Children's Fund (UNICEF); Ministry of Forestry and Water Affairs, Turkey**
Panellists/ Speakers	**Özgür Aydıncak**, DSI, Turkey **Tuğçe Demirel**, Water Ambassadors Turkish Delegate **Ayla Efeoğlu**, DSI, Turkey **Deniz Ekinci**, Istanbul University Department of Geography, Turkey **Mikdat Kadıoğlu**, ITU Department of Meteorological Engineering, Turkey **Ahmet Köse**, Union of Chambers of Turkish Engineers and Architects; Chamber of Meteorological Engineering, Turkey **Ata Şenlikçi**, Istanbul University, Turkey **Recep Ali Topçu**, ADELL, Turkey

In this side event, the Water Ambassadors Project was introduced. The aim of the project was stated as raising awareness on the effective utilisation and protection of water resources among water users. The project developed by DSI is executed under the auspices of the Ministry of Forestry and Water Affairs of Turkey.

World Young Water Ambassadors Assembly aims to provide a platform for young representatives across the world for information exchange on water activities in their countries and to discuss water-related issues. The Assembly will help to disseminate the idea of "Water Ambassadors" among the youth all over the world.

World Young Water Ambassadors Assembly is one of the 4 pillars of this project. The other pillars of the project are Education Project, Publicity Project and Water Ambassadors Academia. Ecologic Village Project, Alaca Höyük Water Structures Research and Renovation Project, and Water Ambassadors Ecologic Park Project are also carried on together with the Water Ambassadors Project.

In the second part of the side event, the issues of climate change adaptation and disaster risk management were discussed in detail.

5. General Overview and Turkey's Perspective on Water Security at Basin Level

Convener(s)	**SYGM, Turkey**
Co-convener(s)	**WWF Turkey**
Moderator	**Hasan Z. Sarıkaya**, International University of Sarajevo, Bosnia-Herzegovina
Panellists/ Speakers	**Ayça Aksoy**, WWF Turkey **Ines Beernaerts**, Food and Agriculture Organisation of the United Nations (FAO) **Henning Bjornlund**, University of South Australia School of Commerce, Australia **Selçuk Coşkun**, SYGM, Turkey **Nilgün Harmancıoğlu**, Dokuz Eylül University Department of Civil Engineering, Turkey **Tuba Evrim Maden**, ORSAM

In this side event, the concepts related to water security and international approaches to these concepts were discussed with reference to examples from the Middle East, Central Asia and Canada. Turkey's Water Footprint Report was also presented.

It was asserted in the discussion that economic water security, a key dimension of national water security, is dependent on water use efficiency in food production, industry and energy sectors. Sustainable economic growth can only be ensured by achieving economic water security. The need for the adoption of integrated water resources management by countries and taking the necessary steps for the creation of legal and institutional regulations were underlined. The importance of determining water allocation priorities and the necessity to allocate water with regard to individual and local usage rights were expressed. Considering allocation plans at national, regional and local levels, keeping the supply-demand balance and efficient use of water were also stressed for regulation of water allocation at basin level.

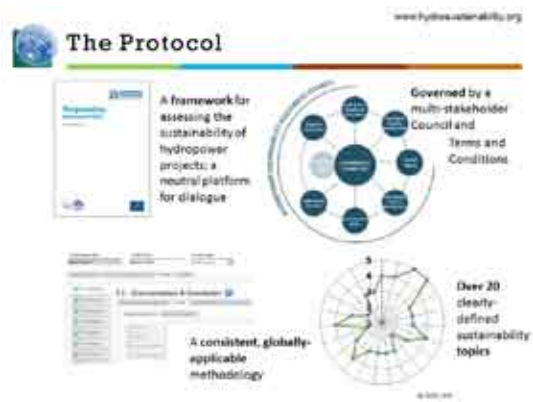
The effects of geographical differences on water allocation policies were also discussed. It was stated that urban citizens are more sensitive to environmental rights and prompt the administrations in this regard, whereas rural citizens consider the topic as an issue of survival. The general result is that water users prefer state control over market control.

Existing water challenges in the Middle East were also addressed in the session. It was stated that trust building, data sharing, participation of all riparian countries to agreements and regional stability are the prerequisites to overcome these challenges in the region.

6. Sustainability Assessment in Hydropower: HSAP - An Enhanced Tool

Convener(s)	**WWF Turkey**
Co-convener(s)	**Statkraft, Norway**
Panellists/ Speakers	**Olav Peter Hypher**, Statkraft, Norway **Jian-Hua Meng**, WWF Germany

In this session, Hydropower Sustainability Assessment Protocol (HSAP) was introduced as an enhanced sustainability assessment tool, which is used to measure and guide performance in the hydropower sector. Hydropower was mentioned as a renewable energy, but at the same time as a potential threat to freshwater ecosystems.



Source: IHA

HSAP was created as a result of the joint efforts of governments, NGOs, commercial and development banks and hydroelectric sector with the participation of 1,933 individual stakeholders in 28 countries, following 20 field trials in 16 countries. HSAP enables assessment of the sustainability performance of a hydroelectric project under technical, hydrological, environmental, social, economic, financial and cultural key topics. HSAP provides a common language on sustainability for the governments, NGOs and financiers in hydroelectric sector. HSAP is monitored by the Hydropower Sustainability Assessment Council, which involves different governance committees consisting of hydropower operators, environmental and social NGOs, developing and developed country governments, hydropower suppliers and consultants, and financial institutions. IHA is the management entity of the council and the secretariat of the governance committees. Statkraft, which is one of the Europe's largest generator of renewable energy and WWF are the partners of HSAP.

Global perspective, sustainability approach, performance and contributions of Statkraft with its activities in Turkey and the role of HSAP in private sector were also elaborated in this session. It was discussed that although there is a wide public reaction against the hydroelectric energy stations, there is a huge employment and business potential of these stations. The side event highlighted that "no activity is important enough to be conducted with hazard to life and health".

7. Towards a Global Compendium on Water Quality Guidelines

Convener(s)	**IWRA**
Panellists/ Speakers	**Tom Soo**, IWRA **Ellia Guy**, IWRA **Ngai Weng Chan**, University Sains Malaysia School of Humanities, Malaysia **Lilian Del Castillo Laborde**, University of Buenos Aires School of Law, Argentina **Gabriel Eckstein**, Texas A&M University School of Law, USA

In this side event, the importance of water quality for health and basic sanitation, as well as for agriculture, ecosystems, industry and energy was addressed, in context of framework development for a Global Compendium on Water Quality Guidelines. The panellists emphasised the need for a smarter approach to water resource use; founded by the recognition that efficient and economical use must be underpinned by directing water to the most appropriate usage for its corresponding quality. It was underlined that water quality guidelines vary at international, regional, national and sometimes local levels, thus the planned compendium will play an important role in documenting this diversity and provide case study examples of exemplary guideline standards. The EU WFD in Europe and case studies from Australia, New Zealand, Canada and South Africa were cited as key examples of regional and national applications of water quality guidelines for a range of uses. The recognition that water destined for different uses has differing quality needs is one amongst a suite of solutions that will ensure enhanced efficiency for the utilisation of water resources across competing uses and promises to aid in the assurance of sustainability and security into future water use and governance.

8. AquaForMed: Invest in Vocational Training for Water Supply Sustainability

Convener(s)	**Mediterranean Network of Water Training Centres (AquaForMed Network)**
Panellists/ Speakers	**Samir Bensaid**, International Institute for Water and Sanitation (IEA), Morocco **Jean-François Donzier**, International Office For Water (OIWater), France **Laurent Doyen**, Greater Paris Wastewater Treatment Authority (SIAAP), France **David Willecomme**, French Agency for Development (AFD), France **Fatih Yıldız**, ISKI, Turkey

This side event introduced the AquaforMed Network: it is the culmination of many efforts on both sides of the Mediterranean to promote the development of vocational training in the water sector. Current members are from Morocco (IEA), Tunisia (Tunis International Centre for Environmental Technologies, CITET), Algeria (High School of Water Resources Management, ESMRE) and France (OIWater and AgroParisTech).

During the side-event, which gathered all relevant actors of the sector (water and sanitation services, donors and water training centres), the economic and technical relevancy of vocational training were presented. In view of the importance of human resources in the water sector in number and costs, it was highlighted that water security cannot be achieved without capacity building of professional staff. Water and sanitation services call on specific "knowledge"

Jean-François Donzier

The goal of the Network is to show that vocational training is an efficient tool in response to the needs of water and sanitation services, especially to ensure the continuous improvement of their performance and user satisfaction. AquaForMed's activities are advocating, communicating and making studies on water and sanitation. For instance, the Network is currently preparing a study on economic benefits of vocational training for professional staff for water and sanitation services.

and rather specific "know-how". Such skills need an appropriate training. Consequently, for all kind of professionals; engineers, managers, administrative and especially technical staff, vocational training is able to raise service standards and infrastructure sustainability. This is furthermore relevant considering the high level of investment required to build water and sanitation infrastructures.

9. International Water Law in Basin Concept

Convener(s)	**SYGM, Turkey**
Moderator	**Yaşar Yakış**, Former Minister of Foreign Affairs, Turkey
Panellists/ Speakers	**Münevver Aktaş**, Dokuz Eylül University School of Law, Turkey **Aynur Aydın**, Istanbul University Department of Environmental and Forest Law, Turkey **Seyfi Kılıç**, ORSAM, Turkey **Serap Perçin**, SYGM, Turkey **Raya Marina Stephan**, IWRA

This side event described the key principles of the law on water resources, water policy and governance within the basin concept and focused on national and international waters including surface waters and coastal waters, as well aquifers.

The differences between national and international law in terms of practice and principles were discussed in the session. It was stated that international law has no binding rules regarding transboundary waters, principles lead the negotiations among states. In principle, states have the right to make use of their water resources, but do not have full sovereignty over their transboundary waters. However, the extent of the right to use water is not fully clear. The session underlined that utilisation of transboundary waters needs to be evaluated on the basis of regional needs at basin level. However, the majority of transboundary water agreements are stated to be bilateral, not basin-wide. It was asserted that the UN General Assembly resolutions on the law of transboundary aquifers encourage the member states to make appropriate bilateral and regional arrangements for the proper management of their transboundary aquifers.

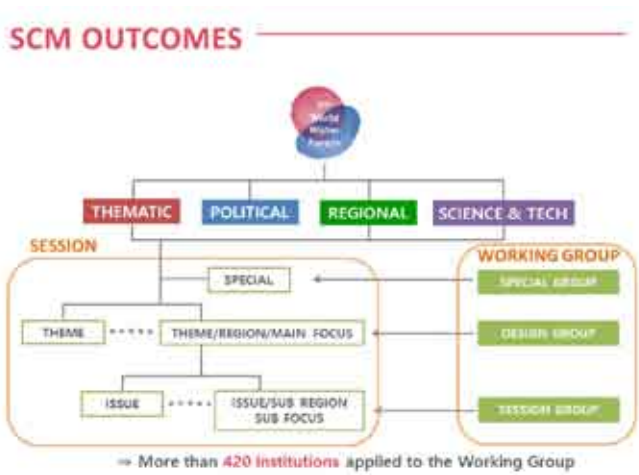
The panellists underlined that the right to water and sanitation, as a basic human right, should be provided for all without discrimination and be protected by the national legislations. Finally, it was emphasised that negotiations and peaceful solutions should always be the starting point in transboundary waters and states can reach agreement even in times of internal disorders.

The side event was moderated by Yaşar Yakış, Former Minister of Foreign Affairs of Turkey

10. Progress of the 7th World Water Forum: from Istanbul to Daegu-Gyeongbuk

Convener(s)	**7th World Water Forum Secretariat, Republic of Korea**
Co-convener(s)	**World Water Council**
Panellists/ Speakers	**Doğan Altınbilek**, IWRA **Benedito Braga**, World Water Council **Torkil Jønch Clausen**, Global Water Partnership (GWP) **Karin Krchnak**, WWF US **Jung Moo Lee**, National Committee for the 7th World Water Forum, Republic of Korea **Seunggeum Paek**, 7th World Water Forum Secretariat, Republic of Korea

In this side event, the outcomes of the 2nd Stakeholders Consultation Meeting, which was organised by the 7th WWF National Committee in February 2014 were shared and the details about the processes of the 7th World Water Forum, which will be held in 2015 in Republic of Korea were explained.



The outcomes of the 2nd Stakeholders Consultation Meeting held in February 2014 were shared

It was announced in the event that the 7th World Water Forum will focus on human right to water, ecosystem, global water cycle, water security and international cooperation. The Forum consists of Thematic, Political, Regional, and Science & Technology Processes. It was emphasised that the Regional Process should be linked to the Thematic and Science & Technology Processes.

The Thematic Process will be composed of three categories: 1. Water Security for All; 2. Water for Development and Prosperity; 3. Water for Sustainability: Harmonising Humans and Nature, and Constructing Feasible Implementation Mechanisms.

The Regional Process will include seven regions; Asia-Pacific, Africa, America, Europe, Arab, Mediterranean and Economically Water-Scarce Regions. In this process, water efficiency, transboundary water management, implementation of the EU WFD, climate change and innovative urban water management issues will be discussed.

The Science & Technology Process, on the other hand, will focus on efficient water management, resource recovery, water and natural disasters, smart technologies and understanding and managing ecosystem services. It was stated that success stories to be shared in this process will help realisation of the results and solutions presented at the 6th World Water Forum.

11. 1st World Irrigation Forum: Outcomes and Future Directions

Convener(s)	**ICID**
Co-convener(s)	**Turkish National Committee on Irrigation and Drainage (TUCID)**
Moderator	**Hüseyin Gündoğdu**, ICID
Panellists/ Speakers	**Yakup Başoğlu**, TUCID **Hasan Çakıryılmaz**, TUCID **Gürhan Demir**, TUCID **Remziye Yıldız Gülağacı**, TUCID **Hüseyin Gündoğdu**, ICID **Fatih Mumcu**, TUCID **Ahmet Şeren**, TUCID **Sait Tahmiscioğlu**, TUCID

In this side event, the administrative structure and objectives of ICID were summarized, as well as the organisational process and outputs of the "1st World Irrigation Forum" (WIF1) held in Mardin, Turkey from 29 September to 5 October 2013. The Irrigation Forum, which has an extensive influence area at global scale is an activity organised by ICID to find water-related solutions for policy makers, administrators, academics, farmers associations and farmers as the groups using most of the water. The main theme of Integrated water management approaches for sustainable food production. Besides the main thematic sessions, 23 side events were organised. Detailed information about WIF1 is available at www.icid2013.org and www.worldirrigationforum.org. Mardin was selected as the host city of the organisation considering the ancient irrigation systems and agricultural implementations in the region, as well as the modern techniques developed as a part of the Southeastern Anatolia Project (GAP) of Turkey.

Remziye Yıldız Gülağacı of TUCID

WIF1 was "Irrigation and Drainage in a Changing World: Challenges and Opportunities for Global Food Security". The Forum attracted a large number of participants from different countries. The thematic sessions were conducted under 3 sub-themes: (1) Policy, science and society interactions; (2) Challenges and developments in financing irrigation and drainage sector; (3) Asian Development Bank, FAO, GWP and the International Fund for Agricultural Development (IFAD) participated in the Forum. The final book covering the important outcomes of the Forum was recently published. The 2nd World Irrigation Forum will be held in Thailand in 2016.

12. Stakeholder Engagement for Effective Water Governance

Convener(s)	**OECD**
Panellists/ Speakers	**Aziza Akmouch**, OECD **Carl Bruch**, IWRA **Jean-François Donzier**, INBO

The side event presented the key messages from a project on stakeholder engagement for effective water governance, undertaken by the OECD Water Governance Initiative, which aims to assess the effectiveness of participatory approaches in water policy and projects. Panellists and attendees discussed how stakeholder engagement can lead to more effective and inclusive decision-making in the water sector, including the perspective of basin organisations. Costs and benefits of participatory approaches were also mentioned through practical experiences at various levels, from local communities to federal governments.

The event also offered an opportunity to discuss successful stakeholder engagement practices across different regions (Continental Europe, North America) through several case studies. The event concluded with a call for more systematic and impactful stakeholder engagement as an effective tool for people to take part in water-related decision-making processes, for addressing institutional fragmentation in water policies and for improving water governance.

13. Building a Science-Policy Interface Platform: Best Practices and Policies

Convener(s)	**IWRA**
Panellists/ Speakers	**Henning Bjornlund**, University of South Australia, School of Commerce, Australia **Torkil Jønch Clausen**, DHI Group, Denmark **İpek Erzi**, TUBITAK MRC, Turkey **Scott McKenzie**, IWRA **James Nickum**, Water International **Tom Soo**, IWRA

This side event started with a very brief evaluation of the themes related to Science-Policy Interface (SPI) as they were covered in the previous World Water Fora. International institutional mechanisms including intergovernmental agencies, programmes, non-profit organisations, initiatives, or ad-hoc groups can function as facilitators and mediators for enhanced science and policy interactions. These mechanisms, often in collaboration with each other, were mentioned to advance their particular mission by producing certain SPI outputs such as conferences, meetings, books, and reports. The importance and means of Mapping SPI was another topic underlined by the participants.

The key points raised in the session can be summarised as follows;

- The SPI is a critical link between two distant groups. Both scientists and policy makers need constant and sustained feedback to improve their outputs.
- There are many different ways that organisations are structured to develop means of SPI. Some organisations may rely on top-down approaches, while others may prefer more input from multiple stakeholders.
- There is sustained interest in improving SPI. These efforts are taking many forms, from conferences to reports and training. These efforts should be supported and encouraged where possible.
- There is a substantial amount of work that can be done to study and support SPI in a comparative format. Different countries have differing strategies in their approach to SPI and these can be studied comperatively to better understand the best practices. Communication is a key underlying theme of all SPI work.

14. Historical Water Ways in Istanbul

Convener(s)	**ISKI, Turkey**
Panellists/ Speakers	**Salih Şahin**, Ministry of Culture and Tourism, Turkey **Ayten Yerebasmaz**, ISKI, Turkey

In this side event, historical water ways of Istanbul and their current situation were presented. The growth of the city, since the Roman times and the Ottoman era has been based on the development of water supply systems.

Water supply systems, which were constructed and developed during the Ottoman Empire era are Kırkçeşme, Taksim, Halkalı, Hamidiye and Üsküdar water ways. The most important one of these systems is the Kırkçeşme water system. Its construction started in the Roman period and continued with further additions in the Ottoman Empire time by Architect Sinan in the 16th Century.

At the beginning of the 20th Century, a detailed report about the fundamental duties of water administration was presented to Abdulhamid II, by the Ottoman Empire Water Ministry. This is a very important document by means of today's water supply systems in Istanbul.

The main objective of this side event was to elaborate the relation between human need, technical construction, and historical as well as contemporary artistic view. In this respect, Istanbul being a metropolitan city bears the traces of its valuable imperial history also in the water field. Today the water administration of IBB carries this legacy.

Mağlova aquaduct in Istanbul

15. Special Event: World Water Forum 2015 - Europe Region Preparatory Process

Convener(s)	**Danish Water Forum (DWF); French Water Partnership (FWP)**
Co-convener(s)	**Danish Hydraulic Institute (DHI); International Office for Water (IOWater)**

The second meeting of the European Regional Process towards the 7th World Water Forum was organised as a side-event at the 3rd Istanbul International Water Forum, ten days after the kick-off meeting in Brussels, where 6 overall topics of the European Regional Process had been chosen.

The side event was structured in two parts. The first part focused on Transboundary Water Management as one of these 6 topics and the second part aimed to explain the details of the European Regional process.

Part I: Transboundary Water Management in the European Context

Moderator	**Torkil Jønch Clausen**, DHI Group, Denmark
Panellists/ Speakers	**Galia Balusheva**, Ministry of Environment and Water, Bulgaria **Arnaud Courtecuisse**, Agence de l'Eau Artois-Picardie, France **Jean-François Donzier**, INBO **Nikola Karnolski**, Central and Eastern European Network of Basin Organisations (CEENBO) **Jean Schepman**, Agence de l'Eau Artois-Picardie, France

European Regional Process picked up Transboundary Water Management as a major topic to share the European experience in the 7th World Water Forum.

In this meeting, water legislation of EU and its main goals, transboundary aspects of the WFD, IWRM and case studies on multilateral cooperation like Lèman Lake and Rhine River in Europe were elaborated in detail.

Implementation of the EU Directives (eg. WFD and Flood Risk Management Directive, FRMD) in Bulgaria and France (Scheldt River) were also presented as case studies.

Part II: The European Regional Process

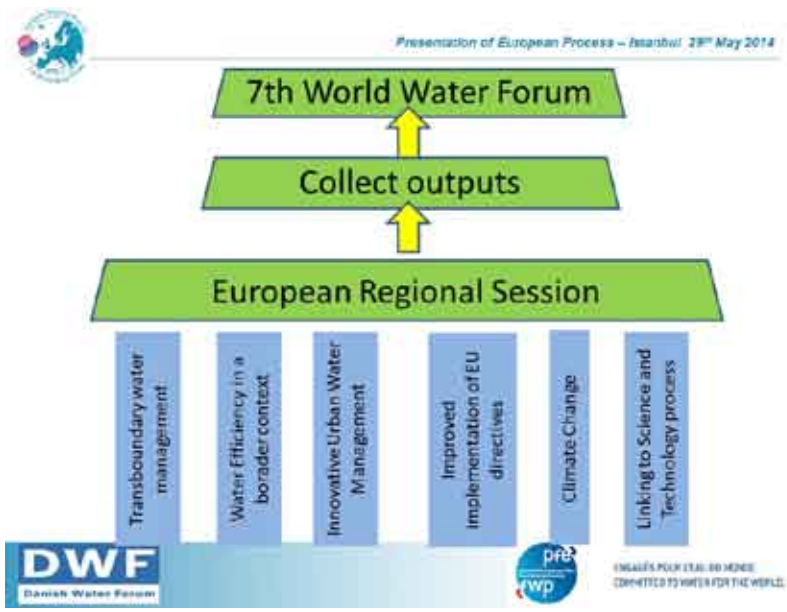
Moderator	**Bjørn Kaare Jensen**, DWF
Panellists/ Speakers	**Henri Bégorre**, FWP **Jean-François Donzier**, IOWater **Miriam Feilberg**, DWF

This meeting was devoted to explaining the structure of the European Regional Process under the 7th World Water Forum. The roadmap of the European Regional Process including its temporal and spatial dimensions were presented.

The European Regional Process will be a preparation on the follow-up regarding what has been done in the previous fora. In a larger perspective, this may lead to building bridges towards the 8th Forum, in Brazil.

It was underlined that “Europe” should imply to a wider coverage beyond geographical borders of the Continental Europe. The process is open to Turkey, the Caucasus, the Balkans, Ukraine, Byelorussia, Moldova, Russian Federation, and the Central Asian countries as well.

Six topics that were identified for the European Regional Process in the kick-off meeting in Brussels are given in the figure below. The overarching target of this process is the adaptation of a Water SDG and all the six topics in this process should aim to achieve this target.



Six thematic topics of the European Regional Process

16. DSI Wastewater Projects and Groundwater Evaluation in Ergene Basin in Turkey

Convener(s)	**DSI, Turkey**
Panellists/ Speakers	**Merve İşlek**, DSI, Turkey **Şehnaz Özdemir**, DSI, Turkey **Ümmühan Tekçe**, DSI, Turkey

In this side event, the works of DSI were evaluated in the context of Ergene River Basin Protection Action Plan, which is developed for determination and evaluation of pollution degree, reduction of pollution, taking precautions for current pollution risks and protection of water resources in Ergene River Basin located in the north-west of Turkey.

Evaluation studies of the groundwater potential of Ergene Basin have been conducted by DSI together with hydrogeological studies and water allocation studies since 1956. These studies are integrated in order to protect quantity and quality of groundwater, while minimising the impacts of intensive man-made activities in the basin. DSI has initiated water meter application primarily on the water wells allocated for industry in order to prevent groundwater decrease. This implementation is still continuing and it is spread to the entire basin area covering all water wells. Construction and operation of all 12 wastewater treatment plants designed by DSI in the basin is the most noteworthy step among the studies conducted in the Ergene River Basin. In the context of basin protection action plans, it is aimed to change the status of water in the Ergene Basin from Class VI (very polluted water) to Class II (less polluted water) in the upcoming years.

The importance of ensuring the workers' health and safety in wastewater treatment plants was also emphasised in the side event with reference to some case studies.

17. Subscription Applications and Environmental Protection Activities for the Young Water and Sewerage Administrations

Convener(s)	**ISKI, Turkey**
Panellists/ Speakers	**Ali İnci**, ISKI, Turkey **Cemalettin Kaleli**, ISKI, Turkey **Adem Şanlısoy**, ISKI, Turkey

In this side event, the role of local administrations in water supply services and particularly the experiences of ISKI were addressed. Geographical overlaps of municipal authorities, requirement of well-trained personnel and lack of financial resources of municipalities were mentioned at the top of the list among the primary concerns of local administrations. Such concerns are likely to proliferate with the formation of new metropolitan municipalities across Turkey according to a new law. Besides this new law, ISKI foundation law dating back to 1980s has been a model for other metropolitan municipalities.

In this context, ISKI's experience over years as the institution providing guidelines for the young municipalities was underlined in the session. ISKI's Infrastructure Information System (ISKABIS), which provides opportunity to constantly observe locations of water distribution and wastewater collecting systems online, was referred as a tool for monitoring large-scale administrative systems. The procedure for the control of industrial wastewater discharges and the importance of industrial wastewater treatment at source were explained. Preserving canals and manifolds, and reduction of pollution loads on wastewater treatment plants were listed as targets of industrial pollution control.

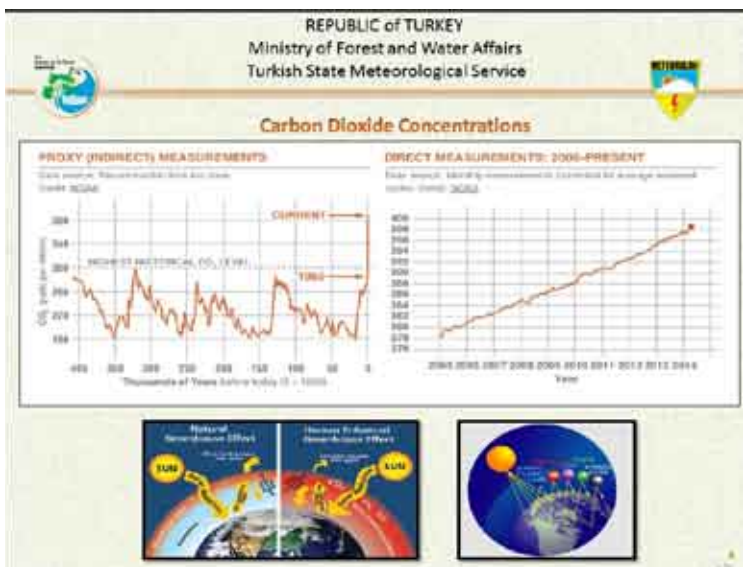
Importance of distance between industries, water/wastewater basins and administrative sanctions at necessary conditions for industries were also discussed by referring to some specific cases in Turkey, such as Tuzla district. Finally, short/medium/long term development plans for protecting water basins in Istanbul were elaborated briefly by focusing on aims and strategies. Among the best examples of basin protection activities; urban transformation in Ömerli Basin, land expropriation and forestation trainings conducted by ISKI were explained extensively.

18. Climate Change Projection with New Scenarios for Turkey

Convener(s)	**MGM, Turkey**
Moderator	**Mustafa Yıldırım**, MGM, Turkey
Panellists/ Speakers	**Hakkı Atay**, MGM, Turkey **Mesut Demircan**, MGM, Turkey **Barış Önol**, ITU Department of Meteorological Engineering, Turkey **Ufuk Turunçoğlu**, ITU Informatics Institute, Turkey

Observed changes and projections of future changes in Turkey's climate were shared in the side event. The 5th Assessment Report of Intergovernmental Panel on Climate Change (IPCC) revealed that global CO_2 concentration has reached to 400 ppm in recent years and human impact on climate is clear. It was stated in that the increase in temperature and precipitation fluctuations have been observed since the 1990s in Turkey in parallel with IPCC observations.

The climate projections based on new IPCC scenarios (Representative Concentration Pathways (RCPs) 4.5 and 8.5) indicate that Turkey's average temperature will gradually increase by 2-6 °C until the end of the century and precipitation trend will not be uniform spatially and temporally. It was mentioned that droughts are expected in winter and spring seasons in the southern regions of the country, while the increase in precipitation is expected in the North. It was stressed that snow will melt more rapidly in winters towards the year 2100 and spring run-off will shift to winter season. It was also mentioned that there is an interaction between sea surface temperatures (SST) of the Mediterranean Sea and the Black Sea and precipitation over Anatolia Peninsula and the sea surface.

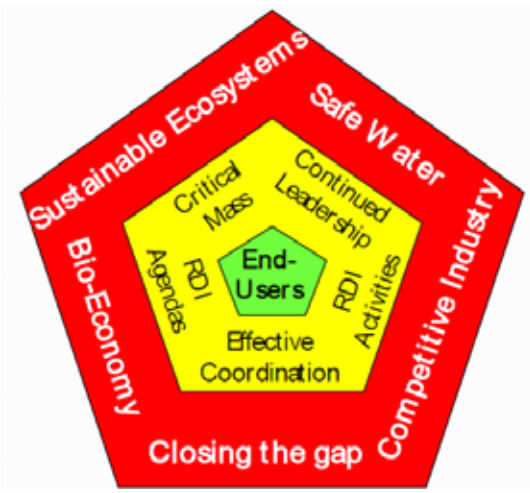


Global CO_2 concentration has reached to 400 ppm in recent years

19. Water Challenges for a Changing World - Water JPI and WatEUr

Convener(s)	**Ministry of Economy and Competitiveness (MINECO), Spain**
Co-convener(s)	**SUEN, Turkey; National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), France**
Panellists/ Speakers	**İpek Erzi**, TUBITAK MRC, Turkey **Patrick Flammarion**, IRSTEA, France **Enrique Playan**, MINECO, Spain **Osman Tıkansak**, SUEN, Turkey

Water Joint Programming Initiative (JPI) aims to achieve sustainable water systems for a sustainable economy in Europe and beyond. In this side event, the objectives of the initiative "Water Challenges for a Changing World" were briefly explained. It was marked by the Water JPI coordinator that the Initiative was founded to bring together a group of committed research managers with the intention of identifying gaps, coordinating efforts at national level and avoiding duplications given that only a coordinated approach will master critical societal challenges like water. The audience was informed of the first Strategic Research and Innovation Agenda (SRIA), which was prepared to identify and prioritize directions for Research, Development and Innovation (RDI) in Europe and beyond. The SRIA document focuses on five priority themes including maintaining ecosystem sustainability; developing safe water systems for the citizens; promoting competitiveness in water industry; implementing a water-wise bio-based economy and closing the water cycle gap. Research, development and innovation needs have been developed for each theme. More information can be found on Water JPI website: www.waterjpi.eu. Another activity of Water JPI involves the Joint Calls for proposals for collaborative projects. The first call was on the topic "Emerging water contaminants – anthropogenic pollutants and pathogens". 10 partner countries participated to the call with a budget of 9 M€ and the projects will start by autumn 2014. There will be two more calls related to developing technological solutions and services for water supply and measurement, wastewater treatment and reuse, improving water use efficiency and reducing soil and water pollution in 2014 and 2015. Additional information was given on Turkey's current R&D capacity. It was mentioned that there is need for more international cooperation to increase R&D activities.



Objectives of Water JPI

Water Expo

The Water Expo was one of the main events of the 3rd Istanbul International Water Forum. The opening of the Water Expo was made by H.E. Veysel Eroğlu, Minister of Forestry and Water Affairs of Turkey, H.E. Dinesh Gunawardena, Minister of Water Supply and Drainage of Sri Lanka, Mr. Akif Özkaldı, Director General of DSI, Turkey, Prof. Ahmet Samsunlu, ITU, Turkey, Mr. Hüseyin Avni Mutlu, Governor of Istanbul and Mr. Benedito Braga, President of the World Water Council.

The exhibition covered an area of 1066 square meters. National and international institutions, state agencies, private companies and NGOs were among the exhibitors.

The MGM Radio conducted live broadcasts from the exhibition hall. The live audio coverage reflected the lively atmosphere of the Water Expo and the views of Forum participants.

There were also two meeting points designated in the Expo area to enable participants to meet with each other to share their knowledge and expertise.

H.E. Dinesh Gunawardena and H.E. Veysel Eroğlu at the Water Expo

H.E. Veysel Eroğlu giving a speech to the press at the Water Expo

LIST OF EXHIBITORS (in alphabetical order)

- 7th World Water Forum 2015 Secretariat, Republic of Korea
- Aktaş, Turkey
- General Directorate of State Hydraulic Works (DSI), Turkey
- DSI Water Ambassadors Project
- Dolsar, Turkey
- Elektromed, Turkey
- General Directorate of Combating Desertification and Erosion, Turkey
- General Directorate of Forestry, Turkey
- General Directorate of Nature Conservation and National Parks, Turkey
- Hamidiye, Turkey
- Istanbul Water and Sewerage Administration (ISKI), Turkey
- International Water Resources Association (IWRA)
- KMT Polymers, Turkey
- Manas, Turkey
- Turkish State Meteorological Service (MGM), Turkey
- Ministry of Forestry and Water Affairs, Turkey
- Turkish Water Institute (SUEN)
- Su Yapı, Turkey
- General Directorate of Water Management (SYGM), Turkey
- The Scientific and Technological Research Council of Turkey Marmara Research Center (TUBITAK MRC), Turkey
- Water and Environment Technologies, Turkey
- Water Foundation, Turkey
- World Water Council

Cultural Events

Artistic activities during the IIWF has now become a part of the trianneal forum legacy. The 3rd IIWF did not only welcome water experts, but also many distinguished artists of traditional Turkish handcrafts from various disciplines.

The Opening Ceremony of the Forum began with the performance of Group Üsküdar, the folk dance group. They presented a choreography depicting interesting dances from 9 different regions of Turkey. Dancers of different age groups successfully represented the dynamic colors of these regions.

Group Üsküdar performed a choreography inspired by different regions in Turkey

The main lounge of the Haliç Congress Centre provided a space for the artists to present their works between the thematic sessions. The artworks belonging to four major disciplines of traditional Turkish arts, including *tezhip* (illumination), miniature, *ebru* (marbling) and calligraphy were exhibited in this large lounge during the three days of the Forum. Ebru artists Ms. Gülseher Kahraman, Mr. İbrahim Boz, and calligraphy artist Mr. Aytekin Arslan produced valuable examples of their artistic works and shared them with Forum participants as a pleasant souvenir.

The lounge also witnessed an unforgettable concert performed by the IBB Performing Arts Band. The important characteristic of this band is that it is formed by 40 mentally handicapped people who have been working together for the last 7 years. They reinterpreted some ethnic songs in different languages.

Revealing the artistic talent of the mentally handicapped with music, dance and rhythm activities helps them to express themselves in the universal language of art.

Tezhip artists Sabiha Koç, Gül Tezbora, Esra Altındoğan, Çiğdem Tuncer, Asuman Tuncel, Aynur Gürsoy, Arzu Mert, Bahriye Balkaç, Ayla Çolak, Nilgün Ertürk, Azize Aydeniz Kalaycı from Cahide Keskiner's workshop exhibited their works.

Ebru, also known as paper marbling, is a method of aqueous surface design, which can produce patterns similar to smooth marble or other stone. It is a traditional Turkish artwork which is technically difficult to perform and takes long years of practice to master.

Calligraphy artist Aytekin Arslan presented his calligraphy works to the Forum participants.

Ebru artist Gülseher Kahraman working on the marbling tank.

The exhibited works by *ebru* artist İbrahim Boz at the Forum.

Technical Visits

On the last day of the Forum, in the afternoon, a technical visit was organised to wastewater and drinking water treatment plants operated by ISKI.

Ambarlı Advanced Biological Wastewater Treatment Plant put into service in April 2014 serving a population of 1.6 million and Ikitelli Water Treatment Plant providing drinking water to 5 million people were visited. 48 people attended the visit, which was organised with the support of ISKI. Presentations were given about the operation of each plant, thereafter units of the plants were visited under the guidance of the plant operators. The programme ended with a very fruitful exchange of information and experience.

© Angel Manzano, Flickr

Bosphorus Bridge, Istanbul

ANNEX

Istanbul Water Consensus
For Local and Regional Authorities

As Mayors and local/regional elected representatives from different parts of the world, meeting in Istanbul in March 2009, we participate in this **ISTANBUL WATER CONSENSUS** to develop water management strategies in the face of global changes.

On the occasion of the Fourth World Water Forum in Mexico, the *Local Government Declaration* on Water of 21 March 2006 expressed the awareness and responsibility of local and regional leaders concerning water and sanitation and called on national governments for a more effective partnership.

We build on previous commitments and express our readiness to take leadership in advancing integrated water management approaches to 'bridge divides for water' and strengthen the resilience of our cities and regions to cope with rising external pressures and contribute to our overall sustainable development.

PART I – Local and Regional Governments' Declaration and Call for Action

With this Consensus, we acknowledge that:

- Access to good quality water and sanitation is a basic right for all human beings and plays an essential role in life and livelihoods, the preservation of the health of the population and the fight against poverty[1];
- Water is a public good and should therefore be under strict public control, independently of whether the services are delegated to the private sector or not;
- Sanitation is equally important as water supply and needs to be given due consideration on the political agenda of local, regional and national governments;
- The local level plays an increasingly important role in the provision of water and sanitation services;
- Rapid global changes such as population growth, economic development, migration and urbanisation, with over half of the world population now living in cities, are placing new strains on water resources and infrastructure and on the systems that supply water and sanitation services to our citizens, businesses, industries, and institutions. These rapid global changes are adding difficulties for the achievement of the Millennium Development Goals (MDGs) on water supply and sanitation[2];
- Slums and informal settlements in and around cities are growing and poverty is increasingly an urban issue, requiring the linkage between access to water and sanitation and land tenure to be urgently addressed;
- Climate change will impact every aspect of the water cycle affecting our citizens: water scarcity will become more exacerbated, extreme events, such as floods and droughts, will increase, the sea level will rise, temperatures will increase, groundwater recharge, rainfall patterns and stream flow regimes will change;

[1] We strongly support the initiative of the UN Human Rights Commission with regard to the right to water.
[2] The United Nations Millennium Development Goals, which propose to reduce by half the proportion of people without sustainable access to safe drinking water and improved sanitation by 2015, are of direct concern to local governments.

- Water resources management, at the local and regional levels, can be a tool to adapt to global changes;
- The nature, extent and dynamics of water problems show commonalities and differences when comparing the situations in developing and developed countries.
- While insufficient or aging infrastructure is a challenge for both, financing, strengthening capacity and improving legal frameworks are core concerns particularly in developing countries;
- A new and consistent approach is needed to cope with the demand for water at local and regional levels and to assure mitigation and adaptation measures to face these global changes. Equitable, optimal and sustainable management of water resources and services demands an integrated approach, coordinated action and the sharing of responsibilities by the various tiers of government;
- Sanitation needs to be embedded in overall local and regional planning, linked to other sectors such as drainage, potable water supply, wastewater and solid waste management, carried out - where applicable - through decentralized approaches, and supported by public education and awareness-raising campaigns to improve domestic hygiene.
- Local and regional planning and design needs to be more water-sensitive;
- The public utility/service operator plays a central role in the provision of water and sanitation services and the existing support mechanisms to improve their capacity and strengthen their operation are not sufficient;
- There are costs associated with the provision of quality water and sanitation services. However, access to water and sanitation in sufficient quantity, quality and continuity must be assured affordably and equitably in particular by adapting cost recovery for the poorest people;
- Water use in urban and rural areas is highly interdependent and local sustainable water management plays a crucial role in securing agricultural food production and the prevention of rural depopulation; local authorities must be aware of the importance of rural agriculture, which plays an important role in the provision of food to urban centres.

Further, in support of our pledge of action as Mayors and local/regional elected representatives, we call on our national governments and on international institutions to:

- Shift water security higher in national and international policy priorities, based on the principle that water resources must be allocated in a reasonable and equitable manner among all users to support inter-alia, social and health objectives, employment, economic activity, cultural and leisure development and healthy and pleasant environments;
- Speed up the implementation of commitments made on access to water and sanitation and the fight against poverty, particularly in developing countries, in order to achieve the objectives set out in the Johannesburg Plan of Implementation (JPOI) and the Millennium Development Goals (MDGs);
- Establish a dialogue to ensure that Local and Regional Authorities, through an effective transfer of competencies and means, have the legal authority, financial resources, institutional capacity and adequate human and technical skills to manage water supply and sanitation locally and regionally. Respecting the principle of subsidiarity, local governments, in consultation with all stakeholders, should have the option to choose between various management models;

- Involve Local and Regional Authorities in the definition and implementation of political strategies taken at the national and supra-national level for sustainable water management to improve access to water and sanitation and to prepare for climate change and other global changes, particularly in insular and coastal countries. These changes require new infrastructure projects to anticipate climate change-related effects into the design of water, sanitation, storm-water and other urban infrastructure;

- Develop innovative financing mechanisms and regulatory frameworks to facilitate access for local and regional governments to direct financing and increase financing for local water and sanitation infrastructure to address the needs of all people and especially the poor and for adaptation to global changes;

- Include investment in the water sector in their debt reduction operations, such as exchange of debt against water and sanitation investment;

- Put highest attention to the understanding and forecasting of future climate, demographic and other developments affecting the water cycle and management systems at national and regional levels, share the knowledge gained with local governments and help interpret these developments for their relevance at local level;

- Establish effective mechanisms to involve Local and Regional Authorities in the watershed management process;

- Take into more coordinated consideration the impacts of sectoral policy choices on the hydrological cycle that affects rural and urban areas as well as ecosystems;

- Support the international cooperation of Local and Regional Authorities for working towards the MDG targets on water and sanitation, especially through funded partnerships between local and regional governments of developed and developing countries and by allowing – where possible - the allocation of part of the revenues raised from users of water and sanitation services for this purpose.

PART II – Local and Regional Authorities' Commitments

Recognising the urgent need to develop effective strategies, cities and regions depend on appropriate legal, institutional and financial frameworks and availability of capacities, both technical and human. However, climate change, population growth, intensive urbanisation, rapid economic development and other pressures impact local water resources and systems faster than current political and social systems can respond to them.

Therefore, we, as Mayors and local/regional elected representatives, signing this **ISTANBUL WATER CONSENSUS** on behalf of our local/regional governments, express our clear political will to prepare for these challenges by undertaking now whatever is in our current scope of authority and capacities and pledge to do our utmost to contribute to improved water governance and steer our local policies and approaches towards increased sustainability in water management and hydraulic infrastructure development.

This commitment is taken with the expectation that national governments and international institutions will indeed recognise the indispensable role of local and regional governments in

[3] See options for Diagnosis, Targets and Measures in the "Guidelines" section.

improving access and successful adaptation measures in the water sector and will initiate – in the near future - the political reforms that are required to make local and regional governments' efforts technically and legally feasible, fundable and effective.

In order to fulfil our commitment, we will use our political mandate to apply an integrated and participatory approach to sustainable water and sanitation management and initiate the following actions in our city or region based on the Guidelines in the Annex[3]:

- An *assessment* of the internal and external pressures on the local water resources and their aquatic biodiversity in order to identify the main challenges on their conservation;

- An *inventory* of local and regional government policies, strategies and plans that need to be adapted to cope with global challenges threatening local water resources and systems in the medium- and long-term;

- The development of a *dialogue with all stakeholders at the local/regional level* in order to create a shared vision between principal actors, to define local priorities and plans of action in the water sector;

- The definition of *objectives and measurable targets* specific to our jurisdiction and reflecting the commitment made to **Istanbul Water Consensus** and the establishment of a monitoring and reporting framework to increase accountability of our strategies and actions;

- The implementation of our action plans to achieve tangible improvements in our water and sanitation services and to increase local and regional resilience in the face of global changes.

We also pledge to report back and share the challenges and the progress of our cities in achieving the above actions at the occasion of the next World Water Forum in 2012.

ANNEX: Guidelines for a Plan of Local and Regional Action
(To be tailored to the local context)

Diagnosis

Local and Regional Authorities should develop an assessment of those challenges, which are most likely to impact their water resources and water and sanitation services, including the following, as applicable:

- Undertake an assessment, in cooperation with stakeholders, of likely demographic land-use changes and economic trends and the resulting demands on water resources and compare them with the predicted availability of water resources;
- Determine the population lacking access to safe drinking water and sanitation;
- Determine the population most vulnerable to water-related health impacts;
- Carry out a study on water and sanitation infrastructural needs, including rehabilitation, and their appropriate financing;
- Identify barriers to integrated management including sectoral pressures;
- Assemble the best available climate forecasts applicable to the hydrological factors that impact the city/local authority – from water source to sea;

- Assess the city's capacity to deliver water and sanitation services under major scenarios of climate and global changes.
- Determine other climate-related risks, potential benefits and uncertainties with respect to water management;
- Conduct a vulnerability assessment for pollution and water-related disasters;
- Assess, strengthen and implement regulatory frameworks and enhance institutional capacity;
- Determine the needs for water to support social, economic (both agricultural and industrial), institutional and environmental needs.

Targets

Local and Regional Authorities should develop concrete and measurable targets that are tailored to their local circumstances, pursuant to their jurisdiction and on a fully voluntary basis.

Such targets could be, for example:

- Reduce the amount of physical water loss x % by year x.
- Increase water supply for human needs x % by year x.
- Increase water supply per capita to x liter per day by year x.
- Save x % of per capita domestic water consumption by year x.
- Achieve internationally recognised water quality standards by year x.
- Achieve x % collection and x % treatment of sewage by year x.
- Inspect x % of industrial wastewater outfalls every year.
- Ensure appropriate amount of water for ecosystems needs by year x.
- Reduce damages due to water-related disasters as % of national (and/or regional)
- GDP to less than 5% of GDP.

Measures

To realise targets such as the ones listed above, the following measures might be considered:

- State-of-the-art water, sanitation and storm water management techniques to respond to urbanisation and to the uncertainty and variability associated with global changes, taking water supply in rural areas also into account;
- Adoption of measures regarding spatial planning in order to prevent and combat the impact of global changes on the flood risk at the river basin level and on sea rise level;
- Diversification of sources of water supply to provide more flexibility for an indeterminate future, for example, via new storage facilities, sustainable groundwater extraction, water conservation and recycled water or desalination;[4]
- Introduction of regulatory measures for public participation in the decision-making regarding water management and financing at local/basin/regional levels thus improving water governance;
- Investment in sustainable infrastructure;
- Reduction of negative water-related health impacts to the urban population;
- Protection of the natural environment, especially important aquatic habitats, against cumulative impacts of urban development and climate change;
- Restriction of land-use to protect water resources and dependent biodiversity;
- Cooperation with industry and the business sectors to optimize water efficiency and reuse in processes and products and to limit, manage and control pollution;
- Preference to water management solutions that are economical and efficient such as rainwater harvesting and the recycling of purified wastewater;

[4] The following local and regional governments requested to keep the reference to inter-basin water transfers: Generalitat Valenciana, Comunidad Autónoma de la Región de Murcia (Spain), Inter Mediterranean Committee of the Conference of Peripheral Maritime Regions (CIM-CPMR).

- Development and implementation of structural and non-structural risk management plans/ measures to reduce damage by water-related disasters.
- Development and implementation of plans for flood control, drainage improvements, drought, disaster response and preparation for sea level rise;
- Development and implementation of plans for the redesign and re-engineering of infrastructure, as necessary, to withstand extreme events or to perform under changed circumstances;
- Involvement of women and young people in the supply, management and maintenance of water resources and in risk reduction;
- Utilisation of innovative and locally-adapted technologies for increased efficiency and coverage of water and sanitation systems;
- Provision of incentives for the transfer of education, training and technology in order to assure sustainable water management and economic development.

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SUEN
TURKISH WATER INSTITUTE

Contact Info:
Libadiye Cad. No: 54 Kucukcamlica - Uskudar 34696 Istanbul / TURKEY
Tel: +90 216 325 4 992 | Fax: +90 216 428 0 992
E-mail: info@suen.gov.tr | Website: www.suen.gov.tr
www.iusf.org.tr