IWRA Update

Newsletter of the International Water Resources Association

VOLUME 30 | ISSUE 3 | SEPTEMBER 2017

IWRA

SUMMARY

View of the City of Stockholm, Sweden
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EDITORIAL

Callum Clench, IWRA Executive Director

Following the great success of the XVI World Water Congress held in Cancun, Mexico earlier this year, we have continued the positive momentum through finalizing the outputs from the Congress, and participating in other international projects and events. These global activities, focused primarily on water quality, governance, smart water management and the science-policy interface, address key water issues facing communities in all parts of the world. With climate change wreaking havoc in the form of hurricanes, floods and drought, and in doing so rapidly altering the world we live in, we must act quickly to not only find technical and governing solutions but also share and distribute such information. This is essential in order to meet the Sustainable Development Goals (SDGs) and to aid developing regions to achieve the same quality of life as those in the developed world.

One such tool for more water secure development is through Smart Water Management (SWM), which relates to the use of Information and Communication Technology (ICT) to improve the solutions in sustainable water management. Data is increasingly part of people's everyday lives and it is becoming more common for governments to integrate Smart principles into their urban and regional management guidelines. The potential applicability of Smart systems in water management is wide, and we are seeing innovative SWM technology addressing challenges including water quality, consumption, leaks, pressure and flow, water access, irrigation and agriculture, floods, droughts, ecosystems, governance and more. As such, IWRA is interested in sharing stories of successful SWM projects and promoting the benefits of SWM tools, through collaboration with K-water (the Korea Water Resources Corporation) on a joint project to develop a report on SWM. This project will highlight exemplary SWM case studies from around the world, while identifying the enabling and preventative factors for future SWM projects, helping to build capacity for others trying to utilize this SWM option when addressing water challenges.

IWRA continued to create collaborations with K-water at the combined Korea International Water Week (KIWW) and Asia International Water Week (AIWW), which took place in Gyeongju, Republic of Korea in September 2017. As the second KIWW, it embraced the theme of "Water Partnership for Sustainable Development", while the first AIWW focused on "Asian Solutions for Water". Further to participating and sharing expertise on these topics in Korea, we were sowing the seeds with water experts in East Asia, moving towards the XVII World Water Congress. This upcoming Congress will be hosted by the city of Daegu, in the Republic of Korea in May 2020.

Another major upcoming global event in the water agenda is the 8th World Water Forum in Brasilia, Brazil from the 18-23 of March 2018. The World Water Forum strives towards the sustainable use of water resources through open dialogues at the global level on the technical, institutional and political scope of water management.

EDITORIAL (CONT.)

Callum Clench, IWRA Executive Director

We are preparing for this important event through coordination activities for the 'science-policy interface' topic under the climate theme, coordination for the cross-cutting theme of 'capacity' as well as leading the topic on 'water quality' within the theme of ecosystems.

Water management paradigms place an emphasis on water quality as a crucial element for ensuring water security. Water quality and quantity (sufficient supply of water of the right quality for the right use) are consistently a concern for people around the world, as common and emerging contaminants make drinking water a safety concern and limited water resources are required to support a number of different sectors. Even in developed areas, flooding such as the recent events in Texas and Louisiana have caused the contamination of water supplies, increasing the potential for the spread of cholera, typhoid, and other infectious diseases as well as the problems caused by the runoff from petroleum, chemical companies and Superfund sites. In other cities such as Cape Town, drought continues to cause problems as the reduced water supply becomes more vulnerable to contamination. Beyond the need to ensure safe and good water quality around the world, there is also the potential to improve water quality so as to address key challenges towards achieving the SDGs. The development of a global water quality assessment framework as well as access to timely and reliable data is needed to support decision-making and management processes. IWRA will work in partnership with the World Water Council to publish such a compendium of water quality guidelines for determining water qualities specific to certain uses and sectors.

Finally, improving global water management requires advancing research and enhancing the quality of knowledge in the subject. We are finalizing the development of Task Forces to support advanced research and knowledge production through channeling the expertise of IWRA members to contribute to useful tasks and projects. Task Forces will provide networks between diverse members with common interests and a platform for interaction and information exchange on a particular topic. The first Task Force on Smart Water Management is now open for the submission of panellist applications and we encourage any IWRA member with a background and interest in SWM to apply to be a part of this enriching opportunity.

With turbulent political and climatic events occurring worldwide, we are confident that the upcoming projects and conferences will act as a way for the water community to collaborate and strengthen our knowledge, connections and preparations for combating the difficult current and future water challenges.

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NEW IWRA ARTICLES OF INCORPORATION APPROVED!

On 28 May 2017 IWRA's Executive Board voted to replace IWRA's 1987 Constitution with new Articles of Incorporation to be consistent with the laws in the US State of Wisconsin where IWRA is incorporated. At the same time, the Executive Board also adopted new Bylaws. For this reason, the Association's members were called to vote on this change and approve the new Articles of Incorporation in order to allow the revisions to become effective.

On August 18th, 2017, after the corresponding 30-day notice, voting was open to people who were either paying members or IWRA Honorary members as of 28 May 2017. Members went ahead and voted by responding "Yes" or "No" to the following question: "*Do you approve the new Articles of Incorporation that amend and replace IWRA's 1987 Constitution?*"

Data collected after the voting indicates 97% of IWRA members that voted approved the new Articles of Incorporation. Therefore, IWRA is glad to inform to all members the new Articles of Incorporation are now officially approved and replace IWRA's 1987 Constitution as of 15 September 2017!

The Executive Office wishes to thank the members of the Constitution Review committee for all their hard work in achieving this difficult task through many online meetings: Dogan Altinbilek, Renée Martin-Nagle, Guy Fradin and Lilian del Castillo Laborde. We also thank our voting members for their support of this hard work.

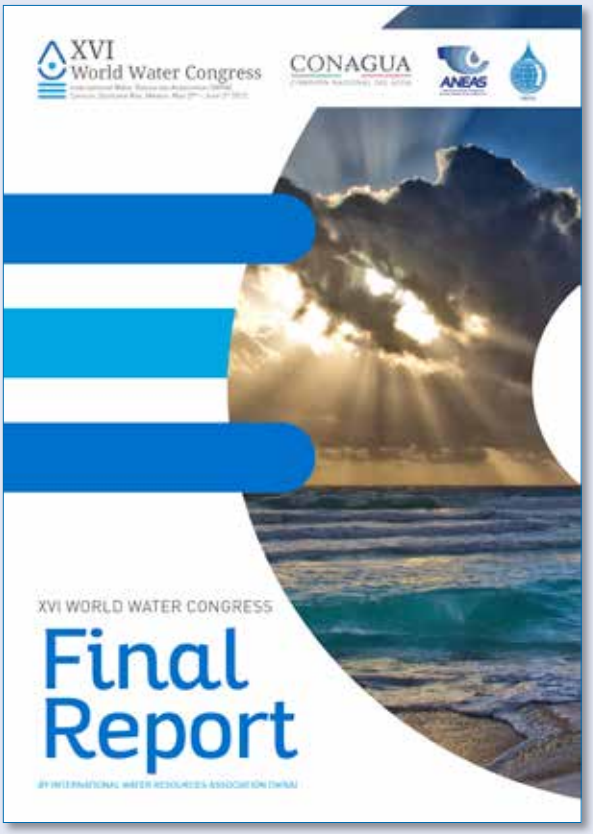
To read both the formal notice regarding the Articles of Incorporation that was sent to members in July please *click here*. Similarly, access the invitation sent to members to vote last month by *clicking in this link*.

If you have any questions or would like more information on this matter please contact our office at *office@iwra.org*.

CONGRESS FINAL REPORT

XVI World Water Congress

The sixteenth IWRA World Water Congress was held in Cancun, Mexico, from 29 May to 3 June 2017. The Congress was hosted in association with the National Water Commission of Mexico (CONAGUA) and the National Association of Water and Sanitation Utilities (ANEAS). During the week, more than 1,100 attendees participated in over 100 distinct sessions, all coalescing around the Congress theme of Bridging Science and Policy.



A final report of the XVI World Water Congress will be available in early October on the IWRA and World Water Congress website. The report provides an overview of the Congress and its various components, activities, and achievements, including a summary of each session that took place during the event.

Look out for updates on the Final Report's release!

CALL FOR SMART WATER MANAGEMENT TASK FORCE PANELLISTS

IWRA is excited to launch the debut of the IWRA Task Forces, with an open call for expert panellists of the **Smart Water Management Task Force**!

IWRA is seeking SWM experts from around the world to join this Task Force, and contribute to the review of global SWM case studies for the development of a final report between IWRA and K-water, the Korea Water Resources Corporation. This report aims to showcasing exemplary SWM case studies from around the world to demonstrate and provide analysis on how SWM can assist in resolving current water challenges, while helping to meet the Sustainable Development Goals (SDGs).

The SWM Task Force will be made up of selected IWRA members, supported by the IWRA Executive Office and Board. Panellists will have the opportunity to interact and create meaningful networks and relationships among IWRA members within their professional discipline, as well as to contribute to projects and initiatives that otherwise would be inaccessible for individual professionals in the field. As recognition of these contributions by the panel, the IWRA website will feature a short personal profile of each selected and active panellist. Please find the Terms of Reference which includes more information on this Task Force shortly on *www.iwra.org*.

The call for panellists on the IWRA Smart Water Management Task Force is now open!

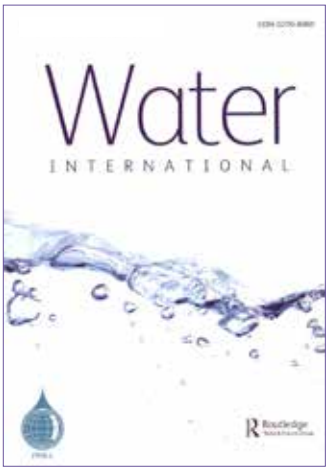
We ask all interested applicants to submit a short CV and a short covering letter stating why they wish to join and how their expertise would assist the task force to *office@iwra.org*.

Do you want to create networks among other IWRA members?

Do you want to contribute to meaningful multi-organisation projects?

Do you have expertise on the topic of Smart Water Management (SWM)?

NEWS FROM *WATER INTERNATIONAL*



IMPACT FACTOR INCREASE IN 2016

IWRA is pleased to inform you that the Web of Science impact factor for Water International (WI) increased in 2016 to 1.538, up from 1.040 in 2015. This 48% increase is, certainly, gratifying to the Association and WI that rose in the relative rankings, to 53/128 in Civil Engineering and 49/88 in Water Resources categories, for instance.

The Web of Science impact factor - *wokinfo.com* – is a major reference for research discovery and analytics, connecting publications and researchers through citations and controlled indexing across databases and multiple disciplines. Moreover, cited reference can be searched in over 100 years' worth of content fully indexed, including 59 million records, dating back to 1898!

Thank you all for your efforts to give our journal greater impact, which (eventually) is being reflected in the impact factor!

DR. WAHID JOINS WATER INTERNATIONAL AS AN ASSOCIATE EDITOR

We are pleased to announce that Dr. SM Wahid has joined the editorial team of Water International, replacing Charlotte McAlister as a technical Associate Editor. We would like to thank Charlotte for her outstanding work with us, and look forward to working with her in the future once the dust clears.

Dr SM Wahid works as Principal Research Scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia. His research focuses on integrated water resources management, climate change and water resources assessment, flood/drought forecasting and warning, risk and hazard management, and river basin management. He has published about 70 international peer reviewed journals, conference proceedings, book chapters, technical manuals, reports and educational materials on these subjects. He has more than 25 years' experience in research and development work and played prominent role in bringing together 20 multidisciplinary research partners across several South Asian countries for Sustainable Development Investment Portfolio initiated by the Australian government. Wahid is an international Advisory Board Member of the International Network on Sustainable Water Management in Developing Countries (SWINDON) program established by the German Academic Exchange Service (DAAD).

INTERVIEW
WITH IWRA BOARD MEMBERS

Yuanyuan Li

> What are the most important issues in water for you?

There are three very important aspects to note regarding water. One aspect is the need for research and studying water science because we are in a changing world; the climate is changing, the water hydrological processes are changing, water demand is changing, water quantity and quality is changing and also the dynamic relation between water and the socio-economic as well as environmental aspects is changing. Therefore in the water sector, we should encourage more scientists to have deeper studies to examine how the water situation is changing, what interrelations between water and other elements for developing environmental protections exist and to create the adequate science and technology background for any other water action to be taken.

The second important aspect is to make people understand the water, particularly for the decision makers but also for the public. Both of these groups need to have a better understanding and knowledge of the water situation. For the decision makers, we need to educate them to have better knowledge and considerations on the water aspects because we want our decisions and policies to be based on science and technology. Also, we need to provide general knowledge to the public, leading them to understand the water, to like the water, to help the water, to protect the water. I think this point is more important.

Finally, we should ensure that government authorities and decision makers make water one of the priorities and essential policy considerations. This is because water is a common public service good for most countries, a basic need for people and a very important element for ecological systems. Policymakers and government authorities should put water policy within the overall national development and environmental protection as well as national security and policy frameworks. Only when this occurs can water have its fundamental functions and its strategic rules in the national development. These are the three aspects that I think are the most important and urgent in the water agenda, and we should all work to promote these.

Yuanyuan Li

Yuanyuan Li is originally from China and he is currently working in the General Institute of Water Resources and Hydropower Planning and Design, which is a governmental body in charge of the national water resources planning, policy and strategic studies. He is also serving as one of the Vice-Presidents of the IWRA, promoting water science research and policy formulations.

INTERVIEW
WITH IWRA BOARD MEMBERS
Yuanyuan Li

> What next steps are required to resolve this issue?

The next steps could be described from different scopes. In the global scope, we already have SDG targets so the question now is to put this into the action plans, not only in the political declarations but into the global agendas for all the nations and international committees. We need to face climate change, food security, floods and drought risks, all these need to be manifested at the global scale so nations can cooperate and work together. At the national level, it is important for each nation to have their own water agenda or national water planning and policies, and then to follow through and implement these plans. In many international meetings we talk about how to mobilise social incentives and the market force to participate in the water sector, but what I think is more important is ensuring that governments play a leading role in the water development and protection. This is because, as I mentioned before, water is essential for the country, for the people and for the ecological systems; it's a public good. Only after the governments have taken a lead, then we need to mobilise social economic resources to participate in the water sectors.

> Why is the IWRA World Water Congress important?

As an IWRA board member, our organization is aware of the knowledge institutions because we have gathered hydrological experts, engineers and policy-related people together, with the mission of building a bridge between the scientists and policymakers. Every three years, the Congress provides a very important forum to bring the scientists, technologies, engineers, policymakers, planners together, to have an interface and discussions to better understand each other. Sometimes the groups have gaps in understanding across disciplines, so we need platforms to merge them. Therefore, the World Water Congress is a good opportunity for all water related people to find.

LATEST ACTIVITIES

9TH MEETING OF THE OECD WATER GOVERNANCE INITIATIVE
3-4 July 2017, OECD Conference Centre, Paris

On 3-4 July 2017, the OECD Water Governance Initiative held its 9th meeting at OECD Headquarters in Paris. The meeting gathered 115+ practitioners, policymakers and representatives from major stakeholder groups. The agenda, list of participants, slides and pictures from the event are accessible online.

KEY OUTCOMES

- Delegates shared opportunities to foster the implementation of **global frameworks** (SDG6 [water]; Paris Agreement), notably on the road to the **8th World Water Forum** to be held in Brasilia, Brazil (2018). Delegates were invited to take part in the "*Your Voice*" online consultation on the Governance stream of the 8th World Water Forum, which is open until 16 July, and to the regional consultation on the Valuing Water initiative carried out under the *High-Level Panel on Water* convened to contribute to the implementation of SDG6.
- Members welcomed the revised **water governance indicator framework** as a user-driven self-assessment tool for interested countries and stakeholders on the *OECD Principles on Water Governance*. Valuable suggestions were provided by the pilot-testers from Austria, Cabo Verde, Colombia, Morocco, Netherlands, Peru, Spain, UK (Scotland) and RD Congo (GWP) to clarify the distinction between managementand governance indicators and to engage in next steps for data collection in interested countries, basins and cities for the forthcoming OECDWater Governance at a Glance publication.
- Delegates welcomed the 69 **water governance stories** that were collected to illustrate how the OECD Principles can be implemented at different levels, and highlight results achieved and lessons learned during policy and reform processes. They agreed to peer-review the stories as part of policy dialogues to foster experience-sharing and peer-learning.
- **Knowledge and information** were shared on i) recent research focusing on revitalising the IWRM paradigm, water service regulation, governance of water infrastructure in Chile, and water governance in humanitarian contexts; ii) recent events (4th Istanbul International Water Forum, IWRA World Congress, Water Economics Forum, 3rd Asia-Pacific Water Summit); and iii) ongoing projects and policy developments in Israel, MENA countries and on groundwater governance.
- Delegates peer-reviewed draft assessments and recommendations from the **OECD-Brazil Policy Dialogue** on "Setting and Governing Economic Instruments for Water Resources Management", and from OIEau's **ECOCUENCAS project** on the role of economic and governance instruments in climate change adaptation in 3 basins of Peru, Ecuador and Brazil, in the presence of high-level delegations from Brazil's National Water Agency and PCJ river basin committee.
- A session was devoted to **water governance in France** to share experience on recent environmental and territorial reforms, with a special focus on issues related to policy coherence between water and biodiversity, basin governance, and the consolidation of water service operators.

Detailed Policy Highlights from the meeting were shared with WGI members by 28 July for written comments.
The final version is available online.
The OECD-WGI will hold its 10th Meeting on 20-21 November 2017 in Vienna, Austria.

The OECD Water Governance Initiative is a multi-stakeholder network of 100+ delegates from public, private and non-profit sectors gathering twice a year in a Policy Forum to share on-going reforms, projects, lessons and good practices in support of better governance in the water sector. It was launched on 27-28 March 2013 and is chaired by Peter Glas of the Dutch Water Authorities. The WGI is hosted by the OECD, and coordinated by a multi-stakeholder steering committee.

For more information, please contact *water.governance@oecd.org*

LATEST ACTIVITIES

IWRA-AIDA WEBINAR ON LEGAL MECHANISMS FOR WATER RESOURCES IN PRACTICE 7 August 2017

IWRA's second webinar of 2017 was co-organised with AIDA (International Association for Water Law) focusing on "Legal Mechanisms for Water Resources in Practice". This successful webinar built on themes from AIDA's sessions at the XV World Water Congress in Edinburgh, Scotland, and was based on a special issue of *Water International (Volume 41, Number 6)* on this same topic. *More information on this special edition can be found on page 16.*

One of the main results was agreement that law must function as part of a wider governance structure so that enforcement can make a difference to people who live in these communities. Moreover, all panellists agreed on the need for in-depth and case specific fieldwork to understand how law functions on the ground.

Overall registrants accounted for more than 105 people and our panel of distinguished speakers featured Marcella Nanni (Deputy Chairman & Editor, International Association for Water Law), Mara Tignino (Senior Lecturer at the Faculty of Law and Coordinator of the Platform for International Water Law, Geneva Water Hub), Laura Movilla Pateiro (Lecturer, University of Vigo), Helle Munk Ravnborg (Senior Researcher, Danish Institute for International Studies), and Sarah Hendry (Water Lawyer, University of Dundee). This webinar was moderated by Scott McKenzie, (PhD Candidate, University of British Columbia).

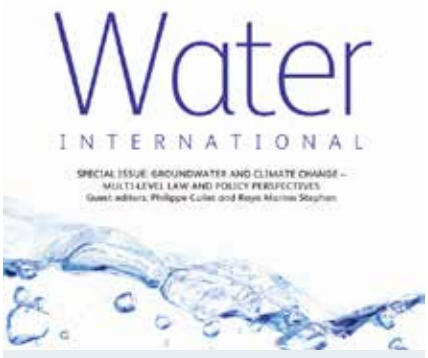
A high resolution recorded video of the webinar is available on ***IWRA's website*** *and on* **our channel** ***on YouTube***.

IWRA-AIDA WEBINAR ON GROUNDWATER AND CLIMATE CHANGE – MULTI-LEVEL LAW AND POLICY PERSPECTIVES 21 September 2017

The third IWRA webinar this year drew from innovative workshops initiative by co-editor Philippe Cullet, who brought together experts on groundwater and policy from around the world. Although our panelists engaged in different case studies, from India to British Columbia there were many common threads. One of the main results of this webinar was to find the cross-sectorial linkages between ways that groundwater is used, including agricultural and energy, and managed. All the panelists agreed that there was a strong need to improve the science-policy interface to focus on ways that groundwater depletion and pollution could be linked to more innovative governance frameworks to enhance sustainability.

This webinar was based on special issue of *Water International (Volume 42, Number 6)*. *More information on this special edition can be found on page 17.*

On this occasion the webinar had 210 registrants from all over the world, and our panelists included Michael Kidd (Professor, University of Kwazulu-Natal), Owen McIntyre (Professor, University College of Cork), Birsha Ohdedar (Phd Candidate, School of Oriental and African Studies, University of London), Trevor Birkenholtz (Professor, University of Champaign-Urbana), Raya Stephan (Water Law Expert and Consultant). It was moderated by Scott McKenzie (PhD Candidate, University of British Columbia).

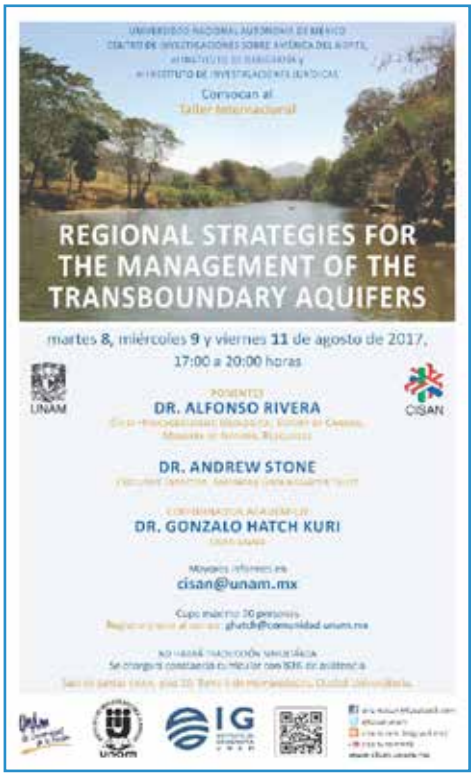


A high resolution recorded video of the webinar is available on ***IWRA's website*** *and on* **our channel** ***on YouTube***.

LATEST ACTIVITIES

INTERNATIONAL COURSE AND WORKSHOP: REGIONAL STRATEGIES FOR THE MANAGEMENT OF TRANSBOUNDARY AQUIFERS
8-11 August 2017, Mexico City, Mexico

Dr. Alfonso Rivera (Chief Hydrogeologist, Geological Survey of Canada) and Dr. Andrew Stone (Executive Director, American Groundwater Trust, USA) delivered an international course and workshop on "Regional Strategies for the Management of Transboundary Aquifers". A great mixture of professionals participated to this event: engineers, professors, water managers, one senator, one member of congress, graduate and post-graduate students in earth sciences and social sciences, and even anthropologists, historians and lawyers, from Mexico and abroad. This blend of disciplines clearly shows the growing interest in transboundary aquifers where science, policy and social issues are mixed. Scientific, legal, socio-political aspects, as well as the integration of these in the management of transboundary aquifers were presented and extensively discussed including case studies with real examples.



2017 WORLD WATER WEEK
27 August – 1 September 2017, Stockholm, Sweden

SIWI WORLD WATER WEEK

Organized by the Stockholm International Water Institute (SIWI), the World Water Week in Stockholm is the annual focal point for the globe's water issues. Hosted this year at the Stockholm City Conference Centre under the theme "Water and Waste – Reduce and Reuse", it held more than 200 sessions with themes covering SDGs implementation and monitoring, sanitation and health related to wastewater, financing, integrated urban water management, food and nutrition, water conflicts and fragile states. As customary, the week featured many social events, kicking off with a Young Professionals Day on August 27. Access more insights and details at the following link: *www.worldwaterweek.org*

This year the IWRA was represented by the Executive Director (Callum Clench) and Treasurer (Renée Martin-Nagle). IWRA participated in a session on Water and Green Growth and held numerous bilateral meetings, as well as participated in the biennial UN Water stakeholder meeting which took place just prior to the World Water Week.

LATEST ACTIVITIES

15TH EUROPE-INBO 2017 INTERNATIONAL CONFERENCE
20-23 September 2017, Dublin, Ireland

Irish authorities invited Europe-INBO this year to hold the 15th "EUROPE-INBO 2017" international conference, co-organised with the "Group of European Basin Authorities for the Implementation of the European Water Directives", from Wednesday 20th to Saturday 23rd September 2017, at the Grand Hotel Malahide, Dublin, IRELAND. Organizations, administrations and other stakeholders interested in Basin Management participated in the event and shared their experiences on basin management throughout the sessions of EUROPE-INBO, mainly the Workshop on "Water data management organization and electronic reporting" and four thematic Roundtables on WFD, Adaptation to Climate Change, Public Participation, and New Threats to Aquatic Environments.

For more information on the event please visit INBO website at: *inbo-news.org*.
Contact: *e.boinet@inbo-news.org*

KOREA INTERNATIONAL WATER WEEK & 1ST ASIA INTERNATIONAL WATER WEEK 2017
20-23 September 2017, Gyeongju, Republic of Korea

KIWW2017 & 1st AIWW

The Korea Water Forum's 2017 Korea International Water Week (KIWW) and the Asia Water Council's 1st Asia International Water Week (AIWW) were co-convened from September 20th to 23rd, 2017, in Gyeongju, Republic of Korea. Both events proved to be very successful, aiming to focus debates and participation around securing water resources in Asia.

On one side, the 2017 KIWW on "Water Partnership for Sustainable Development" brought together high level speakers, key partners and more than 1,000 participants to debate on global leadership for SDGs, implementation of solutions, economic/social value creation and knowledge sharing/capacity building. On the other side, the 1st AIWW on "Asian Solutions for Water" aimed to share water issues and expertise from around the continent and build action plans for the future. Both events included the participation of NGOs, academia, public and private sectors, as well as government authorities including local governments and municipalities.

This year, IWRA was represented by Executive Board Member Gary Jones, Executive Director Callum Clench, Project Officers Alice Colson and Stephanie Kuisma, and Communications Officer Ignacio Deregibus. IWRA participated in various sessions on Smart Water Management, Water and Green Growth, judging the World Water Challenge, meetings related to the World Water Fora and Asia Water Council, in addition to numerous bilateral meetings. IWRA also hosted a dedicated stand in the exhibition hall to promote the projects we are currently undertaking, as well as the XVII World Water Congress scheduled to take place in Korea in May 2020.

To learn more on both these 2017 events please visit: *www.kiww.org*

PHOTO GALLERY

2017 World Water Week

Between 27 August and 1 September the 2017 World Water Week took place in Stockholm, Sweden. A selection of pictures of this year's event follow below.

> Astronaut and Member of Sweden's Royal Academy of Science, Christer Fuglesang, addressing the audience at the 2017 World Water Week opening ceremony.

> Full plenary room at the inauguration session of the 2017 World Water Week in Stockholm.

>Stockholm City Hall, one of Sweden's most famous buildings, and one of the capital's most visited tourist attractions.

> View of the City of Stockholm. © Callum Clench

PHOTO GALLERY

KIWW & 1st AIWW

From September 20th to September 23rd, 2017, Gyeongju hosted at the HICO centre both the Korea International Water Week and the 1st Asian International Water Week. A selection of pictures of this year's event follow below.

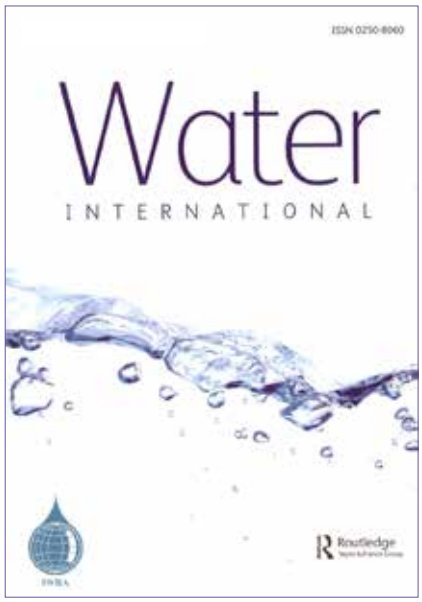
> Entrance of the HICO centre, venue of both the KIWW & 1st AIWW

> Pagoda building view near the HICO Centre, where IWRA and other sessions took place in Gyeongju, Korea.

> Audience view of the closing ceremony of the KIWW & 1st AIWW.

> IWRA Executive Office staff at KIWW's Welcome Dinner. From right to left: Stephanie Kuisma (Project Officer), Alice Colson (Project Officer) and Ignacio Deregibus (Communications Officer).

> IWRA stand view at the Exhibition Hall at HICO centre in Gyeongju.



PUBLICATIONS

Water International

Volume 42, Issue 5 2017

PAGES 505 - 640

RESEARCH ARTICLES

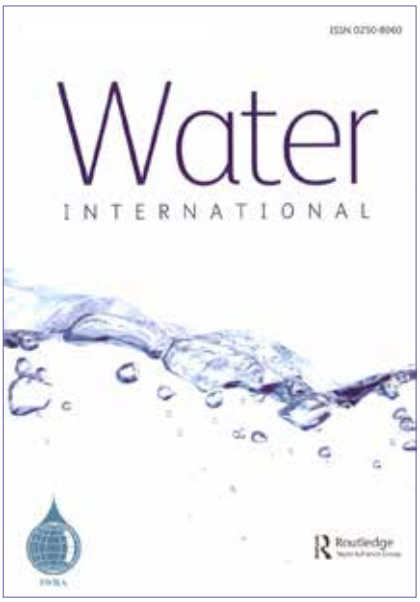
- *Specification of a human right to water: a sustainability assessment of access hurdles,* Erik Gawel & Wolfgang Bretschneider - Pages: 505-526
- *Politics of the Dead Sea Canal: a historical review of the evolving discourses, interests, and plans*, Hussam Hussein - Pages: 527-542
- *Urban water demand, climatic variation, and irrigation-water insecurity: interactive stressors and lessons for water governance from the Angat River basin (Philippines)*, Sameer H. Shah & Hisham Zerriffi - Pages: 543-567
- *Assessing the environmental context of hand washing among school children in Limpopo, South Africa*, Nicola Bulled, Kara Poppe, Khuliso Ramatsisti, Londolani Sitsula, Geoffrey Winegar, Jabulani Gumbo, Rebecca Dillingham & James Smith - Pages: 568-584
- *Quality matters: incorporating water quality into water access monitoring in rural Malawi*, Sarah L. Smiley - Pages: 585-598
- *Use of coal seam water for agriculture in Queensland, Australia*, David Monckton, Jim Cavaye, Neil Huth & Sue Vink - Pages: 599-617

TECHNICAL NOTE

- *A review of the current status of small-scale seawater reverse osmosis desalination*, Jie Song, Tian Li, Lucía Wright-Contreras & Adrian Wing-Keung Law - Pages: 618-631

IWRA XVI WORLD WATER CONGRESS

- Acceptance addresses for the Crystal Drop Awards, Cancún, Mexico, 1 June 2017 - Pages: 632-636
- Water International Best Paper 2016 Awards - Pages: 637-640



PUBLICATIONS

Water International

Volume 42, Issue 6 2017

PAGES: 641–776

Groundwater and Climate Change Multi-Level Law and Policy Perspectives

INTRODUCTION

Introduction to 'Groundwater and Climate Change: Multi-level Law and Policy Perspectives', Philippe Cullet & Raya Marina Stephan - Pages: 641-645

RESEARCH ARTICLES

- *Regulating the interactions between climate change and groundwater: lessons from India,* Philippe Cullet, Lovleen Bhullar & Sujith Koonan - Pages: 646-662
- *Assessing India's drip-irrigation boom: efficiency, climate change and groundwater policy,* Trevor Birkenholtz - Pages: 663-677
- *Climate change, groundwater and the law: exploring the connections in South Africa*, Michael Kidd - Pages: 678-690
- *Groundwater law, abstraction, and responding to climate change: assessing recent law reforms in British Columbia and England,* Birsha Ohdedar Pages: 691-708
- *EU legal protection for ecologically significant groundwater in the context of climate change vulnerability*, Owen McIntyre - Pages: 709-724
- *Groundwater use in North Africa as a cautionary tale for climate change adaptation*, Marcel Kuper, Hichem Amichi & Pierre-Louis Mayaux Pages: 725-740
- *Global climate change and global groundwater law: their independent and pluralistic evolution and potential challenges*, Joyeeta Gupta & Kirstin Conti Pages: 741-756
- *Climate change considerations under international groundwater law,* Raya Marina Stephan - Pages: 757-772

IWRA XVI WORLD WATER CONGRESS

- *A call for a new business model valuing water use and production: the Water, Energy and Food Nexus holistic system approach,* Rabi H. Mohtar Pages: 773-776

PUBLICATIONS

Special Book Series Issues on Water Policy and Governance

Transboundary Water Cooperation - Principles, Practice and Prospects for China and its Neighbours
Edited by Patricia Wouters, Huiping Chen, James E. Nickum, 2017
380 Pages, Routledge

China and its neighbours face a series of water security issues, in which international law plays a vital role. Paramount to both policymakers and researchers in the field of water law, the current status of transboundary water cooperation schemes and how these operate in China is of global significance.

Grounded in international experience, this comprehensive volume provides readers with an up-to-date overview of current international transboundary water resource sharing policies and practices, including detailed case studies at both domestic and international levels. The authors discuss existing international laws, treaties, and principles that may stimulate transboundary water cooperation and dialogue, and then analyse a number of international experiences with treaties in North America, Eastern Europe, and Central Asia. They take stock of China's water resource issues, legal practices and options, examine case studies of China's southern shared rivers, and explore some innovative approaches to cooperative management of shared waters within China.

> More information on this Special Book for Publication can be found **here.**

By Members and Partners

The International Law of Transboundary Groundwater Resources
Gabriel Eckstein
1-174, 2017

This book provides a comprehensive review of the state of international law as it applies to transboundary groundwater resources and aquifers. The main focus is on recent developments and the emerging international law for transboundary aquifers as reflected in the practice of states and the work of the UN International Law Commission, UN Economic Commission for Europe, and International Law Association.

The author takes an interdisciplinary approach to the subject matter and provides the scientific hydro-geological underpinning for the application of law and policy to transboundary groundwater resources. He also addresses the growing global dependence on this hidden resource, as well as both the historical and scientific context for development of the law.

The book provides case examples throughout to illustrate the various concepts and developments. These include more detailed examinations of the few existing transboundary aquifer agreements in operation, such as for aquifers between France and Switzerland and Jordan and Saudi Arabia, as well as aquifers in North Africa and in South America.

> Read more

Modeling the Water-Energy-Food Nexus: A 7-Question Guideline. In Water-Energy- Food Nexus: Principles and Practices
Daher, B., Mohtar, R. H., Lee, S. and Assi, A. A.
57-66, 2017

Water, energy, and food resource systems are under increasing stresses. As we prepare to move toward more sustainable resource allocation and management strategies, it is critical that we quantify and model the interconnections that exist between them. Such action

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will help guide decision making and planning for the future of these resources and related strategies. While there is no single cook-book method for "modeling the nexus", this chapter provides a list of seven guiding questions to help conceptualize a nexus case, model, and then assess it. The 7-Question nexus modeling guideline is demonstrated using three case studies that represent a wide spectrum of critical questions, involving stakeholders, at different scales.

> Read more

Trade-offs and Decision Support Tools for FEW Nexus-Oriented Management. Current Sustainable/ Renewable Energy Reports

Daher, B., Saad, W., Pierce, S. A., Hülsmann, S. and Mohtar, R. H.
153–159, 2017

Purpose - Existing assessment and decision support tools have limited application to real-world food-energy-water (FEW) Nexus challenges. Integrated assessment approaches are often discipline-specific or highly theoretical, lacking grounding in real-world FEW issues.

Recent Findings – Few systems require application of integrated techniques that address multiple attributes of trade-off analyses, dynamic and disparate datasets, and difficult decision contexts. Research must enable: appropriate tool sets matched with FEW Nexus hotspots; customizing existing tools to fit local specifics; compatibility between collected data and integrative nexus assessment tool needs; evaluation of these assessments through incorporation of stakeholder input and guidance forward for solution implementation.

Summary - The core challenge is identification and design of a set of strategies that are robust under various future conditions (scenarios). Successful strategies must address natural, technological, and human system settings. Approaches that clarify the range of beneficial and potentially adverse trade-offs will support the identification of decisions and intervention options.

> Read more

Waterscape: A Perspective for Understanding the Contested Geography of Water

Karpouzoglou, T. & Vij, S.
WIREs Water 2017

The waterscape is a perspective that has captured the imagination of diverse scholars interested in the interaction of water and society. This includes the way water travels in time and space and is shaped by culture and geography. In this article, we pay particular attention to the study of the waterscape in the political ecology tradition. Scholars following this tradition have placed strong emphasis on understanding the role of power and the contested nature of water in diverse rural, urban, and periurban landscapes. The article provides a brief account of the main strands of literature and serves the purpose of an introductory overview of the waterscape for beginners. We focus both on major works that have helped define the waterscape as a perspective in political ecology and recent studies on the role of unequal power and gender relationships, informal water practices, and local water flows such as ponds and wastewater.

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Development of a water quality index (WQI) for the Loktak Lake in India

Das Kangabam, R., Devi Bhoominathan, S., Kanagaraj, S. & Govindaraju M.
1-12, 2017

The present work was carried out to assess a water quality index (WQI) of the Loktak Lake, an important wetland which has been under pressure due to the increasing anthropogenic activities. Physicochemical parameters like temperature (Tem), potential hydrogen (pH), electrical conductivity (EC), turbidity (T), dissolved oxygen (DO), total hardness (TH), calcium (Ca), chloride (Cl), fluoride (F), sulphate (SO_4^{2-}), magnesium (Mg), phosphate (PO_4^{3-}), sodium (Na), potassium (K), nitrite (NO_2), nitrate (NO_3), total dissolved solids (TDS), total carbon (TC), biochemical oxygen demand (BOD), and chemical oxygen demand (COD) were analysed using standard procedures. The values obtained were compared with the

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guidelines for drinking purpose suggested by the World Health Organization and Bureau of Indian Standard. The result shows the higher concentration of nitrite in all the location which is beyond the permissible limit. Eleven parameters were selected to derive the WQI for the estimation of water potential for five sampling sites. A relative weight was assigned to each parameter range from 1.46 to 4.09 based on its importance. The WQI values range from 64 to 77 indicating that the Loktak Lake water is not fit for drinking, including both human and animals, even though the people living inside the Lake are using it for drinking purposes. The implementation of WQI is necessary for proper management of the Loktak Lake and it will be a very helpful tool for the public and decision makers to evaluate the water quality of the Loktak Lake for sustainable management.

> Read more

Small Hydropower, Big Potential: Considerations for Responsible Global Development
Gina S. Warren
1-31, 2017

Small hydropower has the potential to provide reliable, clean energy to those currently living without electricity or without reliable electricity. For small hydropower to meet its full potential, however, legal and policy guidance will be necessary. Specifically, policymakers will need to consider - at the very least - factors such as the need for detailed site-specific information, a stable and flexible governance permitting scheme, and incentives that encourage investment in this renewable source.

> Read more

Water in Southern Africa
Larry A. Swatuk,
UKZN Press, 2017

When it comes to water, we are fed a daily diet of doom and gloom, of a looming crisis: wars of the future will be over water; nearly one-billion people lack access to clean water; river basins are closed so there is no more water to be allocated despite ever-growing demand; aquifers are overdrawn to such an extent that a global food crisis is just around the corner and major cities, such as Bangkok and Mexico, are sinking. And let us not forget about pollution or vector-borne diseases.

The challenges for sustainable water management are massive. Yet, as shown in this book, there are many positives to be drawn from the southern African experience. Despite abiding conditions of economic underdevelopment and social inequality, people rise to the challenge, oftentimes out of necessity and through self-help, but sometimes through creative coalitions operating at different scales – from the local to the global – and across issue areas – from transboundary governance to urban water supply. This first volume in the Off-Centre series argues that we must learn to see water and the region differently if we are to meet present challenges and better prepare for an uncertain, climate-changing future.

> Read more

The Cooperative Framework for the Transboundary Aquifer Assessment Program: A Model for Collaborative Transborder Studies
Sharon B. Megdal
Arizona Water Resource Newsletter, 2017

A common understanding of aquifer conditions is a first step in efforts to explore transborder governance and management. Disagreement about groundwater conditions is likely to lead to different perspectives on approaches to groundwater management. The U.S.-Mexico Transboundary Aquifer Assessment Program (TAAP) team has focused on expanding shared knowledge and understanding. Since 2009, the Cooperative Framework has facilitated successful completion of the transboundary San Pedro aquifer study, with completion of a similar study for the transboundary Santa Cruz aquifer in progress. In addition, binational efforts are continuing for the other TAAP aquifers. The basic elements of the Cooperative Framework can serve as a model for others engaged in transborder studies.

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The Evolution of Canadian Water Law and Policy: Securing Safe and Sustainable Abundance
Jamie Benidickson
59-104, 2017

Canadian water law has evolved over an extended period of time as a complex mixture of federal and provincial legislation and case law with provincial arrangements influenced by both riparian and prior appropriation doctrine as well as by the civil law tradition of Quebec. The article reviews highlights from the long-term evolution of Canadian water law, policy and institutions following a chronological path from Confederation in 1867 to the present. Three key shifts that have more recently begun to appear in background assumptions of Canadian water law are then identified. In particular, it is noted (1) that general confidence in the abundance of water is giving way to concerns over security and occasional scarcity, (2) that the primacy of human water uses is gradually being moderated by acknowledgement of the importance of environmental flows, and (3) that international considerations may be relevant to a greater degree than previously contemplated. The concluding section of the paper presents emerging policy directions in relation to the legacy of historic water law and policy decisions and the shifting assumptions previously reviewed with emphasis on sustainability, conservation initiatives and watershed frameworks.

> Read more

Competition for Water Resources: Experiences and Management Approaches in the US and Europe
Edited by Ziolkowska, J.R. & Peterson, J.M.
1-478, 2016

Competition for Water Resources: Experiences and Management Approaches in the U.S. and Europe addresses the escalation of global issues regarding water scarcity and the necessary, cost-effective strategies that must be put in place in order to deal with escalating water crisis. The book evaluates use and competition for water resources in the U.S. and Europe, emphasizing the problems and challenges of dealing with trade-offs in water.

In addition, the book discusses water management strategies that can be used to optimize water use and allocation, mitigate water scarcity, and adapt to water scarcity. Supplementing the numerous case studies, the book includes lessons learned from applying specific strategies and approaches. This comprehensive overview and comparison of management practices across two continents is an invaluable resource for researchers, policymakers, and educators in water.

> Read more

Groundwater Level Changes due to Extreme Weather - An Evaluation Tool for Sustainable Water Management
Ziolkowska, J.R. & Reyes, R.
Water 9(2) 117, 2017

In the past decade, extreme and exceptional droughts have significantly impacted many economic sectors in the US, especially in California, Oklahoma, and Texas. The record drought of 2011–2014 affected almost 90% of Texas areas and 95% of Oklahoma state areas. In 2011 alone, around $1.6 billion in agricultural production were lost as a result of drought in Oklahoma, and $7.6 billion in Texas. The agricultural sectors in Oklahoma and Texas rely mainly on groundwater resources from the non-replenishable Ogallala Aquifer in Panhandle and other aquifers around the states. The exceptional droughts of 2011–2014 not only caused meteorologically induced water scarcity (due to low precipitation), but also prompted farmers to overuse groundwater to maintain the imperilled production. Comprehensive studies on groundwater levels, and thus the actual water availability/scarcity across all aquifers in Oklahoma

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and Texas are still limited. Existing studies are mainly focused on a small number of selected sites or aquifers over a short time span of well monitoring, which does not allow for a holistic geospatial and temporal evaluation of groundwater level variations. This paper aims at addressing those issues with the proposed geospatial groundwater visualization model to assess availability of groundwater resources for agricultural, industrial, and municipal uses both in Oklahoma and Texas in the time frame of 2003–2014. The model is an evaluation tool that can be used by decision-makers for designing sustainable water management practices and by teachers and researchers for educational purposes

> Model access

The Structure, Form and Language of International Environmental Norms – From Absolute to Relative Normativity
Soininen, Niko
248–275, 2017

International environmental law is often relative in its commands. Formally binding hard law may contain vague and ambiguous language, and more importantly, be interpreted in various ways as the 1997 ICJ Danube Dam case illustrates. In contrast, soft law can gain legal significance as a result of either wide acceptance – legitimacy – or of effectiveness in actual state practice, even if it lacks formal validity as in the recent governance arrangements of the River Nile. This leads to an observation that the test for evaluating what international environmental rules require is an evaluation of multiple traces of normativity, namely formal validity, legitimacy, and effectiveness.

> Read more

Sustainability of Engineered Rivers in Arid Lands: Challenge and Response
Edited by Schmandt J., North G., Ward G. & Kibaroglu A
Cambridge University Press-UNESCO Hydrology SERIES, forthcoming (2018)

Over the course of the last century, large-scale engineering has aided human exploitation of reliable river flow in arid drylands. Dams, by-pass canals, and distribution networks control floods, generate electricity, increase food production and supply water to riverine cities. Altering the hydrology of the rivers brought many benefits to farmers, cities, and the world, but engineered rivers in arid lands face serious challenges today from changes in climate, population, land use, and more. Less water provided by nature, but used as we do today, reduces food production and endangers the economic livelihood of basin populations. Ecological health further declines. This book examines the interaction between physical and social systems in arid river basins around the world to evaluate responses to challenges such as climate (global warming and climate variability), reservoir siltation, environmental flow, changes in population and land use, and threats to economic and food security. Specifically, it examines the Colorado, Euphrates-Tigris, Júcar (Spain), Limarí (Chile), Murray-Darling (Australia), Nile, Rio Grande, São Francisco and Yellow basins to understand the implications for food production, economic activity, and ecological health, as well as how river managers and water stakeholders may learn to use water more efficiently to maintain human and environmental well-being.

Hydraulic Fracturing in the Karoo: Critical Legal and Environmental Perspectives
Edited by Glazewski, J. & Esterhuyse, S.
1-546, 2016

Hydraulic Fracturing in the Karoo: Critical Legal and Environmental Perspectives explores a broad-ranging set of questions related to proposed hydraulic fracturing or 'fracking' in the Karoo. The book is multidisciplinary, with contributors including natural scientists, social scientists, and academics from the humanities, all concerned with the ways in which scientific facts and debates about fracking have been framed and given meaning. The underlying theme of the book is one of caution. It emphasises the need for collaboration between the natural and social sciences and the responsibilities of those charged with the implementation and governance of the fracking enterprise if South Africa hopes to effectively manage fracking at all.

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PUBLICATIONS

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Make Every Drop Count
Pankaj Sampat
Telangana Today Journal, 2017

Building on his paper presented at IWRA's XVI World Water Congress, Dr. Sampat argues in this article that inefficiency in water management is better addressed through accounting and auditing rather than developing new infrastructure. He also points out to methods to quantify properly water being supplied, shares some best practices in India and Integrated Water Accounting Platform (IWAP) concept to optimize water supply systems.

> Read more

Handbook of Drought and Water Scarcity: (Three-Volume Set)
Edited by Saeid Eslamian, Faezeh A. Eslamian
CRC Press, Taylor &Francis Group, 2017

This handbook includes over 100 chapters, written by experts from around the world. It examines drought and all of the issues relating to drought and water scarcity, including causes, impacts, modeling, capacity building, early-warning systems, management and policy, remote sensing, risk assessment, and more. It also explains how drought can affect different sectors in different ways, for example, rural and agricultural areas as compared to urban areas. It explains the environmental aspects of drought such as contamination, and also discusses how climate change affects drought conditions, and presents modeling for better understanding drought in uncertain and changing climates.

Policy framework of drought risk mitigation, (G.Rossi)
Chapter 28 of the Volume MANAGEMENT OF DROUGHT AND WATER SCARCITY
The Chapter gives a comprehensive framework of the conditions for developing a risk management approach to the drought instead of the traditional emergency approach. Drought planning instruments are discussed with particular attention to: i) the choice of the drought indices within early warning systems, ii) methods to assess the risk of water shortage in the water supply systems, iii) measures for reducing vulnerability and mitigating drought impacts.

Low flow and instream flow requirements
(S.Alecci & G. Rossi)
Chapter 19 of the Volume ENVIRONMENTAL IMPACTS AND ANALYSIS OF DROUGHT AND WATER SCARCITY
The chapter deals with the interaction of low flow (as periodic seasonal phenomenon or random event of hydrological drought) with instream flow requirements. A section presents the main methods proposed to estimate low flow characteristics in gauged and ungauged catchments, while another section describes a variety of methods to assess instream flow requirements. A careful balance between the needs of aquatic life and the water abstraction for human uses is suggested in the choice of instream flow requirements.

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UPCOMING EVENTS
EVENTS BY MEMBERS AND PARTNERS

Global Workshop on Water Allocation

16 -17 October 2017

& Fifth Meeting of the Task Force on the Water-Food-Energy-Ecosystems Nexus

18 October 2017

Both events will be held in the Palais des Nations in Geneva in room V. The working languages will be English, French, Russian and Spanish.

The workshop aims to increase understanding and knowledge of criteria, mechanisms, tools and good practices for water allocation in transboundary basins and aquifers. The programme will highlight opportunities in water allocation but also limitations, stressing the need to complement it with other approaches such as sharing benefits from water resources, increasing water use efficiency and managing demands to satisfy multiple water needs.

The task force meeting aims to discuss and provide guidance to the implementation of the activities on the water-food-energy-ecosystems nexus under the programme of work for 2016-2018 of the Water Convention. In particular, methodological advances in further developing and applying the participatory nexus assessment methodology developed under the Convention will be presented. Further information as well as instructions how to register for the meetings can be found at: **www.unece.org**

International Summit "Water and Climate: Meeting of the Great Rivers of the World"

23-25 October 2017, Rome, Italy

The Italian Ministry for Environment, Land and Sea, in partnership with UNECE (United Nations Economic Commission for Europe), the International Network of Basin Organizations (INBO, Secretariat of the Global Alliances for Water and Climate) and Aquamadre will hold the International Summit "Water and Climate: Meeting of the Great Rivers of the World" from the 23rd to the 25th of October 2017 in Rome, Italy.

The managers and representatives of the most important river basins of the world, coming from all continents, will meet, for the first time in Italy, in order to inspire a meaningful dialogue aiming at facing the future of water, threatened by more and more frequent and violent climate change and its dramatic consequences in terms of floods, drought and degradation of ecosystems.
Information on the event (programmes, papers, logistics) will be available on ***INBO website***.
Registration *here*.

Contact: e.boinet@inbo-news.org; *info.waterclimatesummit@minambiente.it*

UPCOMING EVENTS

Amsterdam International Water Week

30 October – 3 November 2017, Amsterdam, the Netherlands

The Amsterdam International Water Week (AIWW) is the platform bringing together leaders from government, the private sector, academics and society all over the world; together we will explore a new era of Sustainable Development Goals that represent a global process of resiliency, optimal resource efficiency and transition to circular economies. The AIWW offers an inspiring combination of events: the AIWW conference, the renowned Aquatech Trade Exhibition, excursions to Amsterdam and the Netherlands, the Sarphati Sanitation Awards, Floodex, an extensive young water professionals programme and inspiring social events. Amsterdam International Water Week will be held for the fourth time from October 30th to November 3rd in 2017. The event is built on centuries of Dutch experience with water, and is based in the beautiful capital of the Netherlands, water valley of Europe. Visit the latest innovations in water supply and flood management and see the impressive water works during AIWW2017.

IWA Water and Development Congress 2017

13-16 November 2017, Buenos Aires, Argentina

The International Water Association are partnering with Argentina´s Ministry of Internal Affairs, Public Works and Housing – Secretary of Water Resources, through AySA and the Inter-American Development Bank (IDB) to present the 2017 edition of the IWA Water and Development Congress and Exhibition. It expects to bring together around 2000 water development professionals to present and discuss water solutions through leading practices and innovations in the sector. Early bird registration is open now until September 11, 2017.
Find out more at: **www.waterdevelopmentcongress.org**

World Toilet Day – Wastewater

19 November 2017

The 2030 Agenda and the Sustainable Development Goals aim to reach, among many other targets, everyone with sanitation by that year, and halve the proportion of untreated wastewater and increase recycling and safe reuse. However, and to be achieve that, we need everyone's poo to be contained, transported, treated and disposed of in a safe and sustainable way.
This 4-step journey briefly includes the following:

- Containment. Poo must be deposited into a hygienic toilet and stored in a sealed pit or tank, separated from human contact.
- Transport. Pipes or latrine emptying services must move the poo to the treatment stage.
- Treatment. Poo must be processed into treated wastewater and waste products that can be safely returned to the environment.
- Disposal or reuse. Safely treated poo can be used for energy generation or as fertilizer in food production.

Learn more about the four-step journey, download the factsheet and the infographic poster. Similarly, to take action join IWRA's webinar on this important day on Thursday, November 16th 2017, from 3:00pm to 4:30pm (CET). Panellists, list of topics and other details, including registration to be confirmed soon on our website as well as Twitter and Facebook!

UPCOMING EVENTS

4th Arab Water Forum

26-28 November 2017, Cairo, Egypt

Organised by the Arab Water Council (AWC), the 4th Arab Water Forum on "Sharing Water … Sharing Destiny", will be held 26-28 November, 2017, in Cairo, Egypt. This Forum takes place every 3 years and is considered a meeting place for AWC's members from 22 Arab states, together with their partners and associates from the region and from around the world. As usual, the Forum provides a platform to address the issues and challenges within the water sector in the region, which is the scarcest in water resources. The Forum will witness interactive discussions on a number of important themes and topics that are of highest importance to all water stakeholders in the region. For more information and to register please visit: **www.arabwatercouncil.org**

International Water Summit

15-18 January 2018, Abu Dhabi, UAE

The International Water Summit (IWS) is the world's leading global exhibition dedicated to developing solutions for water sustainability in arid regions. IWS brings together over 9,200 visitors from 111 countries attracting government leaders, policy makers, entrepreneurs and decision makers. It constitutes an important opportunity to network and source products from 150+ exhibiting companies from 22 countries and uncover the latest advances in water sustainability. For more information and to register please visit: **www.internationalwatersummit.com**

The 62nd Australasian Agricultural and Resource Economics Society (AARES) Annual Conference 2018

6-9 February 2018, Adelaide Convention Center, Adelaide, South Australia

This event is annually organized by the Australian Agricultural and Resource Economics Society. The conference attracts 250 to 300 delegates from around the world in the fields of agricultural, environmental, food, resource and development economics and agribusiness. The conference offers pre-conference workshops, keynote addresses by distinguished speakers, mini-symposia, selected and contributed paper sessions and a vibrant social program. Calls for pre-conference workshop, mini-symposia or special session proposals are now open. Please visit the conference website for more information on how to submit a session or workshop proposal. Early bird registration is open from early October until 31st December 2017. Find out more at: **www.aares.org.au**

8th World Water Forum "Sharing Water"

18-23 March, 2018, Brasilia, Brazil

The World Water Forum is the world's biggest water-related event and is organized by the World Water Council (WWC), an international organization that brings together all those interested in the theme of water. Its mission is "to promote awareness, build political commitment and trigger action on critical water issues at all levels, to facilitate the efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis for the benefit of all life on Earth".

The World Water Forum contributes to the dialogue of the decision-making process on water at the global level, seeking to achieve the rational and sustainable use of this resource. Given its political, technical and institutional scope, one of the Forum's main features is the open, democratic participation of actors drawn from different sectors, making it an event of the greatest importance on the international agenda.

CALL FOR CASE STUDIES

Regulating Water Security and Unconventional Oil and Gas: A Comparative Analysis of Regulatory Regimes

Edited by McKay, J., López Gunn, E., Buono, R.M. and Staddon, C.
Springer International Publishing Water Security in a New World Series, forthcoming, 2018

An international team will soon be putting final touches to a book on water security in the context of hydraulic fracturing. The book is divided into five thematic sections to address the main aspects of hydraulic fracturing. In particular it looks at: (1) the overall framework and context; (2) a comparative analysis of regulatory regimes and issues, including water conflicts and resolution measures to date; (3) issues related to acquisition of water for hydraulic fracturing; (4) issues related to the disposal of waste water from hydraulic fracturing, including problems and conflict resolution measures; and (5) conclusions and recommendations.

Twenty authors have been commissioned to provide insights, analyses of debate and developments regarding hydraulic fracturing in 25 countries, including the United States (several states), Australia (several states), China, Brazil, Spain, United Kingdom, Poland, Mexico, Canada, Brazil, Argentina, Brazil, Venezuela, Russia, Ukraine and Chile. Consideration is also given to understanding why some countries and jurisdictions have rejected hydraulic fracturing as a production option (e.g. France and Victoria, Australia). Various perspectives, including a human rights-based approach and the need to balance environmental imperatives, as well as energy transitions, are considered, and conclusions and policy recommendations for good governance are offered.

A Special Session at the IWRA World Water Congress was held in June 2017 which generated a lively discussion on these topics. **Further contributions are sought from the water community of case studies and/or issues related to the water security implications of hydraulic fracturing. These contributions would be acknowledged.**

Please direct all contributions in English or another language to
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or in Spanish to Dr Elena Lopez-Gunn
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Newsletter September 2017, Volume 30, Issue 3
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www.iwra.org