



IWRA *Update*

Newsletter of the International Water Resources Association

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MESSAGE FROM THE PRESIDENT

Dear IWRA friends, members and colleagues,



This newsletter sees us more than halfway through the UN-Water Year of International Water Cooperation and what a year it's been so far. We commenced 2013 with a fresh three-year mandate alongside a new Executive Board – a dynamic way to kick start such a consequential year in the world of water resources.

Our first board meeting for the year was held in February in Montpellier and was followed by two virtual board meetings in May and September, conducted using new online video conferencing technology that lets us overcome the geographical challenges of our international existence. At each of these meetings we're taking steps to achieving our forward-looking 2013-2015 strategy alongside managing IWRA's financial and logistical business. I'm looking forward to building cohesiveness with our board aided by our new technological capabilities and am embracing the possibilities this affords us to develop and grow.

IWRA's focus on membership continues to strengthen as we encourage members to remain active and are pleased to announce that we have granted Fellow Status to the eminent Dr. Salman M.A. Salman in recognition of his life-long contribution to water. Additionally, Honourary Member Status has been awarded to all IWRA past presidents namely Guillermo J. Jano, J.P. Garbe, Peter Reynolds, Asit Biswas, Mahmoud Abu-Zeid, Benedito Braga, John Pigram, Aly Shady, Cecilia Tortajada, Jun Xia who had not already received this recognition, alongside Prof. Ben Dzigielewski and Dr. Hiroshi Hori for their outstanding contributions to IWRA. We also extend a warm welcome to Mr. Majid Labbaf Khaneiki (Iran), Prof. Cyriaque-Rufin Nguimalet (Central Africa) and Mr. Stephen Odhiambo Otieno (Kenya) who join IWRA under the Toyoko and Hiroshi Hori Education Fund award.

IWRA has been active in a range of international activities over the year with attendance at various World Water Council meetings in preparation for the World Water Forum in Korea for 2015. We've also attended the First

Caspian International Aqua Technologies and Exhibition and Forum in Baku in Azerbaijan, FIEC 'Water in 21st Century' conference in Amsterdam, Joint EU COST-WssTP 'Water in Urban Environment' conference in Brussels, High Level International Conference on Water Cooperation in Tajikistan and Stockholm World Water Week. Additionally past IWRA President Jun Xia attended the 2013 Forum of International Water Organisations on Global Water Security and on behalf of IWRA signed the Global Water Security Declaration alongside other international signatories. For the remainder of 2013 we are looking forward to both the International River Symposium in Brisbane and ICID 1st World Irrigation Water Forum in Mardin Turkey, both at the end of this month, and the Budapest Water Summit in October.

Our Water International team, comprised of Jim Nickum (Editor-in-Chief), Philippus Wester (Deputy Editor-in-Chief) and their editorial team have presented five fantastic publications this year, three of these being special editions produced in partnership with the Worldwide Fund for Nature (WWF), the Centre for Water Law, Policy and Science (CWLPS) and the International Water Management Institute (IWMI). The latest special issue has been just published on "Water for Food Security: Challenges for Pakistan" in partnership with various international organisations.

As I look forward, preparations are taking shape for the XVth World Water Congress in Edinburgh, Scotland in partnership with the Scottish Government, which promises to be a critical event building on the theme "Global Water, a Resource for Development". Don't hesitate to contact the Executive Office if you are interested in playing a preparatory role in this.

Building upon our strong foundations we are moving forward with a clear direction in our Strategic Plan, growing our influence and contribution towards resolving global water challenges. Working together with our multi-disciplinary knowledge and networks, together we have the capability to make a difference.

Warm regards,

Prof. Dogan Altinbilek
President, IWRA

NEWS news news news news news news news news news news

THE IWRA IS PLEASED TO ANNOUNCE THE TWO WINNERS OF ITS WATER INTERNATIONAL «BEST PAPER» AWARDS FROM 2011

• **Gabriel Eckstein**, Professor of Law at Texas Wesleyan University in Fort Worth, Texas and IWRA Treasurer, was awarded the Best Paper Awarded for an article published in 2011 in the international peer-reviewed journal "Water International" by IWRA: "*Managing Buried Treasure Across Frontiers: The International Law of Transboundary Aquifers*", Water International, Vol. 36(5), pp. 573-583 (2011). The award will be presented in May 2015 at the XVth IWRA World Water Congress in Edinburgh, Scotland.

http://www.tandfonline.com/doi/full/10.1080/02508060.2011.598642#.UjhlSz_3KJp

• **David Molden, Xueliang Cai, Mohammed Mainuddin, Bharat Sharmad, Mobin-ud-Din Ahmad & Poolad Karimib** for "*Producing more food with less water in a changing world: assessment of water productivity in 10 major river basins*".

http://www.tandfonline.com/doi/full/10.1080/02508060.2011.542403#.UjhlHj_3KJp

• An honourable mention is awarded to **Andrea K. Gerlak, Robert G. Varady et al.** for "*Hydrosolidarity and beyond: can ethics and equity find a place in today's water resource management?*".

http://www.tandfonline.com/doi/full/10.1080/02508060.2011.586552#.Ujhp8D_3KJp



HORI FUND GRANTS FOR SCHOLARS FROM LOW-INCOME COUNTRIES THIRD APPLICATION

The Toyoko and Hiroshi Hori Education Fund provides support for IWRA memberships for promising scholars from developing economies, especially those designated by the OECD as least developed. The third round of applications for 2013 have been accepted by the Hori Fund Task Force and membership has been awarded to Mr Stephen Odhiambo Otieno (Kenya). IWRA wishes Mr Odhiambo Otieno a very warm welcome to the association!

More information at: www.iwra.org/index.php?mainpage=164&page=230&subpage=

Current members of the IWRA are invited and encouraged to recommend candidates using the form available on the IWRA website. Inquiries should be directed to IWRA Executive Director Tom Soo (soo@iwra.org).

NEW HONOURARY MEMBERS AWARDED BY IWRA

IWRA is pleased to present new honorary members in recognition of their past outstanding services to IWRA and eminence in the field of water resources.

For 2013, the IWRA Honorary Membership is awarded to Ben Dzigielewski and Hiroshi Hori. Additionally, Honorary Membership has been bestowed to all past presidents

(two of whom, namely Ven Te Chow and Glenn E. Stout, are already Honourary Members): Jun Xia, Cecilia Tortajada, Aly Shady, John Pigram, Benedito Braga, Mahmoud Abu-Zeid, Asit Biswas, Peter Reynolds, J.P. Garbe, Guillermo, J. Cano. It is a great honour for us to highlight the importance and contributions of these outstanding members in the history of IWRA.



NEW INTERN AT THE IWRA EXECUTIVE OFFICE

IWRA is very pleased to welcome Ellia Guy for the next six months! Ellia has a Bachelor of Environmental Science (Hons) from the University of Queensland and is currently undertaking a Master of Environment, specialising in water resources at Griffith University, Australia. She is working on two projects while at IWRA – primarily on the implementation of a Global Compendium on Water Quality Guidelines and also on a project regarding the Science-Policy Interface.

To contact Ellia: office@iwra.org

NEW OECD REPORT SETS OUT A PIONEERING RISK-BASED APPROACH TO WATER SECURITY

The OECD report Water Security for Better Lives provides a new way to approach water security - setting out a risk-based approach to water policy alongside practical steps to implement it. The report notes that water security is ultimately about establishing an acceptable level of water risk by weighing the costs of improving water security against the expected benefits, and ensuring that responses are proportional to the magnitude of the risk. Flexibility is important, allowing acceptable levels of risk to be adjusted to changing situations. For instance, New York City is reassessing its flood protection level following Hurricane Sandy and investing billions to avoid future disasters.

Read more at:

www.oecd.org/env/resources/watersecurity.htm

NEW OECD REPORT ON WATER AND CLIMATE CHANGE ADAPTATION SURVEYS COUNTRIES' EMERGING POLICIES

The new OECD report Water and Climate Change Adaptation: Policies to Navigate Uncharted Waters presents the challenges that climate change poses for freshwater and provides guidance to policy makers on how to improve the efficiency, timeliness and equity of adaptation responses. It sets out a risk-based approach to improve water security in a changing climate and analyses options to improve the flexibility of policy and financing approaches to deal with greater uncertainty. The report also documents key trends and highlights best practice from the OECD Survey of Policies on Water and Climate Change Adaptation, which covers all 34 member countries and the European Commission.

Download individual country profiles and read more at:

www.oecd.org/env/resources/waterandclimatechange.htm

LATEST ACTIVITIES

FRENCH WATER PARTNERSHIP MEETING

PARIS, FRANCE, 4 JULY 2013



This meeting was organised to prepare the French position for the next World Water Forum to be held in Daegu-Gyeongju, Korea in 2015.

Patrick Lavarde, IWRA Director, provided a presentation on the thematic framework of the next World Water Forum.

More information at: www.french-water-partnership.fr

IWRA SIGNS UP TO OECD WATER GOVERNANCE INITIATIVE

In July, IWRA endorsed the OECD Initiative on Water Governance, setting forth intentions to advance principles and commitments in partnership with OECD and other participating bodies. Aziza Akhmouch, Head of Water Governance at OECD, shares an overview of the initiative.



*OECD Water Governance Initiative:
A Multi-Stakeholder Forum in Support of
Better Water Policies.* By **Aziza Akhmouch**,
Head, Water Governance Program, OECD

The OECD work on water governance revealed that solutions to overcome the water crisis are often well-known, but their implementation on the ground faces critical governance bottlenecks. There is no one-size-fits-all for good governance in the water sector, but there are many good practices to scale-up and failures from which to learn.

On 27-28 March 2013, the OECD launched an innovative multi-stakeholder network to foster better governance in the water sector. Every 6 months, the OECD Water Governance Initiative, of which IWRA is a member, convenes around 100 delegates from public, private and not-for-profit sectors, within and outside the water community. This Policy Forum includes representatives from national governments, basin and local authorities, regulators, donors, NGOs, international organisations, public and private service providers, as well as academics and researchers.

The OECD Water Governance Initiative is a collective effort of many founding organisations and partners to develop an

ambitious water governance agenda and build bridges across initiatives. The network is a strategic addition to the OECD body of work and policy tools to help meet the world water challenges and overcome governance challenges in a pluridisciplinary approach. It builds on OECD commitment at the 6th WWF (Marseille, 2012) to set up an international platform allowing for experience sharing in order to move from solutions to actions.

The OECD Water Governance Initiative is structured around 4 working groups (stakeholder engagement, performance of water supply and sanitation, basin governance, integrity and transparency) and has several objectives:

- Serve as an International Policy Forum to cross-fertilize knowledge on water governance gaps, success stories, failures and progress needed;
- Provide a permanent consultation mechanism to raise the profile of governance in the Global Water Agenda and post-2015 development Agenda;
- Work as an advisory body to help governments take the needed steps for effective water governance reforms through peer-to-peer policy dialogue and evidence-based analysis;
- Support the implementation of the 6 governance targets designed for the 6th WWF up to the 7th WWF through analytical work, case studies and bench-learning;
- Contribute to the preparation of OECD Principles on Water Governance and OECD Indicators on Water Governance as a collective effort to guide public action from decision-makers at different levels;
- Develop a one-stop-shop of water governance tools, platforms and initiatives to identify synergies and build partnerships.

The 2nd meeting of the OECD Initiative on Water Governance will take place on 7-8 November in Paris. The meeting will kick-off the different working groups and, amongst others, discuss the preliminary findings of the OECD report "Water Governance in the Netherlands : Fit for the Future?" to be launched in 2014.

More information at www.oecd.org/gov/water

Contact : Aziza Akhmouch, Head of the OECD Water Governance Programme aziza.akhmouch@oecd.org

Background information

- **The video message by the OECD Secretary-General Angel Gurría to launch the OECD Initiative**
- **A synthesis report with key highlights and decisions taken by delegates during the 27-28 March 2013 event;**
- **The scoping note and Powerpoint Presentation providing the rationale for the Initiative;**
- **The agenda and list of participants that attended the meeting.**

LATEST ACTIVITIES

HIGH LEVEL INTERNATIONAL CONFERENCE ON WATER COOPERATION:

DUSHANBE, TAJIKISTAN, 20-21 AUGUST 2013



Within the framework of the UN International Year of Water Cooperation this conference aimed to promote dialogue and mutual understanding, and to strengthen the partnership and cooperation on water issues among all stakeholders at all levels. Tom Soo, IWRA Executive Director, participated in a high level panel discussion on water cooperation and human development.

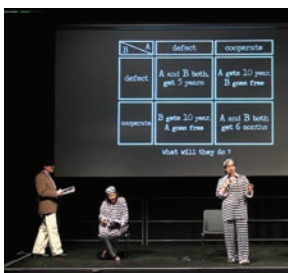
More information at: www.hlicwc.org

STOCKHOLM WORLD WATER WEEK:

STOCKHOLM, SWEDEN, 1-6 SEPTEMBER 2013



Dogan Altinbilek, Lilian del Castillo-Laborde, Tom Soo and Franck Lecoq attended a series of sessions, receptions and meetings at the annual Stockholm World Water Week.



You might have recognised our Executive Director Tom Soo in unlikely clothing at the Theatre of the Absurd, an inspirational and unconventional presentation of the unsolved dilemmas concerning water security, governance and cooperation held during the event.

More information at: www.worldwaterweek.org

2013 FORUM OF INTERNATIONAL WATER ORGANISATIONS ON GLOBAL WATER SECURITY:

CHENGDU, CHINA, 9 SEPTEMBER 2013



The Forum of International Water Organisations on Global Water Security took place in Chengdu on September 9th during the IAHR World Congress. Following dialogue, the Global Water Security Declaration was signed by international signatories including, on behalf of IWRA, past President Jun Xia. This Declaration commits signatories to working and collaborating in alignment with principles that aim to address water security directly. These include promoting policy cooperation, extending education and research, and implementing sustainable practices to further awareness and action on global water security.

More information at: www.iahr2013.org

IWRA THIRD EXECUTIVE BOARD MEETING:

GOTOMEETING, 10 SEPTEMBER 2013

The third Executive Board meeting was organised using, for the second time in IWRA history, a video conferencing system (GoToMeeting). The meeting was held on September 10th spanning almost three hours with many important points presented and discussed. The video conference was a success: out of 20 board members, a total of 14 attended, attesting to the merit of our new technological capabilities.

STRATEGIC AND HIGH-LEVEL MEETING ON WATER SECURITY AND COOPERATION:

NAIROBI, KENYA, 11-13 SEPTEMBER 2013

The Strategic and High-Level Meeting on Water Security and Cooperation was held within the framework of the International Year of Water Cooperation 2013. The meeting, which took place in Nairobi, Kenya in early September, was organized by UNESCO's International Hydrological Programme (IHP), with the kind support of the Government of Kenya and other sponsors.

Emmanuel Akpabio, IWRA Director, attended the meeting on behalf of IWRA.

More information at:

[www.unesco.org/new/en/unesco/events/all-events/?tx_browser_pi1\[showUid\]=24105&cHash=3f80429250](http://www.unesco.org/new/en/unesco/events/all-events/?tx_browser_pi1[showUid]=24105&cHash=3f80429250)

IWRA WORLD WATER CONGRESS

EDINBURGH, SCOTLAND, 25 - 29 MAY 2015

« GLOBAL WATER, A RESOURCE FOR DEVELOPMENT: OPPORTUNITIES, CHALLENGES AND CONSTRAINTS »

Crucial progress has been made by the Congress' International Steering Committee over the past few weeks, most notably the defining of congress subthemes which will be published shortly. The programme will include a diverse selection of relevant and timely topics, which sets the theme for an exceptional event.

Interested in playing a role at the Congress?

The IWRA World Water Congress is interested in your participation either through the organisation of special sessions, participation in scientific presentations, posters and articles, exhibition spaces, sponsoring and promotion, or side events.

We encourage you to express your interest in participating in the Congress and/or the preparatory process by getting in contact the IWRA Executive Office: office@iwra.org

More information at: www.worldwatercongress.com

INTERNATIONAL RIVERSYMPIOSIUM

BRISBANE, AUSTRALIA, 23-26 SEPTEMBER 2013

The 16th International Riversymposium provided an opportunity to look at the linkages that rivers provide to water-energy-food domain. Dialogue looked at building knowledge bases and capacity to better inform policy decisions regarding tradeoffs between river basin protection and sustainable water, energy and food security, contributing to enhanced and holistic management of river and freshwater systems.

The symposium was attended on behalf of IWRA by institutional member eWater, represented by Prof Gary Jones (Chief Executive, eWater).

More information at: www.riversymposium.com

ICID CIID 1ST WORLD IRRIGATION FORUM

MARDIN, TURKEY, 29 SEPTEMBER - 5 OCTOBER 2013

The 1st World Water Forum brings together a range of stakeholders concerned with sustainable agricultural water management to build dialogue surrounding water efficiency, irrigation and drainage management and how proper management of irrigation can contribute positively to mitigating climate change impacts.

IWRA President Prof Dogan Altinbilek is attending the forum on behalf of IWRA.

More information at: www.worldirrigationforum.org/en/THEMES.html#.UkF_mSQgQVk

IWRA MEMBERS



• **MS RENEE MARTIN-NAGLE** delivered a presentation at the Stockholm World Water Week:

On the 2nd of September IWRA member Ms Renee Martin-Nagle delivered a presentation at the Stockholm World Water Week

conference in the context of the workshop Bridging land-water-ecosystem divides. Entitled «*Interspecies Equity: Apportioning Water Fairly*», the presentation discussed the ethics of sharing limited water resources between mega-cities and nearby ecosystems. For the first time in history, more people live in urban centres than in rural areas, with climate change expected to increase the percentage of urban dwellers to more than 60% by 2030. Larger cities will require more water resources, often at the expense of other species living in surrounding ecosystems. Her presentation analysed the current situation in three mega-cities, highlighting various anthropocentric viewpoints, and suggested alternate approaches.

More information at: www.programme.worldwaterweek.org/event/bridging-landwaterecosystem-divides-2874



• **PROFESSOR JENNIFER MCKAY**, Director of Centre for Comparative Water Policies and Laws:

The Centre for Comparative Water Policies and Laws (CCWPL) has received an award for conducting policy

research that is assisting local government in managing water. As the only Australian centre engaged in comparative water law and policy research, the judges praised CCWPL's important role in the sector, stating, "The work that the CCWPL is doing is highly commendable and South Australia should be proud to see such leading research and policy work coming out of one of South Australia's local universities".

Director of CCWPL, Prof Jennifer McKay said they were thrilled to receive the commendation, which recognises the real world impact the Centre's research is having both in Australia and overseas. Prof McKay, who was recently appointed as the South Australian Competition Commissioner, said there needs to be a collaborative approach to water management. "This award highlights the Centre's success in liaising with industry to produce successful and sustainable outcomes in water management for the community," said Prof McKay. "Our Centre is made up of lawyers, economists, policy scientists, and finance researchers, who are actively contributing to the implementation and redesign of several state, federal and international water use policies and laws."

More information at: www.unisa.edu.au/waterpolicylaw

UPCOMING EVENTS



2013 Budapest Water Summit

BUDAPEST, HUNGARY, 8-11 OCTOBER 2013

Focusing on the central theme “The Role of Water and Sanitation in the Global Sustainable Development Agenda” the 2013 Budapest Water Summit aims to formulate a recommendation for the UN General Assembly for setting the post-2015 development agenda. Reflection on various developments achieved in and around the UN system will assist in the building of water related goals for the post Rio+20 development agenda and aid in responding to the multidimensional challenges posed by the management of water and sanitation on a global scale.

More information at: www.budapestwatersummit.hu

International Symposium of Ecohydrology and Water Security

WUHAN AND YICHANG, HUBEI, CHINA, 18-22 OCTOBER 2013

The objectives of the symposium, which is sponsored by Wuhan University, IWRA and the International Association of Hydrological Sciences (IAHS), are to promote eco-hydrology and water resource management, environmental strategies and global water security research. Topics covered at this symposium will include: global and regional water security guarantees for major needs, basin water cycle and ecological hydrological processes, flood and drought disaster mechanisms, ecological response systems, pollutions governance and water security.

More information at:

www.iwra.org/doc/wuhan_iwra_symposium.pdf

VIII edition of the Iberian Congress for Water Management and Planning (VIII Congreso Ibérico de Gestión y Planificación del Agua)

LISBON, PORTUGAL, 5- 7 DECEMBER 2013

The Iberian Congress is a biannual meeting of Spanish and Portuguese water experts and practitioners that is organized by the Foundation for a New Water Culture (Fundación Nueva Cultura del Agua).

More information at: www.congresoiberico.org



Singapore International Water Week 2014

SINGAPORE, REPUBLIC OF SINGAPORE, 1-5 JUNE 2014

Marking its sixth year in 2014, Singapore International Water Week (SIWW) gathers global water leaders and practitioners from both public and private sectors to engage in discussion and debate, presenting valuable opportunities for participants to network and showcase leading-edge technologies and best practices. This occurs alongside the co-creation of innovative water solutions by identifying practical methodologies to address the world's most pressing water issues.

IWRA was a supporting organisation of Singapore International Water Week 2012.

More information at: www.siww.com.sg



22nd International Commission on Irrigation and Drainage (ICID) Congress and the

65th IEC Meeting

GWANGJU, KOREA, 14-20 SEPTEMBER 2014

The 22nd ICID Congress and the 65th IEC Meeting will address the theme Securing Water for Food and Rural Community under Climate Change and will be convened at the Kimdaejung Convention Center, Gwangju, Korea.

More information at: www.icid2014.org

PUBLICATIONS

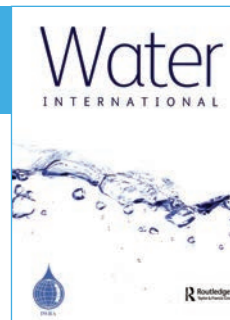
Introducing the IWRA Publication Committee by **Raya Stephan**, Chair of the Publication Committee

The Publication Committee, was established on the first months of 2013.

This Committee is composed by: **Raya Marina Stephan** – chair (lawyer, expert in water law, and international consultant, France), **Ana Elisa Cascao** (Swedish International Water Institute, Sweden), **Gabriel de los Cobos** (Department of Geology, Soils and Waste, Switzerland), **Annabelle Houdret** (German Development Institute, Germany), **Rabi Mohtar** (Qatar Environment and Energy Research Institute, Qatar).

One of the key activities of the Publications Committee has been to advise and support the Editorial team of Water International (WI). The Publications Committee (chair and members) is consulted directly by the Editor-in-Chief, as agreed between the chair and the Editor-in-Chief. This procedure allows faster reactions and all opinions and reactions are directly collected and compiled by the Editor-in-Chief, who transmits and then reverts eventually with an amended proposal for approval. The Publications Committee oversees also the process of selection of the best paper of WI. The Committee was recently consulted with a list of candidates, the background of their selection and the proposed criteria.

More information by contacting:
raya.stephan@yahoo.com



WATER INTERNATIONAL VOLUME 38, ISSUE 5, SEPTEMBER 2013

SPECIAL ISSUE:

WATER FOR FOOD SECURITY: CHALLENGES FOR PAKISTAN

Articles:

- Water for food security: challenges for Pakistan.
Claudia Ringler & Arif Anwar - PAGES 505-514
- Progress of constitutional change and irrigation management transfer in Pakistan: insights from a net-map exercise.
Andrew Reid Bell, Noora-Lisa Aberman, Fatima Zaidi & Benjamin Wielgosz - PAGES 515-535
- An old-new measure of canal water inequity.
Arif A. Anwar & Zia Ul Haq - PAGES 536-551
- Is a surface-water market physically feasible in Pakistan's Indus Basin Irrigation System?
Agha Ali Akram - PAGES 552-570
- Energy use in large-scale irrigated agriculture in the Punjab province of Pakistan.
Afreen Siddiqi & James L. Wescoat Jr - PAGES 571-586
- Using fallout Cs for evaluation of watershed management in a sub-catchment of Mangla, Pakistan.
M. Rafiq, M. Ahmad, N. Ahmad & N. Iqbal - PAGES 587-600
- Comparative institutional analysis of customary rights and colonial law in spate irrigation systems of Pakistani Punjab.
Muhammad Asif Kamran & Ganesh Prasad Shivakoti - PAGES 601-619
- Droughts in Pakistan: a spatiotemporal variability analysis using the Standardized Precipitation Index.
Hua Xie, Claudia Ringler, Tingju Zhu & Ahmad Waqas - PAGES 620-631
- An introduction to the IBMR, a hydro-economic model for climate change impact assessment in Pakistan's Indus River basin.
Yi-Chen E. Yang, Casey M. Brown, Winston H. Yu & Andre Savitsky - PAGES 632-650
- Climate change impacts and adaptation options for water and food in Pakistan: scenario analysis using an integrated global water and food projections model.
Tingju Zhu, Claudia Ringler, M. Mohsin Iqbal, Timothy B. Sulser & M. Arif Goheer - PAGES 651-669

MEMBERS PUBLICATIONS

Prof. Dukhovny, IWRA member and Director of Scientific Information Centre of the Interstate Coordination Water Commission of the Central Asia (SIC ICWC) presents:



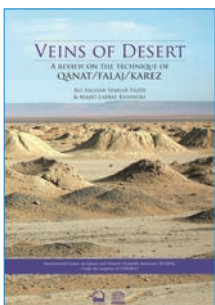
Risk Management Program in Dry Land Farming

By **Shukhrat Mukhamedjanov**, senior researcher, SIC ICWC

Agricultural restructuring in the countries of Central Asia, the Caucasus and Eastern Europe led to the transformation of large

state and collective farms to smaller private or leased farms and the loss of well-established systems of agricultural services provision. Since most new farmers have no skills or experience in farming, especially in addressing various risks associated with dry land farming, revitalisation of such a system is critical. SIC ICWC together with ICARDA's Central Asia and the Caucasus Regional Office developed a program to enable transfer of knowledge and best practices to farmers and their associations as a way to reduce risks in dry land farming and ensure better agricultural productivity. This program introduces a system of knowledge transfer through a network of agricultural knowledge centres equipped with database, training capacities and guidelines to farmers. Extension services that work closely with information provincial centres, research centres and universities will be important intermediaries between knowledge centres and farmers.

More information at: www.sic.icwc-aral.uz/index_e.htm



A Short Introduction to the Book

Veins of Desert

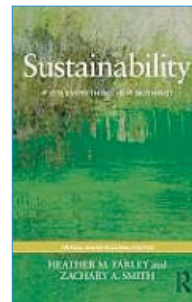
Iran Water Resource Management Association (IWRMO), Tehran, 2013.

By **Ali Asghar Semsar Yazdi** and **Majid Labbaf Khaneiki**

At a glance a Qanat is a simplistic horizontal tunnel, which drains groundwater, efficiently

transporting it over tens of kilometres to thirsty lands. Upon investigation however, it emerges that digging this tunnel requires a variety of sciences and technologies. Qanats are a feat of technology, existing as one of the most complicated surviving traditional technologies and the source of knowledge behind Qanats can be ranked among the wonders of human civilisation. The International Centre on Qanats and Historic Hydraulic Structures – UNESCO Category Two Centre – has recently published the second edition of “Veins of Desert” to shed light on different aspects of Qanats, particularly those overlooked in existing refe-

rences. What makes this book distinct from other works is its emphasis on interdisciplinary studies, viewing Qanat-related issues as a whole. The book describes novel approaches utilised in Qanats including the impacts of new strategies and technologies, measures countries are taking for the preservation of Qanats and the environmentally-friendly techniques the system employs to devise a sustainable groundwater abstraction system. www.icqhs.org/english/subject.aspx?sbid=681c8e6c-281d-43a0-93d4-165385e424e9



Sustainability: If It's Everything, Is It Nothing?

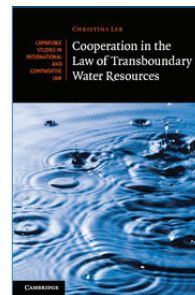
(Critical Issues in Global Politics)

Routledge, Oxford, 2013.

By **Heather Farley** and **Zachary A. Smith**

Today, the concept of sustainability is a widespread goal that nearly everyone supports. At the same time, almost no one means the same thing when they use the term. Sustainability is so broad and overly used that it seems to mean everything to everyone. The result is that the concept has lost its meaning. In this book, the authors examine the misuses and abuses of «sustainability» and seek to refine and clarify the concept. The authors offer a new definition of sustainability – what they call neo-sustainability – to help guide policies and practices that respect the primacy of the environment, the natural limits of the environment, and the relationship between environmental, social, and economic systems.

www.taylorandfrancis.com/catalogs/environment_and_sustainability/1/2



Cooperation in the Law of Transboundary Water Resources

Cambridge University Press, Cambridge, 2013

By **Christina Leb**

Water experts identify cooperation as the key to solving the challenges of climate change, population growth and growing water demand in the context of trans-boundary freshwater systems. This examination of the legal aspects of cooperation is intended for international lawyers, water practitioners, students and anyone interested in international water management.

www.cambridge.org/9781107035973



Water issues in the Kingdom of Jordan: A brief review with reasons for declining quality

Journal of Food, Agriculture & Environment
 Vol.9 (3&4)

By Khaled A. Alqadi and Lalit Kumar

This paper examines the problems of water shortage and quality issues in the Kingdom of Jordan. Demand for water has led to a decimation of ground water supplies and a significant rise in salinity. This rise in salinity can be traced to increasing saline base flows, the reduction in natural flows, changing extent of agriculture, agricultural practices, contamination of irrigation systems with saline inflow and poor infrastructural planning. Water security in Jordan is a very serious issue due to the rapid increase in population growth. Jordan is faced with the need to tighten regulations in water treatment, address the issue of domestic supply losses and illegal drawdown of ground water in the short term to gain significant inroads into the water problem. However, in the longer term, there is a need for a review of current infrastructure and its functionality, changing agricultural practice and finding sustainable sources of water.

www.world-food.net



Changing demographics, expanding urban areas and modified agricultural extents and their impacts on water availability and water quality in Jordan

African Journal of Agricultural Research
 Vol. 8(25), 4 July, 2013

By Khaled A. Alqadi, Lalit Kumar and Al-Zu'bi Jarrah

Current water use in Jordan is unsustainable in terms of both supply and quality. The growth in population, primarily as a consequence of pulse immigration stemming from regional conflicts, has led to serious water shortages in urban centres, which is expected to worsen in the future. The agricultural sector is moving towards intensification and a high reliance on irrigation, which is unsustainable in the face of dwindling supplies and rising contamination, principally due to salinity. The decline in field crops is a consequence of climatic fluctuations such as rainfall, while the nature of the plots, often small and isolated, make economies of scale problematic. Unless there is a significant shift in the trend of population growth, and controls on the use of irrigation, Jordan faces inevitable social conflict and irrevocable loss of agricultural land.

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Are there Monthly Variations in Water Quality in the Amman, Zarqa and Balqa Regions, Jordan?

Computational Water, Energy, and Environmental Engineering, 2013, 2, 26-35

By Khaled A. Alqadi and Lalit Kumar

This study investigated the monthly variation of water quality in the Amman-Zarqa and Balqa regions in Jordan in terms of pH, ammonium, nitrate and conductivity. During 2004 there was no monthly variation in water quality for most of the tested parameters. All readings were above the accepted range except for pH, indicating that land use does have an impact on water quality irrespective of urban, industrial or agricultural usage. The water quality remained for the most part below the maximum levels for drinking standards in Jordan, but these standards are often below the WHO recommendations. The pH was found to fluctuate through the year. Nitrate levels were highly seasonal in irrigated lands but remained stable over basin covered by other land uses. Ammonium levels were high in areas of urbanisation and intensive animal husbandry as a consequence of effluent infiltration, peaking during the wet season due to increased infiltration. These results indicate that, over an annual cycle, the variation in water quality remains constant; however the continued drawdown of the aquifer system will inevitably lead to deterioration in the parameters investigated.

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Mapping hotspots of underground water quality based on the variation of chemical concentration in Amman, Zarqa and Balqa regions, Jordan

Environ Earth Sci – July 2013

By Khaled A. Alqadi, Lalit Kumar, and Hassan M. Khormi

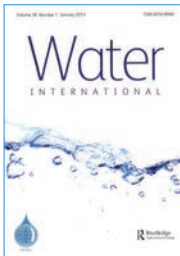
This study uses geographic information systems to map the hotspots level changes in underground water quality based on pH, nitrate and conductivity in Amman, Zarqa and Balqa regions, Jordan using data from 57 wells. The chemical concentration for each parameter was obtained from the Water Authority of Jordan. The data were tested according to ISO/IEC 17025 standards by the Jordan Inorganic Laboratory of the Laboratories and Quality Department of Water Authority for 2004 and 2010 and were processed using Getis-Ord Gi statistics. The study indicated that there are periodic fluctuations for the values of selected chemical elements of groundwater that are localised, creating contamination hotspots within the study regions. The

pH, nitrate and conductivity all indicated specific hotspots of higher than average values in 2004 and 2010 in the Zarqa region. The evidence indicates that there are two major localised areas of high value for all parameters centered in the western Zarqa region, an area dominated by urban infrastructure and irrigated lands. These findings have implications for the management of aquifer water quality through the identification of highvalue hotspots. Because the aquifers in the regions are connected, understanding the hotspots with high pH, nitrate and conductivity values may enable improvements in the water quality across the aquifer systems in the regions.

www.link.springer.com/article/10.1007%2Fs12665-013-2632-4



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Changing the nature of transboundary water agreements: the Israeli–Palestinian case

**David B. Brooks, Julie Trottier
& Laura Doliner**

This abridged version of the proposal developed for Friends of the Earth Middle East presents the design for an agreement between Israelis and Palestinians to share water in a physically realistic, ecologically sustainable and socially equitable manner. Existing arrangements are, at best, inadequate and, in some cases, counterproductive. The proposal relies upon ongoing monitoring and mediation to achieve equitable and sustainable use. It presents why and how an agreement on water can be reached now, before resolving the full range of issues required in a Final Status Agreement between Israel and Palestine.

www.tandfonline.com/doi/full/10.1080/02508060.2013.810038#.Ujg5cD_3KJo

World Water Day 2013
International Year of Water Cooperation