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GLOBAQUA CONFERENCE



GLOBAQUA

**MANAGING WATER SCARCITY IN RIVER BASINS :  
INNOVATION AND SUSTAINABLE DEVELOPMENT**



**04-06 OCTOBER 2018**



**AGADIR, MOROCCO**

SPONSORS





## **“AL MOUTMIR LI KHADAMAT AL QORB”** Le nouveau dispositif pour mieux accompagner les fellahs

Partenaire historique de l'agriculture nationale, le groupe OCP consolide cet engagement à travers son nouveau dispositif de proximité baptisé « Al Moutmir Li Khadamat Al Qorb ».

Ce dispositif est une composante du programme « Al Moutmir » qui porte l'engagement fort d'OCP en faveur du développement de la filière agricole au Maroc. Centré sur l'agriculteur comme réel agent du changement, ce dispositif s'appuie sur la démarche scientifique comme levier clé pour une agriculture prospère et durable et ce à travers une approche partenariale qui fédère les différents acteurs de la filière.

Ce dispositif de proximité comprend notamment, des laboratoires itinérants d'analyses de sols, plus de 1000 plateformes de démonstration ainsi qu'une offre de formation et d'accompagnement adaptée aux besoins des agriculteurs. Il mobilise à cette fin une trentaine d'ingénieurs agronomes installés de manière permanente dans 20 provinces du Royaume.



# About the Conference

Water and water-related services are major components of the human wellbeing, and as such are major factors of socioeconomic development; yet freshwater systems in (Southern) Europe and Near-East and Northern Africa are under threat by a variety of stressors (climate change, extreme events, oxygen depletion in higher temperatures, organic and inorganic pollution, seawater intrusion in coastal aquifers, geomorphological alterations, land cover change, water abstraction, invasive species and pathogens).

Water scarcity, resulting from negative climatic water balance, water demand exceeding available resources, or deteriorating water quality, threatens ecosystem health and also impacts citizens and economic sectors depending on water, such as agriculture, tourism, industry, energy and transport. It already affects a substantial fraction of the EU territory and is present in most of the Mediterranean countries, with clear indication that the persistent problems will be exacerbated by climate change and growing demographic and socioeconomic pressure. This will ultimately result in the most striking challenge: the pursuit of food and water security for sustainable social and economic development under an unprecedented escalation of water scarcity.

In this light, sustainable development in river basins requires water-smart societies, which are drastically reducing the impact on natural water resources by pushing innovation in water efficiency and foster the complementary use of unconventional water resources to enable a circular economy in the water sector.

The conference aims at bringing together scientists and practitioners in the water sector to inform, exchange and raise awareness about latest knowledge and innovation in areas most affected by water scarcity. It will also highlight European and national Southern Mediterranean strategies on water, and will elaborate on the potential of water reuse from municipal wastewater treatment, the use of brackish water, seawater desalination, water efficiency and reuse in agriculture and will discuss decentralized solutions for sustainable development.



## KEYNOTE SPEAKERS



**Dr. Ismahane El Ouafi**

**Director General at the International Center for Biosaline Agriculture, United Arab Emirates.**

Dr. Ismahane Elouafi has been consistently ranked amongst the 20 Most Influential Women in Science in the Islamic World by CEO Middle East Magazine. She is a visionary leader and strategic thinker, highly adept as a transformational groundbreaker. Dr. Elouafi's immense capability has been well evidenced in her current role as Director General with the International Center for Biosaline Agriculture, where she was selected to steer the organization with robust fiscal and process control, providing direct focus upon non-core funding growth, driving an expanded mandate, and supporting reputational growth as a Center of Excellence for Research and Development in marginal environments. Her contributions to the scientific world have been recognized with the National Reward Medal by His Majesty Mohamed VI, the King of Morocco (2014), and the Excellence in Science award from the Global Thinkers Forum (2014). She has a Ph.D. Genetics from Cordoba University, Spain, and an M.Sc. (Genetics & Plant Breeding) and B.Sc. (Agricultural Sciences) from Hassan II Agronomy and Veterinary Institute, Morocco.



**Dr. Mohamed Ait Kadi**

**President of the General Council of Agricultural Development, Morocco.**

Dr. Ait Kadi was chair of the Technical Committee of the Global Water Partnership. He was Governor and founding member of the World Water Council and President of the organizing committee of the first World Water Forum held in Marrakech in 1997. He is honorary vice-president of the International Commission on Irrigation and Drainage (ICID). Dr. Mohamed AIT KADI is presently President of the General Council of Agricultural Development. He is a resident member of King Hassan II Academy of Sciences and Techniques. He is author of numerous publications in the fields of irrigation, water management, agriculture and rural development



**Dr. Safwat Abdel-Dayem**

**Emeritus Professor at the National Water Research Center, Egypt**

Prof. Eid is a Civil Engineer, graduated from Cairo University in 1965, obtained diploma in Hydrology from Padova University in Italy 1972, M. SC. degree from Ein-Shams University 1973 and received his Ph.D. in land drainage from the same University in 1985. He spent his post-doctorate at North Carolina State University, USA in 1987/88. He served the Ministry of Water Resources and Irrigation since his graduation in different positions. He became the Director of the Drainage Research Institute during (1992-1997) and the Chairman of the Egyptian Drainage Authority in (1997-1998). Prof. Eid joined the Food and Agriculture Organization (FAO) as Drainage Specialist in 1976-1982 and served as the World Bank Senior Drainage Advisor (1998-2005). He served as the Secretary General of the Arab Water Council (2009- 2012) and became Board Member of AWC since 2015. He served as the Secretary General of the Egyptian Cabinet of Ministers (2012-2013). Prof. Eid is the Vice President Hon. of the International Commission on Irrigation and Drainage (ICID). He was member of the Agriculture and Irrigation Council of the National Specialized councils (2007-20015). He is a member of the Council of Water and Irrigation Research of the Academy of Science and Technology of Egypt. He serves as a consultant for the World Bank and UN Organizations (2006- present). He received the State Award of engineering science in 1987 and the first class Medal of Excellence, June 1995.



**Dr. Damià Barceló**

**Research Professor at the Institute of Environmental Assessment and Water Studies IDAEA-CSIC and Director of the Catalan Institute of Water Research (ICRA), Spain.**

Dr. Damià Barceló obtained a Ph.D. in Analytical Chemistry from University of Barcelona in 1984 and he was a Post-doc at the Vrije Universiteit, Amsterdam, NL between 1985-86. At present, he is Full Research Professor at the Institute of Environmental Assessment and Water Studies IDAEA-CSIC (Barcelona, Spain) since 1999 and Director of the Catalan Institute of Water Research (ICRA) (Girona, Spain) since May 2008. From 2009-2015 Visiting Professor at King Saud University, Riyadh, Saudi Arabia, 2009-2015. Full Professor Chair in Biology at College of Science under Distinguished Scientist Fellowship Programme (DSFP) at King Saud University, Riyadh, Saudi Arabia, since October 2016. From 2014 to 2020, he is the Coordinator of two European Unionfunded projects: GLOBAQUA. Managing the effects of multiple stressors on aquatic ecosystems under water scarcity and JPI WATERFACCE project AWARE: Assessing the fate of pesticides and waterborne contaminants in agricultural crops and their environmental risks. Since 2017 Editor-in-chief of Current Opinion in Environmental Science and Health from Elsevier and since 2016 Editor-in-chief of the book series Advances in Chemical Pollution, Environmental Management and Protection book series (Academic Press, Elsevier, NL). Editor of the Elsevier journals Trends in Analytical Chemistry (TrAC), Methods X, and Process Safety and Environmental Protection.

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# KEYNOTE SPEAKERS



**Dr. Ralf Ludwig**

**Professor for Applied Physical Geography and Environmental Monitoring at Faculty of Geosciences.**

Prof. Dr. Ralf Ludwig is Vice-Dean of the Faculty of Geosciences and Professor in Applied Physical Geography and Environmental Modeling at LMU's Department of Geography. His research is focused on process-based and spatially distributed hydrological modeling at the catchment scale, data assimilation and model integration for water resources, land use and climate change impact assessment, including extreme events, from Mediterranean to subarctic environments, and the energy-environment interface. He co-ordinates the FP7-project CLIMB and manages the CLIWASEC cluster of FP7-projects on Climate Change, Water and Security in the Mediterranean, and leads the WP-SCENARIOS in the FP7-project GLOBAQUA, is chair of the Collaborative Program "Changes in the Hydrological Cycle" of the European Climate Research Alliance (ECRA), deputy chair of the Helmholtz research school MICMoR ("Mechanisms and Interactions of Climate Change in Mountain Regions") and Spokesperson of the Albertan-Bavarian Energy-Environment research network ABBY-Net. He is coordinating many climate change oriented research activities in the Mediterranean region and with partners in Canada for more than a decade, co-supervises several international PhD-projects, is an Adjunct Professor with the Université Laval and a member of the Canadian Centre of Excellence ArcticNet.



**Dr. Waleed Khalil Al-Zubar**

**Professor of Water Resources and Coordinator of the Water Resources Management Program and of the UN Water Learning Center for the Arab Region at the Arabian Gulf University (AGU), Kingdom of Bahrain.**

Dr. Waleed Khalil Al-Zubari serves as the chairperson of the Technical Advisory Committee of the Water Resources Council of the Kingdom of Bahrain. He served as AGU's VicePresident for Academic Affairs (2008-2010) and Dean of the College of Graduate Studies (2010-2013). He obtained his MSc degree in 1987 in the field of groundwater mathematical modeling from Ohio University and PhD degree in 1990 in the same field from Colorado State University. He served as the Editor-in-Chief of the regional Arab Gulf Journal of Scientific Research (2006 – 2010). He has conducted more than 40 contractual research studies. He currently serves as the VicePresident of the GCC Water Science and Technology Association (wstagcc.org), and is the Chairman of its Scientific Committee. In 2002, he received the Award of Best Researcher in the Arab World in the field of Water Resources from the ALECSO, and in March 2008, he published his first book on Water Issues and Challenges in the GCC (in Arabic), which received Y Kanoo Best Bahraini Authors Prize.



**Dr. Abdulaziz S. Al-Turbak**

**Emeritus professor at King Saud University (KSU), Saudi Arabia.**

Prof. Abdulaziz obtained his master and Ph.D. from civil Eng. Dept. at Colorado State University. He spent the last 35 years teaching courses for undergraduate and graduate students at King Saud University in addition to supervising many graduate studies research. Prof. Abdulaziz currently holds the academic position of Emeritus professor, civil Engineering Department, King Saud University (KSU), Saudi Arabia and he was dean of College of Engineering, KSU for six years (1995- 2005). He worked as consultant to Ministry of Agriculture & water 1984-1988, Consultant to Ministry of Economy and Planning from 1993-2005 while participated in many consultative works to governmental and non-governmental organization and institution. At the present time, he works as consultant to Municipality of Riyadh on floods and Stormwater problems. He is also a council member of prince Sultan International Prize for water and member of the board of WSTA. Prof. Abdulaziz has participated in a number of scientific and research activities such as principal investigator and coinvestigator in many research projects funded by KACST (King Abdulaziz City and Technology), published more than 100 articles and lectures in local, regional and international journals and conferences, review many articles submitted to refereed regional and international journals and review of promotional papers.



**Dr. Nick Voulvoulis**

**Professor of Environmental Technology at Imperial College London, UK.**

Dr. Nick Voulvoulis specialises in environmental management, where science and engineering interface with public policy. His research focuses on environmental quality management, regarding environmental systems and processes across many diverse areas, including: societal impacts, community participation and links between research and environmental behaviour. He is involved in many research projects: Exploring the potential of systems thinking in water policy (GLOBAQUA); Investigating the fate of nanomaterials during wastewater treatment (NANORISK); Developing tools to address conflicting demands in the water-energy-food nexus (Anglian Water research programme); Delivering options for "closing the loop" in resources management (Veolia research programme).



## KEYNOTE SPEAKERS



**Dr. Ali Hammani**

**Director at Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.**

Prof. Ali Hammani is the Director of Hassan the 2nd Institute of Agronomy and Veterinary Medicine (IAV), Head of the Department of Water, Environment and Infrastructure (IAV) and the coordinator of the unit research on sustainable water management in agriculture. He is professor-researcher in Agricultural Water Management, Irrigation and Drainage. He has coordinated many research projects related to irrigation and drainage, water management. He has published many papers related to Irrigation Performances Assessment, groundwater management and modelling, design and performances of agricultural drainage systems. He has also carried out many expertise with national and international organizations.



**Dr. Redouane Choukr-Allah**

**Conference Chairman Professor at Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.**

Dr. Redouane Choukr-Allah is a horticultural, soil and water environmental expert with more than 35 years of experience in coordinating and managing field-based projects and technical teams involved in the use of saline water and the use of pre-treated sewage in Horticulture. He holds a Master degree in Agronomy from the Institute of Agronomy and veterinary Hassan II Rabat, Morocco, and a PhD in environment Horticulture from the University of Minnesota, St Paul USA. As a senior level professor at the Institute of Agronomy and Veterinary Hassan II since 1978, has designed and taught classes on the use of pre-treated sewage, Fertigation, soilless culture and saline water in agriculture. He served as head of the Horticulture Department from the period 1983 to 1996, and a head of the salinity and plant nutrition laboratory since 1996. He has written numerous authoritative texts and books in the field of non-conventional water.



**Dr. Mohamed Hachicha**

**Professor at IRESA/University of Carthage, INRGREF, Tunisia.**

Dr. HACHICHA Mohamed is a Professor, Doctor and engineer, Chief of the Research Lab. "Non Conventional Waters Use" – IRESA/University of Carthage, INRGREF. He is specialized in Soil Sciences and use of the saline water and wastewater in agriculture: physical and chemical evolution of the soils under irrigation; Soils salinization; Reclamation of the salt affected soils; Mobility of heavy metals in the soil.

He served as an expert in many consultations with Tunisian society and International companies as AHT, GTZ, IPTRID/FAO, OADA, BADEA and ACSAD. He participated and coordinated many national, international and regional projects, workshops and seminars on the use of the brackish saline water in agriculture.



**Dr. Faissal Taha**

**Senior Advisor to Director General at Institute for Scientific Research, Kuwait.**

Prof Taha obtained all his academic degrees, BSc, MSc and PhD in USA in Arid land Agriculture, Agronomy and Ecology. He has over 35 years' experience in Research and Development in addition to University teaching. He assumed many senior research and teaching posts in UAE, Canada and Kuwait. This included the academic title of Professor, Senior Research Scientist, Program Manager, Department Manager, Chairman of University Department and Director of Research and Innovation. He is presently Senior Advisor to the Director General of Kuwait Institute for Scientific Research, with prime duties and responsibilities in Science, Technology and Innovation. Prof. Taha is a recipient of prestigious awards at the regional and international levels. He has over 110 publications in refereed journals, books, published proceeding and technical reports. Prof. Taha organized many regional and international conferences and is a Key-Note Speaker in many professional meetings and symposia as well as a consultant to many international organizations.

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**Dr. Emad K. Al-Karablieh**

Professor at the Dept. of Agricultural Economics and Agribusiness Management at the University of Jordan, Jordan.

He was a former Director of Water and Environmental Research and Study Center (WERSC) at the University of Jordan and Head of Dept. of Agr. Econ. & Agribusiness Management. His professional consultations cover financial analysis, investment appraisal environmental economics of natural resources, water and technology adoption. He published more than 80 articles appeared in peer reviewed international and regional journals.

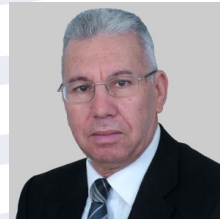
He is a coauthor of the Arab Water Report-Towards Water Security in the Arab Region, Issues of cost effectiveness prepared for UNDP in 2011. Also he is a coauthor of the peer reviewed RTF book Water Resources in Jordan (Evolving polices for development, the environment and conflict resolution), and a contributor in the book Liquid Asset An Economic Approach for Water Management and Conflict Resolution in the Middle East and Beyond. He has been recruited in many international funded research projects as a team leader or as researcher such as EU, USAID-ISSP project, IFAD-dHRS project, GLOWA JR III, Meditate, GLOWA Jordan River II, SMART II and Harvard Middle East Water Project, UNDP-climate change project. He has worked with many international agencies such UNOEP, USAID.



**Dr. Mohammed Al-Abri Isan**

Assistant Professor in Petroleum & Chemical Engineering Department, College of Engineering at Sultan Qaboos University (SQU), Oman.

In addition to his academic position, he is the founder and the current Director of Nanotechnology Research Center, SQU. He completed all his tertiary education from University of Nottingham (UK) from 2003-2007. He is a member of a number of editorial boards. His major interest lies in cutting-edge research in water treatment, membrane technology and environmental engineering including applications of nanotechnology in water and petroleum industries.



**Dr. Ahmed KETTAB**

**Director of the National Polytechnic School, Algeria.**

His academic career began in 1972. He became a hydraulic engineer since 1977, where he obtained his DEA (valedictorian). He continued his graduate studies and rejoined the French National Polytechnic Institute of Lorraine (INPL) in 1977. He became doctor - engineer graduated from French INPL, Nancy, in 1981, specialized in hydraulic/water treatment, then "StateDoctor" graduated from National Polytechnic School of Alger (NPS in 1990), he had a support to study during 4 years at the National Polytechnic Institute of Toulouse-France to achieved the two doctorates (obtained with honors and congratulations from the jury). He is international expert consultant in Water and Environment, also Professor Research Director of the National Polytechnic School in Algeria and member of the International Water Committee as well as member the French Academy of Water. He is a member of the French Water Partnership (PFE). Founding Member of the Arab Water Council. He is the first Founding Member of WATMED. He is also director of the Research Laboratory of Water Sciences. Post-Doc of the National Polytechnic Institute of Toulouse (France). Former Rector of the University and former Councilor of Ministers. Dr. Ahmed Kettab has no less than 100 international publications, 10 abstracts, 100 plenary lectures, 300 scientific presentations / papers, 100 technical and administrative reports, 20 supervised doctorates, more than 20 supervised magisters, several hundred engineers framed and trained. His works have been awarded Laureate at the 3rd edition of Scopus Awards Algeria 2013 (Environmental Science-water). He is Member of scientific committees of 10 renowned international journals (Sc. Of Water, Deswater, IJND ...) and Editor-in-Chief of ALJEST magazine.



**Dr. Turki Faisal Al Rasheed**

Adjunct Professor at the College of Agriculture and Life Sciences, University of Arizona and Founder and CEO of Golden Grass, Inc. Saudi Arabia.

Author of more than half a dozen books, including his recent book Public Governance and Strategic Management Capabilities: Public governance in the Gulf States.

Currently working on Saudi Arabia's Sustainable Development Challenges book. Lives in Riyadh, Saudi Arabia.

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**Dr. Philippe Ker Rault**

**Senior Advisor/Researcher, Ecosystem Services, IWRM, Netherlands.**

Dr. Philippe Ker Rault combines both through training and experience in integrated water resources management. Educated as water and agro engineer he obtained a PhD in water policy, Cranfield University - UK. He has considerable experience in MENA, Europe and Africa.

Dr. Ker Rault contributed to the project Globaqua and Mad4water during his responsibilities within the team Water & Food of Wageningen Environmental research.

Nowadays, Dr Ker Rault works for Deltares, he is engaged in IWRM, Water governance, food safety, capacity building, wastewater valorisation, greening the desert, Water Energy Food nexus. He is also an environmental engineer with 15 years' experience in drinking water production, wastewater treatment works and in bio waste management for agriculture.



**Dr. Faycel Chenini**

**Senior Water Expert - FAO, Egypt.**

Dr. Faycel Chenini has more than 25 years of experience in the field of integrated water resources management and governance (research, technical and policy aspects), water and soil conservation, field irrigation techniques, surface water mobilization and assessment projects and irrigation, as well as a very important experience in IWRM capacity building programmes related to irrigation systems and technologies (laboratory and field trials), planning and management irrigated perimeters, plot management and control, water saving projects in agriculture with the promotion of water saving techniques, creation and supervision of irrigation water user associations and hydro-development.

Great experience also in the framework of the Near East and North Africa Water Scarcity Initiative to create and work with multidisciplinary teams to promote horizontal and vertical linkages across sectors and basins at country level. Significant participation in exchange workshops with national key players from across the Near East and North Africa region (20 countries).

Dr. Faycel Chenini have prepared, managed and coordinated several Unilateral Trust Fund projects, Technical Cooperation Project for the FAO RNE Regional Office in Cairo in the field of irrigation and water resources governance and several publications and reports as well as practical guides in the field of water and sanitation.



**Dr. Djime Adoum**

**Executive Director, Permanent Interstate Committee for Drought control in the Sahel (CILSS), Burkina fasso.**

Dr. Djimé Adoum is Executive Secretary of the Permanent Interstates Committee for Drought Control in the Sahel (CILSS) and former Minister of Agriculture and Irrigation of Chad. He has 25 years of professional experience in international development, especially in Sub-Saharan Africa. As an agronomist, Mr. Adoum has occupied various positions in the field of research, agricultural extension, communication and strategy in the design of development programs in several countries, from South Africa to Egypt through Senegal, Ethiopia, Kenya, Cameroon, USA and Chad. He worked for international organizations such as the World Bank, USAID, for research institutes and in the implementation of development strategies. Before his tenure as minister, he served as a technical advisor to President Idriss Deby Itno of Chad. After a graduate degree in Agronomy, specifically in crop production and statistics, Djimé Adoum obtained a PhD in agronomy and agricultural extension at the University of Maryland, US.



**Dr. Driss Ouazar**

**Resident Member of the Academy Hassan II of Science and Technology and Executive Director Frontiers in Science and Engineering International Journal, Morocco.**

Dr. Driss Ouazar graduated from Ecole Mohammadia d'Ingénieurs (EMI) with a degree in Hydraulic Engineering (1977) and got a PhD from the University of Luick, Belgium (January 1983). Being the head of the hydraulic department at EMI since 1983, he was promoted by the end of 1986 full professor of Civil Engineering and Computational Methods at EMI. Dr.Ouazar has been appointed adjunct professor at the University of Delaware, Water Resources program, USA. He was also invited professor in France, UK, Italy, Japan and USA. Since 2006, he was nominated as a Resident Member of the Academy Hassan II of Science and Technology, by King Mohamed VI of Morocco. In March 2013, he was promoted as Director of High National School of Mines in Rabat. In July 2014, he was nominated by the King Mohamed VI of Morocco at Higher Council of Education, Training and Scientific Research and also elected in the Scientific Research Commission. In March 2016, he was nominated in the scientific committee of COP 22 Morocco. He has been recently nominated as Provost of UM6P in March 2017 then as Executive Vice President Science and Technology of UM6P in November 2017. Currently he is in charge of Water Research Science and Technology at UM6P.



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## DISTINGUISHED GUEST



**Dr. Abdelouahhab Zaid**

**Agricultural Advisor, Ministry of Presidential Affairs of the United Arab Emirates.**

Dr. Abdelouahhab Zaid has built an illustrious career in crop science, horticulture and agronomy, with a particular focus on date palm, spanning three decades. He is the Agricultural Advisor to the Ministry of Presidential Affairs of the United Arab Emirates. He also serves as the Secretary General of the Khalifa International Award for Date Palm and Agricultural Innovation (KIADPAI). Over the years, he has held a number of high-level positions in government, academic and international institutions. Dr. Zaid worked for more than 15 years for the Government of the Kingdom of Morocco, including as the Director of the National Center of Biotechnology and the Secretary General of the Moroccan Association of Biotechnology. He was also extensively engaged as a consultant with the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Program (UNDP), the World Bank, the Arab League, the Arab Organization for Agricultural Development (AOAD) and other organizations. Dr. Zaid grew more dedicated to date palm research and development as he joined FAO in 1995 as the Chief Technical Adviser for the Date Production Support Programme in Namibia. He was also appointed the Chief Technical Adviser and Director of the UAE Date Palm Research and Development Programme of the UAE University. In 2002 he was elected the General Coordinator of the Date Palm Global Network under the auspices of FAO, and a year later he was selected as one of the four permanent consultative members of the Arab Authority for Agricultural Investment and Development. Dr. Zaid is a recipient of a B.R. Sen Award by FAO for his outstanding contributions and meritorious service. He has authored and co-authored a number of books on date palm. Dr. Zaid holds a degree in Agronomy from the Hassan II Agronomic and Veterinary Institute, Morocco, and a Ph.D. in Horticulture from Colorado State University, USA.



## Managing Water Scarcity in River Basins: Innovation and Sustainable Development

4-6 October 2018, Agadir, Morocco

### PROGRAM

#### Thursday, 4<sup>th</sup> October 2018

08:00 - 09:00	Registration
09:00 - 10:00	<p><b>Opening ceremony (Diwan 1 room)</b></p> <ul style="list-style-type: none"> <li>• Pr. Sadiki Mohammed, Secretary General of the Ministry for Agriculture, Maritime Fisheries, Rural Development , Water and Forests, Morocco.</li> <li>• Mr. Ahmed Hajji, Wali of Souss-Massa region, Morocco.</li> <li>• Pr. Brahim Hafidi, President of the Region of Souss Massa, Morocco.</li> <li>• Dr. Ismahane Elouafi, Director General of the International Center for Biosaline Agriculture, United Arab Emirates.</li> <li>• Mr. Elwalid A. Hamour, Regional Director, Hub-Regional of Rabat, Islamic Development Bank, Morocco.</li> <li>• Dr. Ali Hammani, Director General of Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</li> <li>• Mr. Hro Abrou, Reginal Director of Agriculture of Souss-Massa Region, Morocco.</li> <li>• Vice President of the Mohammed VI Polytechnic University, Morocco.</li> <li>• Mr. Zyad Abdeslam, Director of Hydraulic Research and Planning, Morocco.</li> <li>• Mr. Mhamed El Fasskaoui, Director of Souss-Massa River Basin Agency, Morocco.</li> </ul>
10:00 - 10:30	Coffee break Reception
10:30 - 11:30	<p><b>Keynote speeches (Diwan 1 room)</b></p> <ul style="list-style-type: none"> <li>• <b>The dynamic of Water Security and Sustainability</b>, Mohamed Ait Kadi, General Council of Agricultural Development, Morocco.</li> <li>• <b>Coping with Water Scarcity in the Arab Region</b>. Safwat Abdel-Dayem, Arab Water Council, Egypt.</li> </ul> <p><b>Discussion Panel</b></p> <ul style="list-style-type: none"> <li>• Dr. Ismahane Elouafi, Director General of the International of Biosaline Agriculture, UAE.</li> <li>• Al-Turbak Abdulaziz, King Saud University, Saudi Arabia.</li> <li>• Dr. Ali Hammani, Director General of Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</li> <li>• Dr. Dr. Turki Alrasheed, Chairman of Golden Grass Incorporated, Saudi Arabia.</li> <li>• Dr. Abdelouahhab Zaid, Special Advisor, Ministry of Presidential Affairs, United Arab Emirates.</li> <li>• <b>Moderator</b> : Debagh Abdelhafid, Former Secretary General of Ministry of Higher Education and Scientific Research, Morocco.</li> </ul>
11:45 - 13:00	<p><b>Plenary Session 1: Policies and strategies to cope with water scarcity (Diwan 1 room)</b></p> <p><b>Chair</b> : Dr. Ali Hammani, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</p> <p><b>Co-Chair</b> : Chenini Faycel, Food and Agriculture Organization of the United Nations, Egypt.</p>
11:45 - 12:00	<p>The EU GLOBAQUA project on multiple stressors in rivers under water scarcity and global changes. a reconnaissance study in selected, European river basins and the water-energy-food nexus.</p> <p>Ginebreda Antoni, IDAEA-CSIC, Barcelona, Spain.</p>
12:00 - 12:15	<p>An Overview of the GCC Unified Water Strategy 2016-2035.</p> <p>Al-Turbak Abdulaziz, King Saud University, Saudi Arabia.</p>
12:15 - 12:30	<p>Gouvernance des ressources en eau dans le bassin de Souss Massa.</p> <p>Amghar Mohamed, Hydraulic Basin Agency of Souss Massa, Morocco.</p>
12:30 - 12:45	<p>Water resources in Algeria : status, strategies and perspectives</p> <p>Kettab Ahmed, Polytechnic National School, Algeria.</p>
12:45 - 13:00	<b>Discussion</b>

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13:00 - 14:00	Lunch Break		
14:00 - 15:30	Technical Session 1.1: Biosaline Agriculture and use of alternative water resources.	Technical session 1.2: water valuation and saving.	Technical Session 1.3: Climate change future projections and possible adaptation measures.
	<p>Chair: Pinelli Davide, University of Bologna, Italy. Co-Chair: Sabater Sergi, Catalan Institute for Water Research (ICRA), Spain.</p> <p style="text-align: center;"><b>Diwan 1 room</b></p>	<p>Chair: Ouazar Driss, University Mohamed VI Polytechnic, Morocco. Co-Chair: Alshankiti Abdullah, International Center for Biosaline Agriculture, UAE.</p> <p style="text-align: center;"><b>Diwan 2 room</b></p>	<p>Chair: Dr. Barcelo Damia, IDAEA-CSIC. Co-Chair: Kenny Lahcen, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</p> <p style="text-align: center;"><b>Diwan 3 room</b></p>
14:00 - 14:15	<p>Desalination and its role in agriculture: An overview.</p> <p>Al-Abri Mohammed, Sultan Qaboos University, Oman.</p>	<p>Valorisation de l'eau d'irrigation dans le bassin de Souss Massa.</p> <p>Abourig Fatima, Hydraulic Basin Agency of Souss Massa, Morocco.</p>	<p>Characterization of Historical Drought in Jordan Using Numerical Composite Drought Index.</p> <p>Al-Karablieh Emad, The University of Jordan, Jordan.</p>
14:15 - 14:30	<p>Innovative approaches and techniques for managing salinity at the farm parcel scale in Tunisia.</p> <p>Hachicha Mohamed, Institut National de la Recherche en Génie Rural, Eaux et Forêts, Tunisia.</p>	<p>Economic impact of the introduction of drip irrigation on agricultural gross production: Case of Oum Rbiaa river basin.</p> <p>Mengoub Fatima Ezzahra, OCP Policy Center, Morocco.</p>	<p>Impact and mitigation of Global Change: modelling freshwater-related ecosystem services in southern Europe</p> <p>Vicenç Acuna, Catalan Institute for water research, Spain.</p>
14:30 - 14:45	<p>Quinoa Rehamna project: Scaling up quinoa value chain to improve food and nutritional security in poor rural communities of Morocco.</p> <p>Hirich Abdelaziz, International Center for Biosaline Agriculture, UAE.</p>	<p>Adoption of water saving practices in Agadir berry farms: Experiences and challenges.</p> <p>Lopez Mercedes Jaffé, Driscoll's de España Operaciones, S.L, Spain.</p>	<p>Reconciling economic with ecosystems interests in river basins: a quantitative analytical tool.</p> <p>Basso Stefano, Helmholtz Centre for Environmental Research - UFZ, Germany.</p>
14:45 - 15:00	<p>Introduction of alternative crops on salt affected soils of Foug Eloued Perimeter, Laayoune, Morocco.</p> <p>Ezzaïar Raghia, Phosboucraa Foundation, Morocco.</p>	<p>Impact of drip irrigation projects on the access to groundwater resources in Tadla, Morocco.</p> <p>Boularbah Sara, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</p>	<p>Future Climate Change Projections for Morocco: Trends Analysis of Extreme Events.</p> <p>Zaabout Rashyd, International Center for Biosaline Agriculture, UAE.</p>
15:00 - 15:15	<p>Saline Agriculture, a practical solution for a global problem.</p> <p>Bruning Bas, Organisation Néerlandaise Farm, Netherland.</p>	<p>Rivalries and cooperation in the depletion of groundwater for agriculture: the case of the Berrechid plain (Morocco).</p> <p>Ouassissou Romaïssa, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.</p>	<p>De l'adaptation à la résilience au changement climatique des territoires de l'eau : cas du Maroc.</p> <p>Abbad Aïcha, Université Mohammed V, Morocco.</p>
15:15 - 15:30	<p>Effect of salinity on Quinoa in the UAE field conditions.</p> <p>Shahid Mohammed, International Center for Biosaline Agriculture, UAE.</p>		<p>Economic Water Management under climate change Impact.</p> <p>Elame Fouad, National Institute of Agricultural Research, Morocco.</p>
15:30 - 15:45	<b>Discussion</b>		

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15:45 - 16:15	Coffee Break		
16:15 - 18:00	Technical Session 2.1: Wastewater reuse: innovative solutions using advanced treatment technologies.	Technical Session 2.2: Regional policies for water scarcity.	Technical Session 2.3: Reuse of wastewater.
	Chair: Choukr-Allah Redouane, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco. Zaaboul Rashyd, International Center for Biosaline Agriculture, UAE.	Chair: Dr. Al-Karablieh Emad, The University of Jordan, Jordan. Co-Chair: Dr. Hirich Abdelaziz, International Center for Biosaline Agriculture, UAE.	Chair: Faisal Taha, Senior Advisor to Director General, KISR, Kuwait. Co-Chair: Harouni Cherif, Hassan II Institute of Agronomy and Veterinary Medicine; Morocco.
	Diwan 1 room	Diwan 2 room	Diwan 3 room
16:15 - 16:30	Emerging Contaminants: Risk and Challenges for Water Quality in European River Basins and Plant Uptake. Solutions with Advanced Treatment Technologies. Barceló Damià, IDAEA-CSIC, Spain.	Towards a Water-Energy-Food Nexus Perspective in the Arab Region. Al-Zubari Walid, Arabian Gulf University, Kingdom of Bahrain.	Assessing the chemical/microbiological contamination and productivity in the agricultural production chain of model fruit species grown under irrigation with different kinds of reclaimed wastewater. Al-Karablieh Emad, The University of Jordan, Jordan.
16:30 - 16:45	Wastewater treatment and efficient agricultural reuse in Morocco, Egypt and Tunisia: the MADFORWATER project. Pinelli Davide, University of Bologna, Italy.	Policy Lessons for Sustainable Water Management from the Implementation of the Water Framework Directive in Europe. Voulvoulis Nick, Imperial College London/Centre for Environmental Policy, United Kingdom.	Particle Facilitated Pollutant Transport in Rivers. Grathwohl Peter, University of Tübingen, Center for Applied Geoscience, Denmark.
16:45 - 17:00	Solutions with Advanced Treatment Technologies Sewage Sludge valorization feasibility study; a case study from UAE. Alshankiti Abdullah, International Center for Biosaline Agriculture, UAE.	Water scarcity effects on river ecosystems. Sabater Sergi, Catalan Institute for Water Research (ICRA), Spain.	Characterization of scale deposits formed from reclaimed wastewater used for irrigation and study of clogging control using continuous aeration. Benlouali Hajar, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.
17:00 - 17:15	Ecosystem-level manipulation reveals subtle effects of WWTP effluents on river ecosystems. Elosegi Arturo, University of the Basque Country, UPV/EHU, Spain.	Water Policy Issues and Options Revisited in the Near East. Ahmad M, Lahore University of Management Science, Pakistan.	Assessing the health risks associated with reuse of wastewater for irrigation. Al-Jaghbir M, The University of Jordan, Jordan.
17:15 - 17:30	Environmental Impact of Long-Term Application of Treated Wastewater. Al-Busaidi Ahmed, Sultan Qaboos University, Oman.	Chenopodium quinoa, 10 years after its introduction in Rehamna region. Mhada Manal, Mohamed VI Polytechnic University, Morocco.	
17:30 - 18:00	<b>Discussion</b>		
20:00	<b>Gala Dinner</b>		

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**Friday, 5<sup>th</sup> October 2018**

	Side Event of FAO WASAG: The Global Framework on Water Scarcity in Agriculture.	Plenary session 2: Integrated water management.
09:00 - 10:30	Chair and Moderator: Alrasheed Turki, Chairman of Golden Grass Incorporated, Saudi Arabia.	Chair: Qureshi A.S, International Center for Biosaline Agriculture, UAE. Co-Chair: Al-Karablieh Emad, The University of Jordan, Jordan.
	<b>Diwan 1 room</b>	<b>Diwan 2 room</b>
09:00 - 09:20	The Global Framework on Water Scarcity in Agriculture. Boroto Jean, Food and Agriculture Organization of the United Nations, Italy.	Integrated Water Management - Data Challenges & Modelling Issues. Ouazar Driss, Mohamed VI Polytechnic University, Morocco.
09:20 - 09:40	The FAO Regional Water Scarcity Initiative for the Near East and North Africa: The urgent need for planning strategically water resources allocation, reviewing water, food security and energy strategies. Chenini Faycel, Food and Agriculture Organization of the United Nations, Egypt.	Integrated scenarios for water resources management-perspectives from the GLOBAQUA project. Ludwig Ralf, Ludwig-Maximilians-Universitat, Germany.
09:40 - 10:10	Pannel • Elouafi Ismahane, Director General of the International center for Biosaline agriculture, UAE. • Belghiti Mohamed, DIAEA Ministry of Agriculture, Morocco. • Al-Zubari Walid, Arabian Gulf University, Kingdom of Bahrain.	Towards an integrated water resources use: assessing water productivity in crop/livestock farms with an emphasis on water origin (rainfall, surface, groundwater and virtual water). Sraïri Mohamed Taher, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.  Water Productivity: Integrated approach of Sectoral and Footprint Water Management. Bouabdellaoui Yahia, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.
10:10 - 10:30		<b>Discussion</b>
10:30 - 11:00	<b>Coffee break</b>	
	Plenary Session 3: Good fertilization practices to improve water productivity	
11:00 - 13:00	Chair: Mokhtar Najat, Director (TCAP), IAEA, Austria. Co-chair: Sraïri Mohamed Taher, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco. Moderator: Belghiti Mohamed, DIAEA Ministry of Agriculture, Morocco.	
	<b>Diwan 1 room</b>	
11:00 - 11:20	Fertigation as a tool for precision fertilization and irrigation management. Al Rusan Munir, Jordan University of Science and Technology, Jordan.	
11:20 - 11:40	Crop fertilization practices and water use efficiency. Moughly Houssine, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.	
11:40 - 12:00	Rainwater management based on weather risk management. Balahgy Riad, National Institute of Agricultural Research, Morocco.	
12:00 - 12:20	Testimony: Taybi Yassine, Private sector. Benchaib Mohamed, Farmer. Benhammou Jamal, Private sector.	
12:20 - 13:00	<b>Discussion</b>	

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13:00 - 15:00	Lunch Break		
15:00 - 16:30	Technical session 3.1: Technological developments for sustainable management of limited water resources.	Technical Session 3.2: irrigation management and water quality.	Technical session 3.3: Modelling as a tool for water management.
	Chair: Al-Turbak Abdulaziz, King Saud University, Saudi Arabia. Co-Chair: Lopez Mercedes Jaffé, Driscoll's, Spain.	Chair: Zoubeir Hajbouha, President of Phosboucraa Fondation. Co-Chair: Al-Busaidi Ahmed, Sultan Qaboos University, Oman.	Chair: Al-Zubari Walid, Arabian Gulf University, Kingdom of Bahrain. Co-Chair: Hachicha Mohamed, Institut National de la Recherche en Génie Rural, Eaux et Forêts, Tunisia.
	Diwan 1 room	Diwan 2 room	Diwan 3 room
15:00 - 15:15	Improving water use efficiency for sustainable crop production in sub-Saharan Africa.  Qureshi A.S, International Center for Biosaline Institute, UAE.	The role of small-scale non-invasive monitoring of root systems in the improvement of water use strategies for agriculture.  Giorgio Cassiani, Università degli Studi di Padova, Italy.	Adaptation to Climate Change in MENA: Experiences from ICBA.  Zaaboul Rashyd, International Center for Biosaline Agriculture, Dubai, UAE.
15:15 - 15:30	Participative valuation of ecosystem services: protecting and managing water under climate change.  Philippe Ker Rault, Deltqres, Netherland.	Microirrigation biofouling with treated wastewater: Influence of hydrodynamic conditions on the structure and microbial communities of biofilms.  Lequette K, INRA/LBE, Narbonne, France.	Hydrogeological modeling of the overexploitation of Souss-Chtouka groundwater resources under water scarcity conditions.  Malki Mouna, Ibn Zohr University, Morocco.
15:30 - 15:45	Assessing the microbiological contamination and productivity fruit model species grown under irrigation with different kinds of irrigation water.  Al-Jaghbir M, The University of Jordan, Jordan	How to master emerging contaminants identity and release in the environment for a better risk assessment ?  Souissi Yasmine, Univ. Manouba, ISBST, BVBGR-LR11ES31, Tunisia.	Combiner la modélisation et l'expérimentation pour mieux penser la gestion de la demande en eau d'irrigation.  Bouazzama Bassou, National Institute of Agricultural Research, Morocco.
15:45 - 16:00	Sustainable Irrigated Crop Production through increased water used efficiency: Nigeria's Experience with Participatory Irrigation Management (PIM) Concept".  Othman M. K, National Agricultural Extension and research Liaison Services, Nigeria.	Étude de la qualité des eaux épurées et l'évaluation de leur impact à la suite de leur réutilisation pour l'irrigation.  Yacoubi Bouchra, Ibn Zohr University, Morocco.	Evaluation of the economic impact of climate change on agricultural value added in Tadla-Azilal region.  Lachhab Rania, Hassan II Institute of Agronomy and Veterinary Medicine, Morocco.
16:00 - 16:30	<b>Discussion</b>		
17:00 - 18:00	<b>Closing Session</b>		
<b>Saturday, 6<sup>th</sup> October 2018</b>			
08:00 - 18:00	<b>Field Visit</b>		



## Poster sessions, will be during coffee breaks of the conference

- Abbad, A. and Essaidi, S. Innovation in communicating the issue of water scarcity in Morocco. Rabat. Morocco.
- Al-Busaidi, A., Ahmed, M. and Al-Aghbari, W. A sustainable Method for Achieving Food Security: A case Study from Oman. Muscat. Oman
- Alla, F., Jdaini, K. and Elhoumaizi, M. A. Nano-irrigation system: A new thought on sustainable management of irrigation water. Oujda. Morocco
- Alla, F., Jdaini, K., Hanane, M., Jamal, M. and Elhoumaizi, M. A. Moisture system: A promising new irrigation technique for date palm (*Phoenix dactylifera* L.). Oujda. Morocco.
- Arous, F., Amara, A., Hamdi, C., Neifar, M. and Jaouani, A. Zero-Valent iron pretreatment for enhancing the biodegradability of textile wastewater containing Azo Dyes. Tunis. Tunisia
- Azaykou, F., Choukr-Allah, R., El Gharous, M., Mhada, M. and Hirich, A. Evaluation of Quinoa Varieties for Crop Diversification in the Rhamna Region. Ben Guerir. Morocco.
- Barbieri, M. V., Postigo, C., Monllor-Alcaraz, S., Guillem-Argiles, N., Barceló, D. and Lopez de Alda, M. Occurrence of currently used pesticides in water and sediment samples from 3 distinct European river basins: Adige, Sava and Evrotas. Barcelona. Spain.
- Bejaoui, B., Cherif, H., Naili, F., Amara, Y., Chamkhi, A., Mosbah, A., Souissi, Y., Masmoudi, A. S., Neifar, M. and Cherif, A. Evaluation of the Impact of Plant Growth Promoting Bacterial Consortia on The Improvement of Crop Productivity Grown under Treated Wastewater Regime. Ariana. Tunisia.
- Belhamidi, S., Boulahfa, H., Elkhdim, H., Taky, M., Elhannouni, F. and Elmidaoui, A. Epuration des eaux usées domestiques et industrielles de la ville de Larache par les bioréacteurs à membranes. Kenitra. Maroc.
- Benlouali, H., Karmal, I., Harrouni, M. C., Hafid, N., Fallah, M., Hamdani, M. and Choukrallah, R. Efficiency of six scale inhibitors on scale precipitation from hard water used for irrigation. Agadir. Morocco.
- Boulahfa, H., Belhamidi, S., Elkhdim, H., Elhannouni, F., Elmidaoui, A. and Taky, M. Pretreatment optimization and reverse osmosis performances of a surface water demineralization plant in Morocco. Kenitra Morocco.
- Bousamid, A., Belabed, A., Berrichi, A., Messoudi, Z., Bibi, I. and Benyazid, J. Saving irrigation water in citrus orchards – plain of Triffa - Morocco. Oujda. Morocco.
- Briak, H., Mrabe, R., Moussadek, R., Maatouk, M. and Aboumaria, K. Estimation of water balance and water yield in the Kalaya Watershed in North Morocco using SWAT. Morocco.
- Calle, J. P. R., Santhanakrishnan, B., Hirich, A., Al-Mahmoudi, H. and Lyra, D. Herbaceous and grass edible crop plants production with local water resources: pilot experiences from UAE. Dubai. UAE.
- Calle, J. P. R., Santhanakrishnan, B., Hirich, A. and Ono, E. Heat and salinity tolerance of quinoa in the UAE sandy desert ecoregion. Dubai. UAE.
- Chergui, M. and Hirich, A. Analysis of International Market of Quinoa based products. Ben Guerir. Morocco.
- Dakak, H., El mouridi, Z., Soudi, B., Moussadek, R., Zouahri, A., Yachou, H. and Ghanimi, A. Impact of irrigation on the dynamics and leaching of nitrate nitrogen in soil. Rabat. Morocco.
- Elame, F. and Doukkali, R. Impact of climate change and renewable energy use on water resources Agadir. Morocco.
- Fetouab, A., Choukr-Allah, R., El Gharous, M., Mhada, M. and Hirich, A. Effect of organic amendment type and dose on quinoa productivity in Rehamna region Ben Guerir. Morocco.
- Hormatallah, A. and Salghi, R. Performance of Biobed/Biofilter and Electrocoagulation Method using Nanomaterials systems for the removal of some Pesticides from polluted water. Agadir. Morocco.
- Kane, A. M., Guindo, S. S., Tangara, B., Qureshi, A. S. and Ballo, A. Economic efficiency of water use in vegetable production under California, Drip and Sprinkler systems in Koulikoro and Mopti regions, Mali. Mali.
- Karmal, I., Mohareb, S., Hadfi, A., Hafid, N., Ait Addi, A., Hamdani, M. and Driouiche, A. Performance evaluation of reverse osmosis Process for Brackish Water Treatment at Khang Lahmam station. Agadir. Morocco.
- Mansir, I., Bouchaou, L., Choukr-Allah, R. and Chebli, B. Water resources vulnerability in the Souss Massa region. Agadir, Morocco.
- Mazigh, N. and Taleb, A. Nouvelle alternative pour pallier la saturation de l'offre des barrages. Mohammedia. Morocco.
- Neifar, M., Hassen, W., Cherif, H., El-Hidri, D., Naili, F., Mahjoubi, M., Najjari, A., Mosbah, A., Chouchane, H., Souissi, Y., Ouzari, H. I. and Cherif, A. Physiological and genomic insight into plant growth promoting mechanisms of two novel *Pseudomonas* and *Halomonas* species. Ariana. Tunisia.
- Rafik, S., Rahmani, M., Hirich, A. and Choukr-Allah, R. Development of Quinoa Based-Products Adapted to Moroccan Context Rabat. Morocco.
- Sauret, E., Nitchou, M. and Kissou, J. Quantification of "groundwater - river interactions" through water channel budget and direct measurement by seepage meter Bobo Dioulasso. Burkina Faso.
- Seif-Ennasr, M., Hirich, A., El Morjani, Z. E. A., Beraaouz, E. H. and Choukr-Allah, R. Land and climate suitability analysis and projected climate change impact on crops in Chtouka Ait Baha, Morocco agadir. Morocco.
- Tnourji, H., Atiki, N. and Ouammou, A. Impact of irrigation on the piezometry of Chtouka (Center West of Morocco). Agadir. Morocco.

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