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SPEAKERS INTERVIEW

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الإمارات العربية المتحدة
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ABOUT THE SPEAKER



Quirico Migheli

Full Professor, Plant pathology
Department of Agricultural Sciences
University of Sassari, Italy.

In **2007** obtained the Habilitation à Diriger des Recherches (HDR),
University of Burgundy, Dijon, France

2011-2014: Rector's delegate for International Student Mobility.

2013-2015: Rectors delegate for research.

2013- 2015: Vice-President of the Italian Society of Plant Pathology.
Member of the PhD School in Agricultural and forestry systems and
food production.

2011-2015: Senior Editor of the Journal of Plant Pathology (2011-
2015)

2016-present: Editor-in-Chief of Biocontrol Science & Technology.

2016-present: Chair, BSc degree in Security and International Cooperation.

Since 2021 is the Director of the Desertification Research Centre (NRD), University of Sassari.

Main research topics: food safety and food security issues; molecular and physiological plant-pathogen interactions; biological control of mycotoxin-producing fungi; risk assessment of biocontrol agents.

Bibliometrics: H-index: 31 (WoS); 32 (Scopus); 39 (Scholar); i10-Index: 85 (Scholar). Total publications in WoS: 113; Scopus: 121; Scholar: 218. Citations: 2470 (WoS); 2700 (Scopus); 4600 (Scholar)

INTERVIEW CONTENT

Please tell us a bit about yourself and your role at the Desertification Research Centre, as well as the purview of NRD?

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I am professor of plant pathology at the University of Sassari, in Italy. At present, I coordinate a BSc programme in “Security and international cooperation” and since 2021 I have the great chance and honour to direct the Desertification Research Centre (NRD). NRD, which was established in 1991 and officially recognised as University Interdepartmental Center in 2000, promotes research and international cooperation projects to combat desertification and environmental degradation, in line with the principles of the UNCCD (UN Convention to Combat Desertification), the highest body that dictates the guidelines and strategies to address this issue on a global scale.

Through a trans-disciplinary and participatory approach, which is essential to effectively address complex issues such as climate change, desertification and land degradation, NRD now hosts about 40 university professors and over 20 among junior researchers and PhD students representing different disciplines, such as agronomy, animal husbandry, plant health, environmental sciences, hydrogeology, environmental hygiene, economics, sociology, law, NRD's activities have progressively extended to the field of water resources management, of wastewater from livestock farms, of endangered coastal areas, or the pollution of the groundwater ... The specific scientific skills are supported by the activity of skilled research and financial managers, who play a key role in the success of our international performances. ”

What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“

Being able to participate in this event as an Italian University Institution as well as a research center focused on desertification will definitely represent an excellent opportunity for intellectual and scientific growth, both in terms of the search for innovative solutions and of worldwide cooperation and development on water management and sharing. By involving more than 800 relevant stakeholders, this event shall allow us to explore new issues and solutions and to become aware of the positions and arguments of people and institutions playing a key role in the water resources sector.

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

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As a European Institution, I am convinced that EU programs such as ENI CBC MED, PRIMA, Horizon 2020 and now Horizon Europe have represented (and will increasingly represent) paramount initiatives, allowing to gather researchers, technicians, public and private institutions from Europe and the Arab countries facing the new challenges of water and security through a common commitment. Thanks to these significant funding initiatives, different skills from all over the world will be possibly able to respond, in an integrated approach, to the needs of most exposed countries by proposing shared and sustainable solutions, particularly thanks to the transfer of knowledge taking place in contexts

such as the Arab Water Forum. Within this frame, NRD promoted the participation of all the partners of the ENI CBD Med MENAWARA project to present and discuss technologies and solutions related to the use of non conventional water in agriculture.

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How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?

“ Water security has played a key role in human relationships throughout history, but in recent years issues related to water scarcity have gained a pivotal position in the international relations. Nearly two billion people are now exposed to water insecurity. Following a definition by UNESCO, water security can be “a possible source of welfare or misery, cooperation or conflict”.

Often, water security has transboundary features (let me just mention as the last example the tensions among Egypt, Sudan, and Ethiopia over the Grand Ethiopian Renaissance Dam on the Blue Nile). This and other ongoing disputes on water clearly illustrate how water security issues – like climate-related issues - are by definition common challenges that cannot be solved independently: global water insecurity forces all of us to set aside rivalry and sit at the same table to design shared approaches. The alternative is drought and desertification, which are major drivers for social instability and massive displacement. I believe that UN-Water should play a major role and I do hope that in the near future an International Court of Water Justice shall be created for the pacific settlement of international disputes on water issues. Maybe this proposal could arise from the discussions taking place in the next AWF. Among the international initiatives, I'd like to remind the important role of DesertNet International, a think tank of researchers engaged in the fight against desertification, accredited by the UNCCD, as well as the Global Network of Dryland Research Institutes (GNDRI), an association of institutions active in the field of dryland research, which aims to promote institutional interactions to strengthen the cooperation in the field of research, training and the third mission on the sustainable use of dry lands. NRD plays a key role in both these scientific networks, by promoting scientific cooperation and higher education in collaboration with several universities and research institutes.

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What recommendations would you give suppliers hoping to support the regions water- related sectors (locally and regionally)?

“ My recommendation would be to focus on approaches, technologies and governance inspired by the outcomes and best practices generated from up-to-date research achievements. Even from a local standpoint, the water system should be treated in an integrated perspective. As for the international sphere, it is now compulsory to consider water as a vital element, not only for specific communities, but for the entire Arab region. As mentioned previously, a shared water policy will be beneficial to everyone, because water security shall boost peace and development.

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

At NRD we are carrying out a cooperation project (MENAWARA) focusing on the improvement of the quality of wastewater through innovative treatments that allow proper and safe reuse in agriculture by making irrigation techniques more efficient. The use of wastewater is definitely a strategy to be considered, but this needs to overcome the reticence of the involved communities, who often reveal an excessive fear. Thanks to the sharing of experimental approaches and data through living labs where the stakeholders can play an active role, such reticence could be overcome. Dissemination and awareness campaigns would also make it possible to export these practices to other territories,

demonstrating their effectiveness and helping to reduce the pressure on fresh water, at least in the agricultural sector, which represents %70 of the total water demand.

Another project carried out by researchers at NRD focuses on the implementation of integrated water harvesting and aquifer recharge techniques in two watersheds in Maghreb Region, Oued Biskra in Algeria and Oum Zessar in Tunisia, that are characterized by water scarcity, overexploitation of groundwater resources and high vulnerability to climate change risk. The demonstration WADIS-MAR project, starting from local traditional floodwater harvesting technologies such as tabias and jessour, has implemented sustainable water and agriculture management through participative and bottom-up approach, enabling local communities to manage groundwater resources, based on more efficient use of water harvesting techniques and sustainable agricultural practices. ”

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ABOUT THE SPEAKER



Dr. Nizar Haddad

Director General
National Agricultural Research Center- Jordan.

Dr. Nizar Haddad, the Director General of the National Agricultural Research Center- Jordan. Holder of PhD & MSc degrees in Agriculture, MSc degree in Management and Strategic Studies. Author of 17 books and has over 80 scientific publications in climate change, food security, eco-system services, rural development, genomics, and beekeeping. Haddad gained 4 national, and 6 international awards of achievements.

In addition to his executive career, Haddad serves on several national and international steering committees and advisory boards, in addition to being the national focal point of the "Blue Peace in the Middle East" Initiative, a member of the National Committee of the International Hydrological Programme (IHP)-

UNESCO, and a member of the Higher Preparatory Committee of the 2021 Global Land Forum in Jordan. Led the national teams to develop the Agricultural Map, Water Harvest Map, and Flash Floods Map.

Haddad has a vast experience in aligning institutional strategies with SDGs and effective resources' mobilization, to accelerate accomplishments, resources, and technology transfer dissemination.

Please tell us a bit about yourself, as well as the purview of the National Agricultural Research Center?

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I am the Director General of the National Agricultural Research Center- NARC of Jordan since 2017. Holder of PhD & MSc degrees in Agriculture, MSc degree in Management and Strategic Studies. Winner of the prestigious award of Partnerships for Enhanced Engagement in Research (PEER FLASH TALK AWARD) by U.S. Global Development Lab powered by USAID, winner of 6 international and 5 national awards.

With an experience of more than 20 years, I've graduated from a senior scientist working for NARC, after which he's become a technology transfer team leader to directly serve 12 countries, and indirectly serve Arab speaking beneficiaries.

My Strong base of middle-eastern and international cultures and proficiency in Arabic, English, and Russian enabled me to participate in more than 100 international forums, workshops, conferences and events in more than 50 countries around the globe as a speaker and very often a keynote speaker. I was privileged to receive the prestigious award of PEER FLASH TALK AWARD by U.S. Global Development Lab powered by USAID in 2016.

I have been able to establish a local and Arab team, with international participation, publishing genetic maps and scientific papers that were known as the first of their kind both on the local and global levels, and took part as a training expert with USAID, JICA, FAO.

Known for Award-winning books & leadership experience and a track record of delivering tangible results in highly-competitive environments as a mentor to high-performing research teams and the implementation of joint work outside NARC, with a record of more than 80 multidisciplinary scientific publications covering the topics of climate change, food security, rural development, eco-system services, and beekeeping, some of which were chosen as cover stories of important scientific journals, alongside authorship of 17 books in Arabic, and 2 English refereed chapters in books.

The National Agricultural Research Center (NARC) is a semi-independent institute. It is the research arm of the Jordanian Ministry of Agriculture, and the only national entity that is responsible for conducting agricultural research and disseminating the local and international research results to support development, growth, and sustainability of the agricultural sector in Jordan.

Since its early beginnings, NARC aimed at utilizing the outcomes of agricultural research that are developed locally or devised from other sources for the purposes of increasing agricultural production -both plant and animal- while improving its efficiency and quality and conserving the agricultural natural resources and optimizing their use, serving the purposes of agricultural development and ecological balance. NARC strives to achieve its goals through performing its multi-disciplinary functions.

NARC consists of its Headquarters in Al-Balqa Governorate, and supervises Al-Hussein Agricultural Research Station, in addition to eight research centers and 14 research stations covering the diverse ecosystems in Jordan according to climate distribution.

The center had excelled in various fields, most importantly of which those activities related with the utilization of wastewater, the use of non-conventional water, to provide vital water sources. Climate change has been known as a critical issue worldwide, on Jordan's level NARC has been taking the responsibility of its adoption and mitigation very seriously. Moreover, NARC had made a splendid accomplishment aligning its goals endorsed in its new strategy (2023-2019) with the Sustainable Development Goals (SDGs) issued by the UN. ”

What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“ Arab Water Forum is considered one of the most important water-related events in the Arab region, mainly because this area is being one of the most water-scarce regions in the world. We are looking forward to discussing water challenges that the Arab region is facing, innovative solutions, non-conventional water, lessons learned from the previous projects and regulations laid out by government authorities. Moreover, this forum will provide a unique platform for us to communicate with the Arab water community leaders and key decision-makers. ”

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

“ This question will be answered from Agricultural sector point of view. There are clear opportunities for improving water productivity in the agricultural sector. Three primary areas include: (1) improving water allocation; (2) improving application efficiency and (3) green water harvesting at micro and macro levels. Improving allocation requires selection of crops which require less irrigation per unit of production, given the local climate and growing conditions. Improved farm management practices include no-till farming, drip or other efficient irrigation technologies, smart irrigation and soil tensiometers or moisture sensors.

Currently, the low adoption rate of precision agricultural technologies is an evidence of the cost and implementation barriers faced by farmers. However, as aquifers become depleted, the cost of pumping water from deep aquifers will increase which may make conservation technologies relatively affordable. The solution requires efficient irrigation technologies which are economically preferable to current water use costs. ”

How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?

“ We strongly believe that promoting regional water cooperation is a main key for success towards the best water management module, and to ensure peace building and human security. However, the lack of regional cooperation can impede technical solutions to the existing water problems, limit the effectiveness of water cooperation with regard to sustainable water management, and limit the impact of technical and civil-water society initiatives. Working towards improving international relations should go hand in hand with improving national and local water management institutions and practices, by promoting institutional frameworks that allow for systematic involvement of stakeholder groups.

Any initiative that aims to promote the links between regional water cooperation must take into account the following:

- The existing asymmetries with regard to human and financial capacities, as well as political power. These asymmetries need to be addressed in the design and implementation of initiatives in order to ensure that cooperation provides at least mutual – if not equal – benefits, and to prevent power relations favouring one party.
- Capacity-building must be complemented or coordinated with initiatives advocating for empowerment of the parties.
- Donors should take an active role in promoting regional water cooperation with the national governments and authorities – considering the mutual benefits.
- Advocate for the empowerment and involvement of water users and stakeholder groups in the process of developing water policies and cooperative political frameworks. ”

What recommendations would you give suppliers hoping to support the regions water- related sectors (locally and regionally)?

“ Sustainable water management will vary with geography and economic capabilities, though all regions can manage water resources in a way that supports sustainable social, economic, and environmental development. Hence, the local and regional policies must align objectives with appropriate resources considering the climate change impact, set out clear roles and responsibilities, ensure sustainable funding, establish effective regulatory frameworks, work with effective multi-stakeholder platforms and support the scientific research. ”

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

“ In Agriculture sector, there are many key technologies and systems to increase water infrastructure and aid in sustainable development such as:

- Treat and reuse of non-conventional water (waste, saline, grey..) in irrigation.
- Use the modern irrigation systems that enhance water use efficiency and reduce water losses.
- Green water harvesting at micro and macro levels.
- Adopt the crops with drought and salinity tolerance and/or less water requirements.
- Desalination project, produced by a mix of clean energy that uses both renewable energy and waste heat.
- Integrated approach to water management to satisfy the huge demand for water.
- Internet of Things (IoT) and Artificial Intelligence (AI) for irrigation automation and control to efficiently manage and reduce water leakage and losses.
- Use the hydroponics, aquaponics, airoponics, precision agriculture, and space technologies in farm management. ”

ABOUT THE SPEAKER



Dr. Amgad Elmahdi

Director of MENA Region-IWMI

Dr. Amgad Elmahdi is the Director of MENA Region, IWMI. He is a Senior Regional Water Analyst, Solutions and Water Accounting Specialist. He has over 25 years of working experience in the fields of in Hydrology, Water Resources Assessment, Water Accounting, Water Governance, Water Information Management, Digital Technologies for Water Management, Water Policy and Planning, NEXUS Assessment and Management, in operational, research, and academic settings. Before joining IWMI, He was the Head of the Water Resources Section and Chief Supervising Hydrologist at the Bureau of Meteorology-Australia. His experiences involved providing evidence-based science and low-cost solutions to sustainably manage water and land resources for water and food security, people's livelihoods and the environment.

He is also a recognized International Water and Natural Resources Management Expert and the Australian representative for several international agencies- such as ICID- International Commission on Irrigation and Drainage. He is the chair of the IWRA-Water Security Bureau (International Water Resources Association) and he has received several awards nationally and internationally for his Science Impact for Landscape Water modelling in Australia and Strategic Excellence Award for Partnership and Watsaving award-ICID.

INTERVIEW CONTENT

Dr. Amgad Elmahdi
Director of MENA Region-IWMI

Please tell us a bit about yourself and your role at IWMI- MENA, as well as the purview of the International Water Management Institute?

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Dr. Amgad Elmahdi is the head of the International water management institute (IWMI) MENA region office responsible for managing all the projects in the Middle East and North Africa region. Dr Elmahdi's mission is to provide evidence-based science and low cost solutions to sustainably manage water and land resources for water and food security, people's livelihoods and the environment. He is an international water and natural resources management expert, and Chair of water security Bureau-IWRA. He has received several awards nationally and internationally for his Science Impact for Landscape Water Modelling in Australia and Strategic Excellence Award for Partnership and Watsaving award-ICID.

Dr. Amgad Elmahdi is a Water Solutions Specialist with over 25 years experiences and expertise in Hydrology, Water Resources Assessment, Water Accounting, Water governance, Water information management, Digital technologies for water management, water policy and planning, NEXUS assessment and management, in operational, research, and academic settings. Dr Elmahdi, served as water system analysts, and water resources manager. Before joining IWMI, He was the Head of Water Resources Section and Chief Supervising Hydrologist at the Bureau of Meteorology-Australia. IWMI is a research-for-development (R4D) organization, with offices in 13 countries and a global network of scientists operating in more than 40 countries. For over three decades, our research results have led to changes in water management that have contributed to social and economic development. IWMI is one of the CGIAR organizations and the only one that is dedicated to a water secure world.

IWMI's Vision reflected in its Strategy 2023-2019, is 'a water-secure world'. IWMI targets water and land management challenges faced by poor communities in developing countries, and through this contributes towards the achievement of the Sustainable Development Goals (SDGs) of reducing poverty and hunger and maintaining a sustainable environment.

Based on evidence and knowledge drawn from our science, innovative technologies and testing of business models, IWMI works with governments, farmers, water managers, development partners and businesses to solve water problems and scale up solutions. Together with our partners, we combine research with data to build and enhance knowledge, information services and products, strengthen capacity, convene dialogue and deliver actionable policy analysis to support the implementation of solutions for water management. ”

What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“

The Arab Water Forum offers an international prestigious platform for all partners in the region that offers immense potential. Thus, it facilitates the engagement of the stakeholders and supports the collaboration with donors as well as partners in the water-land and food sectors. This could also help in the discussion of the main challenges and key issues that face them in the sector and reach recommendations in policy and institutional framework to help mitigate the effects of climate change.

IWMI hopes to share its expertise in the sector with the participants of the event AWF network to disseminate the knowledge gained through the implementation of projects in the region. Additionally, the IWMI aspires to share the cutting edge technology, solutions and success stories in the water-agriculture field such as IRWI application in addition to agricultural practices applied on the farm-level in Egypt, Jordan and other countries. This will raise the awareness of all the participants and the water professionals who seek to have a positive contribution towards a more water-secure future. In partnership with key players in the region (IFAD, FAO, ICID, AWC, CIEHAM-BARI), IWMI is hosting and co-partner number of sessions at the AWF that discussing several issues and providing solutions. These sessions tackling these topics: Non-conventional water, Water governance and accounting, Irrigation infrastructures and hydropower, ICT and technologies role in water management. ”

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

“ The systemic crisis in MENA requires a systemic approach and solutions to achieve the SDGs by 2030. Some of the key programs that currently implemented by IWMI in the region where they are aiming to help solve the water crisis, best-practice agriculture and resolve other related crises in the MENA region are as follows:

- MENA drought project in Jordan, Lebanon, Morocco and Tunisia (USAID funded)
- Water Innovations Technologies in Jordan (USAID funded)
- The water security nexus in North Africa (World bank funded)
- The Water and Energy for Food (WE4F) MENA Regional Innovation Hub (USAID, GIZ, SIDA and NL Funded)
- USING ICT technologies to improve water productivity (NL Gov Funded).
- Wastewater Reuse in the MENA Region: Addressing the Challenges in Egypt, Lebanon, Jordan (SIDA Funded)
- Groundwater governance in the Arab World: Taking stock and addressing the challenges in Tunisia, Jordan, Lebanon, UAE, Oman (USIAD Funded)
- Agricultural water investments in the MENA region (FAO Funded)
- Support the Implementation of Standardized Water Accounting and Auditing System at the Country Level (SIDA Funded)
- Nile basin irrigation benchmarking and development (GIZ funded)

Taking the MENA is the most water-stressed region in the world. The gap between the supply and demand is widening every day. On the other hand, we have the untapped and increasing resource that we are flushing everyday “wastewater”. Treated wastewater and it’s safe reuse is among the most promising solutions to close this S-D gap. Therefore, through the Rewater MENA Project (ReWater MENA project is funded by the Swedish International Development Cooperation Agency (SIDA), and led by the International Water Management Institute (IWMI)), in partnership with the Arab Water Council (AWC), and in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the League of Arab States (LAS), IWMI is organising the 1st Regional Science-Policy Dialogue on Wastewater Reuse in the MENA Region. The First Science-Policy Dialogue aims to reach a shared regional diagnosis of the state of water reuse and of the key challenges to uncap the water reuse potential in MENA countries, to present key preliminary findings and policy recommendations of ReWater MENA, and to select actionable solutions that participants plan to promote in their respective countries. The Dialogue participants shall validate the presented findings, and identify key challenges to reach the water reuse potential. Participants will also discuss policy options to address the identified challenges which they plan to promote in their respective countries, in order to reach an enabling environment for effectuating appropriate policy change. ”

How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?



- The MENA region is facing a systemic crisis as it battles extreme climatic conditions water scarcity, biodiversity loss, high population growth rate and conflict and fragility.
- The systemic crisis in MENA requires a systemic approach and solutions to achieve the SDGs by 2030.

In order to achieve the development of key water-related sectors, strategies and actions need to be developed in the form of nexus approach which takes into consideration water, food, energy and the environment. Raising the awareness of the nations in the MENA region on water scarcity, the challenges faced by the sector and how they can contribute in the process is a must to be able to comply with strategies set by countries for 2030. It is also essential that these strategies are driven by demand, addressing regional challenges, utilizing synergies between systems and integrating all the capabilities in the region.

Meeting these challenges will require bold actions and new mindsets on water and food systems transformation to mainstream the SDGs. The system transformation requires several actions and tackling several needs to produce more food with less water and energy. However, these actions need to be supported by strategies that are:

- Demand Driven at the scale: Responding to the current and future identified priorities of end-users, national and international partners, and key stakeholders and targeting specific spatial domains.
- Challenge oriented: Addressing critical regional issues, including climate change, water scarcity, groundwater depletion, land degradation, food insecurity and inequality.
- System oriented: Driving benefits across multiple areas and scales while leveraging synergies and managing trade-offs between systems (land-water-food-energy).
- Integrated: Building on the breadth of capabilities in the region and countries to deliver integrated solutions supported by an enabling environment to assure sustainability.
- Rigorous: Designed based on well defined, compelling theories of change (state of the art-implementing science) with clear, meaningful and measurable results framework in place. Strategies need to not lose on-the-ground impacts out of sight, and they should be underpinned with clear monitoring, evaluation and learning indicators.

Vital requirements needed to mobilize the nations include transforming the agri-food system by implementing multiple benefit and integrated natural and infrastructures. As water turns into an even scarcer resource in the region, cooperation both within countries and among countries is essential for system transformation. This could be achieved through creating the required partnerships as well as directing the investments of the private sector towards the cause. Moreover, it is important to redesign the agricultural system as we know it to involve. **We need to co-design and co-develop strategies that can give new life for everyone and vulnerable communities” and produce more per drop of water, Kwatt of energy and per hectare of land, this can close the gap and revitalize agricultural sector in many areas in the region.** ”

What recommendations would you give suppliers hoping to support the regions water- related sectors (locally and regionally)?

“ Partnerships and synergies with the main actors and stakeholders in the region are key for success. Nothing would be possible without collaborations with the right partners on the local and regional level as they become the functioning enablers of the supply chain. This could be reached through platforms that attract all the potential partners in the water and water-related sector such as the Arab Water Forum. In order to support the region, suppliers must engage with the public sector and align with the governmental plans and strategies. They ought to understand the market and the entire value chain to be able to offer their support in the correct form and place. Furthermore, securing investments and funds particularly from the private sector and having suitable business models ensure the sustainability of the system as a whole. ”

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

“ Digitalizing and redesigning the farming systems is one of the main goals that IWMI seeks to achieve towards a water-secure future in the MENA region. This includes creating user-friendly applications that help farmers utilize the data available to decrease water and energy consumption such as IRWI app. It also includes streamlining integrated farming to improve livelihood and increase water productivity. This comes hand-in-hand with utilizing new technologies, techniques and practices for irrigation of crops such as the ones promoted through Water Innovation Technologies project implemented in Jordan. Finally, it is of crucial importance to support the youth in the field that have the capabilities of delivering these technologies to the target audience. In that context, IWMI targets supporting SMEs that have the potential of transforming the water-energy-food systems through the WE4F MENA regional innovation hub. We are promoting these actions to revive the agricultural system:

- Transforming the agri-food system to help eliminate hunger and reduce poverty through multiple benefits infrastructure and partnerships and investments of private sectors.
- Increase availability and affordability of cash crop such as vegetables and fruits through improving water productivity and climate resilient crops.
- Improve affordability, accessibility and availability of healthy diet (change policy from increase production to produce nutritious food and affordable).
- Access to sustainable energy sources and develop nexus policy to nexus implementation plan.
- De-risking the agricultural systems at scale and redesign the farming system (integrated farming system to diversify value chain and improve the livelihood).
- Investments in early warning/action & emergency response through Digital Climate Smart Agricultural advisory services Initiatives to convey information to the hand of farmers and decision-makers using the same reference information.
- Strengthen governance beyond water (nexus governance) including human capital and institutions for policy coherence and multilateralism, including trade at scale (local, national and regional). ”

ABOUT THE SPEAKER



Alberto Carletti

Researcher of Applied geology
Department of Agricultural Sciences of the Sassari
University.

Alberto Carletti, PhD in Earth and Environmental Sciences and Technologies, is a researcher of Applied geology at the Department of Agricultural Sciences of the Sassari University.

His research interest concerns several topics related to water resources, in particular groundwater: (i) qualitative and quantitative evaluation of groundwater resources, (ii) seawater intrusion processes in coastal aquifers, (iii) nitrate pollution in aquifers from agricultural practices, (iv) aquifer vulnerability assessment, (v) natural aquifer recharge assessment at watershed/hydrogeological basin scale in arid and semi-arid environments, (vi) water harvesting and

managed aquifer recharge (MAR) techniques, to be implemented in particular in developing countries and (vii) desertification processes related to water management issues. Since 2003, he has collaborated with the Desertification Research Centre of the Sassari University (NRD-UNISS) on several national and international research and cooperation projects concerning water management issues.

He is currently the coordinator for NRD-UNISS in the ENI CBC MED project entitled "MENAWARA – Non conventionAl Water Re-use in Agriculture in Mediterranean countries" (2019-2022), funded by EU. Within this project, he is scientific responsible for the implementation of a MAR pilot plant, through the Forested Infiltration Area (FIA) technique aimed to contribute to the mitigation of the nitrate groundwater pollution in the NVZ of Arborea (central-western Sardinia, Italy). He is also collaborating on the H2020 project entitled "EWA-BELT - Linking East and West African Farming Systems Experience into a BELT of Sustainable Intensification" (2020-2024), within the subtask on "Sustainable water management", for the improvement of the efficiency of traditional water harvesting techniques in 6 countries of East and West Africa (Ethiopia, Kenya, Tanzania, Ghana, Burkina Faso and Sierra Leone). He has co-authored over 20 scientific papers, his H-index is 7 (Scopus) with 235 citations (Scopus).

INTERVIEW CONTENT

Alberto Carletti

Researcher of Applied geology
Department of Agricultural Sciences of
the Sassari University.

Please tell us a bit about yourself and your role at the Desertification Research Centre, as well as the purview of NRD?

“ I'm a hydrogeologist and researcher at the University of Sassari. I have collaborated with the Desertification Research Centre (NRD-UNISS) since 2003 participating in international cooperation and research projects focused on water management, groundwater pollution and managed aquifer recharge. I'm currently the coordinator of the MENAWARA “Non Conventional Water Re-use in Agriculture in MEditerranean countries” project, funded by EU under the ENI CBC MED programme. NRD has a long last experience in developing and managing research and cooperation projects related to physical, biological and socio-economic aspects of desertification and land degradation in several regions around the world. Water resources degradation, which is one of the key topic within the desertification framework, has always been one of the strategic axis of the Centre's activity. ”

What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“ As the Arab Water Forum gives to Arab water community leaders and key decision-makers the opportunity to discuss the water challenges which involve the Arab countries, it is in line with the aim of the MENAWARA project to strengthen the non-conventional water governance by disseminating and capitalizing innovative and technological solutions and the B4.1 objectives of the ENI CBC MED action to implement water sustainable initiatives to encourage use on NCW supply. The AWF will provide the MENAWARA partnership with the chance to disseminate program and project activities to the most relevant stakeholders in the Arab World including policy makers, multilateral specialized institutions, academia and civil society putting the basis for the capitalization of our results in both our target countries and the other Arab countries. ”

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

“ Several programs, especially funded by EU, focusing on issues related to water management are currently under implementation in the Mediterranean region involving Arab countries. Among them, the ENI CBC MED programme promotes the cooperation between the countries of the two Mediterranean shores with different goals such as encouraging the use of non-conventional water especially for agricultural purposes to reduce the pressure on fresh water. This action will lead to introduce in the water sector innovative solutions and best practices aiming at mitigating the water security issues that affect the Arab region. ”

How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?

“ The development of key water-related sectors to achieve water security needs to a continue dialogue at international level among decision-makers, technician and researchers to share knowledge, best practices and policies. Relevant events such as the AWF create the opportunity to feed this dialogue. ”

What recommendations would you give suppliers hoping to support the regions water-related sectors (locally and regionally)?

“ As a researcher, I think that water suppliers should be more linked with universities and research centres which test at pilot scale innovative techniques and technologies aimed at a more sustainable water management, especially in water scarcity conditions. The identification and transfer of best practices based on the research results could increase the capacity of water suppliers both in terms of technique and governance. Regionally, these best practices should be translated into common water policies by considering water resources as a common good to be protected and possibly managed in an integrated way. ”

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

“ Considering that groundwater represents, not only in Arab countries, the most used water resource to meet the water demand for the different uses and more and more frequently aquifers are experiencing depletion and degradation problems due to over-exploitation, Managed Aquifer Recharge (MAR) techniques could be considered as key solutions towards a more sustainable water management. Especially in arid environments, MAR systems (e.g. recharge wells, recharge trenches) could be implemented within the wadis to capture surface water flowing after irregular and intense rainfall events and increase the infiltration and the aquifer recharge. Otherwise, this water resource is usually lost due to evaporation processes. MAR could be developed also by using non-conventional water as recharge water. NCW such as treated wastewater is the key to reduce the pressure on fresh water especially for irrigation purposes which represents the most water consuming sector. For this reason, actions to implement innovative and low cost tertiary treatments in existing wastewater treatment plants allow to increase the quality of the TWW to make it more suitable for the reuse in agriculture also through more efficient irrigation trains. ”

ABOUT THE SPEAKER



Dr. Tarek Kotb

Lead Global Technical Specialist
Water and Rural Infrastructure
The International Fund for Agricultural Development, IFAD
t.kotb@ifad.org

In his current capacity, Dr Tarek Kotb assists the IFAD member countries in their efforts to design and implement programmes with water and rural infrastructure components. Previously, he served IFAD as Country Director for Sri Lanka, Nepal, Moldova, Azerbaijan, Lebanon, Syria, Jordan and Libya.

Dr Kotb has extensive experience in the design and implementation of over 52 agricultural and rural development programs and projects benefiting hundreds of thousands of smallholder farmers and producers, particularly youth and women. Through these interventions, he has been applying a theory of rural transformation

anchored around community mobilization, income-generating activities, partnerships with the private sector, resilience to natural and human-induced crises, as well as enhancement of social cohesion. His international experience in water resource management and rural development incorporates wide-ranging work in several countries in Africa, South Asia, Near East, Central Asia and Europe. In this context, he pioneered a labour-intensive approach to secondary canal maintenance as part of a social development initiative. In addition, he has spearheaded a number of initiatives, resulting in the adoption of an integrated water sector-wide planning and development model, with a distinct focus on Water User Associations' involvement.

Before joining IFAD in 2014, Dr Kotb served as First Assistant to the Minister of Water Resources and Irrigation of Egypt (MWRI) – the second senior ministerial position responsible for mega projects, irrigation improvement projects and the national water resources plan. He also served the World Bank as Water Resources Management Specialist in the Near East and North Africa Region.

Dr Kotb holds a Ph.D. in Water Resources Management and Environmental Engineering from Osaka University (Japan), M.Sc. in Irrigation Engineering from Southampton University (UK) and a B.Sc. in Civil Engineering and Public Works from Ain Shams University (Egypt). He is the author and co-author of 22 research papers published in international and national journals on subjects related to effective water use as well as agricultural and rural development. He is awardee of a number of national and international awards among which the 2009 FAO Improved Institutional Quality & Enhanced Impact on Food Systems Award.

INTERVIEW CONTENT

Dr. Tarek Kotb

Lead Global Technical Specialist
Water and Rural Infrastructure
The International Fund for Agricultural
Development, IFAD

Please tell us a bit about yourself and your role at the International Fund for Agricultural Development?

“ I am water, irrigation and rural development expert with more than 33 years of experience with international organizations, governments and consulting firms. I have extensive experience in the design and implementation of over 52 agricultural and rural development programs and projects benefiting hundreds of thousands of smallholder farmers and producers, particularly youth and women. Through these interventions, I have been applying a theory of rural transformation anchored around community mobilization, income-generating activities, partnerships with the private sector, resilience to natural and human-induced crises, as well as enhancement of social cohesion. My international experience in water resource management and rural development incorporates wide-ranging work in several countries in Africa, South Asia, Near East, Central Asia and Europe. In this context, I pioneered a labour-intensive approach to secondary canal maintenance as part of a social development initiative. In addition, I have spearheaded a number of initiatives, resulting in the adoption of an integrated water sector-wide planning and development model, with a distinct focus on Water User Associations' involvement.

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I have served IFAD as Country Director for Sri Lanka, Nepal, Moldova, Azerbaijan, Lebanon, Syria, Jordan and Libya.

In my current capacity as the Lead Global Technical Specialist, Water and Rural Infrastructure, I assist the IFAD member countries in their efforts to design and implement programmes with water and rural infrastructure components. ”

What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“ The added value of the AWF is in bringing together the policy makers and practitioners in the water sector. AWF is helping them achieve collective action and maximize synergies to facilitate the development of solutions when it comes to sustainable water management in the Arab region. In a nutshell, AWF is helping bridge the science-policy, and importantly operations interface together in a workable model, which is building on effective partnerships.

In particular, the Near East and North Africa region is characterized by scarce water resources, a growing population, competition between development sectors and increasing poverty, especially in rural areas where the population is largely dependent on agriculture. To help to break these challenges, IFAD has developed a cost-effective, people-centred and partnership-oriented approach that delivers results. Small-scale agriculture is central to our development model, which connects farmers and poor rural women and men to markets and services so they can grow

more and earn more. IFAD-supported projects have shown that – with access to finance, markets, technology and information – rural people can lift themselves out of poverty. But our work does more than help rural people grow and earn more. It also promotes gender equality and inclusiveness, builds the capacity of local organizations and communities, and strengthens resilience to climate change. By advocating for poor rural people and financing projects that transform rural areas, our work is critical to the achievement of the 2030 Agenda for Sustainable Development. I look forward to representing IFAD in the Arab Water Forum and contributing further to a productive and fruitful exchange. ”

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

“ By supporting smallholders to grow and produce food crops as well as cash crops to increase their incomes, IFAD has developed a number of cost-effective interventions tailored to meet the needs of these groups. These include water harvesting techniques, water storage and efficient use of water for irrigation and post-harvest production. This has been developed along the water-food-energy nexus where renewable energy plays a critical role in newly developed as well as rehabilitated smallholder projects. ”

How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?

“ An important aspect is the management and transfer of knowledge between countries in the region, in particular initiatives related to the acquisition and efficient use of water. There was, for example, an experience with irrigation improvement projects, which were replicated with site-specific adaptation in Egypt and Yemen. Another essential aspect is the close collaboration between development partners to increase the aid effectiveness in terms of mobilizing the resources and promoting new sources of funding required for reaching the scale and ensuring diversification of technological solutions. ”

What recommendations would you give suppliers hoping to support the regions water- related sectors (locally and regionally)?

“ Private sector suppliers play a crucial role in tailoring cost-effective technological solutions to smallholder farmers, especially in micro-irrigation and renewable energy. In my opinion, an improved integration of the existing private actors in the chain of service provision is needed. On the one hand, suppliers would need to demonstrate a proven track record in functional irrigation and energy packages. On the other hand, the private sector must play a partner role for farmers, governments and international organizations, rather than just being a supplier. This will allow for a greater integration at a cost of an introductory piloting only, before standing to benefit from a wider distribution and marketing of its more developed technology packages. ”

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

“ There is a wide range of choices when it comes to water infrastructure. Nevertheless, it’s crucial to get the right type of infrastructure in place, which is efficient, climate-smart, resilient and financially sustainable. Demand will continue to increase for water harvesting (including from house roofs and greenhouses), as well as for efficient water storage and distribution facilities. Most importantly, water infrastructure should also allow for smarter water use, as well as the integration of renewable energy technologies. Upgrading and extending service coverage has financial implications, as this will inevitably incur additional operating and maintenance costs among other costs. Therefore, this type of infrastructure development will need to be based on a cost-sharing mechanism between small producers and governments, while operation and maintenance costs will need to be fully funded by organized farmer groups. All development initiatives should also ensure that exit strategies are in place with established legislations for financing operation and maintenance, thereby ensuring infrastructure sustainability. Incentives can be given to farmers who install efficient and water-saving techniques as well as renewable energy technologies. However, it is crucial that the choice of technology, not only has to match the technical considerations but also financial viability. ”

ABOUT THE SPEAKER



Dr. Roula Khadra

International officer,
Senior researcher and Science coordinator,
CIHEAM-Bari,
Rural engineer, Land and Water Resources Management

International officer, Senior researcher and Science coordinator at CIHEAM-Bari, rural engineer with a M.Sc. in Land and Water Resources Management, a Ph.D. in Mediterranean Agriculture, and a Fulbright Post-Doc Fellow at UC Davis (2008). She published one book and several scientific papers and reports pertaining to her main research that integrates rehabilitation and modernization of irrigation systems and schemes, technology development and transfer with a focus on water quality, water-energy nexus, and accountable, transparent, inclusive, and responsive governance. This includes strategic planning, modelling, design, and

implementation of national participatory irrigation management and transfer programs, development of integrated technological and management solutions and DSS for irrigation and water distribution, monitoring and evaluation systems, and dissemination and outreach frameworks.

Involved in and leading several Research and Cooperation projects, Dr. Khadra has intensively worked in the last 20 years in the Mediterranean Region and on the international arena, establishing stable partnerships for Research and Innovation, comprising an active membership as CIHEAM representative in CMI-Water hub, and as a CIHEAM-Bari representative at the Arab water Council board of delegates.

INTERVIEW CONTENT

Dr. Roula Khadra

International officer,
Senior researcher and Science coordinator,
CIHEAM-Bari,
Rural engineer, Land and Water Resources Management

Please tell us a bit about yourself?

“ International officer, Senior researcher and Science coordinator at CIHEAM-Bari, rural engineer with a M.Sc. in Land and Water Resources Management, a Ph.D. in Mediterranean Agriculture, and a Fulbright Post-Doc Fellow at UC Davis (2008). She published one book and several scientific papers and reports pertaining to her main research that integrates rehabilitation and modernization of irrigation systems and schemes, technology development and transfer with a focus on water quality, water-energy nexus, and accountable, transparent, inclusive, and responsive governance. This includes strategic planning, modelling, design, and implementation of national participatory irrigation management and transfer programs, development of integrated technological and management solutions and DSS for irrigation and water distribution, monitoring and evaluation systems, and dissemination and outreach frameworks.

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What are you most looking forward to at the 5th Arab Water Forum? What is the added value brought by the Arab Water Forum specifically?

“ It is well stated that water resources and water security in the Arab region are in a critical situation. In a region where shared water resources represent two thirds of its total fresh water with additional stressors including: prominently climate change impacts, population trends, conflict and refugees, etc. regional integration and cooperation is a must. Within this raging sea the 5th Arab water forum could be one of the lifeboats through providing a regional dialogue platform on all levels and for multiple stakeholders (politicians, professionals, youth, private sector, NGOs) with the aim of promoting a regional development perspective that could be evolved into a resources optimization regional strategic planning. ”

A key focus of the event is to deliberate and find solutions to the key water challenges facing the Arab region. What are the key initiatives, and/or programs in the region that you believe are best aiding water security and enhancing sustainable development within the sector?

“ Coming from a research/educational background, I believe that promoting regional educational programs and regional scientific research is an important milestone in the regional integration path. Fostering cooperation between the Arab youth could significantly develop a new state of mind when addressing regional challenges such as water scarcity and water security to come up with regional solutions - and more importantly - have the capacity and the will to implement them.

Providing the regional tools necessary for regional scientific research such as data acquisition platforms and data sharing protocols is another role expected from any regional forum. In the Arab region, there is a lot of common heritage and public acceptance for regional integration, which is waiting to be invested in, such opportunity lacks in other regions. ”

How do you foresee the regions' nations as well as global partners working together to develop key water-related sectors? What are some of the requirements for mobilizing these nations towards achieving water security?

“ It's worthy to mention that, without the political will to promote and fund regional cooperation bodies, programs, and platforms in the water sector, it's difficult to expect significant improvements. However, one fundamental role of the council and its partners, is to mainstream efforts in this direction and to engage for demonstrating and mitigating the severe impacts that a lacking cooperation is having on the economy, social stability, national and regional security. ”

What recommendations would you give suppliers hoping to support the region's water- related sectors (locally and regionally)?

“ Water supply service providers differ from each other in terms of their geographical coverage, their sectoral coverage, their ownership structure, and their governance arrangements. All of them are more than recommended to stay on a sustained improvement track, leading best practice, embracing an Integrated Water Resource Management perspective, and acting as main agents of development for attaining the SDGs.

At Regional level, supporting and engaging through initiatives and programs with the AWC, a strong voice to face the regional challenges, fully committed to developing regional strategies and inform policies, building human and institutional capacities, enhancing sharing of technical expertise, and investing in Youth, is the main and most inclusive channel to impact the region's water-related sectors and make a substantial difference. ”

In your opinion, what are the key technologies and systems to increase water infrastructure and aid in sustainable development for the sector?

“ With the fourth industrial revolution multiple technologies could revolutionize the water resources management in the Arab region, from the advances in remote sensing and image processing by machine learning algorithms, to IoT sensors and 3d printing. However the main challenge when it comes to a new technology is the capacity building and social adoption.

One of the highly potential key technological development programs (technology- capacity building- social adoption) for the Arab region is the use of low cost IoT sensors in the agricultural sector for a better water management along with sustainable meshed data flow. ”



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