Radwan A. Al-Weshah, Ph.D.

Professor of Civil Engineering, and Former Dean of Scientific Research, the University of Jordan, Accredited Senior Technical Consultant/International Expert Water Resources, Flood Protection, Hydrology and Environmental Engineering

Links:
https://www.researchgate.net/profile/Dr_Radwan_Al-Weshah
https://scholar.google.com/citations?user=EHGaZQoAAAAJ&hl=en
https://web.facebook.com/Dr.Radwan.alweshah

CONTACT DETAILS:

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PERSONAL DATA:

Place and date of birth: Salt-Jordan, November 6, 1957
Marital Status: Married with children

SUMMARY OF KEY QUALIFICATIONS:

Dr. Al-Weshah is a senior academic leader, professional technical consultant and devoted educator in hydrology and water resources engineering. He has a diverse and progressive experience in engineering analysis, modelling in hydrological studies of floods and flood risk mapping, and design of major hydraulic structures. He has proven leadership skills and technical experience in the following areas:

i. Academic and Technical Skills

Dr. Al-Weshah has a Ph.D. in Civil Engineering - Hydrology and Water Resources, University of Illinois at Urbana-Champaign (one of the top schools in Civil Engineering in the world), USA, May 1993, with GPA= 4.00/4.00.

Currently, he is a professor of Civil Engineering at the University of Jordan and Former Dean of Scientific Research at the University of Jordan. He Accredited Senior Consultant in Water Resources and Environmental Engineering. He has developed key international academic, professional, and managerial reputations in the area of Civil Engineering-water resources, hydrology/hydraulic and environment in the past three decades. He organized and chaired many scientific international and regional conferences.

Dr. Al-Weshah is the Co-Chairman of the Scientific Research Board at the University of Jordan and the chairperson of many high-rank academic and scientific committees in the University of Jordan and other institutions in Jordan. He is the former Editor-in-Chief of three scientific journals published by the University of Jordan namely: Dirasat Journal of Human and Social Sciences, Refereed Journal (SCOPUS), Dirasat Journal of Educational Sciences, Journal of Law and Religious Sciences. His achievements to enhance the scientific research in securing external funding and increasing the well cited publications in prestigious refereed journal have been highly acknowledged and appreciated by faculty and researchers at the University of Jordan and abroad.

Dr. Al-Weshah is a trained professional in curriculums development, modern instructional and teaching methods, career development, and learning outcomes evaluation. He set the plan for

the faculty to prepare course portfolios for each course according to ABET requirement. He served as a member in key academic committees for academic plans evaluation and development, course learning outcomes, and serve as chair of the promotion committees for many faculties at the University of Jordan and abroad.

Dr. Al-Weshah was elected with landslide as member of the Board of Civil Engineering at the Jordan Engineers Association 2018-2022. He was elected by engineering faculty to represent the school of engineering to the University of Jordan Higher Council for two times. He is an active researcher who produces more than 50 technical publications in top international refereed journals, conferences, studies and technical reports. He supervised more than 45 student theses at Master and PhD levels at different universities He serves as a reviewer of several ISI journals. He was also an adjunct professor of Engineering at the Australian College in Kuwait and Brigham Young University in USA.

ii. Experience in Hydrological Studies, Storm Drainage and Flood Control, Dams and Hydraulic Structures Design (1992-present)

- Dr. Al-Weshah has been the Technical Team Leader, chief hydrology/hydraulic expert and modeller for the Saudi Railway (SAR) North Track of 2700 km long with 2800 culvert and more than 20 bridges, (2019-ongoing) with estimated budget of 2.5 million US$. The project includes two phases. Phase I includes full assessments of the existing hydraulic structures based on detailed hydrologic and hydraulic analysis. Phase II includes proposed all feasible mitigation and remediation measures to safely pass the design flood as well as all necessary erosion-scour protection works. He uses the Watershed Modeling System (WMS, version 11.04, 2020) software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah has been the chief hydrology/hydraulic expert and modeller for the Petra Water Harvesting and Hydrological Studies for with Petra Development and Tourism Region Authority (2019-ongoing). The project includes full assessments-rehabilitation and upgrading of the existing hydraulic structures based on detailed hydrologic/hydraulic analysis and design with all necessary erosion-scour protection works. He uses the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah has been the chief hydrology/hydraulic expert and modeller for the Karak Kings Road Highway (2019-ongoing). The project includes full assessments-rehabilitation and upgrading of the existing hydraulic structures based on detailed hydrologic/hydraulic analysis and design with all necessary erosion-scour protection works. He uses the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah was the chief hydrology/hydraulic expert and modeller for the flood analysis and protection works for the Enviromena-Masdar PV projects in different parts of Jordan. He used fully the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design for inlet structures, spillways, and energy dissipaters.
- Dr. Al-Weshah led the UN World Food Programme (WFP), flood hazard map for Jordan in June 2019. He trained the team and led the development of the flood hazard map at the district and governorate level through integrating the Watershed Modelling System (WMS)

outputs with GIS spatial analysis tools. https://www.wfp.org/publications/2019-flood-hazard-map-jordan

- Dr. Al-Weshah was the chief hydrology/hydraulic expert and modeller for the flood analysis and protection works for the Lavarge PV projects in different parts of Jordan. He used fully the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah was the chief hydrology/hydraulic expert and modeller for the flood analysis and protection works for the Sterling-Wilson PV projects in different parts of Jordan. He used fully the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.

- **Dr. Al-Weshah was the chief hydrology/hydraulic expert and modeller for the design of dams in Jordan and abroad including:**
  - Dr. Al-Weshah is the chairperson of the Jordan National Dams Committee appointed by the Prime Minister of Jordan since 2020.
  - Chief hydrology/hydraulic expert and modeller for the Design of Small Dam on Wadi Essal of 3.1 MCM capacity near Karak City (2017-2018). He used fully the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design for inlet structures, spillways, and energy dissipaters.
  - Wadi Mujib Dam, Jordan: Perform hydrologic/hydraulic analysis and design of major elements of this project. It is 35 MCM capacity, 62 m high above ground, RCC dam with earthfill abutments and clay core. The studies include hydrologic analysis of the wadi, modelling of rainfall runoff events, and spillway and outlet channel design. Its capacity is about 35 MCM. Studies on the Al-Mujib Weir were conducted to predict future flooding scenarios using state-of the-art numerical modelling.
  - The Adassiya Weir and Dam, Jordan: Perform hydrologic/hydraulic analysis and design of major elements of these project including spillway and outlet channel design. It is a concrete gravity diversion weir across the Yarmouk River, Jordan. The weir is 120 m long, with an uncontrolled overflow ogee crest spillway for 1,000 m^3/s, and a 23 m^3/s diversion capacity;
  - Studies, design and rehabilitation of several small dams in Algeria, Lebanon, and other countries.
- Dr. Al-Weshah is chairing the Ministry of Public Work and Housing to develop Flood Hydrological Studies Design Manual and Code for Jordan (2019-ongoing).
- Dr. Al-Weshah is chaired the Amman Chamber of Commerce Technical Committee to investigate the flash flood crisis in the Amman Downtown Area (March 2019). He prepared a full report on Amman Flood 2019 about this event

  See links (https://www.youtube.com/watch?v=eGGEU7EIQgw; https://www.youtube.com/watch?v=aR-t4OkBt2Q).

- Dr. Al-Weshah is chaired the Ministry of Justice Technical Committee to investigate the flash flood crisis in the Zarqa Maeen near the Dead Sea (October-November 2018). He prepared a comprehensive model and report about this flood which was broadcasted on TV and media in a press conference in Amman

(https://www.youtube.com/watch?v=G5hUrpdqB-U; https://www.roya.tv/videos/51609).

- Dr. Al-Weshah was the chief hydrology/hydraulic expert and modeller for the 26 Coastal Wadis Flood Control Project in the City of Aqaba (2018-2019). This project covers the development of flood analysis and design for three roads in Aqaba with total length exceeds 100 km. There was 152 hydraulic structures on these wadis that they were investigated and upgraded as needed including bridges, culverts, check dams and open channels. He used fully the WMS (version 11, 2019) software for hydrology analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah prepared hundreds of hydrology/hydraulic studies for many projects in Jordan and abroad for top firms in at national and international levels. These project covers the development of flood analysis and design, hydraulic structures design, flood protection and diversion works, storm water drainage, flood plain management, scour protection works, and watershed management tools. He used fully the WMS (version 11, 2019) software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.
- Dr. Al-Weshah chaired many high-level national investigation committees on flash flood and storm water drainage in Jordan in which his studies have been very appreciated and respected by all stakeholders.
- With Dar Al-Handasah (1996-2000), Dr. Al-Weshah was the lead hydrology and hydraulic analysis and design for storm water drainage works for the Rabigh-Qassim Al-Madinah Freeway, Saudi Arabia. He performed hydrologic/hydraulic analysis and design of major wadi crossings, culverts, scour protection and other drainage work design for this freeway which is more than 800 km long. He also lead the team to perform storm drainage works and structures for the Riyadh City Ring Road in Saudi Arabia. All his works are highly appreciated by the clients, partners and other stake holders.
- With Dar Al-Handasah (1996-2000), Dr. Al-Weshah was the lead hydrology and hydraulic analysis and design for storm water drainage works and flood protection for Petra City in Jordan. He performed hydrologic/hydraulic analysis and design of watershed management and flood protection works for this important historical city. He published his work in one of the top journals in this area. *ASCE Journal of Water Resources Planning and Management*, Volume 125 No. 2 May/June issue 1999. http://dx.doi.org/10.1061/(ASCE)0733-9496(1999)125:3(170)
- With UNESCO, Dr. Al-Weshah (2003) co-edited a major reference on ***Hydrology of Wadi Systems*** published by UNESCO, Paris as Technical Documents in Hydrology, No. 55 (162 pages). https://unesdoc.unesco.org/ark:/48223/pf0000127229. He authored a major chapter in this Technical Document on "**Rainfall-runoff analysis and modelling in wadi system"** pp.87-113.

iii. Management and Leadership Skills

Dr. Al-Weshah led and managed many mega projects with diverse teams in his professional career from 1994-present such as:

- Chairperson of the Jordan National Dams Committee appointed by the Prime Minister of Jordan since 2020.
- Chairperson of the Institutional Review Board for Research at the University of Jordan 2019-2021.
- Chairperson of the Journal and Conferences Accreditation Committee at the University of Jordan 2019-2021.

- Chairperson and team leader for many high-rank technical committees related to flood management, hydrologic studies and water resources engineering.
- Chairperson and team leader for many high-rank academic committees related to scientific research, research projects, journal accreditation, and other scientific boards.
- In Jordan, during 2015-Present, as a senior consultant Dr. Al-Weshah led many teams in governmental agencies, high-rank committees in the area of higher education accreditation and quality assurance, scientific research funds, professional career development. He is an elected board member of the Jordan Engineers Association and elected member for two times at the University of Jordan Council representing more than 150 faculty members in the school of engineering. He conducted research works and supervised master theses in Non-Revenue-Water Management and contemporary water resources management issues.
- In Kuwait, KNFP, during 2012-2016, Dr. Al-Weshah led the Groundwater Remediation Project for a budget of about 41 million dollars and led the preparation of the strategic plans, detailed action plans, monitoring scheme, and the TORs for project tendering. He coordinated the efforts of all local and international consultants, contractors, stakeholders and governmental agencies.
- In UNESCO, during the period 2000-2010, he led and managed regional mega projects in the Arab Region and the Nile Basin with total budget of more than 10 million dollars funded by UN system, EU, Government of Japan, and others. He led these projects with diverse multinational teams exceeding 100 professionals. The impact of these projects were highly appreciated by all stakeholders, partners and donors.
- In Jordan, during the period 1994-2000, he was the associate director of the Water and Environment Center at the University of Jordan, in which he led and managed many project with a budget exceeding 1.2 million dollars of external funding from UN, USAID, and EU. He led teams of more than 20 professional and achieved the project tasks and objectives with full appreciation from the clients and funding agencies.

iv. Industrial Skills

- Dr. Al-Weshah led and managed multi-million dollars of international, regional and national projects in natural resources management and water resources in the Middle East and North Africa. This includes major water engineering projects, studies on integrated water resources management (IWRM), Non-Revenue Water (NRW) management, cooperative research between south-south and south-north institutions, institutional and human resources capacity building. His experience covers engineering analysis and design of major water and hydrology infrastructures projects, dams, sedimentations, waste and resources management, integrated water resources management in arid regions, climate change risk and adaptation management in water resources, water policy and reform, wadi theoretical and experimental hydrology, groundwater protection, land fill management and water use ethics. He served as a leading senior design engineer in major international consulting firms in highways/infrastructures engineering and dams projects including hydrologic/hydraulic analysis and design, water distribution systems, rainfall storm drainage and management, flash flood protection and flood mitigation, He performed GIS-based hydrologic modelling, flood and sediment control and mitigation measures for several projects and dams in Jordan and abroad using state of the art software packages. These projects were implemented in Kuwait, United States, Saudi Arabia, Egypt, Algeria, Jordan, Oman, Lebanon and Sudan. He is serving as a member in a high-rank Committee to develop a Hydrology and Highway Codes and Manual for the Government of Jordan, member of the governing board of the Arab Water Council, and member of the Prince Sultan International Prize on Water. He has been elected with landslide votes in the Jordanian Engineers Association Board for 2018-2021.

- Dr Al-Weshah has served a Senior Technical Consultant several leading international firms and bodies like Kuwait National Focal Point for Environmental Projects; he manages and supervises the implementation the Kuwait Environmental Remediation Program (KERP). This program encompasses a group of projects awarded to the State of Kuwait by the United Nations Compensation Committee for the remediation of environmental damages and their impact on water resources caused by the Gulf War. He is taking the lead in managing and monitoring the groundwater remediation project in North Kuwait with a value of about 41 Million USD.

- For the period 2000-2010, Dr. Al-Weshah was the Regional Water Program Director in UNESCO for the Arab Region and the Project Director for the extra-budgetary of about ten-million dollars UN projects. His duties include planning and managing projects, writing proposals for external funding, preparing work plans, reviewing the execution and implementation projects. He was the project coordinator and director the UNDP-MDG Spanish Achievement Funds on Climate Change Risk Management and many other regional projects. He is a principle author of the international book *Water for Future* published by the United State National Academy Press in 1999. He is supervising the *Arab Network on Wadi Hydrology and the Arab Network on Groundwater Protection*, and a co-editor and a contributor to several UNESCO-IHP technical documents on *Hydrology of Wadi Systems, Groundwater Protections, Integrated Water Resources Management, Water Use Ethics, etc*.

v. Communication and Interpersonal Skills

Dr. Al-Weshah has outstanding academic records at all schooling levels; he was one of the top students in his classes from primary school to graduate studies. He has excellent written, oral communication and presentation skills as well as other interpersonal skills. He has the ability to communicate effectively and persuasively with policy makers and other stakeholders. He is a diligent and committed professional who can lead, mentor, coach and motivate his team towards high performance focusing on impact using results-based management and reporting. He can perform well with high spirit under pressure and strict deadlines and demonstrates ability to manage complexities with wise professional judgement.

Dr Al-Weshah has excellent knowledge of the UN, USAID, and EU system policies and procedures. He received advanced formal training in strategic planning, result based management, water diplomacy and negotiation, time and stress management, team building and mobilization, effective leadership skills, and security training.

Dr. Al-Weshah has very active networking skills with different key professionals, academic and research institutions, community leaders, and many public figures in the Arab region. He has more than 5000 professional friends on his Facebook and LinkedIn networks. Dr. Al-Weshah, has demonstrated skills of positive attitude and pleasant tolerant character that is respectful, sensitive communication with people who are diverse in their cultural, ethnic backgrounds and abilities

EDUCATION:

Postdoctoral Researcher, Illinois State Water Survey-Surface Water Division, Office of Watershed Management, Sediments and Wetlands, Jan 1993-Dec 1993. Duties: conducting theoretical and experimental hydrological research in the areas of watershed management, flood hydrology and mitigation, sediment transport, and wetland hydrology and restoration.

Ph.D. Civil Engineering - Hydrology and Water Resources, University of Illinois at Urbana-Champaign, USA, May 1993, (GPA= 4.00 out of 4.00).

M.S. Civil Engineering-Water and Irrigation Engineering, January 1989, University of Jordan, Amman, JORDAN, (Scholastic Evaluation: Excellent).

B.S. Civil Engineering, June 1981, University of Jordan, Amman, JORDAN, (Scholastic Evaluation: Excellent).

THESES:

Ph.D. Thesis: "Reliability of Integrated Municipal Water Systems: Implications of Drought," University of Illinois at Urbana-Champaign, 1992.

Master Thesis: "A Contribution to the Total Sediment Load Transportation," The University of Jordan, Amman, 1989.

I. ACADEMIC AND RESEARCH EXPERIENCE:

Dean of Scientific Research (2019-2021), The University of Jordan in Amman, JORDAN. Duties: Leading the Deanship for supporting scientific research as it is a mean of progressing and technological development and contributing to publishing the scientific knowledge.

The missions and responsibilities of the Deanship of Scientific Research are:

- Funding scientific researches presented by researchers from inside and outside the university through partnership, cooperation and networking with national and international institutions and funding agencies.
- Promoting publishing original research, studies, books, and scientific translations.
- Issuing Scientific Journals called *Dirasat*; a refereed international scientific journal, that publishes in three fields: *Educational Sciences, Shari'a and Law and Human & Social Sciences*. Dr. Al-Weshah is the Editor-In-Chief for these journals.
- Issuing and publishing the Jordan refereed international journals in cooperation with the Ministry of Higher Education and Scientific Research in seven fields: *Medical Jordan Journal, The Jordan Journal of Pharmaceutical Sciences, Jordan Journal for Agricultural Sciences, Jordan Journal for Business Administration, Jordan Journal for Social Sciences, Jordan Journal for History and Archaeology*.

His achievements to enhance the scientific research in securing external funding and increasing the well cited publications in prestigious refereed journal have been highly acknowledged and appreciated by faculty and researchers at the University of Jordan and abroad.

Professor (2016-present), Civil Engineering Department, the University of Jordan in Amman, JORDAN. Duties: teaching Engineering Hydrology, Hydraulics and Fluid Mechanics, Environmental Engineering and other Civil Engineering courses for undergraduate students, and teaching graduate advanced courses in Surface Hydrology, Groundwater Hydrology, Flood Hydrology, Hydraulics and Water Resources for graduate students in the Faculty of Engineering and the Faculty of Agriculture. Supervise graduate students theses and graduation projects. Research and consultancy areas cover integrated water resources management, hydrology of desert and arid areas, shared water resources management, optimization of water systems, flood and drainage studies, groundwater recharge and water harvesting studies, design of water networks, small dams, storm water drainage system, and hydraulic structures. He also

taught general civil engineering courses like statics, strength of material, applied statistics and probability in engineering, and numerical engineering methods. He serves in several national and international academic, technical and administrative committees and councils.

Chairman of the Civil Engineering Department and Associate Professor, Civil Engineering Department, the Middle East University for Graduate Studies in Amman, JORDAN (from February to September 2010). He helped in establishing a recognized Civil Engineering Department as a centre of excellence in the region. Duties: Managing the Civil Engineering Department professors and staff, ensure high-quality academic environment for students, teaching various Civil Engineering courses such as fluid mechanics, hydraulics, hydrology, surveying, and strength of material. He was conducting research, consulting and providing community services. His management and teaching effectiveness evaluation by student was rated excellent

Visiting Professor, Civil and Environmental Engineering Dept. Brigham Young University (BYU), Utah, USA (Summer 2003 and Summer 2005). Duties: teaching hydrology course, organizing international workshops and public seminars, examining graduate students theses and projects as well as helping in the development of the water resources applications using the software developed by BYU like WMS, GMS and SMS. His teaching effectiveness evaluation by his student was rated excellent.

Associate Professor (2000-20015), Civil Engineering Department, the University of Jordan in Amman, JORDAN. (Duties: same prof. as above).

Assistant Professor, Civil Engineering Department, the University of Jordan in Amman, JORDAN, September 1994 to March 2000 (duties, same as above).

Head of the Environment and Water Section, Civil Engineering Department, the University of Jordan in Amman, JORDAN, September 1996 to June 2000. Duties: supervising and coordinating the work of the fluid mechanics, hydraulic, environmental and water section in the Department of Civil Engineering including all administrative, academic and teaching activities for the undergraduate and graduate levels, as well as supervising and managing the labs.

Associate Director and Researcher, the Water and Environment Research Center (WERC), the University of Jordan, January 1995 to June 2000. Duties: Formulation and implementation of research projects in the area of hydrology and water resources and providing specialized consulting services through the University of Jordan and WERC. Examples of the ongoing research projects: the Azraq Oasis water resources studies and surface water modeling, the arid land JAZPP hydrology study, the Jordan Desert hydrology modeling, artificial recharge of groundwater aquifers, the rainfall forecasting, the water harvesting in the Upper Yarmouk basin, the international course on wadi hydrology, and many technical training materials and workshops in water resources and hydrology.

Associate Researcher, Illinois State Water Survey, USA, Office of Sediment & Wetland Studies and Water Resources Center, University of Illinois, Urbana-Champaign, Illinois, December 1992 to Jan 1993. Research areas include hydrologic and hydraulic modeling of wetlands, stormwater management and flood control, and hydrologic response to changes in climate; land use; shared water resources management; and Middle East water resources.

Graduate Research and Teaching Assistant, Civil Engineering Department, Hydro-systems, University of Illinois at Urbana-Champaign, USA, July 1990 to December 1992. Duties: research and teaching in water resources planning and management, design of storm sewers and water distribution networks, water systems performance and rehabilitation and drought-risk analysis.

Graduate Research Assistant, Illinois State Water Survey-Hydrology Division, Office of Sediment and Wetland Studies, University of Illinois at Urbana-Champaign, August 1989 to December 1992. Duties: research in modelling of hydrologic systems, watershed analysis, wetland hydrology, climate change risk management on water resources, and sediment transport studies.

Lecturer, Civil Engineering Department, the University of Jordan in Amman, JORDAN, February 1984 to August 1989. Duties: teaching Hydrology, Hydraulics, Surveying, and Fluid Mechanics for undergraduate Civil Engineering students, as well as supervising and maintaining the Fluid Mechanics, Environment and Hydraulics Lab.

Part-time Lecturer, Civil Engineering Department, the University of Jordan in Amman, JORDAN. September 1981 to June 1984. Duties: Lecturer in Land Surveying, Hydrology, Fluid Mechanics and Hydraulics.

II. WORK HISTORY PERTINENT TO THIS RESUME:

PROFESSIONAL CONSULTING AND MANAGEMENT EXPERIENCE:

Team Leader for the Monitoring and Evaluation Project (on part -time basis), for Enhancing Jordan Civil Defence Services implement by Expertise France and funded by AFD 2021-2023.

Chairperson of the Jordan's Dam Committee (2019- present): Dr. Al-Weshah has been appointed by the Prime Minister of Jordan as the Chairperson of the Jordan's National Dams Committee, the committee that consists of several key experts to provide technical advice to the Ministry of Water and Irrigation related to Dams in Jordan.

Team Leader for Dam Flood Risk Analysis (on part -time basis),**:** Dr. Al-Weshah performed flood risk analysis and management for dam-break modelling of Walaa Dam in Jordan. He developed a dam-breach model using 2D-Dynamic and unsteady flow modelling using HEC-RAS and other dam breach theories for both overtopping and piping failure scenarios.

Freelance Consultant and Senior Advisor (on part -time basis), 2015-Present for many governmental, public and private firms, research projects and case studies in Jordan and Abroad. The main focus of these project is to provide flood risk management, protection and mitigation for several infrastructures projects in Jordan and abroad.

Freelance Consultant and Senior Advisor (on part -time basis), 2015-Present for many governmental, public and private firms, research projects and case studies in Jordan and Abroad. The main focus of these project is on NRW management as part of integrated water resources management. The NRW studies suggested rehabilitation works, disconnection of redundant mains, replacement of pipes, pressure management, and continuous water audit to identify illegal and bad connection.

Technical Team Leader, Consolidated Consultants Engineering (on part -time basis), 2019-Present in Amman. Duties: Conduct in depth hydrologic/hydraulic analysis and design of Saudi Railway Agency (SAR) Project-North Track of 2700 km long with 2800 culvert and 20 bridges. The project includes two phases. Phase I includes full assessments of the existing hydraulic structures based on detailed hydrologic and hydraulic analysis. Phase II includes proposed all feasible mitigation and remediation measures to safely pass the design flood as well as all necessary erosion-scour protection works with total project budget of 2.5 million USD.. He uses the Watershed Modeling System (WMS, version 11.04, 2020) software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.

Technical Team Leader, Arabtic-Jardaneh Consulting Engineering (on part -time basis), 2019-Present in Amman. Duties: Conduct in depth hydrologic/hydraulic analysis and design for the Karak Kings Road Highway. The project includes full assessments-rehabilitation and upgrading of the existing hydraulic structures based on detailed hydrologic/hydraulic analysis and design with all necessary erosion-scour protection works. He uses the WMS software for hydrology analysis, 2D-unsteady flood dynamic modelling using HEC-RAS for hydraulic analysis and Bentley FLOWMASTER and CULVERTMASTER for hydraulic design.

Senior Consultant and Deputy Team Leader, Al-Mostaqbal Engineering (on part -time basis), 2015-Present in Amman. Duties: Conduct in depth environmental, hydrologic/hydraulic analysis and design of so many major projects including hydraulic structures and flood protection works. He served as team leader and key hydrologic/hydraulic designer of Wadi Esaal Dam in South Jordan, Aqaba Back Road storm water drainage, Tafilah industrial zone hydrology and hydraulic analysis and design, Zarqa Oil Refinery Highway storm water drainage analysis and design, Petra city hydrology/hydraulic analysis and design, and. Team leader for the GIS-Based Hydrologic Modeling expert for the Aqaba Development Company (ADC) 26 coastal wadis projects which includes flood control, sediment control and check dams of about 152 hydraulic structures. Team leader for the Petra water harvesting and hydrological studies project with Petra Development and Tourism Region Authority. With total project budget of 3 million USD.

Team leader (2016-Present on part -time basis), for several GIS-based hydrological studies and modelling projects which include storm drainage analysis and design for more than 25 PV solar fields in Jordan and abroad which includes flood control, diversion works and hydraulic structure design using best practices mitigation measures.

Senior advisor, Ministry of Public Work, 2018-Present. Duties: lead a team to develop a code and design manual for hydrological studies and flood risk control for Jordan.

Senior advisor, Petra District Development Zone, 2018-Present. Duties: review and evaluate the agency projects and development zones as well as providing technical consultancy services in the area of hydrology and water resources engineering.

Senior advisor, Greater Amman Municipality, 2018-Present. Duties: lead a team to develop a storm water master plan for Greater Amman City and to conduct hydrological studies and flood risk control for Jordan.

Senior advisor, to the President of the University of Jordan, 2018-Present. Duties: review and evaluate the development of new master plan for the Campus and providing technical consultancy services in the area of hydrology and water resources engineering.

Senior Technical Consultant, Kuwait National Focal Point for Environmental Projects, Kuwait (full time basis 2012-2016). Duties: supervise and manage the implementation of the Kuwait Environmental Remediation Program (KERP). KERP encompasses a group of projects awarded to the State of Kuwait by the United Nations Compensation Commission (UNCC Decision 258) for the remediation of environmental damages and their impact on water resources caused by the 1990-91 Gulf War. This project includes remediation of 25 million cubic meter of oil contaminated soils by various methods including landfills. Dr Al-Weshah is taking the lead in managing and monitoring the groundwater remediation project with a value of about 41 Million USD. More specifically his duties include:

- Planning and supervision of the implementation program; developing phasing plans and Term of References (ToR) for the remediation/restoration contracts; and setting terms for the Organizations Engaging Field Contractors (OEFC);
- Defining KERP's objectives, scope and requirements; and
- Prioritizing implementation of projects in close coordination with all stakeholders and respected governmental bodies.
- Evaluating and monitoring the project implementation with specific milestones, key performance indicators and deliverables.
- Preparing reports and briefing to respective bodies in Kuwait and in the UN system about the progress of the project focusing on results and impacts.

Senior Part-time Technical Consultant, University of Kuwait, Office of Consultation and Career Development. Environmental, social and health impact and assessment of Kuwait National Petroleum Mega Projects, 1 April 2015-30 August 2015.

Senior Part-time Technical Consultant, UN HABITAT, Assessment of Water Services for Selected Cities in Iraq 1 October 2011-30 March 2012.

Technical Reviewer and Key Evaluator for many USAID, World Bank, UN and other international water and infrastructures projects in the Middle East and North Africa.

Regional Hydrologist/ Water Program Director (full time basis), UNESCO Cairo Regional Office, Egypt, June 2000 to January 2010. Duties: responsible for planning, executing and implementing the UNESCO International Hydrologic Program (IHP) and Integrated Water Resources Management (IWRM) Plans and Policies in the Arab Region. His duties include planning projects, writing proposals for external funding, preparing work plans, supervising, monitoring, and reviewing the execution and implementation of IHP activities and extra budgetary projects in the Arab Region. He is coordinating the IHP activities with local, regional and international parties. The IHP activities include training, workshops and conferences, studies and research in the area of water resources, surface water hydrology, groundwater hydrology, environmental hydrology, sediment transport, water resources management and policy, strategic water planning, conflict resolution, water use ethics, eco-hydrology of drylands, as well as climate change mitigation and adaptation on water resources systems. Dr. Al-Weshah has been elected as a governor of the Arab Water Council based in Cairo for two terms (2006-2012) and he has served in many steering and high-level water committee and scientific bodies at the international and regional levels. He is a member of the evaluation board of the Prince Sultan Ibn Abdelaziz (of Saudi Arabia) International Prize on Water (PSIPW) since 2004. He was the founder and the chairman of the international wadi hydrology conferences held every two years since year 2000. He served as a keynote speaker in many prestigious international and regional forums and conferences. He provides policy advice to member countries on developing their water policy, strategies, and integrated water resources management options.

Project Director of:

- The UNESCO-Flanders FRIEND/NILE Project (Flow Regimes from International Experimental and Network Data (FRIEND) of the River Nile Basin. It promotes research, capacity building and networking between experts and policy makers in the Nile Basin Countries. This is a long-term cooperative project 2000-2010. An international conference chaired by Dr. Al-Weshah was organized during this project with more than 300 participants and more than 77 papers were presented. I was the key-author of the project final report.
- The Capacity Building in Water and Environmental Management in Palestine, a research and institutional capacity building project in the West Bank and Gaza to enhance the research, management and best practices of integrated water resources and environmental management in Palestine. This project started in 1999 and completed by the end of year 2008. An international conference chaired by Dr. Al-Weshah was organized during this project with more than 260 participants and more than 90 papers were presented.
- The Capacity Building of the Water Sector in Iraq, a UN-Trust fund project to restructure and enhance the human and institutional capacities of the water sector in Iraq with several tailored capacity building and training activities.
- Climate Change Risk Management on the Water Sector in Egypt, a UN-Trust fund project funded by the Spanish Millennium Development Goals Achievement Funds to enhance the country capacity to face different climatic change scenarios, adaptation and mitigation measures on the water resources sector. He provided similar backstopping to similar projects in Jordan and Morocco.

Senior Hydraulic/Hydrologic Structures Consultant and Drainage Engineer, Dar Al-Handasah (Shair and Partners) on part time basis 1995-2000 in Amman, Cairo and Beirut Offices. Conducted in depth hydrologic/hydraulic analysis and design of major hydraulic structures, dams and drainage works including:

- Petra City Flood Protection and Mitigation, Jordan: development of integrated watershed model for the catch and propose different flood control, flood mitigation, surface drainage and risk management measures;
- Wadi Mujib Dam, Jordan: Perform hydrologic/hydraulic analysis and design of major elements of this project. It is 35 MCM capacity, 62 m high above ground, RCC dam with earthfill abutments and clay core. The studies include hydrologic analysis of the wadi, modelling of rainfall runoff events, and spillway and outlet channel design. Its capacity is about 35 MCM. Studies on the Al-Mujib Weir were conducted to predict future flooding scenarios using state-of the-art numerical modelling.
- The Adassiya Weir, Jordan: Perform hydrologic/hydraulic analysis and design of major elements of these project including spillway and outlet channel design. It is a concrete gravity diversion weir across the Yarmouk River, Jordan. The weir is 120 m long, with an uncontrolled overflow ogee crest spillway for 1,000 m^3/s, and a 23 m^3/s diversion capacity;
- Studies, design and rehabilitation of several small dams in Algeria, Lebanon, and other countries;
- The Disi-Amman Water Conveyance System Jordan: Hydraulic analysis of the project, hydrologic investigation of the project corridor of 300 km long, design of flood mitigation and flood protection works for the project;

- The Rabigh-Qassim Al-Madinah Freeway, Saudi Arabia: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and other drainage work design for this freeway which is about 800 km long;
- The Riyadh Ring Road, Saudi Arabia: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and other drainage work design for this major highway which is about 100 km long;
- The Wadi Mena and Mecca Stormwater Drainage, Saudi Arabia: Perform hydrologic/hydraulic analysis and design of stormwater drainage, culverts, protection and other drainage work design for these holy sites;
- The Red Sea-Dead Sea Conveyance System Studies, Jordan: Conduct surface and groundwater investigations, design of the conveyance system and the project impact on the water balance of the Dead Sea (jointly with Harza group and Alexander Gibb of UK);
- The Aqaba Back Road, Jordan: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and other drainage work design for this highway;
- Taba Heights Resort Development, Egypt: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and surface water drainage work design for this development area in the Red Sea Cost of 15 km long; and
- Wadi Crossings, Bridge Protection and Flood Mitigation for Wadi in Greater Beirut: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and surface water drainage work design for this development area in the Red Sea Cost of 15 km long.

Senior Hydraulic/Hydrologic Modelling Consultant and Drainage Engineer, Sigma Consulting Engineers jointly with Louis Berger and Hazen and Sawyer Consultants, 1996-present (on part-time basis): Conducted in depth hydrologic/hydraulic analysis and design of major hydraulic and highway drainage works including:

- Development of the East Dead Sea Coast Tourism Project, Jordan: Conduct surface and groundwater investigations, water supply network design. Perform hydrologic/hydraulic analysis and design of major wadi training, crossings, culverts, protection and other drainage work design for this project;
- Petra Panorama Highway Design, Jordan: Perform hydrologic/hydraulic analysis and design of major wadi crossings, culverts, protection and other drainage work design for this highway;
- Rehabilitation of Greater Amman Water Network: Perform hydrologic/hydraulic analysis and design of major primary and secondary distribution systems, GIS based hydraulic design and pressure zoning to reduce Non-Revenue Water and upgrade the level of water services in Amman;
- Flood risk management, protection and drainage works design for the Rapid Transit Bus Project for Amman Zarqa Road for the Ministry of Public Works and Housing.

Senior Advisor to the Minister of Public Work and Housing, Jordan, 1995-Present (on part time basis). Provide technical review of highway drainage design and design of major hydraulic structures and flood protection works dealing with consulting firms and contractors. Member of the Minister high-rank Committee for the Revision and Development of Jordan's Highway Design Code and Manual.

Senior Hydrologist, Wetland Research Inc., and Hey and Associates, Inc., Libertyville and Chicago, Illinois, USA, Dec 1993 to August 1994. Major activities: hydrologic and hydraulic planning, analysis, and design of engineering projects; wetland mitigation and restoration, site planning and environmental impact studies; design of hydraulic structures, storm-water management and flood management and mitigation; and formulation and implementation of research projects in wetland hydrology and water resources.

Technical Director, Municipality of Salt, City of Salt, JORDAN, June 1981 to February 1984. Duties: Supervision of all municipality projects and staff with emphasis on planning, management and operation of water systems.

MAJOR CONFERENCES, MEETINGS AND PRESENTATIONS:

International Meetings and Conferences

The 2nd Intentional Water-Energy Nexus Conference, Dead Sea September 2021.

Several Online International Conferences during COVID-19 Pandemic 2020-2021.

The 5th IWA Conference, Keynote Speaker, Dead Sea December 2019.

The International Water Technology Conference, keynote speaker, Kuwait, December 2014

The IWA Water Loss 2012 Conference, Manila, Philippines, February 2012.

The 6th International Engineering Conference, keynote speaker, Amman, 1-3 November 2011.

The 1st Arab Water Week Conference, keynote speaker, Amman, Jordan December 5-8, 2010.

The 10th Asian Academies of Sciences Association conference *"One green Asia"*, Seoul, Korea, October 2010.

The Advance Executive Workshop on *Water Diplomacy: Sharing water, sharing benefits, Organized by the Arab Water Academy*, Abu-Dhabi, UAE 11-14 Oct 2009.

EU-FP7 XEROCHORE Workshop on *Drought & Natural System Workshop Drought & Natural System: Climate & Hydrology*, Noordwijkerhout, The Netherlands, 15-17 June 2009.

The 13th International Water Technology Conference, Egypt, March, 2009.

The G-77 Ministerial Water Forum on Water, Muscat, Oman, Feb 2009.

The International Conference on Water Resources in Arid Regions, Irvine, CA, Dec 2008.

The Regional Conference on Climate Change Impact on Water Resources, Muscat, Oman, Nov 2008.

The 3rd International Conference on Water Resources and Arid Environment and the First Arab Water Forum, The event included the awarding of the 3rd Award of the Prince Sultan Bin Abdulaziz International Prize for Water, Riyadh, Saudi Arabia, Nov 2008.

The International Conference on Shared Groundwater Management, Libya, June 2008.

The Petra-VI Nobel Laureates Conference, invited speaker, Petra, Jordan June 2008.

The 18th Intergovernmental Council of IHP, Paris, June 2008.

The US-Arab Economic Forum (Water Session Co-Organizer), Washington DC, May 2008.

The 12th International Water Technology Conference, Egypt, March 2008.

The 4th International Conference on Wadi Hydrology, Co-Chairman, Oman, Dec 2007.

The First Water-Energy Congress, Maastricht, the Netherlands. 26-30 November 2007.

The UNESCO-IHE International Water Conference, Delft, the Netherlands, June 2007.

The 11th International Water Technology Conference, Egypt, March 2007.

The 17th Intergovernmental Council of IHP, Paris, July 2006.

The 10th International Water Technology Conference, Egypt, March 2006.

The Third International Conference on Wadi Hydrology, *Co-Chairman*, Yemen, Dec 2005.

The 7th Gulf Water Conference, Kuwait, Nov2005.

The International Conference on Friend/Nile, Co-Chairman, Egypt, Nov 2005.

The 9th International Water Technology Conference, Egypt, March 2005

The 16th Intergovernmental Council of IHP, Paris, Sept 2004.

The International Conference on Water Demand Management, Dead Sea, Jordan, June 2004.

The 8th International Water Technology Conference, Egypt, Mar 2004

The 2nd Regional Conference on Water Demand Management, Egypt, Dec 2003.

The Second International Conference on Wadi Hydrology, Jordan, July 2003.

The 6th Gulf Water Conference, Saudi Arabia, March2003.

First International Conference On "Perspectives of Arab Water Cooperation: Challenges, Constraints and Opportunities", Cairo, October 2002.

The International Workshop on Water in the Mediterranean Basin (WATMED 2002): Resources and Sustainable Development, Tunis, October 2002.

The Launching of the Fourth Thematic Programme Network (TPN 4) "Water Resources Management for Agriculture in Arid, Semi-Arid and Sub-humid Lands." Syria, July 2002.

The 15th Intergovernmental Council of IHP, Paris, France June 2002.

The International Conference Desalination Strategies in South Mediterranean Countries, Sharim Sheikh, Egypt, May 2002.

The International Conference on Water Resources Management in Arid Regions, Kuwait, March 2002.

The 8th International Symposium on River Sedimentation: Cairo, Egypt, Nov 2001.

First International Conference on Saltwater Intrusion and Coastal Aquifers—Monitoring, Modeling, and Management, Morocco, April 2001.

The IAEA Advisory Meeting on Isotopes Hydrology, Vienna, Austria, Dec 2000.

The First International Conference on Wadi Hydrology, Egypt, November 2000.

The Water and Environment Seminar at the Sana'a University, Yemen, October 2000.

The IX Engineering Foundation Conference on Risk Based Decision-making in Water Resource, Santa Barbara, USA, October 2000.

The Integrated Management, Protection and Sustainable Use of Groundwater and Soil Resources in the Arab Countries, jointly organized by ACSAD and the German BGR, Damascus, July 2000.

The 14th IHP Intergovernmental Council, Paris, France, June 2000

The 26th International Water Resources Planning and Management Conference, ASCE conference held in Tempe, Arizona, June 1999.

The 4th Gulf Water Conference, Manama, Bahrain, February 1999.

The 8thStockholm Water Symposium, Sweden, August 1998.

The International Water Resources Engineering Conference, ASCE Conference held in Memphis, Tennessee, USA, August 1998.

Capabilities of Watershed Modeling System (WMS) Package: technical exchange visit, Brigham Young University,. Provo, Utah, USA, January 1998.

Water Supplies in the Middle East: Venues for Cooperation, ICCO meetings in Amsterdam, The Netherlands, June 1997.

The *Sustainable Water Supplies in the Middle East* committee meetings in Washington DC in Feb. 1996, Amman in June 1996, Washington DC in April 1997, and Ramallah in March 1999, National Research Council, US National Academy of Sciences.

The Post-Graduate International Course in *Sediment Transport Technology*, Ankara, Turkey, June, 1995.

Co-Chairman of the *International Symposium on Water Resources in the Middle East,* the University of Illinois at Urbana-Champaign, USA, October 1993.

The Engineering Foundation Conference on *Management of Water Resources in North America III: Anticipating the 21st Century*, Tucson, Arizona, September 1993.

The NATO Advanced Study Institute on *Risk and Reliability of Water Resources Under Changing Physical Conditions*, Deauville, France, May 1993.

The *Second International Symposium on Uncertainty Modeling & Analysis,* Department of Civil Engineering, University of Maryland, College Park, Maryland, USA, April 1993.

The *Middle East Water Crisis: Creative Perspectives and Solutions*, Canada, May 1992.

The Engineering Foundation Fifth Conference on *Risk Based Decision Making in Water Resources,* Santa Barbara, California, USA, Nov 1991.

The NATO Advanced Study Institute on *Risk and Reliability of Water Resources & Environmental Engineering*, Porto Carras, Greece, May 1991.

Regional Conferences (in the Middle East)

Several Online Regional Conferences during COVID-19 Pandemic 2020-2021.

The 13th Regional Meeting for Arab IHP Committees, Co-Chairman, Khartoum, Sudan, 27-30 September 2009.

The First Arab Water Ministerial Council meeting, Algeria, 24-27 June 2009.

Chairman, and keynote speaker, *The Water-Tech 2009 Conference*, Abu-Dhabi , May 2009

The FRIEND/Nile 7th Project Management Meeting: Egypt, March 2008.

The Arab Water Council Governing Board Meeting, Dubai, UAE, 8-10 December 2007.

The 12th Regional Meeting for Arab IHP Committees, Co-Chairman, Al-Ain, UAE, 5-9 November 2007.

FRIEND/Nile 6th Project Management Meeting and 10th Steering Committee Meetings: Entebbe, Uganda, February 2007.

FRIEND/Nile 5th Project Management Meeting and 9th Steering Committee Meetings: Egypt, November 15-16, 2005.

The 11th Regional Meeting for Arab IHP Committees, Co-Chairman, Syria, 25-28 September 2005.

FRIEND/Nile 4th Project Management Meeting and 8th Steering Committee Meetings: Ethiopia, February 20-22, 2005

The Arab Water Council Governing Board Meeting, Dubai, UAE, Jan 3-5, 2005.

The Arab Water Council Launching Meeting, Cairo, Egypt, April 10-14, 2004.

FRIEND/Nile 3rd Project Management Meeting and 7th Steering Committee Meetings: Mombassa, Kenya, 9-12 February 2004.

Regional Expert Meeting on Ecohydrology in the Arab Region, Egypt, 15-18 December, 2003.

The 10th Regional Meeting for Arab IHP Committees, Co-Chairman, Egypt, September 2003.

FRIEND/Nile Second Project Management Meeting and 6th Steering Committee Meetings: Aswan, Egypt, January 2003.

Regional Arab Expert Meeting on Water and Biodiversity, Alexandria, March, 2002.

The 9th Regional Meeting for Arab IHP Committees, Muscat, Oman, 23–26 September 2001.

The 8th Regional Meeting for Arab IHP Committees and The UNESCO meetings on Wadi Hydrology, Beirut, Lebanon, September 27-October 1, 1999.

Coordinator of the UNESCO Annual *International Workshop on Wadi Hydrology,* the Water and Environment Research and Study Center, University of Jordan, May 10-20, 1998 and 1999.

The UNESCO regional meetings on Wadi Hydrology, Damascus (April 1998), Cairo (September 1998), Tunis (February 1999).

The *Rainfall Forecasts and Irrigation Strategies*, Cairo, May 1996 and Bergamo, Italy, April 1998.

The *Rehabilitation of Engineering Works*, Aleppo University, Syria, November 1996.

The *ASCE-SAS Second Regional Conference: Save the Environment,* Beirut, Lebanon, November 17-19, 1995.

Local Specialized Meetings (in Jordan)

Several Online National Conferences during COVID-19 Pandemic 2020-2021.

The Second Balqa International Engineering Conference, Keynote Speaker, Dead Sea, Jordan Dec 2019.

The Water Resources Policy, Planning, and Management Advisory Committee to the Minister of Water and Irrigation, The Ministry of Water and Irrigation, Jordan (weekly meetings, March 1999-2012).

The Water Quality Advisory Committee to the Minister of Water and Irrigation, The Ministry of Water and Irrigation, Jordan (monthly meetings, March 1999-2012).

The Petra 1999 Conference on Water and Environment, Petra, Jordan, April 28-May 2, 1999.

Performance of Municipal Water Systems, The Scientific Day for Water in Jordan, The Jordanian Engineers Association, October 1997.

The *4th Jordanian Scientific Week*, Amman, August 1996.

The *Advances in Irrigation in the Mediterranean Basin*, Amman, July 1996.

The *International Seminar on GLOBSAR project* (application of radar imaging), Royal Jordanian Geographic Center, Amman, Jordan, 23-27 April, 1995.

The *Arab Scientists and Technologists Abroad*, Second Congress, Amman, Jordan, July 29-August 10, 1994.

The *Arab Scientists and Technologists Abroad*, First Congress, Amman, Jordan, July 30-August 12, 1992.

COMPUTER SKILLS IN THE WATER AREA:

Excellent experience in various computer applications and software like office applications, web-based applications, e-mail and internet.

Extensive experience in using most existing hydrologic and hydraulic models such as WMS (watershed modeling system), GMS (groundwater modeling system), SMS (surface modeling system), HEC-1 and HEC-HMS (flood hydrograph model), HEC-2 and HEC-RAS (water surface profile model), HYDROLOGY STUDIO, TR-55 (urban hydrology for small watersheds), ILLUDAS (Illinois urban drainage area simulator), DWOPER (dynamic wave routing model), KYPIPE, LOOP, SEWER, BRANCH, AUTOWATER (water/sewer network solvers), TR-20 (hydrologic model by SCS), WSP-2 (water surface profile), FLOWMASTER (hydraulics of open channel and pipe flow), HY8 (highway culvert design), CULVERTMASTER (culvert design package), STORMCAD (stormwater design package), WATERCAD and CYBERNET (water distribution network package), SMADA (hydrologic and stormwater management and drainage analysis package), GW3DFL (3-dimensional groundwater model), GW3DT (3-dimensional groundwater transport model), MODFLOW (USGS groundwater model), and ANSWER (Areal Nonpoint Source Watershed Environment Response Simulation), AUTOCAD, MATLAB, Statistical packages like SPSS, STATGRAPH, and MINITAB as well as most of the PC and UNIX applications.

GEOGRAPHICAL EXPERIENCES AND LANGAUGES:

Dr. Al-Weshah has an extensive work experience in United States, all countries the Middle East and North Africa and Nile Basin Countries. He has an extensive experience working with the United Nations Projects, EU Funded Projects, AFD funded Projects, GIZ and KFW funded projects and the USAID projects.

Languages: Fluent in Arabic (mother tongue) and excellent English (speaking, writing, and reading).

OTHER ACTIVITIES AND SKILLS:

Advance Formal Executive Training of Trainers on project management and planning..

Advance Formal Executive Training of Trainers on water, energy and environment, USAID, Amman Mission.

Advance Formal Executive Training on Water Diplomacy and Negotiations Skills, the Arab Water Academy.

Advanced Formal Training in Strategic Planning, Result Based Management, Time and Stress Management, Team Building and Mobilization, Effective Leadership Skills, and Security Training.

Editorial Boards and Reviewer of the following refereed journals:

- Editor in Chief, *Dirasat Journal of Human and Social Sciences*, Refereed Journal (SCOPUS) published by the University of Jordan since September 2019.

- Editor in Chief, *Dirasat Journal of Educational Sciences*, Refereed Journal published by the University of Jordan 2019-2020.
- Editor in Chief, *Dirasat Journal of Law and Religious Sciences*, Refereed Journal published by the University of Jordan 2019-2020.
- Editorial Board Member, The Arab Journal of Water, refereed journal published by the Arab Water Council.
- Reviewer, *Water Resources Planning and Management*, Published by American Society of Civil Engineers
- Reviewer, *Water Resources Management*, published by Springer.
- Reviewer, *Journal of AWWA, USA.*
- Reviewer, *Arabian Journal of Geosciences*, published by Springer.
- Reviewer, *Environmental Monitoring and Assessment*, published by Springer.
- Reviewer, *Water International*, published by IWRA, USA.
- Reviewer, *Journal of the Arab Water Council* published by the Arab Water Council.
- Reviewer, *Dirasat*, Scientific and Engineering Sciences, The University of Jordan
- Reviewer, *Jordan Journal of Agricultural Sciences*, The University of Jordan
- Reviewer, *Jordan Journal of Earth and Environmental Sciences*, The Hashemite University, Jordan
- Reviewer, *Jordan Journal of Civil Engineering*, Jordan University of Science and Technology.

Extensive experience in computer programming and applications on PC's and UNIX workstations.

Experience in performing mathematical, laboratory modelling and experiments in Fluid Mechanics, Hydraulics and Hydrology.

Outstanding effectiveness in teaching, and excellent student evaluations results on effectiveness of teaching scores 96.1% while department average 79% and 97.4% while department average 82%.

Ability to formulate and implementing extra-budgetary research projects effectively.

PROFESSIONAL MEMBERSHIPS AND ACADEMIC HONORS:

International/Regional Levels

Member of American Society of Civil Engineers (ASCE), membership no. 313139.

Member of American Water Works Association (AWWA).

Member of the International Water Resources Association (IWA), membership no. 01035893.

Several Governmental Plaques of Appreciation from various Countries and NGOs (Egypt, Jordan, Sudan, Yemen, Oman, UAE, Oman, Syria, Libya, Utah, and many others).

Member of the Selection Committee, Reviewer and Evaluator of the Prince Sultan International Water Prize, Saudi Arabia.

Founding Member and Governing Board Member of the Arab Water Council, Cairo, Egypt.

Founding Member of the G-Wadi Technical Group, UNESCO, Paris.

Vice President, The Arab Healthy Water Association, Cairo, Egypt

Member of the Advisory Board of the Rosenberg Water Forum on Water Policy, California.

Member of the International Task Force on Water formed by the UNESCO HELP program.

Member of the Committee on Sustainable Water Supplies in the Middle East of the National Research Council, the U. S. National Academy of Sciences.

Member of the Honour Society *Tau Beta Pi*, Illinois Alpha Chapter.

National representative of the International Association of Hydrologic Science (IAHS).

Member of the Arab Scientists and Technologists Abroad Association, USA

Board Member of the Arab Networks on Wadi Hydrology

The US Academy of Sciences Letter of Appreciation.

The President Award of King Fahd University for Petroleum and Minerals for serving the Middle East water issues.

The United State Institute of Peace Grant to organize and prepare the proceedings of the *International Symposium on Water Resources in the Middle East.*

The UNDP Grant to organize the *International Symposium on Water Resources in the Middle East*.

- **Local Level**

Co-Chairman of the Scientific Research Council, the University of Jordan, 2019-2021.

Chairman of the Institutional Review Board, the University of Jordan, 2019-2021t.

Chairman of the Journal Accreditation Committee, the University of Jordan, 2019-2020.

Member of the Board, of many research centres in Jordan at the University of Jordan, 2019-Present.

Elected Member for two times as representing the school of Engineering (about 150 faculty members) at the University of Jordan Council.

Key member, General Tenders Department for Evaluating Infrastructures Projects in Jordan,

Elected Board Member of the Civil Engineering Section at Jordanian Engineers Association since March 2018-2022.

Key member, High Rank National Committee on Flooding on the Dead Sea, Nov, 2018.

Chairman of the Accreditation and Qualification Committee, Jordanian Engineers Association.

Chairman, Civil Engineering Standards and Metrology Committee, Jordan Standards & Metrology Organization since Jan 2011.

Key Member of the Council of Scientific Research Funds/ Water-Energy-Environment Sector Committee, Ministry of Higher Education and Scientific Research in Jordan since 2010.

Member of the Water and Environmental Advisory Committee, Prime Minister Office, Jordan.

Member of the Board of Trustees, Princess Sumaya University for Technology in Jordan for the year 2010.

Member of the Water Resources Policy, Planning, and Management Advisory Committee to the Minister of Water and Irrigation, The Ministry of Water and Irrigation, Jordan.

Member of the Water Quality Advisory Committee to the Minister of Water and Irrigation, The Ministry of Water and Irrigation, Jordan.

Member of Jordanian Engineers Association, JORDAN.

Board Member of the Council of WERSC, JORDAN.

Member of National Jordanian Committee of the International Hydrologic Program (IHP).

MAJOR TECHNICAL PUBLICATIONS:

Refereed Articles in Specialized Indexed Journals:

Saidan, Motasem N.; Al-Addous, Mohammad; **Al-Weshah, Radwan A**.; Obada, Ibrahim; Alkasrawi, Malek; Barbana, Nesrine. (April 2020). "Wastewater Reclamation in Major Jordanian Industries: A Viable Component of a Circular Economy." Water 12, no. 5: 1276. **https://doi.org/10.3390/w12051276**

Hajar, Husam A. Abu, Adiy Tweissi, Yousef A. Abu Hajar**, Radwan Al-Weshah**, Khaldoun M. Shatanawi, Rana Imam, Yasmin Z. Murad, and Mohammad A. Abu Hajer. "Assessment of the municipal solid waste management sector development in Jordan towards green growth by sustainability window analysis." Journal of Cleaner Production 258 (June 2020): 120539. https://doi.org/10.1016/j.jclepro.2020.120539

Yihdego, Y., Vaheddoost, B. & **Al-Weshah, Radwan A**. "Drought indices and indicators revisited," Arab Journal of Geosciences, February 2019, 12: 69. https://doi.org/10.1007/s12517-019-4237-z

Al-Weshah, Radwan A., and Yohannes Yihdego. "Multi-criteria decision approach for evaluation, ranking, and selection of remediation options: case of polluted groundwater, Kuwait", Environmental Science and Pollution Research, Vol 25 (1), December 2018. https://doi.org/10.1007/s11356-018-3723-2

Hassan Tolba Aboelnga; Motasem Saidan, & **Radwan A Al-Weshah**. "Component analysis for optimal leakage management in Madaba, Jordan", *Journal of Water Supply Research and Technology—AQUA*, June 2018, IWA Publishing, https://doi.org/10.2166/aqua.2018.180

Yihdego, Y. & **Al-Weshah, R.A.** Engineering and environmental remediation scenarios due to leakage from the Gulf War oil spill using 3-D numerical contaminant modelling, *Journal of Applied Water Science* (2017). Article · Jun 2017. https://doi.org/10.1007/s13201-016-0517-x

Yihdego, Y. & **Al-Weshah, R.A**. Hydrocarbon assessment and prediction due to the Gulf War oil disaster, North Kuwait, *Journal of Water Environment Research* (2016). DOI: 10.2175/106143016X14798353399250. https://**doi**.org/**10.2175/106143016X14798353399250**

Yihdego, Y. **& Al-Weshah, R.A**. Assessment and Prediction of Saline Sea Water Transport in Groundwater Using 3-D Numerical Modelling, *Journal of Environmental Processes* (2016). DOI:10.1007/s40710-016-0198-3.http://link.springer.com/article/10.1007/s40710-016-0198-3

Al-Weshah, Radwan A., and Yohannes Yihdego. "Flow modelling of strategically vital freshwater aquifers in Kuwait." *Environmental Earth Sciences* 75.19 (2016): 1315. DOI: 10.1007/s12665-016-6132-1. http://link.springer.com/article/10.1007%2Fs12665-016-6132-1

Yihdego, Y. & **Al-Weshah, R.A.** "Gulf war contamination assessment for optimal monitoring and remediation cost-benefit analysis, Kuwait." *Environmental Earth Sciences* (2016) 75: 1234. http://dx.doi.org/DOI:10.1007/s12665-016-6025-3

Al-Weshah R. A, *et.al*. "Environmental Ethics as a tool for Sustainable Water Resources Management," *Journal - American Water Works Association*3/2016; 108(3).DOI: http://dx.doi.org/10.5942/jawwa.2016.108.0037

Saidan, Motasem, **Radwan A. Al-Weshah** and Ibrahim Obada, "Potential Rainwater Harvesting: Adaptation Measure for Urban Areas in Jordan," *Journal - American Water Works Association* 11/2015; 107(11). DOI: http://dx.doi.org/10.5942/jawwa.2015.107.0154

Saidan, Motasem, Süreyya Meric, Khaled Rawajfeh, **Radwan A. Al-Weshah**, and Salam F. Al-Zu'bi, "Effect of bromide and other factors on brominated trihalomethanes formation in treated water supply in Jordan," *Desalination and Water Treatment* 56, September 2015. DOI: http://dx.doi.org/10.1080/19443994.2015.1102775

Al-Omari, A., E. Al- Karablieh, Z. Al-Houri, A. Salman, **R. Al-Weshah**, "Irrigation Water Management In The Jordan Valley Under Water Scarcity." *Fresenius Environmental Bulletin* 04/2015; Vol 24(4):1176-1188. Parlar Scientific Publications, Germany, http://www.psp-parlar.de/details_feb_afs_.asp?typ=feb&datum=01.04.2015

Al-Omari, A., Z. Al Houri, and **R. Al-Weshah** "Impact of the As Samra wastewater treatment plant upgrade on the water quality (COD, electrical conductivity, TP, TN) of the Zarqa River" *Water Science and Technology* Vol. 67 No. 7 pp 1455–1464 © IWA Publishing 2013 doi: http://dx.doi.org/10.2166/wst.2013.699

Hadadin, N., **R. Al-Weshah** et. al. "Rainwater harvesting in Jordan : a case of royal pavilion at Amman airport" *Desalination and Water Treatment* 52(issue 31-33) · September 2014, DOI: http://dx.doi.org/10.1080/19443994.2013.817506

Al-Weshah R. A, " Integrated Water Resources Management in Jordan: Challenges and Opportunities" in Arabic, *Journal of Scientific Research Association,* Amman, Jordan, . Dec 2011, pp. 44-60.

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