

Curriculum Vitae
Numan Rashid Mizyed
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Professional Training:

- Doctor of Philosophy, Colorado State University, Fort Collins, Colorado, 1990. Major: Agricultural Engineering/ Water Resources Systems Analysis.
- Master of Science, Colorado State University, Fort Collins, Colorado, 1988. Major: Irrigation and Drainage Engineering / Agricultural Engineering.
- Bachelor of Science, University of Jordan, Amman, Jordan, 1984. Department of Civil Engineering. Major: Civil Engineering

Professional Registration:

Currently registered as a Professional Engineer in the State of Colorado.
Registration is active with Registration number 37679.

Qualifications

Over 20 years of experience in Irrigation and water resources engineering. Career includes teaching and research in the field of irrigation and water resources engineering. Worked as a senior engineer and consultant to many private firms, local and international organizations, NGOs and governmental agencies in both the United States (especially western states Colorado, Wyoming, Utah and Arizona) and the Middle East. Registered as a Professional Engineer in the State of Colorado. Extensive experience in irrigation, wastewater reuse, irrigation with marginal water, plant soil-water relations, water supply-demand studies, master planning of water resources, water resources planning, stochastic and risk analysis of water resources, evaluation of alternatives, optimization, water resources systems analysis, demand management, water management, dam breach analysis, hydraulic analysis of pipe networks, transient flows analysis, hydrologic studies and investigation, hydraulic design and analysis for water structures and systems such as dams, spillways, outlets, pipe networks, urban drainage systems. Experienced in many computer models used in environmental and water resources studies.

Relevant Experience

September 2003 to present: Associate Professor at An-Najah University, Nablus, West Bank. Job duties included:

- Teaching undergraduate and graduate Civil Engineering, Agricultural Engineering and Environmental science classes including Fluid Mechanics, Hydraulics, Hydrology, Dynamics, Hydraulic Structures, Probability and Statistics for Engineers, Irrigation and Drainage, Environmental Engineering, Soil Science, Plant-Soil-Water Relations, Land Reclamation, Management of Natural Resources and Environmental Impacts Assessment.
- Supervising graduate research for M.S. thesis of graduate students in the areas of water, environmental engineering and environmental science.
- Preparing research and study proposals in addition to conducting research and studies to improve water use, water management, soil water conservation and minimize water pollution in the West Bank.
- Extension and outreach programs for the community including conducting public awareness programs for the society to minimize water pollution, reduce health effects of contaminated water, water conservation, soil water management and conservation, and organizing training programs for workers in health, agricultural and environmental sectors.

- Conducting training programs in soil, water and environmental management including design and construction of soil-water conservation systems, minimizing soil erosion, using brackish water in agriculture, salinity management, wastewater treatment and reuse, irrigation systems design, irrigation management, drainage, design and operation of water distribution systems.

September 2011 to August 2012: Department Head, Civil Engineering Department, An-Najah National University.

February 2011 to present: Member of ABET accreditation committee for the engineering programs at An-Najah National University. Duties included planning, evaluation and follow up on quality assurance and quality control activities needed at the Faculty of Engineering to satisfy the accreditation requirements of the American Accreditation Board for Engineering and Technology (ABET).

February 2011 to 2013: Board member of Agricultural Water Board formed by Ministry of Agriculture to improve the management of agricultural water use in Palestine.

August 2007 to December 2011: Principal investigator and project coordinator for a research component of the “Decentralized wastewater treatment and reuse in arid areas” conducted at An-Najah National University. This research is conducted to assess and evaluate the treatment and reuse of wastewater utilizing hydroponic plant growth systems. The project is funded by the German Federal Ministry of Science and Education as part of IWRM Helmholtz Dead Sea project. The project included public awareness programs for the use of decentralized wastewater treatment and reuse.

June 2012 to October 2012: Water and land consultant to the Netherlands Representative for the evaluation of land development projects in the West Bank through participating in conducting the “Needs Assessment of Land Development” study.

June 2011 to Feb 2013: Consultant to UNDP in the area of water resources engineering. Duties included designing, preparing technical specifications and supervising the implementation of water resources engineering projects including water storage structures, water distribution systems, well rehabilitation plans, replacements of pumps and pipe networks.

September 2004 to present: **Freelance Treated Wastewater Reuse Consultant to various local and international firms:** Duties included design and evaluation of potential the wastewater reuse options for several projects including: Tulkarm, Ramallah, North West Villages of Jerusalem, Tubas and Missiliya. Clients included PWA, MoA, UG, CDG, KfW and others.

December 2009 to December 2010: Task leader, MWH, Ramallah, West Bank. Task leader for Master Planning for the bulk water resources system in the Southern West Bank and the study of the eastern mountain aquifer. The master plan included studying existing water resources, demand, existing water infrastructure, aquifer model study for the eastern mountain basin, evaluating future domestic demands and water resources gap, and proposing a development plan for the bulk water system in the southern West Bank.

September 2004 to December 2010: Conducted a wide number of training programs and public awareness programs for agricultural engineers at the Ministry of agriculture in the area of irrigation, wastewater reuse, soil-water management, soils chemical and physical analyses. Interpretation of soil chemical and physical testing results

September 2004 to December 2010: Participated in a regional team with the Ministry of agriculture in writing and preparing two manuals : Guidelines for using reclaimed water in agriculture, and Guidelines for using saline water in agriculture.

May 2007 to April 2008: National Water and Irrigation Consultant for Food and Agricultural Organization (FAO) of the United Nations in the West Bank. Consultant on projects including “ Improving food security in the Jordan Valley through emergency agricultural interventions” in addition to other emergency projects implemented in the West Bank in the areas of agriculture, wastewater, water and irrigation. Job duties included: evaluating current status of irrigation wells and their rehabilitation needs, preparing bid and contract documents to accomplish rehabilitation needs, supervise and monitor well rehabilitation, evaluating water pricing and water tariffs, in addition to reviewing project plans and specification for other smaller projects in the area of water and irrigation such as Irrigation systems rehabilitation, small water harvesting and wastewater treatment units for rural areas.

Summer of 2007: Project Engineer, MWH Americas, Inc, Denver, Colorado, USA. Hydrologic and hydraulic design and evaluation of drainage works, dams and spillways. Projects included: Northfield dams in Colorado, Baputane dam in Peru, Tenke Mine in Congo.

Summers of 2004, 2005 and 2006: Project Engineer II, TCB's Dam and Hydropower Specialists, Denver, Colorado, USA. Performed hydraulic and hydrologic design and evaluation in addition to dam breach analyses for dams and water storage structures in the US. Projects included: North Slope dams, Point of the Mountain Raw Reservoir, Skookumchuck Dam.

January 2004 to June 2005: Planning Expert with Palestine Environmental Quality Authority on “Al-Fara’a Integrated Watershed Management” project. Job duties included providing technical expertise, training of staff, public awareness, planning of project activities, project management, reviewing and editing reports.

August 2001 to August 2003: Project Engineer, ECI-An AECOM Company, Denver, Colorado, USA: water resources engineering including water supply and demand studies, hydrologic and hydraulic designs, studies and analysis for water structures and systems. Participated in a number of different projects including:

Design of pipelines: Lakewood Pipeline for the City of Boulder, Colorado.

Tendering and construction supervision/management: Lakewood pipeline and hydropower station for the City of Boulder (Colorado), Construction of City Dam (Arizona), Surface Drainage improvements for the City of Delmar (California)

Supply and demand studies: Leroux Creek (CO), Bridger Valley (WY), Viva Naughten (WY), Gila Indian Reservation (AZ)

Drainage Design and evaluation: Del Mar (CA), Woodman Road (CO), Black Hawk Project (CO)

Third party review and evaluation: Tigers Reservoir Hydrology, CO

Design of dams: Halligan Enlargement (CO), City Dam (AZ)

Hydrologic and Hydraulic design of detention structures: Castlewood Ranch (CO)

Emergency action plans and dam breach analyses: Barker dam (CO)

September 1990 to July 2001: Assistant professor (promoted to Associate Professor in March 1999) at An-Najah University, Nablus, West Bank. Job duties included: teaching undergraduate and graduate students in addition to research, training of staff, performing water resources studies, conducting outreach programs in areas of water resources engineering, irrigation and agricultural water management, supervising graduate students research in areas of water, environmental engineering and

environmental science, and coordinating a graduate program in environmental sciences. Applied and received funding for many research projects and studies including:

Hydrology studies: Marj Sanour Development Project (for IDRC-Canada).

Supply demand studies: Agricultural Water Demand for Palestine, Middle Eastern regional water supply-demand development project (for GTZ, Germany)

Policies and Strategies: Developing Irrigated Agricultural Strategy for Palestine, Irrigation and drainage system plan for the West Bank. Two Seas Canal Study (for SIDA-Sweden)

Hydraulic and hydrologic design: Al-Auja Irrigation Project (for ANERA, Jerusalem).

Wastewater treatment and reuse: Design and evaluation of potential the wastewater reuse for several projects including: Nablus, Tulkarm, El-Ezarieh, Abu-Deis, Tubas, Jalazon and Taffouh. Clients included UNDP, PECDAR, PWA, KfW and GTZ.

Other Activities and experience:

Guest Researcher (1996) at the Department of International Rural Development and Environmental Protection, University of Kassel, Germany.

Technical Consultant (1995-1996) to the municipality of Nablus to solve water quality and shortage problems related to supply, distribution, network maintenance and management.

Technical Consultant (1993-1995) for the Palestinian Delegation team to the Middle East multilateral peace negotiation (water resources and water issues).

August 1988 to August 1990: Graduate Research and Teaching Assistant at Colorado State University, Fort Collins, Colorado. Work included:

- Assistant in teaching graduate level courses including: Sprinkler and Trickle Irrigation Systems, Drainage Engineering, Surface Irrigation Systems and Surface Irrigation Laboratory.
- Manager of the Computer Lab at the Department of Agricultural and Chemical Engineering.
- Research in Optimal operation of multi-reservoir systems and effects of monitoring irrigation demands on the operation of the Mahaweli system in Sri Lanka which is a large multi-reservoir multi-objective system.

December 1984 to August 1986: Teaching and Research Assistant at An-Najah University, Nablus, West Bank. Department of Civil Engineering. Field of work: Hydraulics and Hydrology.

PUBLICATIONS

Mizyed, Numan R. 1988. Uniformity of Trickle Irrigation, M.S. Thesis, Department of Agricultural and Chemical Engineering, Colorado State University, Fort Collins, Colorado.

Mizyed, Numan R. and E. Gordon Kruse, 1989. Emitter Discharge Evaluation of Subsurface Trickle Irrigation Systems, TRANSACTIONS of ASAE, Vol. 32, No. 4, pp. 1223-1228.

Mizyed, Numan R. 1990. Estimation of Irrigation Demands for Optimal Management of Multi-reservoir Systems, Ph.D dissertation, Department of Agricultural and Chemical Engineering, Colorado State University, Fort Collins, Colorado.

Mizyed, Numan R., Jim Loftis, Ramchand Oad, and Alan Early, 1991. Importance of Demand Estimation in Irrigation-System Management. Journal of Irrigation and Drainage Engineering, Vol. 117, no. 3, pp. 336-387, ASCE.

Mizyed, Numan R., Jim Loftis and Darrell Fontane, 1992. Operation of Large Multi-reservoir Systems Using Optimal-Control Theory. *Journal of Water Resources Planning and Management*, Vol. 118, no. 4, pp. 371-387, ASCE.

Haddad, M. and Numan Mizyed, 1993. Status and Problems of Irrigated Agriculture in the Occupied Territories. *Palestinian Studies Journal*, No. 14, Spring 1993, pp. 141-161, Beirut, Lebanon.

Mizyed, N. and M. Haddad, 1993. Water Harvesting in Greenhouses. International Association for Hydraulic Research. Southern Africa Regional Division. The symposium "Water- The lifeblood of Africa" Victoria Falls, Zimbabwe.

Mizyed, N. and M. Haddad, 1993. Development of water resources in the Eastern slopes of the West Bank. Proceedings of the First Palestinian Convention in Civil Engineering, An-Najah University, Nablus, West Bank, December, 1993.

Haddad, M. and N. Mizyed, 1993. Potential Use of Artificial Recharge in the West Bank: Urban Storm Runoff. Proceedings of the Regional Seminar on "Potential of Artificial Recharge of Groundwater" held at the University of Jordan, Amman, Jordan, December 13-15, 1993.

Mizyed, N. and M. Haddad, 1993. Potential use of artificial recharge in the West Bank: Natural Springs Runoff. Proceedings of the Regional Seminar on "Potential of Artificial Recharge of Groundwater" held at the University of Jordan, Amman, Jordan, December 13-15, 1993.

Haddad, M. and Numan Mizyed, 1994. Methods of Developing Irrigated Agriculture in the Occupied Territories. *Palestinian Journal of Engineering Research and Studies (Al-Handasah)*, Vol.1, no. 1, pp. 12-35, Jerusalem, West Bank.

Haddad, M., and N. Mizyed, 1994. Changes of Salinity Levels in Irrigation Wells in the West Bank. *Water Research Journal*, Water Research Center, Ministry of Scientific Research, Cairo, Egypt.

Haddad, M. and N. Mizyed, 1994. Water Resources in the Middle East: Conflict and Solutions. Water Issues Group, School of Oriental and African Studies, University of London, England.

Mizyed, N., 1994. Field Evaluation of Trickle Irrigation Systems. Proceedings of Regional Seminar on Optimization of Water in Agriculture, Amman, Jordan, November, 1994.

Mizyed, N., 1995. Computer Techniques for Optimal Management of Water Resources. Proceedings of International Seminar on appropriate technology in water works, An-Najah National University, Nablus, West Bank.

Mizyed, N. and M. Haddad, 1996. Water Management Practices in the West Bank Farms. *Bethlehem University Journal*, Volume 15, Bethlehem, West Bank.

Mizyed, N., 1996. Optimization of water use for agriculture in the West Bank. Proceedings of International Seminar on Water Management in Palestine, An-Najah University, Nablus, May 1996.

Mizyed, N. and M. Haddad, 1996. Overview of Irrigation Management and needed research in Palestine. Mediterranean Seminar on Irrigation Research in the Mediterranean Basin, Amman, Jordan, June, 1996.

Mizyed, N., 1997. Comparative Analysis of Techniques for Solving the Hydraulics of Pressurized Irrigation Pipe Networks. *An-Najah University Journal of Research (Natural Sciences)*, Vol 11, pp. 1-21. Nablus, P.O. Box 7, Palestine Authority.

Mizyed, N., 1997. Assessment of the Discharge of Major Springs in the West Bank with an Approach to Overcome Discharge Variability. *Bethlehem University Journal*, Volume 16, Bethlehem, West Bank.

Abu Qaoud, H. and N. Mizyed, 1998. The Response of Three Varieties of Wheat to Nitrogen Fertilization. *An-Najah University Journal for Research (Natural sciences)*, Vol. 12, pp. 55-69. Nablus, P.O. Box 7, Palestine Authority.

Mizyed, Numan, 2000. Land Use Management in the Context of Joint Management of Shared Aquifers. In: *Management of Shared Groundwater Resources: The Israeli-Palestinian Case with International Perspective*. Kulwer Academic Publishers and International Development Research Centre (IDRC).

Mizyed, Numan, 2002. Numerical analysis to solve the hydraulics of trickle irrigation units. *Irrigation and Drainage Systems* 16: 53-68. Kulwer Academic Publishers.

Mizyed, Numan; I. Qutaishat and H. Abu Qaoud, 2002. Optimal Nitrogen Fertilization for Potatoes in the West Bank-Palestine. *An-Najah University Journal for Research (Natural sciences)*, Vol. 16, No. 2, pp. 141-154. Nablus, P.O. Box 7, Palestine Authority.

Mohammed Al-Subu, Marwan Haddad, Numan Mizyed and Inaya Mizyed, 2003. Impacts of irrigation with water containing heavy metals on soil and groundwater- a simulation study. *Water, Air and Soil Pollution* 146:141-152. Kluwer Academic Publishers.

Haddad, Marwan and Numan Mizyed, 2004. Non-Conventional Options for Water Supply Augmentation in the Middle East: A Case Study. *International Water Resources Association, Water International*, Vol. 29, No. 2, Pages 232-242, June 2004.

Mizyed, N. and S. Kalbouneh, 2006. Environmental Degradation in Wadi Al-Fara'a watershed. Presented An-Najah University Conference on Al-Ghore Future Development, An-Najah National University, Nablus, West Bank.

Mizyed, N. and S. Kalbouneh, 2006. Water Supply-Demand Management in Al-Fara'a Wadi. Presented at An-Najah University Conference on Al-Ghore Future Development, An-Najah National University, Nablus, West Bank.

Mizyed, Numan and Marwan Haddad, 2006. Climate Change in the Mashreq. *Mediterranean Environmental Network (MEN-REM) bi-annual regional meeting organized by GTZ in Jordan-Dead Sea*, November 4th to 7th 2006.

Abu Qaoud, Hassan, Numan Mizyed and Abdullah Salim Abdullah Othman, 2007. The Use of Treated Gray Water for Irrigation of Rainfed Olives. *Volume 26, Bethlehem University Journal*, Bethlehem, West Bank.

Mizyed, Numan, 2009. Impacts of climate change on water resources availability and agricultural water demand in the West Bank. *Journal of water resources management*, 23:2015-2029, DOI 10.1007/s11269-008-9367-0, Springer Science.

McNeill, L., M. Almasri, and N. Mizyed, 2009. A Sustainable Approach for Reusing Treated Wastewater in Agricultural Irrigation in the West Bank . *Desalination Journal* 248 (315-321), Elsevier. Available online at www.ScienceDirect.com.

Mizyed, N. and M. Haddad, 2009. The drying of Al-Fara'a Spring: Causes and Consequences. Proceedings for 2nd International Conference on: Water Values and Rights, Palestine Academy Press. Palestine.

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Mizyed, Numan, 2012. TREATED WASTEWATER REUSE IN THE WEST BANK: PROSPECTS, CHALLENGES AND CONSTRAINTS. Tenth Gulf Water Conference: "Water in the GCC States" The Water-Energy-Food Nexus, 22-24 April 2012, Doha, Qatar.

Mizyed, Numan, 2012. Evaluation of Treated Wastewater Reuse Regulations and Standards in Palestine. Proceedings of "Water Crisis and Agricultural Development in Palestine", 21-22/5/2012, Palestine Technical University, Tulkarm, Palestine.

Andreas Hartmann, Jens Lange, Àngela Vivó Aguado, Numan Mizyed, Gerhard Smiatek, Harald Kunstmann, 2012. A multi-model approach for improved simulations of future water availability at a large Eastern Mediterranean karst spring, *Journal of Hydrology*, Volumes 468–469, 25 October 2012, Pages 130-138, ISSN 0022-1694, 10.1016/j.jhydrol.2012.08.024.
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Mizyed, Numan, 2014. Vulnerability of Rain Fed Agriculture in the Mediterranean Region and its Potential Adaptation to Climate Change. *Bethlehem University Journal*, vol 32, pp. 24-43.

Mizyed, Numan, 2014. Sustainability of Irrigated Agriculture in the Mediterranean Region Considering Impacts of Climate Change. Submitted to SUSTAINABLE IRRIGATION 2014, 5th International Conference on Sustainable Irrigation and Drainage: Management, Technologies and Policies, Organised by Wessex Institute of Technology, UK.