



Mohammad N. Almasri, PhD

Assistant Professor

CURRENT ADDRESS

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Director, Water and Environmental Studies Institute (WESI),
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EDUCATION

- B.Sc. Mechanical Engineering. 1993
University of Aleppo, Syria.
- M.Sc. Civil Engineering. 1997
An-Najah National University, Nablus, Palestine.
- Ph.D. Civil and Environmental Engineering. 2003
Utah State University, Logan, Utah.

THESES

B.Sc. (Project)

Title: The Hydraulic Study of an Axial Irrigation Machine

Constructed an axial irrigation machine and developed a BASIC code for estimating the pressure and flow at each sprinkling nozzle.

M.Sc.

Title: Design of Optimal Water Distribution Networks: Linking Linear Programming to the Gradient Method with Application to the Nablus Water Supply System

- Developed a FORTRAN code for the optimal design of water distribution networks
- Application of the developed methodology to large-scale water distribution networks as the case of Nablus water supply system

Ph.D.

Title: Optimal Management of Nitrate Contamination of Ground Water

- Developed an approach to determine aquifer sustainability in terms of optimal on-ground nitrogen loading distribution such that nitrate concentrations are below the maximum contaminant level
- Developed a comprehensive modeling framework that integrates on-ground nitrogen loadings from different sources, soil transformations of nitrogen, and ground water flow and nitrate fate and transport models
- Utilized artificial neural network and genetic algorithm
- Conducted a multi-criteria decision analysis for the optimal ranking and selection of the best protection alternatives and management options for reducing nitrate contamination of ground water
- Application of the developed methodology to large-scale real-case regional agriculture-dominated aquifers

PROFESSIONAL EXPERIENCE

June 2004 –

- Faculty member at the Department of Civil Engineering, College of Engineering at ANU
- Coordinator for the Water and Environmental Committee at the Department of Civil Engineering, College of Engineering at ANU
- Director of WESI at ANU (August 2006 –December 2008)
- Coordinator for the master programs of Water and Environmental Engineering and Environmental Sciences at ANU (August 2006 – December 2008)
- Visiting researcher (July 2006) at the Department of Earth Sciences – University College London (UCL)
- Researcher at WESI

September 2000 – May 2004

Utah Water Research Laboratory (UWRL) at Utah State University, Logan, Utah

- Graduate student and research associate;
- Teaching Assistant for Groundwater Engineering (CEE 6430);
- Participated in the BASINS workshop.

TEACHING EXPERIENCE

61100. Introduction to Engineering. Department of Civil Engineering (undergraduate)

61351. Environmental Engineering II. Department of Civil Engineering (undergraduate)

61441. Hydrology. Department of Civil Engineering (undergraduate)

61471. Engineering Economy. Department of Civil Engineering (undergraduate)

61541. Groundwater. Department of Civil Engineering (undergraduate)

61676. Water Resources Management. Department of Civil Engineering (undergraduate)

461643. Groundwater. Water and Environmental Engineering (graduate)

461620. GIS. Water and Environmental Engineering (graduate)

400512. Natural Resources Management. Environmental Sciences (graduate)

461647. Water Resources Management. Water and Environmental Engineering (graduate)

461640. Water Resources Planning and Development. Transportation Engineering (graduate)

PROJECT EXPERIENCE

GLOWA II (P8): Research and field work on wastewater reuse in the West Bank
Evaluation and assessment: a variety of projects to assess the efficacy of projects related to the water infrastructure. Contracted by: UNDP/PAPP, CARE International, NEF
UNESCO: Worked on several research projects funded by UNESCO.
Consultation: Carried out different consultation works

PUBLICATIONS IN REFEREED JOURNALS

2008

Almasri, Mohammad N., 2008. Assessment of intrinsic vulnerability to contamination for Gaza coastal aquifer, Palestine. *Journal of Environmental Management*, 88: 577 - 593. [doi:10.1016/j.jenvman.2007.01.022](https://doi.org/10.1016/j.jenvman.2007.01.022)

Almasri, Mohammad N., 2008. Discussion of "Groundwater Flow and Contaminant Transport Simulation with Imprecise Parameters" by Ram Kailash Prasad and Shashi Mathur. *Journal of Irrigation and Drainage Engineering*, January/February 2007, 199(1): 61-70. 133:1(61).

Almasri, Mohammad N. and Said Ghabayen, 2008. Analysis of Nitrate Contamination of Gaza Coastal Aquifer, Palestine. *ASCE Journal of Hydrologic Engineering*. 13(3): 132-140.

2007

Almasri, Mohammad N. and Jagath J. Kaluarachchi, 2007. Modeling nitrate contamination of groundwater in agricultural watersheds. *Journal of Hydrology*. 343(3-4): 211-229. [doi:10.1016/j.jhydrol.2007.06.016](https://doi.org/10.1016/j.jhydrol.2007.06.016)

Almasri, Mohammad N., 2007. Nitrate contamination of groundwater: A conceptual management framework. *Environmental Impact Assessment Review*. 27: 220-242. [doi:10.1016/j.eiar.2006.11.002](https://doi.org/10.1016/j.eiar.2006.11.002)

2005

Khalil, Abedalrazq, Mohammad N. Almasri, Mac McKee, and Jagath J. Kaluarachchi, 2005. Applicability of statistical learning algorithms in groundwater quality modeling. *Water Resources Research* (41) W05010. [doi:10.1029/2004WR003608](https://doi.org/10.1029/2004WR003608).

Almasri, Mohammad N. and Jagath. J. Kaluarachchi, 2005. Multi-criteria decision analysis for the optimal management of nitrate contamination of aquifers. *Journal of Environmental Management* (74): 365-381. [doi:10.1016/j.jenvman.2004.10.006](https://doi.org/10.1016/j.jenvman.2004.10.006).

Almasri, Mohammad N. and Jagath. J. Kaluarachchi, 2005. Modular neural networks to predict the nitrate distribution in ground water using the on-ground nitrogen loading and recharge data. *Environmental Modelling and Software* (20): 851-871. [doi:10.1016/j.envsoft.2004.05.001](https://doi.org/10.1016/j.envsoft.2004.05.001).

2004

Almasri, Mohammad N. and Jagath. J. Kaluarachchi, 2004. Assessment and management of long-term nitrate pollution of ground water in agriculture-dominated watersheds. *Journal of Hydrology* (295): 225-245. [doi:10.1016/j.jhydrol.2004.03.013](https://doi.org/10.1016/j.jhydrol.2004.03.013)

Almasri, Mohammad N. and Jagath. J. Kaluarachchi, 2004. Implications of on-ground nitrogen loading and soil transformations on ground water quality management. *Journal of the American Water Resources Association (JAWRA)* 40(1):165-186. <http://www.awra.org/jawra/papers/J03113.html>.

PUBLICATIONS IN CONFERENCE PROCEEDINGS

2008

McNeill, L. S., M. N. Almasri, and N. Mizyed, 2008. A sustainable approach for reusing treated wastewater in agricultural irrigation in the West Bank – Palestine. 360 – 366. *Water and Sanitation in International Development and Disaster Relief*. Editors: B. S. Richards and A. I. Schafer. The University of Edinburgh, Scotland, UK, 28 – 30 May 2008.

M. N. Almasri and L. S. McNeill, 2008. Optimal planning of wastewater reuse using the sustainability approach: A conceptual framework for West Bank, Palestine. 501 – 508. *Water and Sanitation in International Development and Disaster Relief*. Editors: B. S. Richards and A. I. Schafer. The University of Edinburgh, Scotland, UK, 28 – 30 May 2008.

2006

Arafat, H. A., A. M. El-Hamouz, A. Abu-Safa, and M. Almasri, 2006. Methodology for modelling of disinfectant in drinking water in small middle eastern cities - Nablus City (Palestine) as a case study.

2005

Almasri, M. N., A. Jayyousi, and A. Jarrar, 2005. Statistical analysis of long-term spring yield in a semi-arid watershed: A case study from Palestine. *Water: Values and Rights*. Palestinian Academy for Science and Technology, Ramallah, Palestine.

Almasri, M. N., S. Ghabayen, J. J. Kaluarachchi, A. Jarrar, A. Jayyousi, and M. McKee, 2005. A conceptual framework for managing nitrate contamination of the Gaza coastal aquifer, Palestine. EWRI Conference, Alaska, USA (May 16-19, 2005).

Almasri, M. N., J. J. Kaluarachchi, S. Ghabayen, A. Jarrar, M. McKee, A. Jayyousi, and A. Aliawi, 2005. Assessment of groundwater vulnerability to nitrate contamination in Gaza strip, Palestine. EWRI Conference, Alaska, USA (May 16-19, 2005).

Jarrar, A., N. Jayasuriya, M. Othman, M. N. Almasri, A. Jayyousi, J. J. Kaluarachchi, and M. McKee, 2005. Decision support system for integrated water and land management in agriculture-dominated watersheds: A conceptual study to Faria watershed, Palestine. EWRI Conference, Anchorage, Alaska, USA (May 16-19, 2005).

2003

Almasri, M. N. and J. J. Kaluarachchi, 2003. Regional-scale modeling of nitrate contamination of ground water in agriculture-dominated watersheds, Proceedings of the International Conference on MODFLOW and More 2003: Understanding through Modeling. Golden, Colorado.

Almasri, M. N. and J. J. Kaluarachchi, 2003. Regional variability of on-ground nitrogen loading due to multiple land uses in agriculture-dominated watersheds, Proceedings of the 7th International Conference on Diffuse Pollution and Basin Management. Dublin, Ireland. Paper available at http://www.ucd.ie/dipcon/docs/theme10/theme10_12.PDF.

Almasri, M. N. and J. J. Kaluarachchi, 2002. Predicting stream-aquifer interaction using artificial neural networks: Methodology, application, and reliability. Proceedings of the 4th International Conference on Calibration and Reliability in Groundwater Modeling: A few steps closer to reality Prague, Czech Republic, 17-20 June 2002.

Almasri, M. N. and J. J. Kaluarachchi, 2002. Modeling of nitrogen fate and transport at watershed-scale for management decision-making. Proceedings of the 4th International Conference on Calibration and Reliability in Groundwater Modeling: A few steps closer to reality. Prague, Czech Republic, 17-20 June 2002.

BOOK CHAPTERS AND CONTRIBUTION

Almasri, M. N. and J. J. Kaluarachchi, Fate and transport of ground water contaminants. Ground water manual of the American Society of Civil Engineers, ASCE. In review, November 2003.

Almasri, M. N. and J. J. Kaluarachchi, 2005. Best management practices for water resources. Water Encyclopedia: Water quality and resource development. Edited by: J. Lehr, J. Keeley, J. Lehr, and T. B. Kingery III, **John Wiley and Sons**, Inc. Pages 570 – 573.

Almasri, M. N. and J. J. Kaluarachchi, 2005. Groundwater flow and transport process. Water Encyclopedia: Ground water. Edited by: J. Lehr, J. Keeley, J. Lehr, and T. B. Kingery III, **John Wiley and Sons**, Inc. Pages 514 – 518.

SELECTED TECHNICAL REPORTS

2008

Almasri, Mohammad N., Atef Abu Jaish. 2008. Evaluation of the activities of the project "Water Emergency Project in Salfet and Nablus Districts, West Bank". Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.

2007

Almasri, M. N. and A. Abu Jaish, 2007. [Emergency water supply and conservation in rural area impoverished by the wall: A qualitative research study on the water situation in the Tulkarem and Jenin governorates](#). A report submitted to CARE International. Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.

[Almasri, Mohammed N., Atef Abu Jaish. 2007. Evaluation of the project "Emergency Water Supply and Conservation in Rural Area Impoverished by the "Wall" in Tulkarm and Jenin Districts". Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

2006

[Almasri, M. N., 2006. Regional assessment of groundwater vulnerability to contamination in Gaza Strip. A report submitted to the UNESCO. Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

[Almasri, M. N. and A. Abu Jaish, 2006. Evaluation of the environment action project \(EAP\) in Asira cluster area. A report submitted to the United Nations Volunteers \(UNV\). Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

[Almasri, M. N. and A. Abu Jaish, 2006. Emergency water supply and conservation in rural area impoverished by the wall: A qualitative research study on the water situation in the Tulkarem and Jenin governorates. A report submitted to CARE International. Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

[Almasri, M. N. and A. Abu Jaish, 2006. Emergency water supply and conservation in rural area impoverished by the wall: Training Course for Raising Public Awareness. A report submitted to CARE International. Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

2005

[Almasri, Mohammad N., Atef Abu Jaish. 2005. Emergency Water Supply and Conservation in Rural Area Impoverished by the "Wall" \(In 17 Villages in Tulkarm and Jenin Districts\). Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

[Almasri, M. N. and A. Jarrar, 2005. A preliminary assessment and characterization study for Asira landfill and technical comments on the report *designing of solid waste dumpsite*. Water and Environmental Studies Institute, An-Najah National University, Nablus, Palestine.](#)

2004

[Kaluarachchi, J. J. and M. N. Almasri, 2004. User Document for the Nitrate Fate and Transport Model for the Extended Sumas-Blaine Aquifer, Whatcom County, Washington. Utah Water Research Laboratory, Utah State University, Logan, UT.](#)

[Kaluarachchi, J. J., N. K. C. Twarakavi, and M. N. Almasri, 2004. Heavy Metal Contamination of Ground Water in Water Resources Inventory Area 1, Washington Par-II: Lead, Zinc, Mercury and Manganese. Utah Water Research Laboratory, Utah State University, Logan, UT.](#)

[Kaluarachchi, J. J., N. K. C. Twarakavi, and M. N. Almasri, 2004. Heavy Metal Contamination of Ground Water in Water Resources Inventory Area 1, Washington Part-I:](#)

[Arsenic, Cadmium, and Chromium](#). Utah Water Research Laboratory, Utah State University, Logan, UT.

Kaluarachchi, J. J. and M. N. Almasri, 2004. [Description and assessment of the ground water quality database for Water Resources Inventory Area 1](#). Utah State University, Logan, Utah, 2004.

2003

Kaluarachchi, J. J. and M. N. Almasri, 2003. [Conceptual model of fate and transport of nitrate in the extended Sumas-Blaine Aquifer, Whatcom County, Washington, Phase III Report](#). Utah State University, Logan, Utah.

Kaluarachchi, J. J., E. Kra, N. Twarakavi, and M. N. Almasri, 2002. [Nitrogen and pesticide contamination of ground water in Water Resource Inventory Area-1. Ground water quality report for WRIA 1, Phase II Report](#). Utah State University, Logan, Utah.

GRADUATE STUDENTS

Successfully defended

- [1] Ne'mat Qamhyeh (Master of Environmental Sciences, June 2006)
Assessment of groundwater vulnerability to contamination in the West Bank, Palestine
- [2] Fathi Anaya (Master of Water and Environmental Engineering)
Assessment of nitrate and chloride in West Bank groundwater resources using GIS
- [3] Abdelhalim Salih (Master of Water and Environmental Engineering)
Management of saltwater intrusion in Gaza Coastal Aquifer, Palestine
- [4] Rana Kharmah (Master of Water and Environmental Engineering)
Optimal management of groundwater pumping: The case of the Eocene aquifer, Palestine
- [5] Mohammad Abu-Bakir (Master of Water and Environmental Engineering)
Wastewater Characteristics and the Impact of its Use in Irrigation on Soil: The Case of Faria Catchment
- [6] Lubna Haj-Hamad (Master of Water and Environmental Engineering)
Management of nitrate contamination of Gaza Coastal Aquifer
- [7] Khalid As-Sadiq (Master of Mathematics) [with Dr. Mohammad Najeeb – major supervisor]
Optimal design of water distribution networks: Reliability based approach using dynamic programming
- [8] Adel Juaidi (Master of Water and Environmental Engineering)
GIS-based modeling of groundwater recharge

Currently working on master thesis

- [1] Yahya Salih (Master of Water and Environmental Engineering) [with Dr. Hafez Shaheen – co-supervisor]
Artificial Groundwater Recharge in Faria Catchment
- [2] Ahmad Najim (Master of Water and Environmental Engineering) [with Dr. Hafez Shaheen – co-supervisor]
Modeling nitrate contamination of the Eocene Aquifer, Palestine
- [3] Rahma Abdo (Master of Water and Environmental Engineering) [with Dr. Amal Al-Hudhud – co-supervisor]
Water Resources Evaluation at City Level Using WEAP: The Case of Nablus City
- [4] Rema Saleh (Master of Water and Environmental Engineering) [with Dr. Laurie McNeill – co-supervisor]
Assessment of Treated Wastewater Reuse for Irrigation in Tubas
- [5] Leen Sanjaq (Master of Water and Environmental Engineering) [with Dr. Anan Jayyousi – major supervisor]
The Use of WEAP as a Planning Tool for JWU Service Area

PEER REVIEWER

Reviewed several journal articles for: Water Resources Research, Hydrogeology Journal, Journal of Hydrology, Journal of Environmental Management, Ecological Modelling, ASCE Journal of Hydrologic Engineering, ASCE Journal of Irrigation and Drainage Engineering, and Journal of Arid Environments.

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