

BASHAR ALSMADI

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Summary

Experienced in teaching civil, environmental engineering and water quality and treatment courses. Experienced in researching wastewater treatment processes and water reuse systems, such as land infiltration or Soil Aquifer Treatment SAT systems and wetlands, and the removal mechanisms involved in these processes. Developed curriculum in Civil and Environmental Engineering classes, and developed research in physical, chemical and biological treatment processes of wastewater and water, such as adsorption / desorption and biodegradation of pollutants, Contaminants Transport, Groundwater Quality, Water Reuse systems, and Solid Waste Management. Qualified to work on other areas of Environmental Engineering.

Education

Doctor of Philosophy, Civil / Environmental Engineering. December 1999

Arizona State University, Tempe, Arizona

Master of Science, Civil / Environmental Engineering. October 1991

Jordan University of Science & Technology, Irbid, Jordan

Bachelor of Science, Civil Engineering. June 1989

Jordan University of Science & Technology, Irbid, Jordan

Professional Development

Received the Preparing Future Faculty Program Certificate, Aug 1997 – May 1999, Arizona State University, Tempe, Arizona

- Developed understanding and appreciation for teaching expectations (for research schools, comprehensive schools, private schools, and community colleges) and demands on new faculty in a variety of academic settings.
- The program emphasized the relationships between research, teaching, and service and how they vary between institutions

Research Interests

- Water reuse systems
- Physico-chemical treatment processes of water and wastewater
- Biological treatment processes of water and wastewater
- Industrial and hazardous waste treatment
- Scanning electron microscopy (SEM) equipped with energy dispersive x-ray spectroscopy (EDX) elemental mapping capabilities
- Groundwater pollution and remediation
- Solid waste management and leachate treatment

Projects

- Deputy Chief of Party of a Water reuse project in Jordan, October 2002 – December 2003
A 3.5 million-dollar project funded by the U.S.A.I.D and was implemented by many local and U.S parties
- Arsenic removal treatment system, June 2000 - December 2000
A project that was conducted in Motorola Semiconductor industry that involved operation of arsenic treatment system and design of experiments to study removal of arsenic from the industrial wastewater stream
- Ph.D. Thesis, “Abiotic removal transformation and characterization of soil surface during soil aquifer treatment systems”, December 1999
- Soil aquifer treatment for sustainable water reuse, May 1997 – December 1999
A large project was done collaboratively between five different agencies: Arizona State University, University of Arizona, University of Colorado-Bolder, County Sanitation Districts of Los Angeles and Stanford University
- Soil aquifer treatment to enhance the quality of Nogales International Wastewater Treatment Plant (IWTP) and Tres-Rios wetlands effluents, August 1996 – May 1997
- Soil treatability pilot studies to design and model a soil aquifer treatment system, January 1994 – May 1996
A 1.7 million-dollar grant project funded by American Water Works Association (AWWA) and others, Phoenix, AZ
- Team Project, Water Reuse, August 1995 – December 1995
Feasibility study and design of constructed Tres-Rios wetlands, Phoenix, AZ
- Team Project, Industrial hazardous waste management for semiconductors industry, August 1994 – December 1994
Reviewed existing manufacturing facility and designed Reuse system to minimize discharge of hazardous waste and to provide material Recovery Phoenix, AZ
- FORTRAN Program, Modeling for steady-state well-flow, confined or unconfined aquifer, with leakage August 1994 – December 1994 Phoenix, AZ

Publication

- Alsmadi B., Al-Zboon K., and Shatnawi K., (2009) "Assessment of air pollution emissions from a cement plant; a case study in Jordan" Jordan Journal of Civil Engineering, Volume 3, No, 3.
- Abu Rumman M., Hiyassat M., Alsmadi B., Jamrah A., and Alqam M., (2009) "A surface water management model for the integrated southern ghor project, Jordan" Construction Innovation, Vol. 9 No. 3.
- Peter Fox, Waleed Aboshanp and Bashar Alsamadi (2005) “Analysis of Soil to Demonstrate Sustained Organic Carbon Removal during Soil Aquifer Treatment” J. Environ. Qual. Vol. 34, PP 156-163, USA
- Alsmadi, B. (1999) "Abiotic removal transformation and characterization of soil surface during soil aquifer treatment systems." PhD thesis, Arizona State University, Tempe, AZ, USA
- Alsmadi, B., (2001) “Impact of landfill leachate on the groundwater” Proceeding of the first solid waste conference held in Amman, Jordan 15 – 16 October

- Alsmadi, B., and Fox, P. (2000) "Effect of soil aquifer treatment (SAT) on soil components and soil micromorphology." Proceedings of the 3rd International Symposium on Waste Water Reclamation, Recycling, and Reuse. July 3-7, Paris, France
- Alsmadi, B., and Fox, P. (2001) " Semi-quantitative analysis of changes in soil coatings by scanning electron microscope (SEM) and energy dispersive X-ray (EDX) mapping." *Colloids and Surfaces An International Journal, A: Physicochemical and Engineering Aspects*, Vol. 194/13, pp 249-261 Elsevier, UK
- Alsmadi, B., and Fox, P. (2000) "Quantification of surface elements on the soil using SEM/EDX mapping technique." Presented at the 74th Colloid and Surface Science Symposium sponsored by the American Chemical Society Division of Colloid and Surface Chemistry, June 19-21, Lehigh University, Bethlehem, Pennsylvania, USA
- Alsmadi, B., Kopchyniski, T., Berner, M. and Fox, P. (1995) "Independent characterization of biological and physical removal mechanisms during soil aquifer treatment." at the 7th Biennial Symposium on Artificial Recharge of Groundwater May 17-19, Tempe, AZ, USA
- Kopchynisky, T., Fox, P., Alsmadi, B., Berner, M. (1995) " The effects of soil type and effluent pretreatment on soil aquifer treatment." In: Surface water quality and ecology; proceedings of WEFTEC'95, 68th annual conference and exposition, volume 4, Alexandria, VA, USA
- Kopchynisky, T., Fox, P., Alsmadi, B., Berner, M. (1996) " The effects of soil type and effluent pretreatment on soil aquifer treatment." *Water Science and Technology* 34 (11): 235-242
- Arnold, R. G., Quanrud, D., Wilson, G., Fox, P., Alsmadi, B., Amy, G., and Debroux, J. (1998) " The fate of residual wastewater organics during soil-aquifer treatment." Proceedings of the AWWA Conference
- Alsmadi, B. M., and Fox, P. (1999) "Changes in soil colloids surfaces resulted from soil aquifer treatment (SAT) application." at the American Chemical Society (ACS) National Meeting March 21-25, in Anaheim, L A, California, USA
- Alsmadi, B. M., and Fox, P. (1999) "Effect of soil aquifer treatment application (SAT) on soil components and soil micro-morphology." at the Arizona water and pollution control association 1999 annual conference, May 5-7, in Tucson, Arizona, USA
- Alsmadi, B. M., and Fox, P. (1999) "Changes in soil components and soil micromorphology during soil aquifer treatment (SAT)." Proceedings, the 9th Biennial Symposium on Artificial Recharge of Groundwater, June 10-12, in Tempe, Arizona, USA
- Alsmadi Bashar (1991) "Effect of controlled starvation on the activated sludge process." Masters Thesis, Jordan university of science and technology, Irbid, Jordan
- Shahalam, A. B., and Alsmadi, B. M. (1993) "A wastewater treatment system with optimal control of biomass starvation." *Environ. Sci. Health*, A28 (8), 1751-1769

Experience

- **Assistant Professor, September 2004 – Present**
Department of Civil Engineering at the University of Jordan, Amman, Jordan
Taught the following courses:
 - **Undergraduate level**
 - Water Supply Engineering
 - Wastewater Treatment Engineering
 - Hydrology
 - Environmental Engineering
 - **Graduate level**
 - Biological Treatment of Wastewater
 - Physicochemical Treatment of Water and Wastewater
 - Solid Waste Management for graduate students

- **Deputy Chief of Party, October 2002 – December 2003**
PA Government Services Inc., PA office in Amman, Jordan.
Worked on a 3.5 million-dollar water reuse project funded by the U.S. A.I.D and was implemented by PA and many local and U.S parties

- **Assistant of the Dean, through the academic year 2002 / 2003**
Institute of Earth, Water and Environmental Management at the Hashemite University, Jordan

- **Assistant Professor, February 2001 – September 2004**
Department of Water and Environmental Management at the Hashemite University, Jordan
Taught many courses including:
 - Water Reuse Engineering
 - Wastewater Treatment Engineering
 - Water Distribution Engineering
 - Environmental Management
 - Design Of Pressurized Irrigation Systems
 - Fundamentals Of Environmental Science
 - Hydraulics
 - Hydrology

- **Senior Consultant Engineer, June 2000 - December 2000**
Motorola Semiconductor Industry, Tempe, Az, USA
Worked on operation and evaluation of the arsenic treatment system and design of experiments to remove arsenic from the industrial wastewater stream

- **Associate Faculty, December 1999 - June 2000**
Department of Civil and Environmental Engineering, Arizona State University, Tempe, Az, USA

- **Research Assistant, January 1994 – December 1999**
Department of Civil and Environmental Engineering, Arizona State University, Tempe, Az, USA
 - Worked on several Soil Aquifer Treatment (SAT) Projects and on the Ph.D. dissertation
 - Investigated removal mechanisms during SAT systems, wastewater recharge and reuse using high rate infiltration basins
 - Modified a technique to analyze soil samples before and after SAT application to measure changes on the soil surface resulted from SAT; using the scanning electron microscopy and x-ray
 - Participated in designing and setting up experiments to simulate soil aquifer treatment systems using column experiments built in the field and in the lab
 - Analyzed water samples for pollutants and parameters of concern during SAT such as DOC, UV₂₅₄, ammonia-N, nitrate-N, cations, and anions
 - Participated in project meetings and in writing quarterly reports
 - Analyzed data for the Ph.D. dissertation and for project reports
- **Project Engineer, January 1993 – August 1993**
Al-Mithaq Foundation, Amman, Jordan
Worked on construction of schools buildings, retaining walls, and landscaping
 - Coordinated daily construction activities
 - Conducted value engineering to optimize cost and safety
 - Supervised construction crews
 - Inspected field work to verify quality and compliance with specification
 - Supervised taking concrete samples for testing
 - Wrote progress reports to keep consulting firm informed
 - Coordinated project activities with the consulting firm
- **Designing and Field Engineer, September 1991 – January 1993**
Al-Smadi Engineering Inc., Irbid, Jordan.
Worked on construction of residential and commercial buildings
 - Conducted quantity surveying
 - Designed and reviewed existing structural designs
 - Inspected field activities and checked compliance with specifications
- **Teaching and Research Assistant, September 1989 – September 1991**
Department of Civil Engineering, Jordan University of Science & Technology, Irbid, Jordan
Teacher Assistant for the following courses:
 - * Fluid mechanics and hydraulics laboratory, * Hydraulics, * Sanitary engineering, * Sanitary engineering laboratory, * Statics, * Introduction of statistics, and * Engineering drawing

- **Trainee Engineer, June 1988 – September 1988**
Jordan Water Resources Department, Irbid, Jordan
Worked on construction of sewage collection system including lift station and operation of wastewater treatment plant serving a population of 300,000 persons
 - Inspected field construction
 - Reviewed designs
 - Performed surveying
 - Conducted quantity surveying
 - Discussed problems solving during the field constructions

Special skills

Operator of a Scanning Electron Microscope (SEM) equipped with X-ray fluorescence micro-analyzer. Modified a technique to analyze soil samples before and after SAT to measure changes on the soil surface elemental composition resulted from SAT

Computer skills

Word processing, Spread sheet, FORTRAN, MSDOS, MS windows

Volunteer work

Referee for the Journal of Environmental Engineering published by the American Society of Civil Engineering (ASCE)

Honors and awards

- Certificate of completion of Preparing Future Faculty (PFF) program “offered to help doctoral students meet the faculty responsibilities of teaching, research, and service”
- Jordan University of Science & Technology Honor List
- Undergraduate fellowships for academic excellence

Professional memberships

- International Water Association (IWA), individual membership
- American Water Reuse Association, individual membership
- Jordanian Society for the Control of Environmental Pollution, Amman, Jordan
- Jordanian Engineers Association, Amman, Jordan