

Curriculum Vitae



Prof. Mousa K. Abu-Arabi
Chemical Engineering Department
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EDUCATION

Ph.D., Chemical Engineering, December 1988. Oklahoma State University, Stillwater, Oklahoma (USA). **Dissertation:** Physical Solubility of Hydrogen Sulfide and Carbon Dioxide in Alkanolamine Solutions. **Advisor:** Dr. R. N. Maddox. **Minor:** Mechanical Engineering.

M.Sc., Chemical Engineering, July 1985. New Mexico State University, Las Cruces, New Mexico (USA). **Thesis:** The Effect of Treating Aluminosilicates and Linde 13x with Sulfuric Acid on Water Vapor Adsorption. **Advisor:** Dr. K. H. McCorkle

B.Sc., Chemical Engineering, July 1983. Oklahoma State University, Stillwater, Oklahoma (USA)

Experiences

2011 – 2013	Dean of Engineering , Jordan University of Science & Technology, Irbid, Jordan
2006 - 2009	Chairman , Chemical Engineering Department. Jordan University of Science and Technology, Irbid, Jordan.
1999-2005	R & D Project Manager , the Middle East Desalination Research Center (MEDRC), Muscat, Oman. Please see pages 11-13 for description of work done at MEDRC
1996 – 1998	Assistant Dean , College of Engineering, Jordan University of Science and Technology, Irbid, Jordan.
1990 - Present	Faculty member (currently Professor) , Department of Chemical Engineering, Jordan University of Science and Technology, Irbid, Jordan.
1998 – 1999	Visiting Professor , Mechanical Engineering Department, Sultan Qaboos University, Muscat, Oman.
1989 – 1990	Maintenance Engineer as part of Military Service, Jordan Army.
1986 – 1988	Research Assistant , School of Chemical Engineering, Oklahoma State University. Worked on funded research by The Gas Processors Association.
1984 – 1986	Teaching Assistant , School of Chemical Engineering, New Mexico State University and Oklahoma State University.

Committees and councils**I. Department Level**

1. ABET (chairman), **from 2006-2009. We achieved the program accreditation on 12 August 2009.**
2. Seminars and Workshops, Laboratories, Library, Engineering Training, Graduate Studies and Research (chairman). Several promotion committees.

II. College Level

1. Chairman of: college council, and graduate studies, curriculum (2011-2013)
2. ABET committee
3. Member of College Council (1995-1998, 2006-2009)
4. Coordinator of College Curriculum Committee
5. Chairman of the Organizing Committee for the 5th College of Engineering Scientific Day
6. Graduate Studies and Research
7. Several promotion committees.

III. University Level

1. Deans Council
2. Appointment and promotion
3. Curriculum
4. Energy center council, Environmental science & technology center council
5. Chairman of Community Service committee

6. Member of the organizing committee of the 1st International Nuclear & Renewable Energy Conference – Jordan, 2010.

IV. Others

1. Chairman of 7th Jordanian International Chemical Engineering Conference, Amman, Jordan, November 2014.
2. Member, the Engineering Specialized, Energy-Water-Environment, and Energy Committee for Scientific Research Support Fund – Ministry of Higher Education & Scientific Research, Jordan. (2009-present)
3. Member, Board of Trustees – Amman University, Jordan. (2009-present).
4. Chairman of Scientific Committee and member of Organizing Committee, 6th Jordanian International Chemical Engineering Conference , Amman, Jordan, March 12-14, 2012
5. Member, Scientific Committee, the 26th Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS 2013) to be held from 16 to 19 July 2013 in Guiyang, China
6. Member, International Advisory Board, the 2011 International Conference on Water: Environmental Sustainability, American University of Sharjah, United Arab Emirates on 14-17 November 2011
7. Member, Scientific Committee, 24th International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS2011), July 4-7, 2011, Novi Sad, Serbia.
8. Member, Scientific Committee, the International Conference on Materials in Jordan, 9-11 April 2011, Amman, Jordan.
9. Member, the Organizing Committee for the Jordanian Chemical Engineering Conference II
10. Member, committee to restructure the Petroleum and Mineral Resources Engineering, 1999 Department at Sultan Qaboos University in Oman.
11. Member, Jordanian Engineering Association committee for graduation projects evaluation (2007-2009).
12. Member, program Committee for the 2009 International Conference on Renewable Energy
13. Member, Technical Committee for Standards and Measurements – National Department of Standards and Measurements, Amman-Jordan.

Courses Taught

Fundamentals of Chemical Engineering
Engineering Thermodynamics
Chemical Engineering Thermodynamics
Fluid Mechanics
Fluid Mechanics Laboratory
Heat Transfer
Heat Transfer Laboratory
Chemical Technology
Mass Transfer
Separation Processes
Unit Operations and Unit Operations Laboratory

Equipment Design
Project Engineering
Process Heat Transfer
Membrane Technology for Drinking Water Treatment and Desalination
Water Desalination
Physical and Chemical Treatment of Water

Graduation Projects Supervised

1. Evaluation of Porous Material as a Cooling Device, as a Pressure Regulator and as a Silencer.
2. Design of Natural Gas Treating Plant.
3. Design of Ammonia Plant.
4. Design of Urea Plant.
5. Design of Potassium Sulfate Plant.
6. Design of Acetic Acid Plant
7. Design of Oxalic Acid plant
8. Recycle the Spent Lube Oil
9. Solubility of CO₂ in Saline Water
10. Design of Cement Plant
11. Design of RO Desalination Plant
12. Production of Ibuprofen
13. Design of Industrial Water Treatment Plant
14. Design of Potassium Nitrate
15. Design of Phosphoric Acid
16. Design of Sulfuric Acid
17. Extraction of copper from Jordanian copper ores

M. Sc. Theses Supervised/supervising

1. Treatment of Industrial Wastewater from Phosphate Flotation Cells
2. Desalination of Saline Water by Humidification-Dehumidification using Solar Energy (Co-advisor)
3. Single-Effect Solar Desalination Unit with Falling Film
4. Solubility and Diffusivity of CO₂ in Protonated Triethanolamine Solutions.
5. Parametric Study on Batch Leaching Process of Jojoba Oil. (co-advisor)
6. Adsorption of Selected Pollutants from Aqueous Solutions onto Treated Oil Shale and Jojoba Seeds Residues.
7. Measurements of CO₂ and N₂O Diffusion Coefficients in Protonated Diethanolamine.
8. Melting and Solidification of Paraffin Wax in a Vertical Cylinder.
9. Characterization and Utilization of Jojoba oil. (co-advisor)
10. Modeling Acid Gases-Ethanolamine Systems Using Pseudo-Equilibrium Model
11. Phase Change Cool Storage

Participated in many M. Sc. Theses Examining Committees.

Funded Research

1. Desalinated and Hot Water Production Using Solar Energy. Funded by Abdul Hameed Shoman Foundation. March 2010.

2. Eshidiya Industrial Wastewater Treatment for Recycle Purposes, Funded by Scientific Research Deanship at Jordan University of Science & Technology. *Project NO. 12/2010*
3. Desalination of Saline Water by Humidification-Dehumidification using Solar Energy. Funded by Scientific Research Deanship at Jordan University of Science & Technology. *Project NO. 77/2007*
4. Multi-Effect Solar Desalination Unit with Falling Film. Funded by Scientific Research Deanship at Jordan University of Science & Technology. *Project NO. 124/2006*
5. Removal of acid gases by alkanolamine solutions. Funded by Sultan Qaboos University. *PROJECT NO. IG/ ENG/PMRE/03/01*
6. Experimental Study of Liquid Desiccant Air Dehumidifier For Air Conditioning Processes. Funded by Sultan Qaboos University. *PROJECT NO. ENG/00/01*
7. Measurements of CO₂ and N₂O Diffusion Coefficients in Protonated Amines. Funded by Scientific Research Deanship at Jordan University of Science and Technology
8. Characterizations and Utilization of Jojoba oil and Jojoba Seeds Residue. Funded by Scientific Research Deanship at Jordan University of Science and Technology.

Special Projects

1. Process design and economic evaluation of cogeneration power plant.
2. Design and economic analysis for recovering sulfur from spent iron sponge.
3. ADIRA project, consultant, funded by the European Union
4. Energy Saving in Autoclaves and Boiler, Jordan Roll Ltd Company, July 23rd – December 15th 2009.

Honors and Awards

Hisham Hijawi Award for the Outstanding Scientific Achievement in Research in Applied Science (Industry/Energy Sector), Jordan.

Dean's Honor Roll, Oklahoma State University.

RHA Academic Achievement Award, Oklahoma State University.

Professional Membership

Jordanian Engineers Association.

European Desalination Society

Review/Editorial Activities

1. Member of the Editorial Board, Desalination Journal, published by Elsevier
2. Reviewed papers for; Heat Transfer Engineering, Desalination, International Journal of Heat and Mass Transfer, Journal of Chemical and Engineering Data, Industrial and Engineering Chemistry Research, Energy, Dirasat Journal, Jordanian Chemical Engineering Conferences I and II. International Journal of Exergy. International Journal of Renewable Energy Technology, Energy Conversion & Management.
3. Reviewed Research proposal from; The Middle East Desalination Research Center-Oman, Sultan Qaboos University-Oman, Jordan University of Science and Technology, Ministry of Higher Education-Jordan, Ministry of Higher Education-Palestine.

Publications

Journals

1. Hasan Mousa, **M. K. Abu-Arabi**, Desalination and hot water production using solar still enhanced by external solar collector, *Desalination and Water Treatment*, Volume 51, Issue 4-6, 1296-1301, 2013.
2. **M. K. Abu-Arabi**, Sadeq Emeish, Banan Hudaib, Chloride removal from Eshidiya phosphate mining wastewater, *Desalination and Water Treatment*, Volume 51, Issue 7-9, 1634-1640, 2013.
3. Sadeq Emeish, **M.K. Abu-Arabi**, Banan Hudaib, Removal of phosphate from Eshidiya industrial wastewater by sedimentation and enhanced sedimentation, *Desalination and Water Treatment*, Volume 51, Issue 7-9, 1629-1633, 2013.
4. N. Ghaffoura, V. K. Reddy, **M. K. Abu-Arabi**, Technology development and application of solar energy in desalination: MEDRC contribution, *Renewable and Sustainable Energy Reviews*, 15, 4410-4415, 2011.
5. Hasan Mousa, **M. K. Abu Arabi**, Manar Al-Naerat, Remah Al-Bakkar, Yasmeen Ammera, and Amira Khattab, Solar Desalination by Indirect heating, *Int. J. of Sustainable Water & Environmental Systems*, 1(1), 29-32, 2010.
6. Hasan Mousa, **M. K. Abu-Arabi**, Theoretical Study of Water Desalination by a Falling Film Solar Unit, *Desalination and Water Treatment*, 12, 331-336, 2009
7. **M. K. Abu-Arabi**, Hasan Mousa and Rania Abdelrahman, *Solar Desalination Unit with Falling Film*, *Desalination and Water Treatment*, 3, 58-63, 2009.
8. Hilal N., Al-Abri, M., Al-Hinai, H. and **M. Abu Arabi**, Characterization and Retention of NF Membranes Using PEG, HS and Polyelectrolytes, *Desalination*, 221, 284-293, 2008.
9. **M. K. Abu-Arabi**, M. Allawzi, and A. S. Al-Zoubi, Adsorption of Phenol from Aqueous Solutions on Jojoba Nuts Residues, *Chem. Eng. Technol.*, 30(4), 1-9, 2007.
10. **M. K. Abu-Arabi**, S. A. Abdul-Wahab, Experimental Study of Desiccant Regeneration in a Structured Packed Tower, *Separation Science and Technology*, Accepted for publications, February 2006.
11. M. Allawzi, **M. K. Abu-Arabi**, F. A. Al-Taher, Parametric study on batch leaching process of jojoba oil, *European Journal of Lipid Science and Technology*, 107(No.7-8), 469-475, 2005.
12. **M. K. Abu-Arabi**, Yousef H. Zurigat, Year-Round Comparative Study of Three Types of Solar Desalination Units, *Desalination*, 172(2), 137-143, 2005.
13. Hilal N., Al-Zoubi, H., Darwish, N. A., Mohammed, A. W. and **M. K. Abu Arabi**, A comprehensive review of nanofiltration membranes: treatment, pre-treatment, modelling, and atomic force microscopy, *Desalination*, 170, 281-308, 2004.
14. S. A. Abdul-Wahab, **M. K. Abu-Arabi**, Y. H. Zurigat, Effect of structured packing density on performance of air dehumidifier, *Energy Conversion and Management*, 45, 2539-2552, 2004.
15. S. A. Abdul-Wahab, Y. H. Zurigat and **M. K. Abu-Arabi** "Predictions of moisture removal rate and dehumidification effectiveness for structured liquid desiccant air dehumidifier", *Energy*, 29(1), 19-34, 2004.
16. Yousef H. Zurigat and **M. K. Abu-Arabi**, Modeling and performance analysis of a regenerative solar desalination unit, *Applied Thermal Engineering*, 24(7), 1061-1072, 2004.

17. Y. H. Zurigat, **M. K. Abu-Arabi**, S. A. Abdul-Wahab, "Air Dehumidification by Triethylene Glycol Desiccant in a Packed Column", *Energy Conversion and Management*, 45(1), 141-155, 2004.
18. **M. K. Abu-Arabi**, Desalination Growth in the MENA Region, *Arab Water World*, 27(5), 2003.
19. **M. K. Abu-Arabi**, "Desalination Growth in the MENA Region", *Watermark*, the Newsletter of the Middle East Desalination Research Center, Issue 20, June 2003, pages 9-10.
20. K. Quteishat, **M. K. Abu-Arabi**, and Kandi Venkat Reddy, "Review of MEDRC R&D Projects" *Desalination* 156, pp 1-20, 2003.
21. **M. K. Abu-Arabi**, and Kandi Venkat Reddy, "Performance evaluation of desalination processes based on humidification/dehumidification cycle with different carrier gases". *Desalination*, 156, pp 281-293, 2003.
22. **M. K. Abu-Arabi**, Y. H. Zurigat, H. Al Hinai, and S. Al-Hiddabi, Modeling and Performance Analysis of a Solar Desalination Unit with Double-Glass Cover Cooling, *Desalination*, Vol. 143(2), pp 173-182, 2002.
23. **M. K. Abu-Arabi**, A. Tamimi, Asem Jarrah, Solubility and Diffusivity of CO₂ in Triethanolamine Solutions, *Journal of Chemical and Engineering Data*, Vol. 46 (5), pp 1125 -1129, 2001.
24. **M. K. Abu-Arabi**, A. Jarrah, and M. El-Eidah, A. Tamimi, Physical Solubility and Diffusivity of CO₂ in Aqueous Diethanolamine Solutions. *Journal of Chemical and Engineering Data*, Vol. 46 (3), pp 516-521, 2001.
25. **M. K. Abu-Arabi**, and Shaheen A. Al-Muhtaseb, Modeling and Prediction of the Solubility of Acid Gases-Diethanolamine Solutions, *High Temperatures – High Pressures Journal*, Vol. 32, pp. 261-270, 2000.
26. **M. K. Abu-Arabi**, M. Allawzi, H. S. Al-Zoubi, and A. Tamimi, Extraction of Jojoba Oil by Pressing and Leaching, *Chemical Engineering Journal*, Vol. 76(1), pp.61-65, 2000.
27. **M. K. Abu-Arabi**, Modeling of Heat Transfer in Dropwise Condensation, *International Journal of Heat and Mass Transfer*. Vol. 41(1), pp. 81-87, 1998.
28. M. Allawzi, **M. K. Abu-Arabi**, H. S. Al-Zoubi, and A. Tamimi, Physicochemical Characteristics and Thermal Stability of Jordanian Jojoba Oil, *Journal of the American Oil Chemists' Society*, Vol. 75(1), pp. 57-62, 1998.
29. M. Farid, , F. Hamad, and **M. K. Abu-Arabi**, Melting And Solidification in Multi-Dimensional Geometry and the Presence of More than One Interface, *Journal of Energy Conversion and Management*, Vol. 39(8), pp. 809-818, 1998.
30. M. Farid, F. Hamad, and **M. K. Abu-Arabi**, Phase Change Cool Storage Using Dimethyl-Sulfoxide., *Journal of Energy Conversion and Management*, Vol. 39(8), pp. 819-826, 1998.
31. **M. K. Abu-Arabi**, and A. Tamimi, Availability Analysis of Combustion Flue Gases - A Case Study, *Journal of Energy Conversion and Management*, Vol. 36(12), pp. 133-1137, 1995.

Conferences

1. **M.K. Abu-Arabi**, Hasan Mousa, Research Project on Desalination and Hot Water Production Using Solar Energy in Jordan, International Conference on Renewable Energy Desalination, June 11-12, 2012, Tunis.
2. Hasan Mousa*, **M. K. Abu-Arabi**, M. Al-Naerat, R. Al-Bakkar, Y. Ammera, and A. Khattab, Solar Desalination by Indirect heating, 5th International EGE Energy Symposium and Exhibition (IEESE-5), June 27-30, 2010, Denizil, Turkey.
3. Abdallah. Malkawi, **M. K. Abu-Arabi**, Mohammad Khasawneh, The Red- to Dead Sea Conveyance System; *bridging the water shortage and prospects for*

- desalination, Proceedings of the 1st International Nuclear and Renewable Energy Conference, Amman-Jordan, March 21-24, 2010.*
4. Ramzi O. Sinnokrot, **M. K. Abu-Arabi**, A. Tamimi, Modeling of a Conventional Solar Still with Draft and Humidification-Dehumidification Process, *Proceedings of the 1st International Nuclear and Renewable Energy Conference, Amman-Jordan, March 21-24, 2010.*
 5. **M. K. Abu-Arabi**, Hasan Mousa and Rania Abdelrahman, Desalinated and Hot Water Production by Solar Energy, Desalination for the Environment-Clean Water and Energy, Baden-Baden, May 17–20, 2009, Germany.
 6. Hasan Mousa and **M. K. Abu-Arabi**, Theoretical and Experimental Study of Water Desalination by a Falling Film Solar Unit, IChemE 2008, NEC, Birmingham, October 28-31, 2008, UK.
 7. **M. K. Abu-Arabi**, **Keynote Speech**, Desalination Powered by Renewable Energy, Global Conference on the Renewable Energy Approaches for DEsert Regions (GCREADER), Amman, Jordan, 18-22 September 2006.
 8. **M. K. Abu-Arabi**, Status and Prospects for Solar desalination in the MENA Region, Advanced Research Workshop for the 21st Century, Hammamet, Tunis, 23-25 February 2006.
 9. Kandi Venkat Reddy, **M. K. Abu-Arabi**, MEDRC Contribution in Desalination R&D, International Seminar on Experiences and Practices of Water and Wastewater Technology, Muscat, Oman, 5-7 October 2004.
 10. **M. K. Abu-Arabi**, Kandi Venkat Reddy, Overview of MEDRC Sponsored Projects: Application of Renewable Energy in Desalination, MEDAQUA II Conference, Amman, Jordan, 14-15 June, 2004.
 11. Koussai Quteishat, **M.K. Abu-Arabi**, “Promotion of Solar Desalination in the MENA Region”, Middle East and North Africa Renewable Energy Conference, Sana’a, Yemen, 21-22 April 2004.
 12. Koussai Quteishat, Ian Watson, **M. K. Abu-Arabi**, “An Operational Audit of Membrane Processes in Jordan”, EDS-WSTA Second Workshop, Amsterdam, the Netherlands, 24-27 August 2003.
 13. **M. K. Abu-Arabi**, and Kandi Venkat Reddy, “Rigorous Modeling Of A Desalination Process With Different Courier Gases in Humidificaion/Dehumidification Cycle”. Proceedings of the IDA World Congress on Desalination and Water Reuse, Paradise Island, Bahamas, September 28 – October 3, 2003.
 14. **M. K. Abu-Arabi**, and Yousef H. Zurigat, “Modeling and performance analysis of a regenerative solar desalination unit”. Proceedings of the IDA World Congress on Desalination and Water Reuse, Bahamas, September 28 – October 3, 2003.
 15. **M. K. Abu-Arabi**, and Y. H. Zurigat, “Comparison of Year –Round performance of two types of Double-Glass Cover Solar Stills”. Proceedings of the International Conference on RES for island, tourism & water desalination, 26-28 May 2003 in Crete, Greece.
 16. K. Quteishat, **M. K. Abu-Arabi**, and Kandi Venkat Reddy, “Review of MEDRC R&D Projects” Proceedings of EDS Conference on Desalination and the Environment, Malta, May 4-8, 2003.
 17. S. A. Abdul-Wahab, **M. K. Abu-Arabi**, Y. H. Zurigat, Experimental Study of Liquid Desiccant Air Dehumidifier for Air Conditioning Processes, Proceedings of the 6th Biennial Conference on Engineering Systems Design And Analysis, Istanbul, Turkey, July 8-11, 2002.
 18. K. Quteishat, K. V. Reddy, **M. K. Abu-Arabi**, The Interaction of Energy and Desalination, presented in the International Seminar on Water and Energy, Center

- for Development of Renewable Energy Resources, Marrakech, Morocco, 24 – 26 April, 2002.
19. K. Quteishat, **M. K. Abu-Arabi**, Desalination in the MENA Region-Road to the Future, Hydrotop 2001, Marseille, France, April 24-26, 2001.
 20. Y. H. Zurigat and **M. K. Abu-Arabi**, Modeling and Performance Analysis of a Solar Desalination Unit with Double-Glass Cover Cooling, Presented in the European Conference on Desalination and the Environment Water Shortage, Lemesos, Cyprus, May 28-31, 2001.
 21. **M. K. Abu-Arabi**, and S. A. Al-Muhtaseb, Modeling and Prediction the Vapor-Liquid Equilibrium of Acid Gases-Diethanolamine Solutions, Proceedings of the 15th European Conference on Thermophysical Properties. Wurzburg, Germany, September 5-9, 1999.
 22. **M. K. Abu-Arabi**, F. Hamad, and I. Al-Beirouty, Solidification and Remelting of Paraffin Wax in a Vertical Cylinder., Proceedings of the International Symposium on Advances in Computational Heat Transfer, Cesme, Turkey, May 26-30, 1997.
 23. **M. K. Abu-Arabi**, and S. A. Al-Muhtaseb, Modeling the Solubility of Acid Gases in Monoethanolamine and Diethanolamine Solutions Using Pseudo-Equilibrium Model., Proceedings of the Second International Engineering Conference, Mansoura, Egypt, April 8-10, 1997.
 24. **M. K. Abu-Arabi**, Theoretical Study of Heat Transfer in Dropwise Condensation, Proceedings of the Jordanian Chemical Engineering Conference II, Irbid, Jordan, September 2- 4, 1996.
 25. M. Allawzi, **M. K. Abu-Arabi**, H. S. Al-Zoubi, Characterization and Utilization of Jojoba oil, Proceedings of the Jordanian Chemical Engineering Conference II, Irbid, Jordan, September 2- 4, 1996.
 26. **M. K. Abu-Arabi**, R. N. Maddox, and E. Elizando, Physical Solubility of Hydrogen Sulfide and Carbon Dioxide in Alkanolamine Solutions, AIChE National Meeting, Houston, Texas, USA, April 2-6, 1989.
 27. E. Elizando, R. N. Maddox, and **M. K. Abu-Arabi**, Low Pressure Experimental Equilibrium Data for the Absorption of Acid Gases in Alkanolamine, AIChE National Meeting, Houston, Texas, USA, April 2-6, 1989.

Presentations in Scientific meetings

1. **M. K. Abu-Arabi**, Desalination on the Red-Dead Sea Conveyor, Dead Sea Prospective projects, organized by Philadelphia University, March 19, 2011.
2. **M. K. Abu-Arabi**, Desalination Technologies and their Applicability to Jordan, Scientific Day on Future of Desalination in Jordan, Jordanian Engineering Association, March 25, 2008
3. **M. K. Abu-Arabi**, Latest Developments in Desalination within the MENA Region, Water Forum, Dubai, UAE, September 24-25, 2005.
4. K. Quteishat, **M. K. Abu-Arabi**, Capacity Building-*from Theory to Practice*, EDS_WSTA workshop, Manama, Bahrain, December 21-22, 2004
5. **M. K. Abu-Arabi**, Small Desalination Units Powered by Renewable Energy, AIDIRA Workshop, Marrakech, Morocco, 29 May 2004.
6. **M. K. Abu-Arabi**, Technology Solutions: Membrane Filtration and Reverse Osmosis, Workshop on Desalination Options and Economics for Jordan, Dead Sea, Jordan, August 18-19 2003.
7. **M. K. Abu-Arabi**, Capacity Building, Research Advisory Council Meeting, Rome, Italy, July 14-16, 2003
8. **M. K. Abu-Arabi**, MEDRC Research Facility and Building, Research Advisory

- Council Meeting, Rome, Italy, July 14-16, 2003.
9. K. Quteishat, **M. K. Abu-Arabi**, Kandi V. Reddy, The Role of MEDRC in Desalination Research, International Conference on Nuclear Desalination: Challenges and Options, Marrakech, Morocco, October 16–18, 2002.
 10. **M. K. Abu-Arabi**, The Role of MEDRC in Desalination Research, Universal Day & Gulf Weekly of Water, Muscat, Oman, March 22-28, 2002.
 11. **M. K. Abu-Arabi**, Recent Development in Desalination Processes, Sultan Qaboos University, Muscat, Oman, October 28, 2001.
 12. **M. K. Abu-Arabi**, Solar Water Desalination Projects Sponsored by MEDRC, Meeting on Solar Water Desalination for the Arab States, Amman-Jordan, September 3-6, 2001
 13. **M. K. Abu-Arabi, Invited Speaker**, Application of Renewable Energy in Desalination, Chicago/Midwest Renewable Energy Workshop, Chicago, Illinois, USA, June 14-15, 2001.
 14. K. Quteishat, **M. K. Abu-Arabi**, International Developments in Desalination Technology, Environmental Research and Wildlife Development Agency, Abu-Dhabi, UAE, May 15, 2001.
 15. **M. K. Abu-Arabi**, Status of on-going and newly awarded projects; Innovative Concepts and Renewable Energy Desalination. Research Advisory Council Meeting-2000, Bad Homburg, Germany, February 5-7, 2001.

Conferences on Desalination - Attended

1. International Conference on Renewable Energy Desalination, June 11-12, 2012, Tunis
2. Desalination for the Environment - Clean Water and Energy, April 22–26, 2012, Barcelona, Spain
3. Desalination for the Environment-Clean Water and Energy, Baden-Baden, May 17–20, 2009, Germany
4. European Conference on Desalination and the Environment, Dead Sea, Jordan, November 9-13, 2008.
5. Status and Prospects for Solar desalination in the MENA Region - Advanced Research Workshop for the 21st Century, Hammamet, Tunisia, 23-25 February 2006.
6. MEDRC International Conference on Desalination Costing, Limassol, Cyprus, 6-7 December 2004.
7. Workshop on Desalination Options for Jordan, Dead Sea, Jordan, August 18-19, 2003.
8. IDA World Congress on Desalination and Water Reuse, Paradise Island, Bahamas, September 28 – October 3, 2003.
9. International Conference on RES for island, tourism & water desalination, Crete, Greece, 26-28 May 2003.
10. European Conference on Desalination and the Environment, Malta, May 4-8, 2003.
11. Desalination Strategies in South Mediterranean Countries, Sharm El-Sheikh, Sinai, Egypt, 4-6 May 2002.
12. IDA World Congress on Desalination and Water Reuse, “Desalination: Water for a Better Future”, Manama, Bahrain, 8-13 March 2002.
13. European Conference on Desalination and the Environment, Water Shortage, Lemesos (Limassol), Cyprus, 28-31 May 2001.
14. European Conference on Desalination and the Environment, Las Palmas, Gran Canaria, 9-12 November 1999.

Workshops and Courses - Attended

1. Short Course on Water Chemistry in Reverse Osmosis and Nanofiltration, Amman-Jordan, April 19-22, 2009.
2. Short Course on Seawater Desalination and the Environment: *Impact of Brine and Chemical Discharges on the Marine Environment*, Amman-Jordan, December 1-3, 2008.
3. Advanced Course on Reverse Osmosis Technology, Amman-Jordan, March 26-29, 2007.
4. One-day course on membrane operation and maintenance, Malta, May 4 2003.
5. Workshop on Desalination Economic Evaluation Program (DEEP), ICTP in Trieste, Italy, April 29 – May 4, 2001.
6. Extensive Course on Desalination Fundamentals, Sultan Qaboos University, Muscat, Oman, January 20-24, 2001.
7. Extensive Course on Membrane Technology, IHE, Delft, The Netherlands, June 5-9, 2000.
8. Workshop on Education Technology - JUST, January 18-20, 1997.
9. Workshop on Engineering Continuing Education - Needs and Prospective. Jordanian Engineers Association, Amman. November 2, 1997.
10. Workshop on Education Technology - JUST, September 5-9, 1995.
11. Workshop on Safety in Industry. JUST, April 19-22, 1992.
12. Workshop on Corrosion and Corrosion Prevention, JUST, January 14-18, 1992.
13. Workshop on Conservation of Energy in Industry, JUST, April 22-24, 1991.

Workshops and Short Courses – Conducted/Conducting

1. Water Desalination, Consultation and continuing Education Center, Jordan University of Science & Technology, August 27th-31st, 2006, August 26th – 30th, 2007
2. Water and Wastewater Treatment, Consultation and continuing Education Center, Jordan University of Science & Technology, February 3rd – 7th, 2008
3. Water Treatment and Desalination, July 26-30 and August 2-6, 2009, Miyahuna Company, Amman, Jordan
4. Water Desalination Technologies, Jan.31st – Feb 4th 2010, TUV Nord Academia, Dubai, UAE.
5. Principles of RO Desalination, Jordan Engineers Association, December 4-8, 2010, Amman, Jordan.
6. Desalination and Water Treatment Plants – Water Chemistry, For Saline Water Conversion Corporation (SWCC), Jan. 29th – Feb. 2nd 2012, Dammam, Saudi Arabia.
7. Water Desalination (RO) & Water Treatment Technologies - operation and Maintenance, August 25-29, 2013, in-house course for ADMA-APCO, Das Island, Abu-Dhabi, UAE.
8. Industrial Water Treatment, Jordan Engineers Association, 3-days, September/October 2013, Amman, Jordan.
9. Chemical Engineering for Non Chemical Engineers, SABIC, Jubail, Saudi Arabia, 27-31 October 2013.

Work at MEDRC

I worked as R & D project manager from 1999-2005 for the Middle East Desalination Research Center (MEDRC). The work involved:

(1) Managing R & D projects

(2) Capacity Building

(1) Projects. I was project manager for the following projects.

1. VARI-ROtm solar powered desalting study
2. Seawater greenhouse development for Oman: Thermodynamic modeling and economic analysis
3. Matching renewable energy with small unit desalination plants: Literature review and analysis of the state of the art of renewable energy and small unit desalination systems
4. Matching renewable energy with small unit desalination plants: Development of a PC-based decision support system
5. Investigation on the use of evaporation ponds for brine disposal in inland desalination plants
6. Hybrid desalination systems: effective integration of membrane/thermal desalination and power technology
7. Hybrid desalination systems
8. Beach well intakes for small seawater reverse osmosis plants
9. Hybrid fossil/solar heated multi-effect-still
10. Zero-waste design development and performance evaluation for small home-use RO units
11. Small solar MED desalination plant
12. Small thermal water desalination systems using solar energy or waste heat
13. Assessment of the innovative freezing-melting process for desalination of sea water
14. A comprehensive study of solar desalination with humidification/ dehumidification cycle
15. Critical assessment of fouling indices
16. Spirulina culture using reject brine water from desalination plants
17. Design and development of a small packaged reverse osmosis system driven by a hybrid power supply system
18. A study of the state of the art, commercial potential, and prospects for advancement of desalination by membrane distillation
19. Development of a novel approach to the prediction of nanofiltration membranes performance using advanced atomic force microscopy
20. Study of the interactive effects of inorganic and biological fouling in RO desalination units (Phase-A)
21. Combined macromolecular adsorption and coagulation for improving pre-treatment processes in desalination plants

Capacity Building in Desalination

As the Middle East and North Africa (MENA) are considered dry regions and rely heavily on desalination, it was considered vital to establish a proper capacity building in these regions to fulfill the need for that purpose. I initiated two programs to deal with this issue;

I. Short courses in desalination. I was completely responsible for choosing the proper courses, the material to be covered in each course, the instructor(s) and the targeted people for capacity building. The following courses were conducted during my work there.

1. Thermal Desalination Processes: Fundamentals and Practice, January 26 – 30, 2004, Dubai, UAE. Also February 5-9, 2005 in Muscat – Oman.
2. Operation and Maintenance in RO Plants, January 10-13, 2005, Muscat - Oman. Also January 15-18, 2005 in Dubai, UAE.
3. Corrosion & Materials Selection in Desalination Plants, September 25-29, 2004, Abu-Dhabi, UAE.

4. Aquatic Chemistry: Fouling and Scaling of Reverse Osmosis Membrane Systems, March 19-22, 2005, Muscat – Oman
5. Membrane Technology in Drinking & Industrial Water Treatment, Muscat - Oman, January 17-21, 2004. Also October 12-16, 2003 in Amman – Jordan.
6. Thermal Desalination; Processes, Principles, Design & Applications, Muscat, Oman, September 13-17, 2003.

II. Scholarship Program: In order to develop personnel in the MENA region who are capable of doing proper R&D in desalination, we (MEDRC) decided to award scholarships for Master and Doctorate degrees to Engineers from the MENA regions, to be acquired abroad mainly in Europe and USA. I was also in charge of setting the rules for implementation, processing and monitoring. We started the scholarship program and several candidates were chosen. The program is still running as was designed and is working well for the region.