



PERSONAL INFORMATION

Family Name: Al-Hwaiti

Full Name: Mohammad Salem Abdullah Al-Hwaiti

Date Of Birth : 24/11/1965

Place Of Birth : Zarqa-Jordan

Nationality : Jordanian

Martial Status: Married, one boy

Place of Residence: Amman-Khalda

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P. O. Box: 4899 Amman- Khalda

Former Position: Exploration Manager/ Jordan Phosphate Mines Company

Permanent Place of Work: Al-Hussein Bin Talal University, Faculty of Engineering,
Environmental Engineering Department

Current Academic Rank: Full Professor.

QUALIFICATIONS

<u>Degree</u>	<u>Specialist</u>	<u>University</u>	<u>Year</u>
Visiting Professor	Environ. Health Risk Assessment	Oldenburg University, Germany	2012
Visiting Professor	Economic ore deposits: Copper	TU-Clausthal, Germany	2011
Post-Doctoral	Environmental risk analysis & Management	RMIT-Melbourne, Australia	2010
Visiting Professor	Economic ore deposits: Gold	TU-Clausthal, Germany	2008
Post-Doctoral	Environmental Engineering, Colorado School of Mines, USA		2004/ 2005
Ph.D.	Geo-environmental Engineering	University of Jordan/TU-Berlin	2000
M.Sc.	Mineral Exploration	University of Jordan	1993
B.Sc.	Environmental earth sciences	University of Jordan	1988

EXPERINCE

Al-Hussein Bin Talal University: 1/2/2016-Present

11/2/2016 Full Professor rank

Environmental Engineering Department, Faculty of Engineering

2016-Present Member committee for higher education scientific research

2016 Advisor and leadership Master programs (Engineering Project Management)

2016 Representative of Al-Hussein University for:

- The Higher Council of Science and Technology
- The Jordan Atomic Energy Commission
- The Agency regulations for Minerals and Energy Sector
- The SESAME SYNCHROTRON IR SPECTROSCOPY AND IMAGING FOR LIFE-SCIENCES APPLICATIONS

King Saud University: 18/1/2014-12/9/2016

Associate Professor

Vice Dean for development and Scientific research affairs

Faculty of Engineering, Applied Mechanical Engineering Department, Al-Muzahimiyah
Branch

Responsibilities and duties:

1. Teaching undergraduate courses assist in department, college committees, supervise undergraduate students, and manage laboratory work. Also I am engaging in service activities, committee, and duties and with professional organizations and at the university.
2. Advisor, administrative and leadership experience in curriculum development
3. Advisor, administrative and leadership experience in an scientific setting
4. Advisor, administrative and leadership committee in delivery tender for engineering laboratory (equipment's and devices)
5. Advisor and leadership experience in a development and quality and laboratory work setting
6. Advisor and leadership undergraduate courses and programs (Renewable Energy Program)
7. Advisor and leadership NCAAA and ABET experiences and professional registration
8. Committee Member of "Studies and Development" for Al-Muzahimiyah Colleges

**International Atomic Energy Agency “IAEA” in Vienna-Austria: 2009-Present
Consultant “Solid waste management”**

The general duties plan and direct investigation leading to safe reuse the hazardous solid waste materials in Agriculture and Soil Amendment in arid regions, Cement Industry and building materials

Al-Hussein Bin Talal University: 11/2/2007-1/2/2016

15/10/2011 Associate Professor at Environmental Engineering Department

2013 Advisor and leadership teams in order to conduct a tenders for (PV-Solar Systems) Renewable Energy, which included terms and conditions, and specifications at Al-Hussein University

2012 Advisor and leadership Master programs (Engineering Management)

2009 Member of Engineering Faculty Council

2008-2009 Deputy health insurance for committee members

2008-2009 Conducted the Private and General Jordanian accreditation Based on (ABET accreditation) for the Environmental Engineering Department.

2007-2008 Member Faculty Council of Mining, Chemical and Environmental and Engineering

2007-2008 Chairman of Environmental Engineering Department

11/2/2007 **Assistant Professor** at Environmental Engineering Department:

2002-2004 Temporary council of the Faculty of Mining and Environmental Engineering: Established the College of Mining and Environmental Engineering (Infrastructure, study plan, courses outlines, courses descriptions and objectives, and laboratories).

Jordan Phosphate Mines Company:

➤ Exploration Manager: 20/11/2001- 10/2/2007

The general duties plan and direct investigation leading to the promotion discovery of new mineral reserves in an assigned area or region. Evaluation ore reserves and its environmental impact during different process steps. Responsibilities include co-ordinating support activities required for field operations, providing technical support for team members in field operations using either internal resources or external resources as required.

➤ Marketing and Sales Department: 31/3/2000- 20/11/2001

Followed up and developed excellent relationships with our customers and adopts a marketing and production policy to assist customers in securing their needs, participated of solving the claims of customers regarding the quality of Jordan phosphate rock and their down stream industry like phosphoric acid and fertilizer industry as well as issued letter of credit (L/C) and bill of lading for our client.

➤ Research and Development Department: 1/10/1996-13/3/2000

Conduct studies and researches (lab scale and pilot plant) of phosphate mining industry include crushing & screening, beneficiation and flotation; phosphate fertilizer such as sulfuric acid, phosphoric acid and DAP. My activities cover the tests and studies carried out to establish the feasibility of new mines include environmental prediction and evaluation, and environmental law and policy. These will include an infrastructure study, physical and

chemical assessments (heavy metals and radionuclides), economic evaluation (ore reserve calculation), QA/QC of the phosphate rock processing and product, and environmental impact assessment (EIA) (scoping, prediction, evaluation, avoidance, monitoring, risk analysis, and recommendation).

➤ **Al-Abied Mines: 1988-1996**

Geological Division: exploration, ore reserve calculation, economic ore evaluation, quality control, and environmental assessment; Mining Division: Plan and direct mining activity includes, open cast mining (Hydraulics & Dragline), Crusher and Screening Plant, and Beneficiation process.

COURSES TEACHING

MSc. Graduate courses:

1. Bio-Energy Technology

BSC. Undergraduate courses:

1. Introduction to Environmental Engineering
2. Environmental legislations
3. Special subject: Environmental Economics
4. Environmental effects of Mining
5. Water resources and supplies
6. Water and Wastewater treatment
7. Solid waste management
8. Environmental chemistry
9. Environmental geochemistry
10. Environmental Impact Assessment
11. Radioactive pollution and Safety
12. Environmental toxicology
13. Industrial safety Engineering
14. Mine Reclamation
15. Engineering Geology
16. Geotechnical engineering and site investigation

17. Lab Geotechnical engineering
18. Communication skills
19. Physics for Engineering
20. Probability and statistics for Engineering
21. Technical writing
22. Management Skills
23. Graduation Projects I
24. Graduation Projects II

RESEARCH OF INTEREST

1. Environmental Risk Analysis and Management System: fate and transport of toxic heavy metals and radionuclides contamination in water, soil, plant and sediments. Develop a Grid-based system for analyzing and managing pollutant-related environmental risks. Sophisticated simulation programs (e.g. *statistical and geostatistical modeling, spatial variability, geospatial variability, remote sensing and GIS*) are used to forecast and evaluate the dispersion of toxic heavy metals, radionuclides, carcinogenic and chemically toxic substances in the atmosphere, the soil and the surface water and groundwater, plant, and sediments, and to calculate the health risk they pose to humans.

2. Mineral Exploration and evaluation of phosphate ores: mineralogy, chemistry, and geochemistry, pre-feasibility and feasibility studies, ore reserve calculation; geological and mining modeling using statistical and geostatistical method; developing dry beneficiation process using a rotary trielectrostatic separation of ore.

3. Mining technology: Phosphate mine processes (i.e. beneficiation and flotation), uranium and REE extraction and their recovery from phosphate rocks and their fertilizer.

4. Hazard Industrial waste management: Develop an industrial hazardous solid waste materials of “phosphogypsum”. Sophisticated application practices are utilized in agriculture and soil amendment in dry land, cement industry, and building.

5. Environmental Modelling: Finding simplicity in complexity, modelling and model building, the state of the art in environmental modelling, models for management, current and future developments.

6. Environmental Economics: Estimating the cost of environmental degradations; measuring cost benefits and damages; valuing changes in productivity approach in soil erosion; measuring damages from pollution.

HONORS AND AWARD

2012 German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). A visiting Scholar, grant research, Oldenburg University, Germany.

2011 German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). A visiting Scholar, grant research, Technical University of Clausthal, Germany.

2010 Endeavour Executive Award, Post-Doctoral research, RMIT University, Melbourne, Australia.

2008 German Research Foundation (Deutsche Forschungsgemeinschaft, DFG). A visiting Scholar, grant research, Technical University of Clausthal, Germany.

2004/2005 The Fulbright Award; Post-Doctoral Research for 9 months at the Environmental science and Engineering Division, Colorado School of Mines, Golden, CO, USA.

1999 The Deutscher Akademischer Austauschdienst (DAAD), Technical University of Berlin, Germany through my Ph.D.

1988 The Higher Council for Scientific and Technology Award (HCST), Industrial Funded Project, Amman, Jordan.

PhD Dissertation:

Al-Hwaiti, M. (2001): “*Geostatistical and Geochemical Investigation on Eshidiya Phosphorites, Western Orebody, South Jordan: Variation in Ore Composition and Its Content of Toxic Heavy Metals Available for Plant Absorption*”. Advisors Prof. Dr. Ghazi Saffarini, University of Jordan, and Prof. Dr. Matheis, G.,TU-Berlin.

Master Thesis:

Al-Hwaiti, M. (1994): “*Spatial and Geochemical Variability in Wadi Khalid Stream Sediment, Feinan District- South Jordan*”. Advisors Prof. Dr. Ghazi Saffarini, University of Jordan

LIST OF PUBLICATIONS

1. **Al-Hwaiti, M.**, Brumsack, H., Schnetger, B. (2018). Heavy metal contamination and health risk assessment in waste mine water dewatering using phosphate beneficiation processes in Jordan. *Environmental Earth Sciences* (**Accepted**).
2. **Al-Hwaiti, M.**, Al-Shaweesh M., and Al-Muhtaseb, A. (2018): Utilization of local limestone powder and iron slag powder waste materials to improve the strength and durability characteristics of self-compacting concrete, Jordan. *Geomechanics and Geoengineering: An International Journal* (Under revision).
3. **Al-Hwaitia M.**, Hanan S., Makhaleh M., Masadeh M. (2018). Partitioning and health risk dose assessment of Polonium-210 in selected brands of cigarettes and types of tobacco consumed in Jordan. *International Journal of Low Radiation* (Under revised)
4. Al-Shaweesh, M., **Al-Hwaiti, M.**, Al-Khashman, O., Abu-Jrai, A. (2018). Health risk assessment through exposure to heavy metals in urban and suburban dust emitted from workplace in Aqaba Industrial Estate, Jordan. *Human and Ecological Risk Assessment: An International Journal* (Under revision).
5. Hanan S., Hamideen, M., **Al-Hwaiti, M.**, Al-Kharoof, S. (2018). Radiological risk assesment due to natural radioactivity of building stone used in Jordanian houses. *Jordan Journal of physics*. (Under revision).
6. **Al-Hwaiti, M.**, Rabba, I., Zoheir, B., Lehmann, B. (2018). Middle Cambrian Burj-Dolomite Shale-hosted copper mineralization of the central Wadi Araba, southwestern Jordan. Submitted (*Ore Geology Reviews*).
7. **Al-Hwaiti, M.**, Brumsack, H., Schnetger, B. (2016). Suitability assessment of phosphate mine waste water for agricultural irrigation, an example from Eshidiya Mines, South Jordan. *Environmental Earth Sciences*, (2016) 75:276.
8. **Al-Hwaiti, M.**, Khashman, O (2015). Health risk assessment of heavy metals contamination in tomato and green pepper plants grown in soils amended with phosphogypsum waste materials. *Environmental Geochemistry and Health*, 37:287–304.
9. **Al-Hwaiti,** Al Quisi, M., Saffarini, G. Kitam Al-Zhughoul (2015). Assessment of elemental distribution and heavy metals contamination in phosphate deposits: Potential health risk assessment of finer-grained size fraction. *Environmental Geochemistry and Health* 36:651–663

10. [Al-Hwaiti, M.](#) (2015). Influence of treated waste phosphogypsum materials on the properties of Ordinary Portland Cement. *Bangladesh J. Sci. Ind. Res.* 50(4), 241-250, 2015
11. [Al-Hwaiti, M.](#), Brumsack, H., Schnetger, B. (2015). Fraction distribution and risk assessment of heavy metal in waste clay sediment discharged through phosphate beneficiation process in Jordan. *Environmental Monitoring and Assessment*, 187: 401, DOI 10.1007/s10661-015-4579-2.
12. [Al-Hwaiti, M.](#) (2015). Assessment of the radiological impacts of utilizing treatment phosphogypsum as main constituent in the building materials in Jordan. *Environmental Earth Sciences* DOI 10.1007/s12665-015-4354-2.
13. Al Kusi, M., [Al-Hwaiti, M.](#), Kholoud, M., Abed, A.M. (2015). Spatial distribution patterns of molybdenum (Mo) concentrations in potable groundwater in Northern Jordan. *Environ Monit Assess*, 187: 148, DOI 10.1007/s10661-015-4264-5.
14. [Al-Hwaiti, M.](#), Araf, K, Harara, M. (2015). Removal of heavy metals from waste phosphogypsum materials using polyethylene glycol and polyvinyl alcohol methods. *Arabian Journal of chemistry*.
15. [Al-Hwaiti, M.](#), Araf, K(2015). Influence of treated waste phosphogypsum materials on the properties of Ordinary Portland Cement. *Bangladesh J. Sci. Ind. Res.* 50(4), 241-250, 2015
16. [Al-Hwaiti, M.](#), Tardio, J., Hailey, R., Bhargava, S. (2014). Selectivity assessments of a sequential extraction procedure for potentially trace metals mobility and bioavailability in phosphate rocks from Jordan Phosphate Mines. *Soil and Sediment Contamination*, 23:417–436.
17. [Al-Hwaiti, M.](#), Al-Khashman, O., Al-Khatib, L.A., Fraige, F (2014). Radiological hazard assessment for building materials incorporating phosphogypsum made using Eshidiya mine rock in Jordan. *Environmental Earth Sciences* (2014) 71:2257–2266
18. Al-Khashman, O., [Al-Hwaiti, M.](#), Al-Khatib, L.A., Fraige, F (2014). Assessment and Evaluation of Treated Municipal Wastewater Quality for Irrigation Purposes. *Research Journal of Environmental and Earth Sciences* (5): 229-236.
19. Al-Khatib, L, Fraige, F., [Al-Hwaiti, M.](#), Omar Al-Khashman (2012) Adsorption from aqueous solution onto natural and acid activated bentonite. *American Journal of Environmental Science*, 8 (5), 510-522.

- 20. [Al-Hwaiti, M. \(2012\)](#).** Toxic trace elements composition of Eranbee phosphate deposits, central Jordan: Possible environmental implications. *Society for Mining, Metallurgy, and Exploration (SME). Chapter 18: 153-163.*
- 21. Zielinska, [R.](#), [Al-Hwaiti, M.](#), Budahn, J., Ranville, J., Ross, P. (2011).** Radionuclides, trace elements, and radium residence in phosphogypsum of Jordan. *The Journal of Environmental Geochemistry and Health*, 33, 149-165
- 22. Fraige, F.Y., Al-Khatib, L.A., AlNawafleh, H.M., Dweirj, M.K., [Al-Hwaiti, M.](#), and Al-Khashman, O., 2012,** *Separation of Shredded E-waste Using Vibration.*, 4th e-Health and Environment Conference in the Middle East, Dubai Palm, UAE, during 30th January – 2 February, 2012.
- 23. [Al-Hwaiti, M.](#), (2010).** Contamination of potentially trace metals in Agaba and Eshidiya phosphogypsum. *International Journal of Economic and Environmental Geology*, 1(1): 35-42.
- 24. [Al-Hwaiti, M.](#), Ranville, J., Ross, P. (2010).** Contamination of potentially trace metals in Aqaba and Eshidiya Phosphogypsum/ Jordan. *Society for Mining, Metallurgy and Exploration. Published by SME, Chapter 27, 273-284.*
- 25. [Al-Hwaiti, M.](#), (2011).** Toxic trace elements composition of Eranbee phosphate deposits, south Amman, Jordan: Possible environmental implications”. International conference of Beneficiation of Phosphate VI, Kuming, China 6-11 March, 2011. The paper presented”
- 26. [Al-Hwaiti, M.](#), Zoheir, B., Lehmann, B. Rabba, I., (2010).** Epithermal gold mineralization at Wadi Abu Khushayba, Southwestern, Jordan. *Ore Geology Reviews*, 38,101-112.
- 27. [Al-Hwaiti, M.](#), Ross, P., Ranville, J., (2010).** Bioavailability and mobility of trace metals in phosphogypsum from Aqaba and Eshidiya, Jordan. *The Chemie der Erde Geochemistry*, 70, 283-291.
- 28. [Al-Hwaiti, M.](#), Zielinska, R., Budahn, J., Ranville, J., Ross, P. (2010).** Distribution and mode of occurrences of radionuclides in phosphogypsum from the Aqaba and Eshidiya fertilizer plants, Jordan. *Chinese Journal of Geochemistry*, 29,261-269.
- 29. [Al-Hwaiti, M.](#) and Ranville, J. (2010).** Distribution of heavy metal and radionuclide contamination in soils related to phosphogypsum waste stockpiling in the Eshidiya Mine, Jordan. *The International Journal Geochemistry: Exploration, Environment, Analysis*, 10, 419-433.

- 30.** Tao, D., [AL-Hwaiti, M.](#) (2010). Beneficiation study of Eshidiya phosphorites using a rotary triboelectrostatic separation. *The Mine Science and Technology*, 20, (3), 357-371.
- 31.** [Al-Hwaiti, M.](#), (2010). *Uranium distribution in Jordan phosphorites, and its recovery based on sequential extraction methods*. The 3rd International Symposiums on Nuclear Energy ISNE-10, 15-17 December 2010, Amman, Jordan.
- 32.** [Al-Hwaiti, M.](#) and [Ranville, J.](#), (2010). *Environmental hazard assessment of phosphogypsum waste stockpile material from Jordan*”.The International Conference of Naturally Occurring of Radioactive Materials, Marrakech, Morocco 22-26 March, 2010. IAEA publications.
- 33.** [Al-Hwaiti, M.](#), (2009). *Distribution of uranium in the Jordan phosphate rock, production of phosphoric acid, DAP fertilizer, and phosphogypsum waste materials* Program of “The International Conference on Materials in Jordan” Humboldt Kolleg 4-6 March, German - Jordanian University (GJU), Amman, Jordan. The paper presented “”.
- 34.** [Al-Hwaiti, M.](#), Carney, J.F. Ross, P., [Ranville, J.](#), (2005). Heavy Metal Assessment of Phosphogypsum Waste Stockpile Material from Jordan. *American Society of Mining and Reclamation*. 19-23, 2005.
- 35.** Carney, J.F., [Al-Hwaiti, M.](#), Ross, P., [Ranville, J.](#), (2005). Finding phosphate waste toxicity and radioactivity analysis from the Eshidiya and Aqaba mining facilities, Jordan. *American Society of Mining and Reclamation*. 19-23, 2005.
- 36.** Carney, J.F., [Al-Hwaiti, M.](#), Ross, P., [Ranville, J.](#), (2005). Secondary finding of phosphate mining waste toxicity from the Eshidiya and Aqaba mining facilities, Jordan *American Society of Mining and Reclamation*. 19-23, 2005.
- 37.** [Al-Hwaiti, M.](#), Matheis, G. and Saffaini, G. (2005): Mobilization, Redistribution and Bioavailability of Potentially Toxic Elements in Shidiya Phosphorites, Southeast Jordan. *Journal of Environmental Geology*, 47:431-444.
- 38.** Jiries, A., ElHasan, T., [Al-Hwaiti, M.](#), and Seiler, K.B. (2004): Evaluation of the Effluent Water Quality Produced at Phosphate Mines in Central Jordan. *Journal of Mine Water and Environment*, 23:133-137.
- 39.** [AL-Hwaiti, M.](#) and Abuoleam, N. (2001): *Redistribution and Mobilization of Low Toxic Elements in Shidiya Phosphorites*. The Arab Fertilizer Association. AFA 14th International Annual Conference. Alexandria. Egypt s v-5/1-sv-5/17.

40. [Al-Hwaiti, M. \(2000\)](#). *Geostatistical and Geochemical Investigation on Eshidiya Phosphorites, Western Orebody, South Jordan: Variation in Ore Composition and Its Content of Toxic Heavy Metals Available for Plant Absorption*. PhD Thesis, University of Jordan/Technical University of Berlin.
41. [Al-Hwaiti, M. \(1994\)](#). *Spatial and Geochemical Variability in Wadi Khalid Stream Sediment (Feinan District- South Jordan)*. Master Thesis, University of Jordan.
42. [Al-Hwaiti, M. \(2017\)](#). Heavy metal contamination and health risk assessment in waste mine water dewatering using phosphate beneficiation processes in Jordan. Environmental & Biological Engineering, Pattaya (Thailand) May 2-3, 2017.
43. [Al-Hwaiti, M. \(2016\)](#). Assessment of the radiological impacts of utilizing treatment phosphogypsum as main constituent in the building materials in Jordan. Environmental Earth Sciences, 18-22, Rio-dejaniero, Brazil.
44. [Al-Hwaiti, M., Al-Khashman, O., \(2012\)](#). The application of phosphogypsum in agriculture: potential phosphogypsum and soil contamination with trace metals and radionuclides in Eshidiya Mine, Jordan. International colloquium “E3D'12” March 21-24, 2012, Morocco-Agadir.
45. Fraige, F.Y., Al-Khatib, L.A., AlNawafleh, H.M., Dweirj, M.K., [Al-Hwaiti, M., and Al-Khashman, O., 2012](#), *Separation of Shredded E-waste Using Vibration.*, 4th e-Health and Environment Conference in the Middle East (Oral Presentation), held at the Atlantis Hotel, Dubai Palm, UAE, during 30th January – 2 February, 2012.
46. [Al-Hwaiti, M., Ia'ad, H., Ibrahim, K. \(2011\)](#). Environmental Protection of use limestone filler and iron slag for developing economical Self-Compacting Concrete by-product in Jordan”. The 10th International Jordanian Geologist Conference, Amman, April 3-5, University of Jordan, 2011.
47. Zielinska, R, [Al-Hwaiti, M., Budahn, J., Ranville, J., Ross, P. \(2010\)](#). “*Radionuclides, trace elements, and radium residence in phosphogypsum of Jordan*. Geochemistry of Atmospheric Particulates: From Sources to Impacts on the Environment and Health. GSA Denver Annual Meeting, 31 October –3 November, 2010. The paper presented.
48. [Al-Hwaiti, M., \(2009\)](#). *Bioavailability of Potentially heavy metals in Shidiya phosphorites, south east, Jordan*”.The International Conference COVPHOS III, Marrakech, Morocco 18-20 March, 2009. The paper presented “.
49. [Al-Hwaiti, M., \(2008\)](#). *Contamination of Potentially Trace Metals in Aqaba and Eshidiya Phosphogypsum/ Jordan*”. International conference of Beneficiation of Phosphate V, Rio de Janerio, Brazil 17-22 April, 2008. The paper presented “

50. [Al-Hwaiti, M. \(2004\).](#) *Mobilization, Redistribution and Bioavailability of Potentially Toxic Elements in Shidiya Phosphorites, Southeast Jordan*". Engineering Conference International (Beneficiation of Phosphate IV), December 5-10, 2004, Miami- Florida. The paper presented.

51. [Al-Hwaiti, M. \(2001\).](#) *Geostatistical and Geochemical Investigation on Eshidiya Phosphorites, Western Orebody, South Jordan: Variation in Ore Composition and Its Content of Toxic Heavy Metals Available for Plant Absorption*. The 7th Jordanian Geologist Conference, Amman. Jordanian Geological Conference, Book of Abstracts, University of Jordan.

52. [Al-Hwaiti, M. \(1994\).](#) *Spatial and Geochemical Variability in Wadi Khalid Stream Sediment (Feinan District- South Jordan*. The Fifth Jordanian Geological Conference and Third Geological Conference & the Middle East (GEOCOM III) Jordanian Geological Conference, Book of Abstracts, (1994), Amman. The paper presented.

DECTORAL THESIS

[Ben Byju. S \(2016\)](#) Study Of Effect Of High Background Radiation As A Causative Agent For Certain Congenital Malfunctions. Bharathiar University, Department of Physics. **(External Examiner)**

MASTER THESIS

2018 Biodiesel from Hndal Oil Characterization and Performance Testing In Internal Combustion Engine. College of Engineering, Al-Hussen Bin Talal University. MSc. **(Supervisor)**

2006 "Environmental Aspects of Phosphate Beneficiation Processes in Al-Abied Mine-Central Jordan: Migration and Dispersion of Heavy Metals in the Sediment, Soil and Water System". [Environmental Applied Science, the Hashemite University, Jordan.](#) **(Co-Supervisor)**

2005 Spatial Variability of the Upper Horizon Phosphate in The Eshidiya Area, South Jordan", [Environmental and Applied Science, University of Jordan.](#) **(Co-Supervisor)**

2005 "Findings of Phosphate Mining Waste-Toxicity and Radioactive Analysis from Eshidiya and Aqaba Phosphogypsum, Jordan", [Environmental Science and Engineering Colorado School of Mines, CO, USA.](#) **(Co-Supervisor)**

GRADUATION PROJECTS SUPERVISED

- 2018 An experimental investigation of biodiesel production from Jordan Handal seeds oil
- 2017 Assessment of radioactivity and biological in some pharmaceutical industrial wastewater effluents in Amman, Jordan.
- 2016 Health risk assessment of Polonium and toxic Heavy metals of local tobacco and some selected brands of cigarettes in Jordan.
- 2016 Assessment of atmospheric radiation dose in Jordan borderers.
- 2012 Evaluation of treated mine waste water quality for irrigation and agriculture crops cultivation: potential surface water, clay slurry, tailing water, soil , and groundwater contamination with toxic trace metals in Eshidiya Mine.
- 2012 Clean up of phosphogypsum by using polymers
- 2010 Environmental Protection of Use Limestone Filler and Iron Slag By-product for Developing Economical Self Compacted Concrete in Jordan.
- 2008 Utilization of Phosphogypsum waste materials in Agriculture and Soil Amendment
- 2008 Utilization of Phosphogypsum waste materials in Cement Industry and building

PROFESSIONAL ACTIVITIES

- 2016 Organizing Committee of the NORM V, Brazil
- 2010 Organizing Committee of the 10th Jordanian Geologist Conference. Amman
- 2009 Organizing Committee of the International Conference COVPHOS III, Marrakech, Morocco 18-20 March, 2009.
- 2008/2009 Experience with Private and General Jordanian accreditation (Based on ABET accreditation) for the Environmental Engineering Department.
- 2002/2004 Established the College of Mining and Environmental Engineering, Al Hussein Bin Talal University (Study plan, Courses Outline, and Laboratories)
- 2003 Organizing Committee of the 8th Jordanian Geologist Conference
- 2001 Organizing Committee of the 7th Jordanian Geologist Conference
- 1998 Organizing Committee of the 6th Jordanian Geologist Conference

INTERNATIONAL PROFESSIONALS ACTIVITIES

Consultant

2017 Environment Impact Assessment (EIA) for Fhais Cement Factory, 2017

2017 Environment Impact Assessment (EIA) for the development of Mahis Area, 2017

2008-present Environment Impact Assessment (EIA) for Jordan Industrial solid waste management (International Atomic Energy Agency, IAEA) in Vienna-Austria: 2009-Present. Consultant at the International Atomic Energy Agency (IAEA), in the field of hazardous solid waste management (e.g. Phosphogypsum), Vienna 14-20/11/2009.

2008 Consultant at the International Atomic Energy Agency (IAEA), in the field of hazardous solid waste management (e.g. Phosphogypsum), Vienna, 14-20/7/2008.

2010-present Editorial Board: Journal of Environmental Chemistry and Ecotoxicology

2010-present Editorial Board: Journal of Engineering

2010-present Editorial Board: Walailak Journal of Science and Technology

2010-present Editorial Board: Journal of Civil Engineering and Environmental Sciences

2010-present Reviewer for International Journals: Environmental Geochemistry and Health, Environmental Earth Sciences, Environmental Assessment and Monitoring, and others.

MEMBERSHIP

2010-present Alumni association of Australian Endeavour Award

2005-present Alumni association of American Fulbright Award

1998-present Alumni association of University of Jordan

1988-present Jordanian Geologist Associations

1994-present The Youth of Arab Forum- Amman

1995-1997 Member Council of the Jordanian Geologist Association

1997-1999 Deputy President of Jordanian Geologist Association

1995-present Jordanian Environmental Association

2001-2007 (UNCTAD)-Mining Sector

2004-present Jordan Society for Expanding the Natural Resources

FUNDED PROJECTS

Project Title	Funding Institution	Amount of Fund, (\$ US)
Optimization and characterization of biodiesel production from Jordan Hnadal seed oil: performance of diesel engine with biodiesel, and a potential bio-lubricant base-stock and its medical applications Principal Investigator	Deanship of scientific research, Al-Hussein Bin Talal University Ma'an- Jordan	161,000
Extraction of Vanadium from phosphate rocks and their wastes. Co-investigator	Scientific Research Support Fund/ Ministry of Higher Education and Scientific Research, Amman- Jordan	227,000
Utilization of Phosphogypsum waste materials in agriculture and cement industry: Principal Investigator	Deanship of scientific research, Al-Hussein Bin Talal University Ma'an- Jordan	11,000
Development of Fouling Resistant Membrane for Application in Water Treatment: Co-investigator	Scientific Research Support Fund/ Ministry of Higher Education and Scientific Research, Amman- Jordan	115,000
Distribution and Redistribution of Toxic Elements in Shidiya Phosphorites: Principal Investigator	The Higher Council for Science and Technology- Amman- Jordan	21,000
Total		535,000

COURSES AND TRAINING

- 2010 Environmental Health and Safety, RMIT, Melbourne, Australia
- 2008 Private and General Jordanian accreditation (Based on ABET accreditation), Environmental Engineering Department, Al-Hussein University.
- 2006 Hazardous solid waste management, Tunis
- 2004 Environmental Health and Safety, Colorado School of Mines
- 2003 Short course on Metals, health and the environment, 6-7/9/ 2003, Edinburgh, UK.
- 2002 Minex Program for geostatistical ore reserve estimation, Jordan Phosphate Mines Company, Jordan.
- 2000 JD Edwards Foundation Class, 16/5/2000-16/7/2000, Jordan Phosphate Mines Company, Amman-Jordan
- 1994 Digital Mapping, 9-20/7/1994, College of The Geographical Royal Jordanian Center for surveying Sciences.

SKILLS

Experimental Skills: X-ray Fluorescence (XRF), ICP-AES, ICP-MS, Atomic Absorption Spectroscopy (AAS), Neutron Activation (INAA), Gamma-spectrometry, X-ray Diffraction (XRD), Scanning Electron Microscope (SEM), and Microprobe Analysis.

Computer Skills: DOS, Windows, Microsoft office (Word, Excel, PowerPoint, CorelDRAW...etc); and Geostatistical Program: Minex, GS⁺, GeoEas, SPSS.

Language Skills

	<u>Reading</u>	<u>Writing</u>	<u>Speaking</u>
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Germany	Good	Good	Fair

CONFERNCES ATTENCENCE

- 1994 The 5th Jordanian Geologist Conference & Third Geological Conference in the Middle East (GEOCOM III)/ Amman
- 1996 The Arab Geological Unity/ Sudan
- 1997 Stratigraphical Geology / Iraq
- 1998 The 6th Jordanian Geologist Conference/ Amman
- 2000 The Arab Fertilizer Associations (AFA). Alexandria/ Egypt
- 2001 The 7th Jordanian Geologist Conference Amman
- 2001 Beneficiation of Phosphate III/ Tampa, Florida/USA
- 2003 6th International Symposium on Environmental Geochemistry (ISEG)
Sept., 7-9, 2003, Edinburgh, UK.
- 2004 The 8th International Conference of Jordanian Geologists Association April 6-7,
2004. Held in Amman University

- 2004 International Engineering Conference “MUTAH 2004”, April 26-28, Mutah University, Jordan.
- 2004 Engineering Conference International (Beneficiation of Phosphate IV): Miami-Florida, Dec., 5-10, 2004.
- 2006 The 6th International conference on the Geology-UAE, March 20-23, 2006.
- 2007 The fifth Jordanian International Mining Conference, Amman-Jordan 3-6/9/2007.
- 2008 Beneficiation of Phosphate V, Rio de Janeiro, Brazil 17-22 April
- 2009 The International Conference of Materials in Jordan, Amman 4-6 March.
- 2009 The International Conference COVPHOS III, Marrakech, Morocco 18-20 March.
- 2009 Program of “The International Conference on Materials in Jordan” Humboldt Kolleg 4-6 March 2009 German - Jordanian University (GJU), Amman, Jordan.
- 2010 The International Conference of Naturally Occurring of Radioactive Materials, Marrakech, Morocco 22-26 March
- 2010 Geochemistry of Atmospheric Particulates: From Sources to Impacts on the Environment and Health. GSA Denver Annual Meeting (31 October –3 November 2010)
- 2010 The 3rd International Symposiums on Nuclear Energy *ISNE-10*, 15-17 December 2010 in Amman, Jordan.
- 2011 Beneficiation of Phosphate VI, Kuming, China 6-11 March
- 2011 The 10th International Jordanian Geologist Conference, Amman, April 3-5, University of Jordan.
- 2012 World Future Energy Summit, hosted by Masdar, Abu Dhabi, 16-19/ 1/2012.
- 2012 EU Sustainable Energy Week, Brussels, Belgium, 18-22 June, 2012
- 2013 Environmental Engineering, Bangkok-Tailiand, March 20-24
- 2013 NORM IV, China, March 25-28
- 2016 NORM 8, Rio dajanagerio- Brazilian, 18-22/10/2016
- 2017 Environmental & Biological Engineering, Pattaya (Thailand) May 2-3, 2017

REFERNCES

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Cover Letter

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Dear Sir,
Human Resources Office
Faculty - Engineering - Civil and Environmental



Date: August 24, 2018

City University of Hong Kong
Email : hrojob@cityu.edu.hk
Fax : 2788 1154 or 3442 0311

Reference: Professor of Environmental Engineering [Ref. D/131/09]

I am visiting the website of the City University of Hong Kong in the The School of Energy and Environment, for a tenure-track faculty position in the area of waste and energy. I am enclosing my C.V., and list of references with this message. Please feel free to contact my references without my prior permission or ask me for more information as you may need that. Going through the Website of the City University of Hong Kong has convinced me that working for you will be a challenging and exciting experience. The responsibilities and duties of teaching and doing research will help me to develop my existing skills that I have during my PhD thesis research in the environmental science and engineering focusing in environmental geochemistry “*Fate and transport of heavy metals and radionuclides in phosphate ores process and their fertilizer*” at the Technical University of Berlin and University of Jordan (2000), in the Jordan Phosphate Mines Company since 1988 up to 2007, especially during the last eight years as exploration manager” mineral exploration”.

During a Fulbright Scholar award (2004/2005) as a Post-Doctoral research in the Environmental Science and Engineering Division, Colorado School of Mines (CSM) in the hazardous industrial solid waste management and its health risk assesement “*Utilization of phosphogypsum waste materials in agriculture and soil amendment, in building and cement industry.*”

During the International Atomic Energy Agency (IAEA) (2008-up till now) as a technical consultant worked on “*Safe use of hazardous solid waste materials (e.g. phosphogypsum) in cement industry and building, soil amendment, and agriculture in arid land regions*”.

During the Endeavour Executive award (2010) as a visiting scholar research on Environmental risk analysis “*Sequential extraction of Uranium and REE and other heavy metals from the ore phosphate rock*” in the RMIT University, School of Applied Sciences, Engineering & Health Portfolio (SEH), Melbourne-Australia. Also, I have acquired from training a courses included: Health, Safety and Environment.

During a DFG Scholar award (2012) as a visiting scholar research on reuse of mine waste water and its health risk assesement “*Suitability assessment of phosphate mine waste water for agricultural irrigation: an example from Eshidiya Mine; Fraction distribution and risk assesement of heavy metals in waste clay sediment discharged through the phosphate*”

beneficiation process in Jordan South Jordan”, in the Oldenburg University, Germany. Also, I have acquired from training a courses included: Health, Safety and Environment.

During my sabbatical leave at the King Saud University (2014-2016), I established the Faculty of Engineering, Muzahimiyah Branch. I have supervised and leadership undergraduate courses and programs (Renewable Energy Program). Also, I taught teaching undergraduate courses assist in department, college committees, supervise undergraduate students, and manage laboratory work. Also I am engaging in service activities, committee, and duties and with professional organizations and at the university

During my mission at the Al-Hussein Bin Talal University as I established the faculty of Mining and Environmental Engineering in the 2002-2003, then I conducted a courses outline and laboratories (ENVENG, and MINENG), and courses plan as well.

During my position at the Al-Hussein Bin Talal University as assistant Professor in the Department of Environmental Engineering since 2007 to up till now. I got promotion as associate Professor since October, 15, 2011 in the Environmental Engineering Department, Faculty of Engineering. Also, I got promotion as Professor Rank in the Environmental Engineering since 1/2/2016.

Also, I have acquired from teaching a courses included: Introduction to environmental engineering, , Environmental chemistry, Environmental geochemistry, Solid waste management, Environmental impact assessment, Radioactive pollution and Safety, Industrial safety engineering, Environmental modelling, Geotechnical Engineering and Site Investigation Environmental economic, Environmental effects of mining, Environmental mine reclamation, water and waste water treatment, and water recourses and supplies, Bioenergy technology.

During the last ten years I conducted original research and publications in highly recognized journals (Environmental geochemistry and health; Environmental Monitoring and Assessment; Environmental Earth Sciences; Soil and Sediment Contamination; International Journal of Economics and Environmental Geology; Chemie Der Erde Geochemistry; Mining Science and Technology; Arabian Journal of chemistry Mine Water and Environment; American Journal of Environmental Science; American Society of Mining and Reclamation; Geochemistry: Exploration, Environment, Analysis; Society for Mining, Metallurgy and Exploration; Chinese Journal Geochemistry; Bangladesh J. Sci. Ind. Res).

During my research advisor for two Master students (2004/2005): (1) supervisor MSc (2018) in Environmental Engineering at Al-Hussein Bin Talal University “*Biodiesel from Jordan*

Handal Oil Characterization and Performance Testing In Internal Combustion Engine"; (2) Co-supervised MSc (2005) in the Environmental Science and Engineering at Colorado School of Mines "*Environmental toxicity findings of heavy metals contaminated phosphogypsum waste materials*"; (3) Co-supervisor of MSc (2006) in the Natural Science and Environment Department at the Hashemite University, Jordan "*Environmental sustainability of mine waste water discharged from El-Abied Mines, Jordan*". (4) Co-supervisor of MSc (2005) in the Environmental and Applied Science at University of Jordan "*Spatial Variability of the Upper Horizon Phosphate in The Eshidiya Area, South Jordan*"

During graduation projects, I supervised a graduated projects for my students as follows: (1) Bioenergy (2018): *An experimental investigation of biodiesel production from Handal seeds oil*; (2) Environmental Health assessment (2017): *health risk assessment of radioactivity and biological contamination in some pharmaceutical industrial wastewater effluents*; (3) Environmental Health assessment (2016): *health risk assessment of Polonium radioactivity of local tobacco and some selected brands of cigarettes*; (4) Environmental Health assessment (2016): *health risk assessment of atmospheric radiation dose in Jordan borders*. (5) Civil and Environmental Engineering (2012): *reuse of limestone powered and iron slag powered waste materials in the Self Compact Concrete (SSC)*; (6) Wastewater contamination (2012): *Assessment of mine water process contamination with toxic heavy metals: example Eshidiya Mine, south Jordan*; (7) Civil and Environmental Engineering (2010): *influence of treated waste phosphogypsum materials on the properties of Ordinary Portland Cement industry*"; (8) Environmental Health assessment (2008): *Utilization of phosphogypsum waste materials in agriculture, cement industry and building materials*.

Going through my publications in the international Journal (please see attached C.V.) during the last 10 years ago, I have interested and expertise in environmental economics concerns "waste mine water treatment, reuse mine water in agriculture, hazardous/industrial waste treatment or site remediation, reuse industrial solid waste materials in agriculture, soil amendment, cement industry, and building. In addition, I have potential or proven ability to develop a nationally recognized research program, excellent communication skills, and a strong commitment to teaching courses at the undergraduate and graduate (masters and PhD) levels.

I had several training courses of environmental health and safety as follows: (1) Metals, health and the environment in the Edinburgh University, Scotland, UK; (2) environmental health and safety in the Environmental Science and Engineering division, Colorado School of Mines; (3) environmental health and safety in the Applied Science and Environment, RMIT University, Melbourne, Australia.

I am using different analytical techniques (1) Chemical and mineralogical analysis (e.g. XRD, SEM, Microprobe analysis for mineralogy; ICP-AES, ICP-MS, XRF, INAA, GC-MS and AAS for major and trace metals, and alpha and gamma spectrometry for the radionuclides measurement); (2) Sophisticated simulation programs (e.g. statistical and geostatistical modeling, spatial variability, geospatial variability, remote sensing and GIS).

I developed contacts and personal relations with the phosphate mining industry and phosphate fertilizer industries in the worldwide, thus I have the potentials to obtain research funds and teaching aids to the institute in which I will be applying. I have the capability of merging PE with other disciplines and teaching using distant education means.

My geology and engineering geology background, environmental chemistry, environmental geochemistry, environmental engineering, environmental health and safety, environmental radiochemistry, environmental impact assessment, environmental development and sustainability, mining engineering environmental effects of mining, mining reclamation and remediation, industrial mine water management, industrial solid hazardous waste management using state-of-the art techniques such as statistical and geostatistics modeling and GIS computer expertise that I have will be a valuable and great asset for the the City University of Hong Kong in the The School of Energy and Environment, for a tenure-track faculty position in the area of waste and energy. I will be considered, however preference will be given to the successful that I will join the School of Energy and Environment as a Professor in Environmental Engineering (downstream recovery of metals).

I am looking forward to hearing from you

Best regards

Mohammad Al-Hwaiti

Statement of Research

My research interests are mainly in the following fields: 1) Environmental Engineering: Environmental earth sciences, Environmental modelling, Environmental risk assessment, Environmental health and safety, Environmental economics. 2) Environmental Pollution: water, soil and sediment. 3): Environmental management: solid waste management, mine-waste water treatment, environmental impact assessment, environmental law and policy, environmental aspects of mining industry, mine reclamation within context of risk-based decision-making; and (5) Statistical and Geostatistical techniques (e.g. univariate, multivariate, spatial variability (semi-variogram)).

RESEARCH OF INTEREST

- 1. Mineral Exploration and evaluation of ores:** mineralogy, chemistry, and geochemistry, pre-feasibility and feasibility studies and ore reserve calculation; geological and mining modeling using statistical and geostatistical method; developing dry beneficiation process using a rotary trielectrostatic separation of ore.
- 2. Mining technology:** open-pit mines design, phosphate mine processes (i.e. beneficiation and flotation), uranium extraction and remediation, tailings disposal; recovery of uranium from phosphate rocks); environmental geochemistry of phosphate rock and their fertilizer.
- 3. Geotechnical Engineering:** Developing Self Compacted Concrete using solid industrial waste materials (e.g. limestone filler and iron slag).
- 4. Environmental Risk Analysis and Management System:** develop a Grid-based system for analyzing and managing pollutant-related environmental risks. Sophisticated simulation programs (e.g. *statistical and geostatistical modeling, spatial variability, geospatial variability, remote sensing and GIS*) are used to forecast and evaluate the dispersion of toxic heavy metals, radionuclides, carcinogenic and chemically toxic substances in the atmosphere, the soil and the

Statement of Teaching

Teaching objectives

My main objective in teaching is to encourage students to understand and learn the material I am teaching, whether it be during a class lecture or during extra one-on-one instruction. I encourage “active learning” in the classroom through the use of group exercises, demonstrations, and asking of questions by both students and instructor during the lecture. I also encourage students to come to class, by providing lectures that are enlightening, stimulating, and offer opportunities for student participation, while at times including a bit of humor to further enhance a comfortable learning atmosphere. Students will (and should) learn significantly more, as well as a lot more efficiently, by attending classes regularly rather than by solely downloading posted lecture summaries from the web or by reading the text. Textbooks and lecture summaries are meant to effectively complement the classroom experience – never substitute for it.

I make every effort to learn the name of each student as soon as possible. Helpful ways I have found for name recognition include taking the time to personally hand back individual graded homework assignments during class and remembering students' names when they come to my office for individual help. During the first class period of the semester, when I introduce the course and myself to the students, I also like to "break the ice" by giving the students a "pop quiz". In this "pop quiz", which I also take myself, I ask each student to write various items on an index card, such as his or her name, hometown, school major, reason for taking the course, favorite hobby, favorite quote, or something interesting or unique about him or her. Once finished, we'll go around the room and share our answers with one another. Through this simple "icebreaker", the students begin to acquaint themselves with me and with each other, and we begin to establish a comfortable atmosphere in which learning can take place.

I will develop a continuing effort to refine the curriculum and to achieve common your Institute goals. In addition to that, I serve as academic advisor and research mentor to development oversight, management evaluation of programs in all areas of the environmental Engineering. I look for a program of scholarly activity and seek

extramural funding for the programs further the goals of the Department Civil Engineering-Geotechnical.

Research, Scholarly and Creative Activities

I have potential or proven ability to develop a research and produces publications, or other research outputs, in line with personal objectives agreed in the review process. Also engages in scholarly or creative activities in their area of expertise and makes results available for critical peer review. Moreover, delivers papers at professional association meetings, seminars and conferences participates in panels at regional and international meetings of professional organizations. I make every effort to develop actively raises the Department and Faculty's profile, internally and externally; Participates in departmental and faculty seminars aimed at sharing research outcomes and building interdisciplinary collaboration within and outside the department Collaborates with colleagues, both within and outside the University, in conducting and managing research and consultancy activities.

Academic services

I have the capability of merging PE with other disciplines department, or University-wide working groups or committees as requested, contributes to student recruitment, retention and placement efforts; fosters service by contributing to the community at large in participatory, developmental or advisory capacity, and supports and participates in student organization activities

Other Responsibilities

I will develop a continuing effort to refine the serves in a collegial fashion and in accordance to the University's policies when dealing with other faculty members, students, administrators and members of the public, and carries out any other duties commensurate with the position.

surface water and groundwater, plant, and sediments, and to calculate the health risk they pose to humans.

5. Environmental Modelling: Finding simplicity in complexity, modelling and model building, the state of the art in environmental modelling, models for management, current and future developments.

6. Environmental Economics: Estimating the cost of environmental degradations: measuring cost benefits and damages; valuing changes in productivity approach in soil erosion; measuring damages from pollution.

7. Non-Renewable Energy: Recovery of Uranium and REE extraction processing

8. Renewable Energy: A sustainable source of biodiesel production from vegetables oil

9. Environmental Impact Assessment: scoping and identifying issues; impacts prediction; evaluation of impact significance; plans to avoidance, mitigation, monitoring, and follow-up; risk assessment and risk analysis; and making recommendations.

10. Environmental Health risk assessment: fate and transport of toxic heavy metals and radionuclides contamination in water, soil, plant and sediments.

11. Hazard Industrial waste management: Develop an industrial hazardous solid waste materials of “phosphogypsum”. Sophisticated application practices are utilized in agriculture and soil amendment in dry land, cement industry, and building