

Dr. Rakad Ayed Ta'any (C.V)



Current Position:

Associate Prof. at Al Balqa' Applied University (Director of the International Water Center for Water, Environment and Energy and Division Head/ Water Resources and Environmental Management).

Previous Position:

- Water Resources Expert- Ministry of Presidential Affairs in the United Arab Emirates.
- Director of Water Resources at the Ministry of Water and Irrigation/Jordan

Date of Birth: 15/9/1949 Place of Birth: Beit Ras (Irbid)

Years of Experience : 36 years Nationality : Jordanian

Education and Professional Qualification:

A. Secondary: Hussein College (Scientific Stream) 1966-1968

B. University: **Ph.D.**, Baghdad University, 1993-1996. Thesis: Hydrological and Hydrogeological Study of the Azraq Basin, Jordan.

: **M.Sc.**, Applied Hydrology, University of Yarmouk, 1992. Thesis: Hydrological and Hydrochemical Study of the Major Springs in Wadi Shueib Catchment Area, Jordan.

: **M.Sc.**, Hydrogeological Engineering, University of Istanbul, 1976. Thesis: Geological and Hydrogeological Study of Goynuk-Milkshiklar Area, Turkey.

Membership of Societies:

- Jordan Engineers Association.
- Jordan Geological Association.
- Iraqi Scientific Society of Water Resources.
- Geological Society of Iraq.

Language Capability:

- Arabic: Mother Tongue
- English: Fluent
- Turkish: Fluent

Skills

- ◆ Working on computer software such as EXEL, POWER POINT and Microsoft Word under Windows.
- ◆ Using special programs in hydrological computations such as Softwares. SMADA and FLOWMASTER, SPSS, Plot chem., Phrecesi and Pumping tests softwares.
- ◆ Having a driving licence.

Key Qualifications:

- ◆ Senior Hydrological/ Hydrometeorological Engineer.
- ◆ Hydrogeological and Hydrochemical Engineer.
- ◆ Hydrological network design and monitoring.
- ◆ Climate changes
- ◆ Water Resources Assessments.
- ◆ Environmental Hydrology
- ◆ Hydrological network design and monitoring.
- ◆ Catchments yield analysis.
- ◆ Rainfall Intensity - Duration - Frequency (IDF) calculations and curves.
- ◆ Probability analysis and rainfall, runoff relationships.
- ◆ Evaporation data analysis and calculation of evapotranspiration losses using empirical formulae especially Penman's equation.
- ◆ Surface water budgeting for catchments and Basins.
- ◆ Flow Analysis and Peak Discharges Estimations.

Experience Records

2006- Present : Al Balqa' Applied University.

2004-2006

Employer : Ministry of Presidential Affairs-Dept. of Water Resources Studies
Position : Water Resources Expert

2002-2004

Employer : Al Balqa' Applied University.
Position : Senior lecturer at Department of Water Resources and Environment.

1999 -2002

Employer Ministry of Water and Irrigation (MWI)
Position Director of Water Resources Monitoring.

Duties The supervision and administrating on about 70 persons (Engineers, Geologists, different Diploma graduates, Technicians and Labours) for the following subjects:
- *Design and installation of hydro-meteorological stations*
- *Hydro-meteorological network development and automation of evaporation stations in different locations in the Kingdom.*
- *Hydro-meteorological network management*

- *Rehabilitation of Stream Flow Gauging Stations*
- *Modernization of the groundwater network*
- *Hydro-meteorological network design, operation and maintenance. Including stream flow gauges, both manual and automatic precipitation and meteorological stations*
- *Surface water data collection, analysis, checking, filing and preparation of technical papers*
- *Processing of rainfall, evaporation, spring flows and stream -flow data.*

1988-1999

Employer

Water Authority of Jordan (WAJ)

Position

Head of the Surface Water Studies Division

Supervision, administrating, lecturing, doing practical and theoretical training for the governmental employees in the Water Authority and Jordan Valley Authority. In addition to implement different projects regarding the studies of the characteristics of the surface water resources quality and quantity in the Kingdom.

Duties

Data processing and analysis for the construction of the Rainfall Intensity, Duration and Frequency (IDF) curves.

Data generation and runoff estimation

Evaporation data analysis and calculation of evapo-transpiration losses using empirical formulae specially Penman's equation

Surface water budgeting for catchments

Rainfall transposition and maximization and probable maximum precipitation (PMP) estimation

Annual water balances for Jordan

Design flood determination and probable maximum flood (PMF) estimation

Construction and design stream flow-gauging stations

1984-1988

Employer

Water Authority of Jordan (WAJ)

Position

Senior Hydrologist

Duties

Hydrological Research Engineer.

• Project

Investigation of Water Resources in the Northern Part of Jordan

⇒ **Duties**

Worked as Senior Hydrological Research Engineer for the Surface Water Potentialities in the concerned project. Also participation in the groundwater modelling including the run and calibration of a two dimensional finite difference groundwater model of the Azraq Basin for both steady and transient condition.

• Project

Review of Water Resources, Development and use in Jordan.

⇒ **Duties**

Worked as Senior Hydrological Research Engineer in the field of Surface Water Part.

• Project

Water Harvesting Project.

⇒ **Duties**

Main duties are the selection of suitable locations for desert dams and desert pools in the Badiya Area.

• Project

Surface Water Potential in Wadi Butum Catchment Area/Azraq Basin.

⇒ **Duties** *Worked as Senior Hydrological Research Engineer in the field of Surface Water Part. The purpose of the project was to utilise the floodwaters occurring in the winter season as artificial recharge to the Upper Aquifer.*

1977-1984

Employer

Natural Resources Authority of Jordan(NRA)

Position

Hydrologist/ Hydrogeologist

Duties

District Engineer: Surface Water Division office and field engineer involving for hydrometeorological network design, operation and maintenance.

-Including stream flow gauges, both manual and automatic precipitation and meteorological stations.

-Surface water data collection, analysis, checking, filing and preparation of different technical papers for (springs, rainfall, evaporation and runoff).

-Processing of rainfall, evaporation, spring flow and stream flow data.

-Construction of Intensity, Duration and Frequency (IDF) Curves.

1976- 1977

Employer

Ministry of Public Works(MPW)

Position

Material Engineer

⇒ Duties

The main duties were testing the concrete, cement, gravels, iron and so on to specify their suitability for constructions. In addition to supervision of roads constructions.

Training Courses Attended

<u>Year</u>	<u>Location</u>	<u>Course</u>
1982/83	USA	<i>4-months</i> training course in the field of "Techniques of Hydrological Measurements, Monitoring and Data Collection", held by USA Geological Survey (USGS) between October, 1982 and January, 1983
1985	China/Nanjing	<i>3-months</i> training course on the “International Advanced Training Course on Hydrology”. I was the first trainee in the final exam carried out among 16 countries from Asia and Africa.
1988	Amman-Jordan	<i>2-weeks</i> course on "The Use of DOS and LOTUS software in VAX computers”, Amman, Jordan.
1995	Amman-Jordan	<i>11-days</i> training course on “Application of Isotope Technology in Hydrology” held by Arabic Atomic Energy in cooperation with the Ministry of Energy and Mineral Resources

1996	Amman-Jordan	<i>2-months</i> training course on “Higher Administration/Technology” held in the Institute of General Administration in Amman.
2000	Amman-Jordan	<i>5-days</i> training course on “Procurement and Management Training” held in Marriote Hotel /Amman.
2003	Muscat-Oman	<i>6-days</i> training course on “Geological Parameters for Environmental Protection” held in Sultan Qaboos University/ Oman”.

Workshops Attended

<u>Year</u>	<u>Location</u>	<u>Workshop</u>
1992	Amman-Jordan	<i>1-week</i> workshop on “Isotope Hydrology”, sponsored by European Space Agency held in WAJ for trainees from the Arab League
1993	Amman-Jordan	<i>3-days</i> workshop on “The Potential of Artificial Recharge of Groundwater” organized by the University of Jordan, Ministry of Water and irrigation and the Canadian Embassy in Amman.
1996	Amman-Jordan	<i>1-day</i> workshop on “The Use of Remote Sensing Technology in the Field of Desertification” held in the Royal Geographic Center of Jordan.
1996	Amman-Jordan	<i>2-days</i> workshop on “Artificial Recharge Technology” through the Water Quality Improvement and Conservation Project / Artificial Recharge Program: Ministry of Water and Irrigation with USAID.
1997	Algeria-Algeria	<i>1-week</i> workshop on “The Use of Remote Sensing Technology in the Drawing of Hydrogeological and Soil Maps” held in Algeria/UNDP.
2002	USA/ Florida	<i>7-days</i> Workshop on “Rainfall Intensity and their Applications” held in the University of Orlando.

Conferences

<u>Year</u>	<u>Location</u>	<u>Conference</u>
1992	Amman- Jordan	The Jordanian Conference on Civil Engineering, held at University of Jordan in cooperation with Jordan Engineers Association and Jordan Contractors association
1994	Amman- Jordan	The Jordanian Conference on Geological and mineralogical Engineering, held at University of Jordan in cooperation with Jordan Engineers Association.

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| 2002 | Damascus-Syria | The Syrian Conference on the Shared Basins and the Use Of Legislations To Conserve The Water Resources, held at ACSAD in cooperation with UNESCO. |
| 2003 | Muscat- Oman | The Jordanian Conference on Geological parameters and its effect on environment, held at University of Sultan Qaboos-Al Khawd. |

Scientific Days

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| 1994 | Amman-Jordan | Jordanian Water Day, organized by Jordan Engineers Association in cooperation with the Ministry of Water and Irrigation |
| 1995 | Amman-Jordan | Desertification and Water Harvesting Day, organized by Jordan Association of Agricultural Engineers in cooperation with the Jordan Society for Desertification Control |
| 1997 | Amman-Jordan | Jordanian Water Day, organized by Jordan Engineers Association in cooperation with the Ministry of Water and Irrigation |
| 1999 | Amman-Jordan | Water Day of the Middle East, organized by Jordan Engineers Association in cooperation with the Environmental Association of Jordan. |
| 2007 | Amman-Jordan | Jordanian Water Day, organized by Jordan Engineers Association in cooperation with the Ministry of Water and Irrigation |
| 2008 | Amman-Jordan | Jordanian Water Day, at the Ministry of Water and Irrigation |

International Publications

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| 1986 | Surface water resources in Azraq Basin, in Arabic and English. |
| 1987 | Estimation of the recharge to the ground water from rainfall in Azraq Basin using the "Water Budget Approach". |
| 1987 | Study of selected locatons in Dibbin Jerash Ajlun regions for the construction of artificial lake as a creation area for the benefit of the Ministry of Tourism. |
| 1988 | Estimating Runoff and Water Budget Using the Soil Cover Data in Wadi-Butum Catchment Area, a study implemented to the Ministry of Agriculture in English. |
| 1988 | Hydrological and Hydrogeological Study of Zarqa Mai'n and Zara Thermal Springs in Arabic. |

- 1989 **The Jordan Experience in Development and Planning of Water Resources in English.**
- 1994 **The present and future situation of water resources in Jordan, a paper presented on Jordanian Water Day, organized by Jordan Engineers Association in cooperation with the Ministry of Water and Irrigation, Amman Jordan.**
- 1994 **Water Quality of Karst Springs in Wadi Shu'eib Catchment Area. Abhath Al-Yarmouk: "pure. Sci & eng.". Vol.3, # 2, 1994, pp. 79-110.**
- 1995 **Recharge to the Groundwater from Rainfall on Wadi Shue'ib Catchment Area, Amman-Jordan. Iraqi Journal of Science, Vol. 38, # 4.**
- 1996 **Water Resources and Theirs Uses in Jordan. A paper presented in the Second Jordanian Conference on Geological and Mineralogical Engineering, held at University of Jordan in cooperation with Jordan Engineers Association.**
- 1997 **Availability of Surface Water of Wadi Rajil as Source of Groundwater Artificial Recharge for Azraq Basin / Jordan. Journal of Babylon University (Engineering Faculty) at the Vol-4 and the Ffth Edition.**
- 1997 **The Remote Sense and its Applications in Jordan. In the field of Drawing the Hydrological and Hydrogeological Maps. A country paper presented in the workshop on "Remote Sense Techniques and Data Transfer" through the Project of Current Technologies in Water Resources Management in the Maghreb and Mashreq (RAB/89/003) sponsored by UNDP in Algeria.**
- 1999 **The Optimum Use of Groundwater in Jordan. A paper presented in the Third Jordanian Conference on Geological and Mineralogical Engineering, held at University of Jordan in cooperation with Jordan Engineers Association.**
- 2003 **Effect of Urbanization on springs Quality in Southern Jordan- Elsevier Journal- UK.**
- 2005 **"Challenges of Water Demand Management in Jordan," June 2005 issue of Journal of Water International- USA.**
- 2007 **Rainfall network optimization in Jordan as an example of Mediterranean Sea region,Journal of Food, Agriculture and Environment Vol.5-2007 Helsinki Finland.**
- 2007 **Evaluation of Groundwater Quality in theYarmouk Basin, North Jordan, November, Vol.15-2007. USA.**
- 2007 **Spatial variability of topsoil salinity in the lower reaches of Zerka River, Central Jordan Valley. Journal of Food, Agriculture and Environment Vol.5 (3&4) : 368-373, 2007 Helsinki Finland**
- 2008 **Weathering processes effects on the chemistry of the main springs of theYarmouk Basin, North Jordan, June, Vol.16-2008. USA**
- 2008 **Evaluation of Water Quality of Groundwater Recharge in Wadi Feifa, Southern Jordan Valley, World Applied Sciences Journal, 5 (1:88-93, 2008.**

- 2009 "Geostatistical analysis of spatiotemporal variability of groundwater level fluctuations in Amman-Zarqa basin, Jordan: A case Study". *Environ Geol* (2009) 57:525-535 (C) Springer-Verlag.
- 2009 Water quality evaluation of the groundwater resources in Amran Basin. *Current World Environment* Vol. 4 (1), 01-07
- 2009 Evaluation of Water Quality of Groundwater Recharge in Wadi Feifa, Southern Jordan Valley. *World Applied Science Journal* Vol. 5(1): 88-93, 2008. ISSN 1818-4952. Idosi Publications.
- 2009 Agriculture Water Use Efficiency in Wadi Shu'eib Area, Jordan. *Polish Journal of Environmental Studies* accepted.
- 2009 Evaluation of Net Recharge in Al Salt Urban Area/ Jordan Using SCS Curve Number Methd. *Biosciences, Biotechnology Research Asia* Vol. 6 (1), 37-44.
- 2010 Ta'any, A, Ta'any, R. and Rimawi, O. Evaluation of Net Recharge in Al Salt Urban Area/ Jordan Using SCS Curve Number Methd. *Biosciences, Biotechnology Research Asia* Vol. 6 (1), 37-44.
- 2010 Anwar Jiries, Ta'any, R. and Ibrahim Oroud. Agriculture Water Use Efficiency in Wadi Shu'eib Area, Jordan. *Polish Journal of Environmental Studies, Polish J. of Environ. Stud.* Vol. 19, No.2 (2010), 337-341.
- 2011 Impact of Wala Dam on Groundwater Enhancement of Wadi Wala Catchment Area in Jordan, Ta'any, R. 2011, *Indian J. Agric. Res.*, 45 (4) : 255 - 265, 2011
- 2012 Water Quality Assessment of Central Jordan: A Case Study in Wadi Es Sir Catchment. *World Applied Sciences Journal* 18 (6): 845-854, 2012.
- 2013 Vegetative Bioremediation of Extremely Salt-Affected Calcareous Soils. *Journal of Food, Agriculture & Environment.* 11(2), 1277-1281.
- 2013 Characteristics of the Aquifer Systems in Characteristics of the Aquifer Systems in Wadi Kafraïn Catchment Area, Jordan. *Journal of Environmental Hydrology.* 21(1), 1-16.
- 2013 Influence of Urbanization on water quality of Wadi El-Arab catchment area. *Alexandria Science Exchange*, vol.34:25-36, 2013.
- 2013 Revegetation in Arid Zones: Environmental Impact of Treated Wastewater Irrigation in Al-Karak Province, Jordan. *Polish J. of Environ. Stud.* Vol. 22, No.2 (2013), 569-575.
- 2013 Soil salinity changes in the Jordan Valley potentially threaten sustainable irrigated agriculture. *Pedosphere.* 23(3): 376-384, 2013.
- 2013 Groundwater Management Using MODFLOW Mode in Jerash Catchment Area/Jordan. *Assiut University Buetin for Environmental Researches.*16 (2), 113-138.
- 2013 GIS Based Model of Groundwater Vulnerability and Contamination Risk of Wadi Kufrinja Catchment Area, Jordan. *World Appl. Sci. J.* 24(5), 570-581.
- 2013 Availability of Surface Water of Wadi Rajil as a Source of Groundwater Artificial Recharge: A Case Study of Eastern Badia /Jordan. *Current World Environment.* 8(2), 189-201.
- 2013 Impact of Over- Pumping on the Groundwater Quality of the Dead Sea Basin/ Jordan. *Current World Environment.* 8(3), 365-374.

- 2013 Ablution greywater treatment with the modified re-circulated vertical flow bioreactor for landscape irrigation. **Desalination and Water Treatment. 10(1), 1-10.**
- 2013 Influence of Agricultural Practices on Soil Properties and Fruit Nutrient Contents of Bell Pepper. Biosciences Biotechnology Research Asia. **10(2).**
- 2014 Filtered and Bottled Waters: Perception of its quality Against in Tap Water in Selected Locations in Jordan. Biosciences Biotechnology Research Asia. 11(1).
- 2014 GIS modeling of water erosion in Jordan using "RUSLE". Assiut University Buetin for Environmental Researches.17 (1), 57-75.

Reports

<u>Year</u>	<u>Reports</u>
1988	The Hydrological Cycle in Jordan, in Arabic.
1989	Historical Review of the Water Resources of Jordan, in Arabic.
1989	Handbook of Hydrology for Technicians, in Arabic.
1989	Rainfall and its Importance (Measurements,Methods of Rainfall Calculations Design of the Rainfall Network and Data Processing),in Arabic, WAJ, Jordan
1989	Groundwater Modeling of Azraq Basin, as a part of the North Jordan Draft Final Report of the Water Resources Investigation Project, USAID and WAJ, Jordan.
1990	Evaporation and its Importance (Measurements,Methods of Evaporation Calculations Design of the Evaporation Network and Data Processing),in Arabic, WAJ, Jordan
1990	Air Pollution and Acidic Rains in Arabic.
1994	Deposits of Quaternary Geology in Jordan, Submitted to the University of Baghdad / Iraq

University, Institutes and Classroom Lectures

Lectures given by me to a group of trainees from Arab and Islamic Countries in the subjects mentioned below:

- 1) **Evapo-transpiration and Penman's Equation, Amman, Jordan, Place Polytechnique/ Jordan-Amman 1980.**
- 2) **International Standard Units. Place, Training Center of the Water Authority of Jordan, 1990.**
- 3) **Estimation of Peak Discharges in Ungauged Wadis, Amman, Jordan. Place, Training Center of the Water Authority of Jordan, 1990.**
- 4) **Rainfall Measurement and Data Interpretation, Amman, Jordan. Place, Training Center of the Water Authority of Jordan, 1990.**
- 5) **Interpretation of Stream flow Data, Amman, Jordan. Place, Training Center of the Water Authority of Jordan, 1990.**

- 6) **Frequency Analyses of Hydrological Data, Evapo-transpiration and Penman's Equation, Rainfall Data Analysis and Calculation and Surface Water Techniques (Design of Network, Instrumentations, Data Acquisition, Processing and Direct and Indirect Measurements). Place Jordan University/ Center of Engineering Consulting Amman.**
- 7) **Hydrogeology (Occurrence, Classification, Aquifer Systems, Well Hydraulics and Well-Development Techniques), Hydrochemistry, Sediment Transport, Maps and Survey (Topography, Contours, Mapping and Coordinates), Hydrometry and Meteorology. Country Sultanate of Oman, Capital Institute, Ruwi/ Muscat, 1991 and 1992.**
- 8) **Rainfall Data Analysis and Calculation (Measurements, Data Collection, Processing and Applications). Amman, Jordan, 1997,1998 and 1999. Place University of Jordan- Center of Water Research and Environmental Studies. Wadi Hydrology Course.**
- 9) **Surface Water Techniques (Design of Network, Instrumentations, Data Acquisition, Processing, Direct, and Indirect Measurements). Amman, Jordan, 1997, 1998 and 1999. Place University of Jordan- Center of Water Research and Environmental Studies. Wadi Hydrology Course.**
- 10) **Evaporation Data Analysis and Calculation of Evapo-transpiration Losses Using Empirical Formulas Especially Penman's Equation. Amman, Jordan, 1997, 1998 and 1999. Place University of Jordan- Center of Water Research and Environmental Studies. Wadi Hydrology Course.**
- 11) **Teaching at Al Balqa'a University in the Directorate of Water Resources and Environment (Fundamental Hydrology, Groundwater Hydrology, Surface water Hydrology,design of small dams and Water Harvesting) from 2001-upto date.**

Other University Activities:

- 1) **Supervising more than twenty of M.Sc. Students from New Castle University/ UK. (Civil Engineering Faculty), Jordan University (Civil Engineering Faculty), AlBalqa' Applied University (College of Agricultural Technology) and Baghdad University (Iraq).**
- 2) **External Examiner (Involving in the Examining Committee) in Hydrology for the M.Sc. Students in the Jordan University, Hashemite University and Yarmouk Universities.**
- 3) **Participating in the committee of preparing the Studying Plan for Water Resources and Environmental Management to Al-Balqa' Applied University.**
- 4) **Evaluation of Scientific Articles for Publication in different Scientific Journals**
- 5) **Participating in the Preparation of Jordan Agenda 21.**

Theses Supervision

1. **Hydrology and Hydrochemistry of Wadi Jerash Catchment Area (Mahmoud Alawneh, 1998). University of Baghdad-Iraq**
2. **Optimizing the Use of Rainfall –fed Recharge in Wadi Rajil to Augment Storage in Azraq Aquifer Basin, (Samara, 1998). New Castle University. U.K.**
3. **Hydrological and Hydrochemical Study of Wadi El-Arab Catchment Area/Yarmouk Basin (Suha, 2003). Jordan University**

4. **Hydrological Study of Wadi Esh – Shallala/ Yarmouk Basin, (Thnaibat, 2003). Jordan University.**
5. **Hydrological Study of Wadi Khuneizira Catchment Area / Tafila Governorate, (Sarayreh, 2003). Jordan University.**
6. **Hydrological and Hydrochemical Evaluation of Baqa'a Basin (Laith Rahahleh, 2009). Al Balqa' Applied University.**
7. **GIS based model of Groundwater Vulnerability and Contamination Risk of Wadi Kufrinja Area (Mohammad Alaween, 2009). Al Balqa' Applied University.**
8. **Water quality evaluation of the groundwater resources in Amran basin/Yemen. (Abdallah Ahmad Said, 2009). Al Balqa' Applied University.**
9. **GIS Modeling of water and wind erosion in Jordan using RUSLE and WEP (Lubna Qaryouti, 2011).Arizona, USA.**
10. **Impact of Wadi Es-Sir wastewater Treatment Plant on Water Resources of Wadi Kafraïn Catchment Area (Amal Sayaheen, 2011). Al Balqa' Applied University.**
11. **Developing of an Integrated Water Planning and Management Strategy as A Tool for Climate Change Adaptation in Azraq Basin (Lama Masalha, 2011). Al Balqa' Applied University.**
12. **Evaluation of Groundwater Quality Using SWMS_2d Model in Azraq Basin, (Zu'bi, 2011). Al Balqa' Applied University.**
13. **Evaluation and Management of Groundwater using MODFLOW Model in Jerash Catchment Area, (Arabiyat, 2011).**
14. **Evaluation of Groundwater Quality and Quantity Using SWMS_2d Model in Yarmouk Basin, (Muath Azmi, 2013). Al Balqa' Applied University.**

Community Services:

Participation in the field of specialization in the following communities:

1. **Royal Society for Nature Conservation – Water Resources Rationing**
2. **General Association for Prevention of Environment – Desertification and Drought Management.**
3. **Royal Society for Nature Conservation – Water Harvesting.**
4. **Society of Desertification Prevention – Different topics (Environment, Water Harvesting, Artificial Recharge, etc...).**

Miscellaneous Experience:

1. **Working as Consultant and Expert in the field of Hydrology and Hydrogeology in the Ministry of Water Resources, Sultanate of Oman in 1991 and 1992.**
2. **Participating in the preparation of *Agenda-21* for Jordan as an Expert in Water Sector among 45 experts whom involved from different sectors in Jordan.**
3. **Participating in the National Desertification Committee.**
4. **Participating in different committees in the Higher Council for Science and Technology. As Researcher in the field of Hydrology and Hydrogeology.**

Recognition and Awards Related to the Field of Specialization

- 1) **Thanking Letter from the Yarmouk University for Participating in different Workshops and Symposiums.**

- 2) **Thanking Letter from the Jordan University (Faculty of Civil Engineering) for assisting the M.Sc. students in the field of Engineering Hydrology.**
- 3) **Thanking Letter from the U.N.D.P FOR the participation in the Workshop of “Environmental Impact Assessment”**
- 4) **Thanking Letter from the U.N.D.P for my participation in the preparation of the Jordanian 21-Agenda.**
- 5) **Appreciation (honour) Certificate from the Ministry of Water and Irrigation and the Royal Society for Nature Conservation. For Lecturing different topics for water rationing.**

References

- 1) **Prof. Dr. Mohammad Shatanawi**, University of Jordan, Faculty of Agriculture, Amman, Jordan.
- 2) **Prof. Dr. Abdulkader Abed**, University of Jordan, Faculty of Science, Geology Division. Amman, Jordan
- 3) **Prof. Dr. Omar Rimawi**, University of Jordan, Faculty of Science, Geology Division. Amman, Jordan
- 4) **Prof. Dr. Ghazi Saffarini**, University of Jordan, Faculty of Science, Geology Division. Amman, Jordan
- 5) **Prof. Dr. Kamel Al-Qaisy**, Civil Engineering Department, University of Jordan, Amman, Jordan.

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Certification

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.



Handwritten signature of Kamel Al-Qaisy in Arabic script.

Date: 5/7/2014