



Jordan University Of Science And Technology

Queen Raina Al-Abdullah Center For Environmental Science & Technology Annual Report 2014



I am pleased to welcome you to Queen Rania al-Abdullah center for environmental science and technology's newsletter , and I hope it will be a great help to give a clear idea about the center and its activities for the year 2014 .

The center through well-qualified faculty and staff members is providing education, training and consultation services toward achieving sustainable development by preserving the environment and its natural resources. In addition, the center plays a major role in securing financial support for research dealing with environmental needs and local problems identified either by the private or public sector.

I invite you to visit our web site :

(<http://www.just.edu.jo/Centers/QueenRaniaAl-AbdullahCenter/Pages/default.aspx>) regularly to learn about new service and upcoming events .

Please Do Not hesitate to contact the center , we will be glad to help and support you as much as we can .

Dr. Muna abu Dalo

Director, Queen Rania Al-Abdullah
Center for Environmental Science &
Technology

H. M. Queen Rania Al-Abdullah inaugurated "Queen Rania Al-Abdullah Center for Environmental Science & Technology" (QRACEST) on 23rd February 2000, during her visit to Jordan University of Science and Technology (JUST).

The center was established in May 1996, previously known as the "Center for Environmental Sciences & Technology" was renamed in acknowledgment by the Regents of JUST to the distinguished role that her majesty plays in conserving local and global environment.

The center mission is to participate in the national and international efforts towards achieving sustainable development by preserving the environment and its natural resources against improper use/overuse and pollution in an integrated manner that takes into consideration economic growth and other factors, through research, consultation and services, interdisciplinary graduate and undergraduate degree programs and outreach programs.

Recognizing that environmental challenges require varied expertise within and across science, engineering, policy, communication and management disciplines, the center support JUST's long-standing expertise in this field; welcome both disciplinary and interdisciplinary approaches to environmental problem solving; and build closer relation between JUST and the public and private sector.

QRACEST has participated in many national and international projects, committees dealing with various aspects of environment, including those dealing with policies and regulations, strategies, procedures and methods of implementations. It has conducted many national and regional workshops related to water and environmental issues. In addition, the center sponsors workshops, seminars, and small grants program for JUST's students to foster links among its members and facilitate environmental activities through facilitating the use of environmentally-sound practices and technologies. Since its establishment, the center successfully attains excellence; builds up credible track records on the national and regional levels; and continues its efforts to become an internationally and regionally recognized center for environmental research, services and consultation.

The Center is governed by a board of governors entrusted with formulating general policies and work plans, mobilizing financial resources and soliciting external funds, establishing technical and research committees and task groups, and reviewing the overall performance of the Center. The Center is headed by a director who oversees the day-to-day activities of the Center and its different projects, implements policies, establishes contacts, and reports to the Center Board for budgetary and administrative matters.

QRACEST has four departments: Research & Development; Services and Consultation; Education & Training; and Environmental Auditing Management. More information about the QRACEST can be found at:

<http://www.just.edu.jo/Centers/QueenRaniaAl-AbdullahCenter/Pages/default.aspx>

MENA NWC PR&D Program Awards Grant to a regional and international research team led by JUST for Membrane Technology Research

February 2014



The Policy, Research & Development (PR&D) Selection Committee funded a research team affiliated with Queen Rania Al Abdallah Center for Environmental Sciences & Technology at Jordan University of Science and Technology (JUST). The research team from JUST, Dr. Muna Abu-Dalo as principle investigator and Dr. Hani Abu Qdais Co-principle investigator will lead the research project “ The Use of Green Nanoparticles as a Biofouling-Resistant Agent in Reverse Osmosis Desalination” that will develop new processes to produce reverse osmosis membranes that resist fouling by microorganisms. *The research project is the first proposal that the Committee has selected for award totaling \$ 300,000 without additional provisions.*



The project will benefit JUST by acquisition of a bench scale membrane testing equipment for a cost of \$ 48,000, support two graduate students from JUST and provides workshop and training on membrane development, separations and nanotechnology. JUST team will lead a regional and international research team composed of researchers from Morocco’s National Office of Electricity and Potable Water (ONEE), the University of Toledo, the University of Rhode Island and the Georgia Institute of Technology. The project will also strengthen and establish international collaborations. Research activities will take place in Jordan, Morocco and the United States.

Two students from JUST awarded the green generation

March 2014



The Jordan University of Science and Technology represented by its president and the directors of the Queen Rania Al Abdallah Center for Environmental Sciences & Technology and the Energy Center and the congratulate Omayma Banisalman and Qatada Damra on being awarded the green generation award of \$1500 for their project entitled “Green House with Zero Carbon Emissions”.



This contest was designed by Sustainable Environmental and Energy Solutions (SEES) and its partner, the International City/County Management Association (ICMA), as a component of the Public Action for Water, Energy, and Environment (PAP) program funded by the U.S. Agency for International Development (USAID). The contest judges were Dr Ghassan Tashtoush, Dr Muna Abu Dalo and Dr Ra’ed Al Tall from Jordan university of science and technology “JUST”; and Dr Yasin Husban, Dr Suleiman Al Zeidiyeen and Dr Arabi Al Qadi from Al Hussein Bin Talal University (AHU), and Dr. Mudar Zghoul and Dr Ahmad Salaymeh from the University of Jordan. Green Generation Program is designed in collaboration with the Energy, Water and Environment centers in the Universities to acquaint students of the faculties of Engineering and Architecture at the JU, JUST and AHU with solar energy and plumbing codes and their applications under the Green Building Manual in order to change engineering and architectural students behaviors in relation to water and energy conservation. The event was launched at the Jordanian Housing Developers Association (JHDA) in the presence of Mr. Robert Cardinalli –Chief of Party of The Public Action project for Water, Energy and Environment (PAP), USAID project, Sustainable Environmental and Energy Solutions, Eng. Kamal Awamleh, the Chairman of JHDA, academics, Heads of Water, Energy and Environment centers and assistant deans of Training and Students affairs and contest judges.

Workshop on “Water Governance and water Integrity Risk Assessment”

June 2014



“To manage water resources efficiently, you have to understand good water governance, where good governance is the basis for providing better services to citizens.” HE Minister of Water and Irrigation, Dr Hazem El-Naser said during the opening statement for a workshop at JUST entitled “Water Governance and Water Integrity Risk Assessment”. The workshop was organized by the Queen Rania Al-Abdullah Center for Environmental Sciences and Technology (QRACEST) at JUST and held at the Landmark Hotel in Amman. The workshop highlighted the prevailing water situation in Jordan and the government’s efforts in the areas of water management and water governance. The participants addressed the main factors behind water scarcity in the MENA region including physical, natural, political, and

those that are human-induced. Among these factors are, weak governance structures; existing mistrust between different parties sharing the same water resource; limited institutional mechanisms for applying integrated water resource management principles and a lack of integrity. Worthy of mentioning here would be for IUCN ROWA’s participation in this workshop to share their experience in water governance and water resource management. At the workshop, the participants, primarily representatives of the various stakeholders, helped in defining an analytical framework for integrity risk assessment in water resource management. The cause behind each risk were pointed out and analyzed with the primary root causes tackled more subtly. The results of this exercise would help identify those organizations that need to be targeted for training and pinpoint the particular training topic for each organization and at what level .

Short Course Program Entitled “Water in the arid land: the Engineered Water Cycle In Jordan”

September 2014



A summer program entitled: “Water In An Arid Land-The Engineered Water Cycle In Jordan” between Jordan University of Science and Technology (JUST) and University of Washington (WU), took place from August 25th to September 17th. The program was conceived and coordinated by Dr. Muna Abu-Dalo, Director of Queen Rania Al-Abdullah Center for Environmental Science and Technology (QRACEST) and Dr. Heidi Gough, Faculty of Civil and Environmental Engineering at WU. The program lasted for four weeks and was administrated by educators from both JUST and WU along with 16 students-eight from each institution.

The Program was aimed at fostering training to future science and engineering leaders on the importance of adapting water engineering to the local climate, using Jordan as an example. During program activities, student participants evaluated the impact of hot dry climate on water resources, drinking water treatment, and wastewater treatment.

The program participants toured a number of treatment plants and field sites in addition to providing guest speakers from among local engineering firms and schools.

Queen Rania Al-Abdullah Center For Environmental Science & Technology Conducts “ A Clean Up “ Campaign on the Irbid Municipality

November 2014

As a part of the national Campaign for sanitation and environmental awareness in the grate Irbid city , the QRACEST at just has conducted an activity under the patronage of Irbid Governor .The activity was organized by QRACEST , Irbid City Environmental Department , and Grand international Academy school in Irbid addition to the Joint Services Council . This campaign comes as part of the world Environmental Day and aims at urging people to cut down on their use of plastics bags and other plastic wastes as a means of contribution to environmental protection. Dr Abu Dalo added that plastic are considered a dangerous environmental problem throughout the world but it is quite visible in Jordan since people contribute to environmental deterioration by the common use of plastic and thus reduce Jordan chances of achieving the 7th UN goal of environmental sustainability . The opening ceremony of the event was attended by prof. Ahmad Batieha , JUST vice-president , the Mayor of the Great Irbid City , and a crowd of just students.



JUST Students Win Green Building Council award

December 2014



The Jordan University of Science and Technology represented by its president, the dean of architecture, and the director of the Queen Rania Al-Abdullah Center for Environment Science and Technology congratulate the (Green Life) team students on being awarded the first place in “our idea is green” competition for their project entitled “My Life is Green”, which was funded by Queen Rania Al-Abdullah Center for Environment Science and Technology and supervised by the dean of college of Architecture and Design.

The contest “Khadra idea or our idea is green” was launched by the Jordan Green Building Council (Jordan GBC) for college students to show their creativity in the field of sustainable environmental work in a professional manner and to enable them to gain practical experience in the field of sustainability.

The event was launched at King Hussein Cultural Center under the patronage of HE Dr. Taher Shakhshir, in the presence of a number of the leading figures in the in the field of environment and the dean of architecture Dr. Hussein Al-Zoubi.

Green Metric International Ranking, JUST Ranks First in the Arab World and 49th Globally

December 2014



By landing in the first spot in the Arab world, and the 49th globally, JUST has made a new leap toward internationalization through the Green Metric Global Ranking the ranks universities around the world in terms of sustainability of its operations and the extent of its compliance with clean environment standards. Green Metric (<http://greemetric.ui.ac.id>) ranks universities as per a number of criteria related to environment; on-campus sustainability in the aspects of infrastructure, energy efficiency, greenhouse gas emissions, extent of application of TQM approach to waste streams, transportation, and the level of educational processes.

Four Jordanian universities participated in the ranking: JUST, University of Jordan (JU), Petra University (PU), and Hashemite University (HU). As indicated above JUST ranked 49th followed by JU (103rd), PU (253rd), and HU in the 345th place. It is noteworthy that the JUST campus area is 11 million sq. m (11 km²) with many green, environment-friendly projects. The campus is a host to more than one million trees of which about 45000 olive trees irrigated from the campus lake that stores and is charged by rain water harvesting that is mixed treated wastewater from the campus wastewater treatment plant .

As Far As the heavy energy bill is concerned, JUST launched various initiatives to accomplish significant cuts be it through energy conservation efforts or the exploitation of solar energy for swimming pool water heating in the Sports Complex. To this end, JUST has posted a tender for the production of 4 MWe from PV solar cells. In addition, JUST has implemented the USAID-funded Eco House project that is totally run from solar energy. This project represents an environmental, awareness, and research landmark for both JUST faculty and students as well as local community.

In terms of waste management, JUST own and operates a medical waste management facility that incinerates the waste generated from the KAUH as well as public and private hospitals in the four governorates in the Kingdom's Northern region. This facility provided a solution to a persistent environmental problem that represented a lasting hazardous threat to the whole region. Moreover, JUST has recently posted a tender for a contemporary waste incinerator with a capacity of 4 tons/day.

Now, when it comes to educational and administrative operations, JUST has succeeded in computerizing its operations via the automation of administrative procedures, and the computerizing of its educational processes whether those that have to do with lectures and various educational materials that can be uploaded on the e-learning sites, or computer-based tests. All this reflected positively on the amount of paper consumption that was significantly reduced, and by so doing, contributed to the reservation of natural resources and reduction of greenhouse emissions.



On-going Projects

Projects	Agency	Objective
The use of Green Nanoparticles as a Biofouling Resistant Agent in Reverse Osmosis Desalination.	USAID	To Develop of Biofouling-Resistant Nanocomposite (BRN) Membranes Loaded with Nanoparticles, from Synthesis to Macro Scale Production.
Water Governance and Water Integrity Risk Assessment.	SIWI	To Develop Capacities of the Different Water Stakeholder Groups at Different Governance Levels in the MENA Region and to Improve Transparency and Account Stability Practices in Water Resources Management.
Enhancing Water Education at the Universities Level in Jordan.	USAID/NAS PEER	To Create a Teaching and a Training Module, which will be Incorporated into a University Course and a Training Workshop.
Water in an Arid Land the Engineered Water-Cycle in Jordan “Study Exchange Program”.	University of Washington	To Study the Impacts of Climate, Weather and Other Environmental Factors on Water Sources, drinking Water Treatment and Wastewater Reclamation using Northern Jordan as an example of a Dry, hot Climate.
My Life is Green.	QRACEST	To Raise Awareness of the Importance of Green Buildings as a way to Preserve the Environment and to Reduce Toxic Emissions and the Depletion of Energy and Resources.

Participation at conferences , workshops and seminars 2014

Workshops and Seminars

- Four-Days Innovation Accelerator Workshop on Water Management by USAID Jordan Competitiveness Program’s Clean Tech. (JCP), Amman, Jordan 3-6 February, 2014.
- Workshop on: “Environmental Impact Assessment for Adoption as a Reference”, Amman, April 2-3, 2014 .
- Workshop on Green Universities, Amman, Jordan April 5th, 2014 .
- Seminar Entitled “ Environmental Monitoring in Jordan” at Environmental Health Training Workshop, held at JUST, Jordan, April 7, 2014 .
- Seminar Entitled ”Environmental Adaptation to The Refugee Crises” at Environmental Health Training Workshop, held at JUST, Jordan, April 7, 2014 .
- Seminar Entitled “Environmental Pollution Awareness “ for Orjan Cultural Forum, Ajloun, Jordan, April 30, 2014 .
- Seminar Entitled “Toward Green University “For Graduate Students at University of Rhode Island, USA, May 31, 2014 .
- Two Days Project Consultative Workshop on ”The Use of Green Nanoparticles as a Bio-fouling Resistant Agent in Reverse Osmosis Desalination” , Jordan University of Science and Technology, June 18-19 , 2014 .
- One Day Workshop on “Manufacturing of Eco-friendly Silver Nanoparticles using Green Technique”, held at JUST, June 24, 2014 .
- Workshop about Electronic Waste Management Amman, Jordan, November 18, 2014.
- Two- Days Workshop for MENA NWC Center’s Directors on “ Advancing MENA NWC and Member Centers“, held in Sharm El Sheikh , Egypt, November 18-19, 2014.

Conferences

- The Water in the Arab World Conference, Amman, Jordan, February 26, 2014 .
- The Chain Reaction National Conference, Amman, Jordan, April 5, 2014.
- The First Irbid International Engineering Conference IIEC Irbid, Jordan, October 14-16 -2014.
- Second Arab-American Frontiers of Science, Engineering and Medicine Symposium, Muscat, Oman , December 13-15 , 2014

Memorandum of Understanding between QRACEST/JUST and

- University of Washington: Course Program " Water in an Arid land"
- National Academy of Sciences (NAS): Grant Title "Enhancing Water Education at the Universities Level in Jordan".
- Stockholm International Water Institute (SIWI): Grant Title "Water Governance and Water Integrity Risk Assessment".
- Georgia Institute of Technology University.
- Toledo University
- Development Alternatives, Inc. (DAI), Grant Title " The Use of Green Nanoparticles as a Biofouling-Resistant Agent in Reverse Osmosis Desalination".

Community services

- Campaign to Clean The City of Irbid in Collaboration with The Environment Directorate, November 12, 2014.
- Working as a Role Model in One of The Secondary Schools in Jordan; as Part of The Project: "Chain Reaction" <http://www.chreact.eu/> with The Aim to Enthuse Young Students of a Sustainable Approach to Inquiry based Science Education and give them Insight into The Varied Career Paths available in Science.

The Council of Queen Rania Al Abdullah Center for Environmental Science & Technology (QRACEST)

- Prof. Abdallah I. Husein Malkawi, President .
- H.E. Eng. Ahmad Al-Qatarneh, Secretary General of the Ministry of Environment .
- H.E. Basem Telfah, Secretary General of the Ministry for Water and Irrigation .
- Prof. Yahia A. Qawasmi, Dean of Engineering .
- Prof. Osamah M. Haddad, Dean of Research .
- Dr. Hussain H. Alzoubi, Dean of Architecture And Design .
- Dr. Osama Saadeh, Director of the energy center .
- Eng. Mohammad Rababa, Yarmouk Water Company General Manager .
- Dr. Haidar Otoum, Irbid Health Director .
- Eng. ahmad Al-Kofaki, Executive Director , Jordan Environment Society .
- Dr. Muna Abu-Dalo, Director of the Queen Rania Al Abdallah Center for Environmental Sciences & Technology .

Snapshots



The visit of USAID Mission Director and Director for water



Consultative workshop on: The Use of Green Nanoparticles as a Biofouling Resistant Agent in Reverse Osmosis Desalination



Workshop on "Water Governance and water Integrity Risk Assessment



Course Program: Water in an Arid Land the Engineered Water Cycle in Jordan



MOU with University of Georgia Tech



A workshop on Silver Nanoparticles Production