Water Research Centre

First point of contact for Water Researchers in Oman *March 2011*

World Water Day at SQU

The World Water Day was jointly celebrated by the Ministry of Regional Municipalities and Water Resources and Sultan Qaboos University on the 22nd of March 2011. His Excellency Dr. Hilal Al Hinai, Secretary General, Research Council, Oman was the Guest of Honor. He was accompanied by HE Engr Ali Al Abri, Undersecretary MRMWR and HE Dr. Ishaq Al Ruqaishi, Undersecretary Ministry of Agriculture & Fisheries. Dr. Said Al Yahyaee, DVC AACS, hosted the guests on behalf of SQU.

Welcome addresses were presented by Dr. S.A. Prathapar, Director, Water Research Center and Engr Hamad Al Hatmi, Director General, MRMWR. This was followed by the Keynote Address titled 'Water in Modern Life', by Professor Otto Strack, University of Minnesota, USA. Another highlight of the opening ceremony was a music concert titled 'Juxataposing Fluxes: Water & Music', performed by Ms. Skryabina and Ms. Egorva both from the Department of Musicology, College of Arts & Social Sciences, SQU. During the session after Coffee Break, papers were presented by Engr Hamad Al Hatmi, DG, MRMWR, Prof Adrian Bejan of Duke University, Prof Sylvie Lorente of INSA, University of Toulouse, France, Dr. Slim Zekri, SQU, Oman and Dr. G. Strauch, UFZ, Germany, and Mr. Ray Evans of SKM Australia.

The United Nations General Assembly designated 22 March of each year as the World Day for Water by adopting a resolution. States were invited to devote the Day to implement the UN recommendations and set up concrete activities as deemed appropriate in the national context. The theme for 2011 was Urban Water Management. The objective was to focus international attention on the impact of rapid urban population growth, industrialization and uncertainties caused by climate change, conflicts and natural disasters on urban water systems.

Green Roof

Green Roof (GR) is a roof-hoisted plant-soil-water system. We tested the feasibility of GR with a novel capillary siphoning irrigation system and proved that the designed siphon-pot clusters are efficient coolers of the roof surface. The experiments were conducted in January 2009 – December 2010 on the roof of the College of Agricultural and Marine Sciences (CAMS) building at Sultan Qaboos University (SQU) and on the roof of a private house. Water was diverted to the pots from plastic containers through siphons made of used T-shirts rolled and filled with soil. Siphoning flow rate, moisture content in the pots, hydrological parameters and the development of the plants were measured and monitored. Siphons conveyed water to the pots continuously at a rate of 0.35 to 0.65 L per siphon per day. A single pot reduced daily average temperature by 6 degrees compared to a bare roof. GR has excellent thermal insulation efficiency due to shading, increased heat capacity and latent heat transfer by evaporation. The least heat-resistant plants (e.g., tomato) planted in January developed well and perished in May. Most heat-tolerant plants (e.g., petunia) survived even in July. The pot soil profile exhibited good buffer capacity to intercept and retain typical rain events, preventing formation of floods. For current water and electricity prices in Oman the suggested GR irrigation-cooling system is economically viable.

Prof. Anvar Kacimov

Office add.: Sultan Qaboos University Water Research Center
P.O. Box 17, P.C. 123., Al-Khoud

Tel. no.: +968 2414 3151

Fax no.: +968 24413532

Email add.: wrc@squ.edu.om

Water Research Centre

First point of contact for Water Researchers in Oman *March 2011*

Water Security and Management

The Research Council of Oman, the British Council, Muscat and the SQU WRC jointly sponsored a Research Symposium titled "Water Security and Management", from 19-21 March 2011. It attracted Academic Faculty from ten UK Universities, and water professionals from GCC countries and Yemen. The opening ceremony was inaugurated by HE Engineer Ali Al Abri and attended by several undersecretaries and GCC Ambassadors to Oman. Inauguration speeches were made by HE the Ambassador of Britain to Oman, and HE Dr. Hilal Al Hinai, the Secretary General, Research Council, Oman. Papers presented are listed below. Powerpoint slides used by presenters are available with SQU WRC. Joint research projects among Universities in GCC Countries, Yemen and UK will be developed in the near future. The British Council made a commitment to support development of proposal for such joint activities.

- The Oman Water Society: Engineer Zahir Al Sulaimani:
- The limits to supply and challenges to demand. Slim Zekri, Sultan Qaboos University, Oman
- Water scarcity issues in the United Arab Emirates. Ahmed Murad, University of Al Ain, UAE
- Water security: the role of groundwater storage in arid and semi-arid environments, John Chilton, British Geological Survey, UK
- Two-dimensional horizontal simulations of variable density flow in coastal aquifers. Mohsen Sherif. UAE University, UAE.
- Modelling the periodic pattern of wastewater Influent for non-conventional water supply applications. Jaber Almedeij, Kuwait University, Kuwait
- Numerical modelling of complex geotechnical and geo-environmental engineering – sea water intrusion. Akbar Javadi, University of Exeter, UK
- Water security and water quality impacts in Yemen, with special reference to fluorosis. Abdulmohsen Saleh Al-Amry, Aden University, Yemen
- Low-energy production of fresh water from seawater: manipulated osmosis, A Sharif, University of Surrey, UK
- Artificial neural network simulation of membrane separation. Mohammed Al-Abri, Sultan Qaboos University, Oman
- Water management of Aflaj systems in Oman: reassessment. Abdullah Al-Ghafri, University of Nizwa, Oman.
- Water@leeds: challenges in water resource management, identifying risk and coping with scarcity. Nigel Wright, University of Leeds, UK
- The role of Masdar Institute in responding to water security Issues in UAE and opportunities for collaboration. Has san Arafat, Masdar Institute, UAE
- Ta'iz water supply: challenges and solutions. Abdullah Saleh Saif, Sana'a University, Yemen
- Water security and management in Yemen: challenges and potentials. Bilkis Zabara, Sana'a University, Yemen.
- Water resources in Kuwait. Fawzia Al-Ruwaih, Kuwait University, Kuwait
- Water security in Kuwait: aspirations and realities. Adnan Akbar, KISR, Kuwait.
- Hydraulic modeling and life cycle assessment concept. Hazem Gouda, University of the West of England, UK
- Water security under climate and other uncertainties, Rabi Mohtar, Qatar Environment and Energy Research Institute, Qatar.
- Integrated Water Resources Management research in arid zones. James M Amezaga, University of Newcastle, UK
- Identification of genetic and management intervention strategies to improve water capture and yield of small-grain cereals under drought, John Foulkes, University of Nottingham, UK
- The 'Web' of water security: audits and environmental diplomacy. Mark Zeitoun, University of East Anglia, UK
- Water balances for agriculture within temperate and semi-arid environments, embedded water and water footprinting. Tim Hess, Cranfield University, UK
- The Mega Nexus – Water – food – trade – energy-climate-change – finance. Tony Allan, Kings College London and School of Oriental and African Studies, UK