Water Research Centre

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

International Workshop

Hydrology, Nature and Engineering

This workshop organized by SQU (CAMS, WRC), MRMWR, UFZ (Germany) attracted participants from Oman, Germany, USA, Australia, Russia, Lebanon. Key note lectures were presented by Prof. Bejan (Duke University, USA, Prof. Strack (University of Minnesota, USA) and Prof. Lorente (University of Toulouse, France). Two evening panel discussions were held. Several research projects and papers have been conceived by the participants. Certificates of participation were awarded.

Participants of the workshop came with the following topics for future research and collaboration.

1. Recharge dam design & maintenance in Oman are of primary interest to the Ministry of Regional Municipalities and Water Resources. Related issues worthy of investigations are: Ecology & evolution of plants on the embankment slopes, dynamic changes to soil physical properties, & accelerating recharge during inundation, using DARE
2. Use of natural isotope in groundwater exploration and general water assessment in the Sultanate.
3. Constructal design and application for in design & operation desalination plants.
4. Enhancing groundwater modeling capacity at MRMWR.
5. Hydrology sustainability of the Najd irrigation project, with in the context of fossil groundwater reserves, natural recharge, quality of water, irrigation practices, pumping rates, & contemplation of potential alternatives to large cropping schemes.
6. Monitoring & investigating of recharge of groundwater under cloud forest cover, local wadi beds of Dhofar, monitoring of water table, groundwater salinity & temperature in Salalah aquifers using from boreholes, using Diver-type gadgets, electronic sensor & groundwater modeling.
7. Interpretation of highly episodic rainfall runoff events.
8. Socio-economic aspect of water agenda related to water security, awareness on water conservation measures, global virtual water trades & distribution
9. Use of treated waste water for irrigation, especially in the areas with heavily salinized soil.
10. Impact of climate change on water reserves & supplies in Oman.

Water Security Symposium

Sally Ward and Barrie Morgan of the British Council, which co-sponsored the Water Security Symposium held at SQU in March 2011 are reporting that, the delegates have identified a total of six potential projects for development in future.

1. Sustainable Production of Clean Water using Solar Pond Thermal Desalination;
2. New multi-scale models including hydro-pedology;
3. ADR - Abstraction—Desalination—Recharge—and the remediation of saline intrusion;
4. Water security in relation to the major trans-boundary groundwater basins and aquifers of the Arabian Peninsula;
5. The current and future political economy of agricultural water in the GCC countries and Yemen: seeking long-term water security;
6. The hydro-social cycle of Aflaj in Oman.

Researchers associated with SQU WRC have expressed interest in projects 5 and 6. We will endeavour to develop full proposals in collaboration with GCC researchers and UK researchers for potential funding from the British Council and the Research Council, Oman.

S. A. Prathapar, PhD,.

Water Research Centre

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

Effluents and Sludge: Environmental Risk or Potential Energy Source

This study aims at obtaining the complete picture about the situation of wastewater treatment effluents and sludge in Muscat, Sohar and Salalah areas and their potential effects on the environment and public health. The study utilizes a multi criteria approach that takes into consideration treatment technology, cost information, water requirements per application, and legislative requirements in order to assess the effects on the environment and human health. It also aims at providing a reliable database that can be used to quantify the amount of sludge, which can be used to assess the possibility of producing energy from such end products. Collaborative effort between the research team at Sultan Qaboos University and the concerned ministries in the Sultanate such as Ministry of Environment and Climate Affairs, Ministry of Regional Municipality and Water Resources, and Ministry of Health has been established to put together a framework for tackling such important and sensible issue that is directly relate to the environment and human health. Extensive literature review about the subject has been gathered focusing on similar case studies, evaluation of the national and international standards for wastewater effluent and resultant sludge, current treatment technologies of wastewater and sludge (focusing on best practices), applications of the end products of wastewater treatment plants (both domestic and industrial wastewater plants), and environmental risk and health assessments. Related information has been gathered from various ministries and relevant departments. The collected data has been reviewed, collated, and analyzed. Ministry of Regional Municipality, and Water Resources, and Ministry of Environment and Climate have been very useful in providing such information.

Dr. Mahad Said Baawain

Innovative Opening Ceremony at World Water Day 2011

At the opening ceremony of the World Water Day 2011, which was held under the auspices of HE Dr. Hilal Al Hinai, Secretary General, Research Council, Oman a special musical concert titled, "Two fluxes juxtaposed: water and music", by Mrs. Skryabina (violin) and Mrs.Egorova (piano) both from the Department of Musicology, SQU. They performed (1) Mozart Wolfgang Amadeus, "Sonata" in D-major K306 for violin and piano, part 1, (2) Skryabin Alexander Nikolajevich, "Album Leaf", op.45, No 1, (3) Bach Johan Sebastian "Allegro Assai from sonata" in C major for violin solo, (4)Wagner Richard, "Albumblatt", and (5)Rimsky-Korsakov Nikolaj Andreyevich, "Sheherazade". Prof Anvar Kacimov, HOD SWAE, CAMS accompanied the event with carefully selected photos of musicians, historians and SQU Water Researchers. The event was well appreciated by the audience. On behalf of the WRC, I express my sincere appreciation to the Mrs Skryabian and Mrs Egorova and Prof Anvar Kacimov.

S. A. Prathapar, PhD,.

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