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BRACE CENTRE FOR WATER RESOURCES MANAGEMENT
DEPARTMENT OF CIVIL ENGINEERING

SEMINAR

THE ROLE OF MEMBRANE TECHNOLOGY IN MUNICIPAL WASTEWATER RECLAMATION FOR SUSTAINABLE APPLICATION AND MAINTENANCE OF HIGH QUALITY WATERS IN AQUIFERS

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Domestic secondary effluent is a valuable water source that is reused for diverse purposes, primarily for agriculture production, "green areas" preservation, and aquifer recharge. Groundwater enrichment is maintained by natural recharge and via Soil Aquifer Treatment processes. Secondary effluent commonly contains elevated amounts of dissolved solids and nutrients. In order to maintain adequate levels of sustainable agriculture production, and decelerated salinisation processes of the ground waters and to prevent long range adverse effects of gradual environmental pollution, advanced wastewater treatment is required, prior to reuse or/and disposal. Realizing the situation in the area, challenging goals of maintaining adequate effluent quality for the diverse purposes can be attained mostly by implementing membrane technology.

Field experiments are in progress in the agricultural fields in which secondary wastewater of the City of Arad (Israel) is reused for irrigation. In order to maintain sustainable agricultural production and safe ground water recharge the secondary effluent is further polished by a combined two stage membrane system. The pilot system consists of two main stages: UltraFiltration (UF) and Reverse Osmosis (RO). The UF stage is efficient in the removal of suspended matter, organic matter and pathogens while the successive RO stage provides safe removal of the dissolved solids (salinity). Effluent of various qualities is applied for agricultural irrigation along with continuous monitoring of the membrane system performance. Best agricultural yields were obtained when applying effluent having minimal content of dissolved solids as compared with secondary effluent without any further treatment (10 % to 25% higher yields according to the crops, respectively).

Dr. Oron was educated in Israel (Technion, Haifa) in the general area of water engineering. After completing his Ph.D and a postodoctoral fellowship at Colorado State University he joined Ben-Gurion University of the Negev, The Institute for Desert Research at Sde-Boker. His work focuses on water and environmental issues, primarily in arid regions.

Friday, October 20th, 2006
Downtown Campus, Trottier Building, Room 2120
1:30 - 2:30 pm

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