

# **WATER RESOURCES CHALLENGES FACING UAE IN THE 21<sup>ST</sup> CENTURY**

**Azm S. Al-Homoud, Professor of Civil Engineering**  
American University of Sharjah, Sharjah, UAE  
E-mail: ahomoud@aus.ac.ae

Three priority issues dominate water resources in the UAE: 1) Water shortages as the UAE is arid in nature, 2) Degradation and depletion of water resources, and 3) Public and private sector resource management performance.

With the rapid development of domestic, industrial, and agricultural water supplies, conventional water resources have been seriously depleted. The scarcity of natural water resources and the growing gap between demand and supply of potable water in most of the UAE forced the government to face the water challenge with wise policies and decision. The government realizes that the situation goes behind just a gap in water quantity and needs to be seen in the context of emerging environmental problems.

Moreover, there has been an increasing concern in the UAE about the development of the water sectors and the efficient utilization of the water resources for sustainable water development. Unconventional water resources such as water desalination and effluent water reuse gained increasing role in the planning and development of additional water supplies.

This paper discusses in some details the Challenges of UAE Water Resources, specifically: 1) Limited Water Resources, 2) Inefficient Water Use, 3) Ground water exploitation, 4) Water Quality Deterioration, and 5) Inefficient Water Management and lack of comprehensive water planning.

The paper also presents a water resources action plan for more efficient use and improved quality of water resources in the UAE. It calls for a major review and shift in water policies in the UAE, emphasizing conservation and demand management, with the overall objective of securing long term water supplies while meeting strict criteria for socio-economic, financial and environmental sustainability and public health requirements.

The study identify that the main strategic objective need to be “more efficient use and improved quality of water resources”. The paper reflects in further details on this strategic objective, specifically: 1) improve public management, including appropriate policies, 2) increase public participation in water resources management programs, 3) Increased wastewater treatment and water reuse by public and private sectors, and 4) increase use of pollution prevention techniques.

The study emphasizes the importance of university education, R&D, Technical Training and networking in the following areas of water resources to help solve the problem: Water resources management, wastewater treatment technology and management, groundwater resources management, water quality monitoring, use of Irrigation water management, and leak detection in distribution systems.