

Management of Water Supply/Demand in U.A.E with Six Sigma

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United Arab Emirates recognized the shortage and the importance at same time of water resources and encourage economical consumption of water for the future generations. The strategy goals are to proceed towards an effective management and development for the three main water sources in UAE; desalinated water, groundwater and recycled water.

Basically, United Arab Emirates was relying on groundwater production from the main underground water supply aquifers. Groundwater production depends on the amount of rainfall which is rare.

The risk of water resources loss in UAE became a heavy concern in arid and semi-arid zones. Fears and anxieties are increasing due to the abstractions of conventional water resources for mainly agricultural activities; For example, around 120 million trees were planted in Abu Dhabi in the last 5 years, making the natural water availability in UAE becomes less than 200 m³ /capita. This condition has created imbalance between the input and output of the water to the system and causing a limitation in the groundwater quality and the available amounts as well natural recharge.

In Order to meet the ongoing losses in water resources without an efficient enough incoming recharges, the Desalination plants have been established, especially for the domestic, industrial, and agricultural targets.

Also, wastewater plants have been established for treatment in many locations in the country to reduce the consuming of the existing groundwater from a side and to save the high processing cost for the desalinated water plants.

A huge effort has done to develop the analyses and management of water resources like sustainable strategy`s implementation of water resources in order to save as much as possible the groundwater storage and trying to meet the high growing demand.

This study will analyze the most portions that consume a huge amount of water, especially the industrial side, and try to apply a new management using the *Six Sigma (SS)* and comparing the result with some pre-management systems which have been followed by the government like *WMS*.

Water is increasingly becoming a subject of great concern: population growth and the depletion of clean water supply are causing conflicts and raising concerns about the future survival of the earth`s population. The challenges, where the water demands in the UAE was recognized as the highest in the world by a recent UN Global Environmental Outlook report, with 550 liters being used daily per person. This is approximately 82% higher than the global average.

This paper will list and discuss the management solutions (natural, Individual and by Government) such as rain, desalination and *WMS* but there is much more to consider since desalination is expensive and it rarely rains in the country.