

Hamma Seawater Desalination Project Creates New Water Source in Water Scarce Algiers, Algeria

Challenge

Over the last decade, Algiers suffered from chronic intermittent water supply, resulting in challenging living and business conditions. This situation was due to imbalances in the fresh water supply and demand situation as driven by shifts in demographics, the infrastructure capacity, and occasional climatic variations.

As the second largest country in Africa in geographical terms, Algeria has experienced a dramatic urbanization in the last decade, where urban dwellers have increased from 31% in 1990 to 60% by the year 2000. Algiers also now has over 3 million residents – approximately 10% percent of the population of Algeria.

A reduction in the rainfall in the 1980's prompted the Algerian government to construct new dams to improve rain catchments. However, drought conditions persisted even into the new millennium and the additional investment in dams did not appreciably increase the stored water volume.

Another factor contributing to the lack of water service is the water infrastructure. According to the World Bank, the water loss rate through the distribution system was estimated at 40%.

As a result of this supply / demand imbalance, the residents and industry in Algiers only had water available once every three days.

Solution

Through a distribution rehabilitation program, a target was established to reduce water losses in the distribution infrastructure from 40% to less than

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25%. However, it was projected this upgrade in delivery efficiency would not be sufficient to solve the water scarcity situation in Algiers. It was decided that an additional water supply was required to meet the expanding urban water demand. With limited water sources available, the sea was the only other new water source that was plentiful enough and practical to convert to fresh drinking water.

Desalination creates a new source of water that is independent of the variables that effect dams, like rainfall variation and silt build-up that reduces dam capacity. In a tendering process that invited international global desalination leaders, a consortium, lead by GE Water & Process Technologies, was selected to design, build, own and operate a 53 million gallon per day (200,000 m³/day) seawater desalination facility to meet the water scarcity needs of Algiers.

The Hamma facility, to be commissioned in 2007, will use a direct sea intake system. The facility will incorporate clarification technology to economically and reliably remove suspended solids and reduce biological challenges of the raw water. Seawater is affected by seasonal dynamics, biological blooms and turbidity affects from a working harbor.



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