Case Study: Ashkelon Sea Water Desalination Plant

Like many other nations Israel too is facing water crisis. To address the water crisis problem Israel launched Master plan for desalination in the year 2000 which aimed to reuse the sea water after treating them with desalination plant.

Moving ahead with its plan, Israel constructed series of plants along the Mediterranean coast, to produce 400 million m^3 of desalinated water for urban consumption. The plan intend to produce potable drinking water up to 750 million m^3 by 2020.

In 2001 the construction of **Ashkelon desalination plant** was commenced. The work was expected to be completed in three phases. In 2005 the project was completed and it was huge success. The success was recognized worldwide and in March 2006 it was awarded **"Desalination Plant of the Year".** The plant use reverse osmosis technique to generate desalinated water. This plant in 2006 (One year after commencement) delivered 100 million m3 of water.

The capacity of plant is 320,000m3 per day and it meets 13% of the country's domestic consumer demand that is it meets 5-6% of country's total water requirement.

The major constituents of the project are membrane desalination units, pumping units, facilities for brine removal, raw water pre-treatment and product water treatment. The model design adopted for this plant was " three-center design model" in which the high pressure pumps, energy recovery devices and membrane banks were arranged in such a way so that they can each operate independently and flexibly.

Whole facility consist of two plants comprising pumping center that feeds 16 RO banks. Whole

installation consist of 40,000 membrane elements and make the use of multi-stage RO and boron removal procedures.

For efficient and continuous operation electricity is provided from two separate sources. Adjacent to the desalination plant power station is built which provides power to the plant.