



TUNISIA
PPP 2018



Pipeline of PPP projects in Tunisia

Ksour Essef desalination plant

General presentation

The project will be implemented as a complementary potable water resource by means of a new sea water desalination plant covering five governorates along Tunisia south-east coast.

The project's goal is to cover expected potable water consumption increase by year 2030. The needs to cover are mainly population increase, development of industry and tourism activity along the coast, increase in living standard, and development of potable water networks in the countryside.

The estimated costs of the project is TND 400 Million

Resources and needs show a deficit in 2015 of 20750 m³/day which shall be covered in 2020 by the import of water from two new plants (Sousse 50 000 m³/d ; Kalaa Kobra 172,800 m³/d). From year 2025 a new deficit is expected that should be balanced by the addition of 100,000 m³/d issued from a new seawater desalination plant, the present Ksour Essef seawater desalination plant.

In Year 2035, a new deficit of 100,000 m³/d is expected and shall be covered by the extension of the Ksour Essef plant.



Location:

Ksour Essef



Company:

SONEDE (Public Water Company)



Mission:

Construction of a new desalination plant



Cost:

TND 400 million



Legal and institutional framework

Institutional framework:

The public authority is the Tunisian national water provider SONEDE (SOciété Nationale pour l'Exploitation et la Distribution d'Eau).

Legal framework:

Concessions: Law No. 2008-23 of 1 April 2008 on the concession scheme and its executive decrees.

PPP contracts: Law No. 2015-49 of November 27, 2015, on Public Private Partnership Contracts and its executive decrees.

Project scope

The desalination plant includes:

- A seawater intake offshore tower with a seawater pipeline
- A seawater pumping station including an inlet seawater basin, several channels of coarse filtration, pumping bays, and chemicals injection lines
- Lifting pumps with filters and a floatation unit

The Filtrated water is pumped to several reverse osmosis “packs” installed in parallel and consisting of high pressure pumps, energy recovery devices, booster pumps, racks of reverse osmosis membranes, and their Clean-In-Place system (CIP).

The desalinated water is remineralized by receiving an injection of carbon dioxide, lime water to add required salts. Lime water is prepared in a side branch of the installation where water and lime are mixed.

Final water quality control check is done before water is sent to a storage tanks before usage.

Filtration backwash system includes backwash water storage tank, and a air blower which generates dirty effluent during backwash sequences of filters. Similarly, high speed flotation generates sludge and foam.

Effluents are treated on a wastewater settling tank before rejection to sea. Sludges are dehydrated with centrifuges before being evacuated as dry sludges.

Effluent are pumped back to a balancing tank close to sea water inlet before being rejected to sea by gravity offshore.

Preliminary Cost estimation:

CAPEX

The cost of the Ksour Essef seawater desalination plant project and its connection to the distribution networks is estimated at 600 million Tunisian dinars detailed as follows:

Plant	Phase	Estimated Cost (TND million)
Project Desalination Plant Ksour Essef Mahdia Governorate	Desalination plant of seawater	400
	Connection of the plant to the distribution network:	200