Development of mobile stand-alone solar driven reverse osmosis groundwater/seawater desalination plants for sustainable development in Egypt.

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Aim

Egypt is experiencing a fresh water crisis. Many large and small communities in Egypt are suffering an acute shortage of fresh water that complies with minimum health requirements. Water desalination projects based on reverse osmosis technology are being introduced in Egypt to combat drinking water shortage in remote areas. Reverse osmosis (RO) desalination is a pressure driven process. This work focuses on the design of an integrated brackish water and seawater RO desalination and solar Photovoltaic (PV) technology. Small mobile PV driven RO desalination plants prototype were designed and tested.

Design of a small mobile PV driven RO water desalination plant to be deployed at the north west coast of Egypt

Project funded by
Misr El-Kheir Foundation

Aim

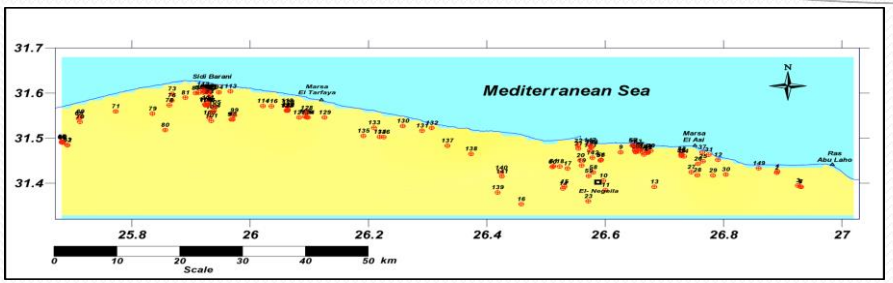
The present project focuses on designing, implementing and testing of an efficient cost effective battery less mobile photovoltaic powered groundwater reverse-osmosis (PV-RO) desalinating unit. This unit is capable of desalinating brackish and saline groundwater with TDS up to 25000 ppm and produces 11 m^3/day of potable water that complies with international standards.

Target area: Northwest coast of Egypt

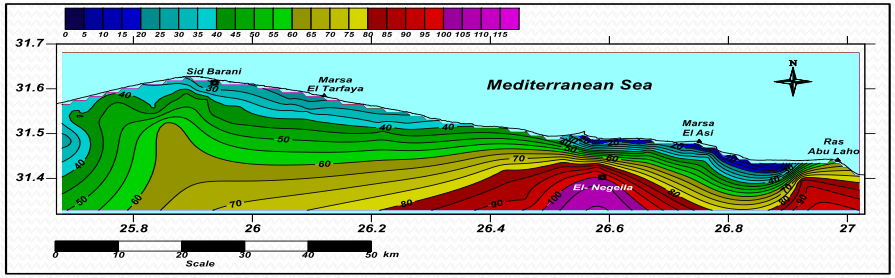
Study the groundwater quality in Northwest coast

1- Water quality: 131 groundwater samples were collected

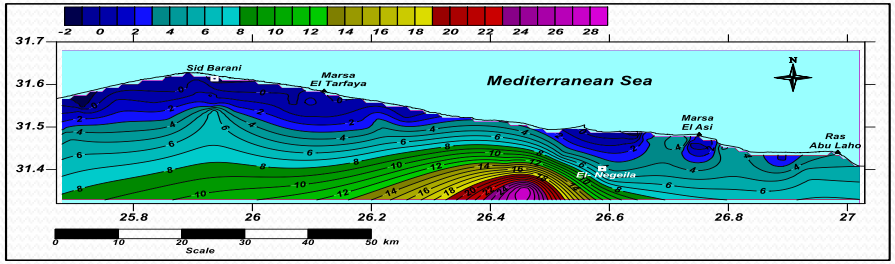
Study the groundwater quality in Northwest coast:



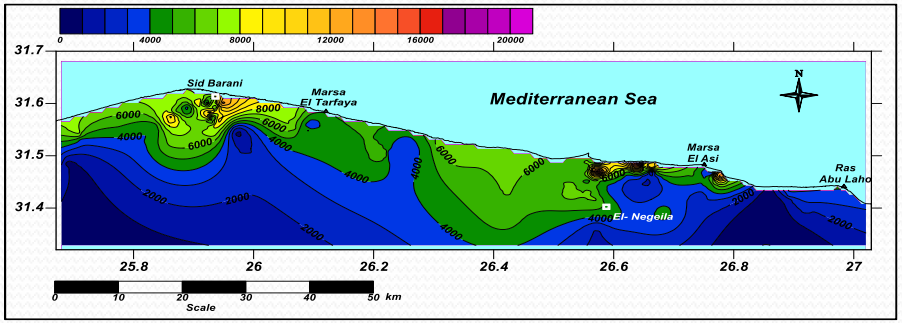
Depth to water contour map



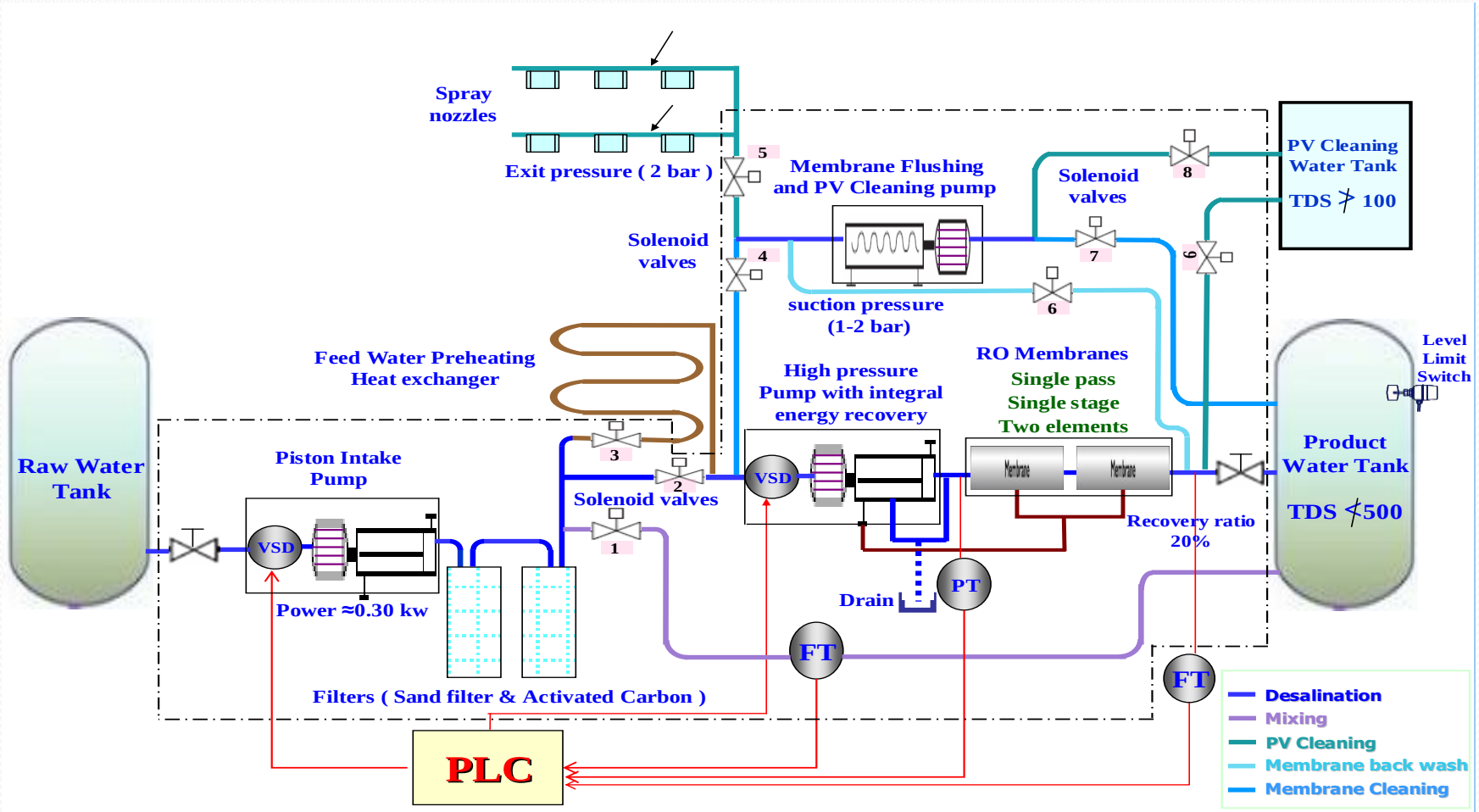
Water level contour map



Iso-salinity contour map



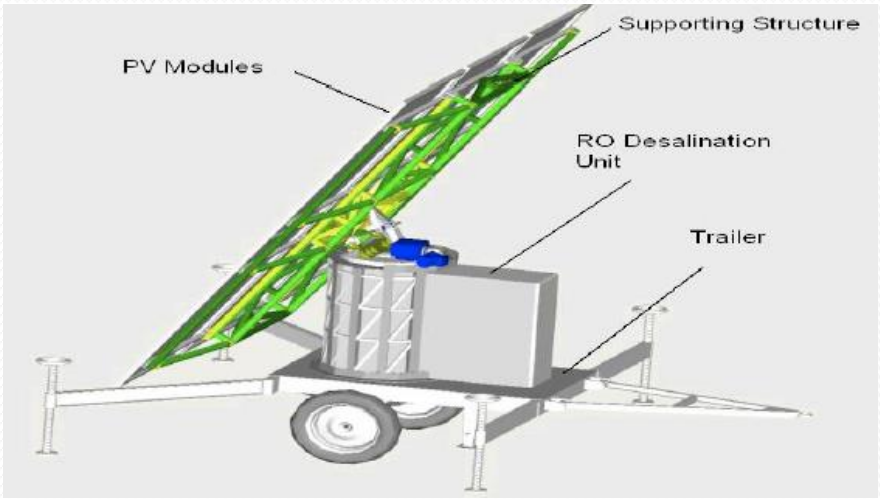
Our solution



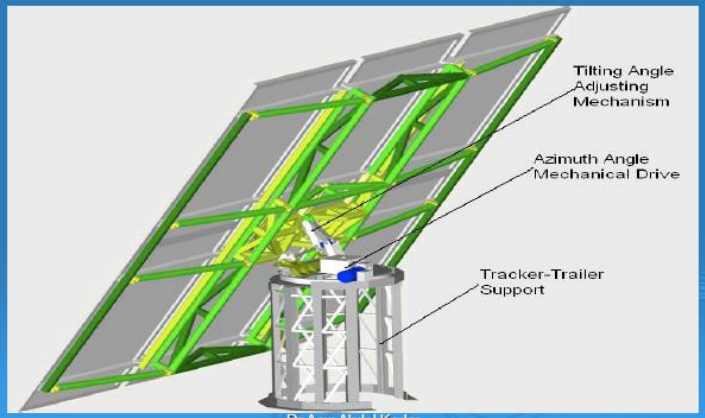
Our solution

Transportation Mode

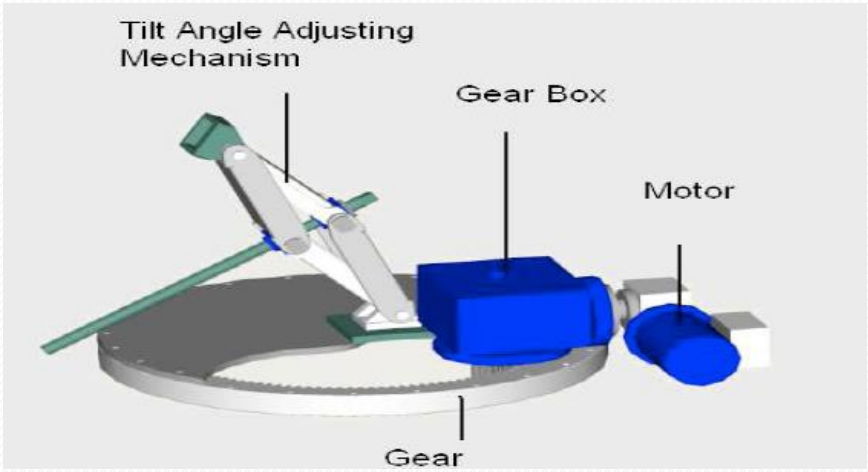
Dr.Amr Abdel Kader



Main Structure



Dr.Amr Abdel Kader



Development of a mobile stand-alone solar driven reverse osmosis seawater desalination plant for sustainable development in Shalateen

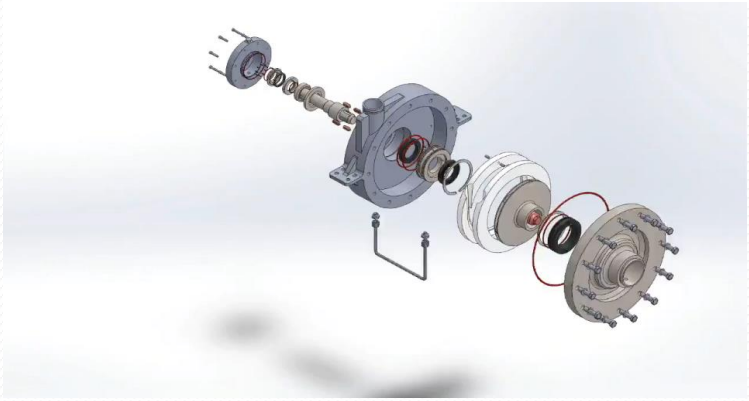
Project funded by
Egypt Academy of Scientific Research & Technology

Aim

This project focuses on the integration of saline water/seawater RO desalination and solar photovoltaic (PV) technology. A small mobile PV driven modular RO desalination plant prototype without batteries is designed, built and field-tested. Shalateen represent the candidate areas suggested for field application for our prototype. RO plant is be designed so as to produce up to 21 m^3/day of potable water. Mobility of the system is served to provide a safe and stable drinking water source for many isolated areas in Shalateen. All mechanical as well electronic components were manufactured at the Arab Organization for Industrialization (AOI).


EDRC

Water Desalination Alliance

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