

LIFE-OFREA

Improving Water Reuse at the coastal areas with advanced desalination



...funded by the European Commission under the LIFE+ Programme

PROJECT

LIFE-OFREA is a project supported and funded by the European Commission under the LIFE+ Programme to reuse wastewater in coastal areas more efficiently. Led by ACCIONA Agua and Esamur, it uses an advanced desalination technology in an effort to reduce the energy that would normally be required if conventional desalination techniques were used.

BACKGROUND

The salinity of water is one of the main limitations for its reuse. / Significant quantities of dissolved salt content in water can be caused by two factors:

Coastal areas:

Introduction of sea water into water sources.

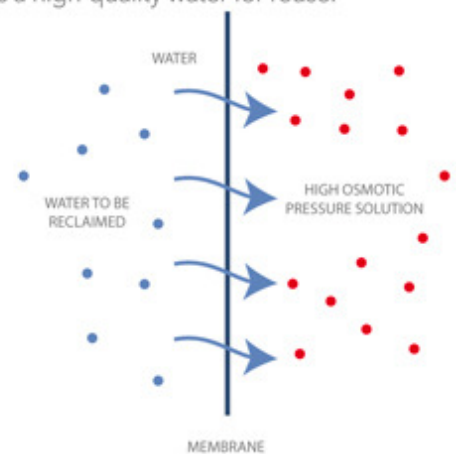
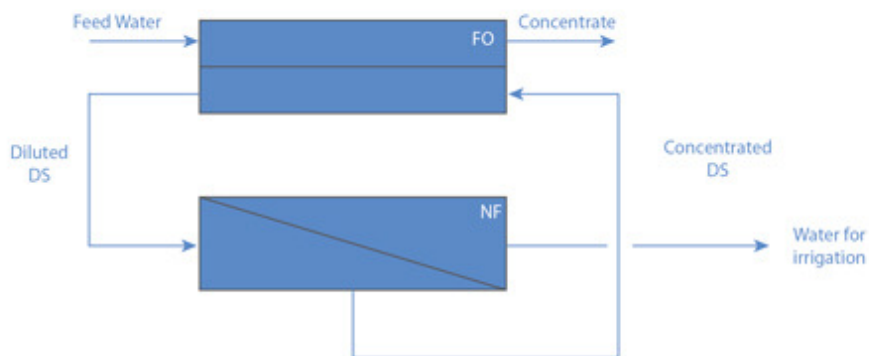
Inland areas:

Salinity levels in aquifers have increased in recent years due to the overuse of natural water sources and rivers as well as decreased precipitation.

THE PROCESS - FORWARD OSMOSIS (FO)

Osmosis involves moving a high-osmotic pressure solution to a lower-osmotic pressure solution through a semipermeable membrane that lets the water through but prevents the dissolved salts from passing through. It is a natural process and does not require high pressure.

In the industrial application of this process, the high-salinity solution is called draw solution. This must be then separated from the water that has passed through the membrane using a regeneration system. The obtained water is a high-quality water for reuse.



DEMONSTRATION PLANT

The water that enters the plant has a high conductivity, of 4-6 mS/cm and is therefore not adequate for agricultural purposes. After the OFREA treatment in the demonstration plant, the obtained water has a low conductivity and shows a high quality for agricultural reuse.

