



تحت رعاية معالي رئيس مجلس الوزراء المصري المهندس شريف إسماعيل
مؤتمر تحلية المياه الحادي عشر في البلدان العربية

UNDER THE PATRONAGE OF THE EGYPTIAN PRIME MINISTER ENGINEER SHERIF ISMAIL

11TH WATER DESALINATION CONFERENCE IN THE ARAB COUNTRIES

18-19 APRIL 2017 • INTERCONTINENTAL CITY STARS - CAIRO - EGYPT

Desalination & Water Reuse Overview

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Managing Director - Africa
Group Executive Board Member

بالتعاون مع



Holding Company
for Water & Waste Water



وزارة الإسكان والمرافق والمباني العمرانية

تنظيم

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متعاونوا الدورات السابقة



- 1 | Water Scarcity, *challenges and reasons..*
- 2 | Desalination, *always a viable solution..*
- 3 | Water Reuse, *most sustainable endeavor..*
- 4 | Projects
- 5 | El Galala Desalination Plant- Walk-Through Video

Water Scarcity..

Challenges & Reasons..



Water Scarcity, Challenges & Reasons

- Less than 700 m³ of water per person per year
- Increasing Demand
- Population Growth
- Environmental degradation
- Global climatic change
- Pollution of water resources
- Financial and institutional problems



Desalination..

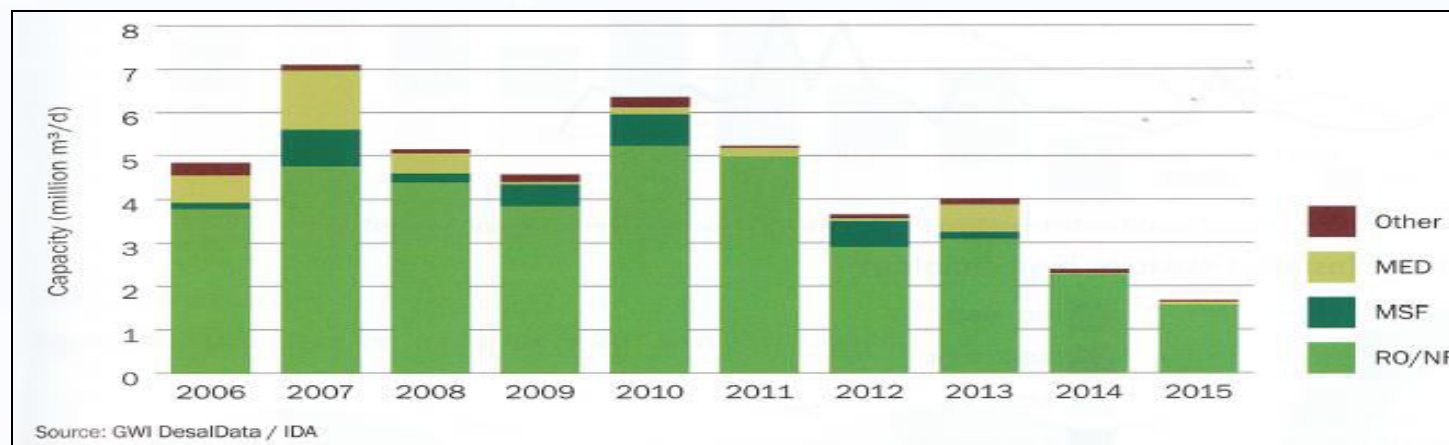
Always a Viable Solution..



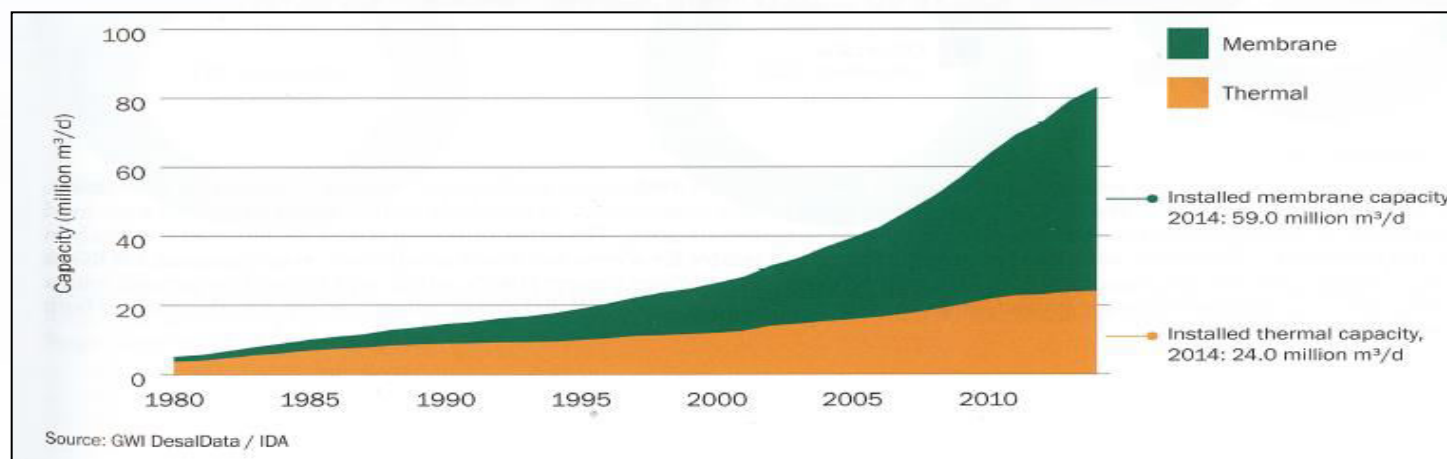
Desalination, Always a Viable Solution

- ✓ There is a sufficient and convenient source of water whose salinity renders it non-potable
- ✓ The alternative sources of potable water are more expensive to develop, deliver and less reliable
- ✓ There are opportunities for desalination plants that utilize renewable energy to recover potable water from salty solutions
- ✓ Strategic Approaches to Sustainable Desalination
 - Thermal Desalination
 - Membrane Desalination

Membrane Desalination VS Thermal Desalination



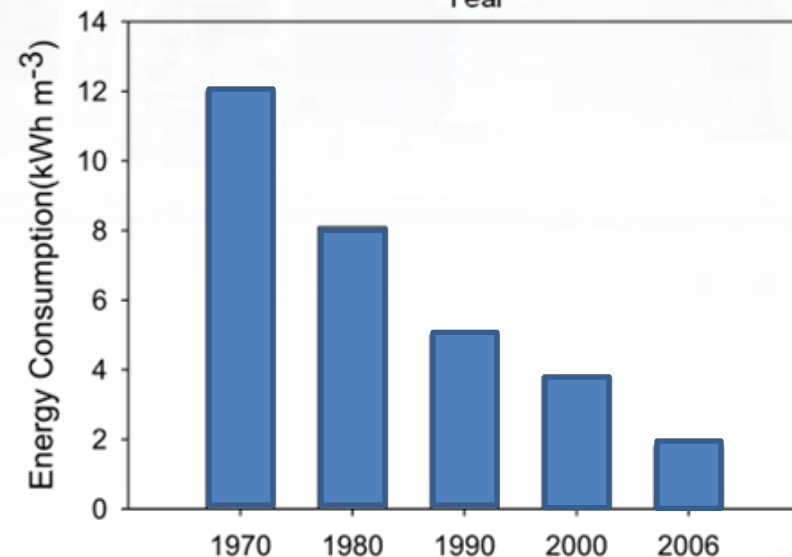
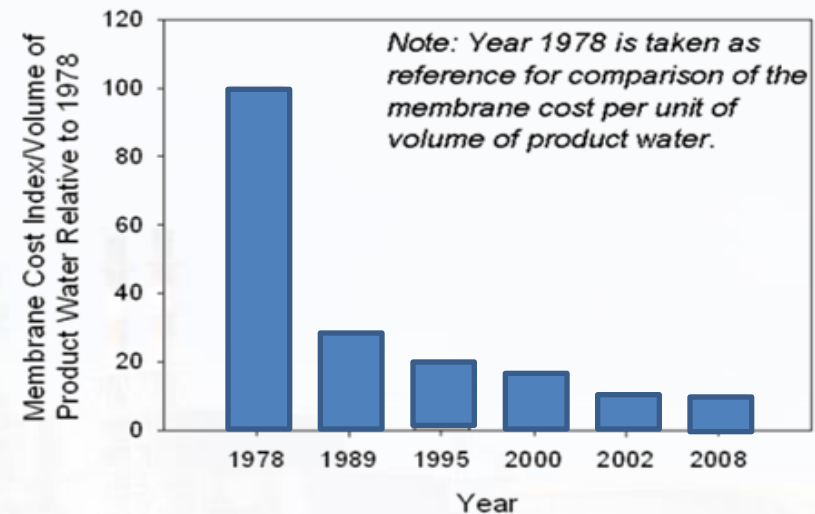
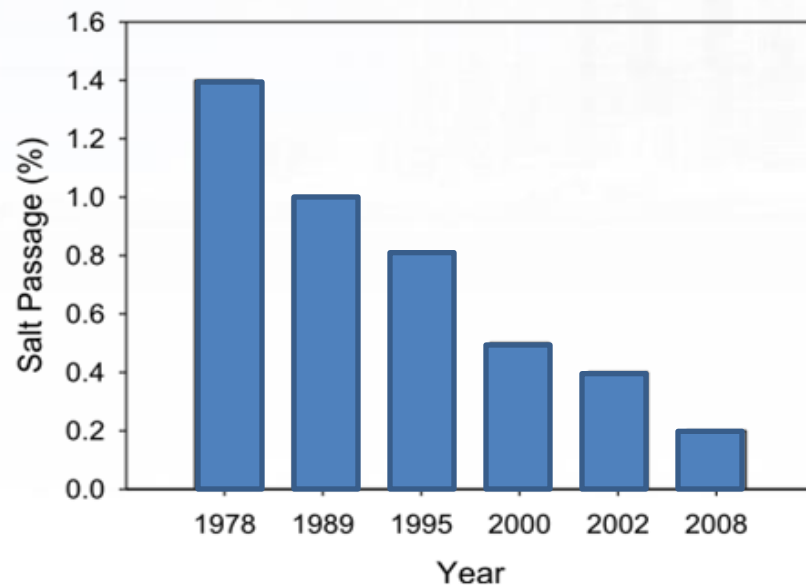
Annual New Contracted Capacity, 2006 - 2015



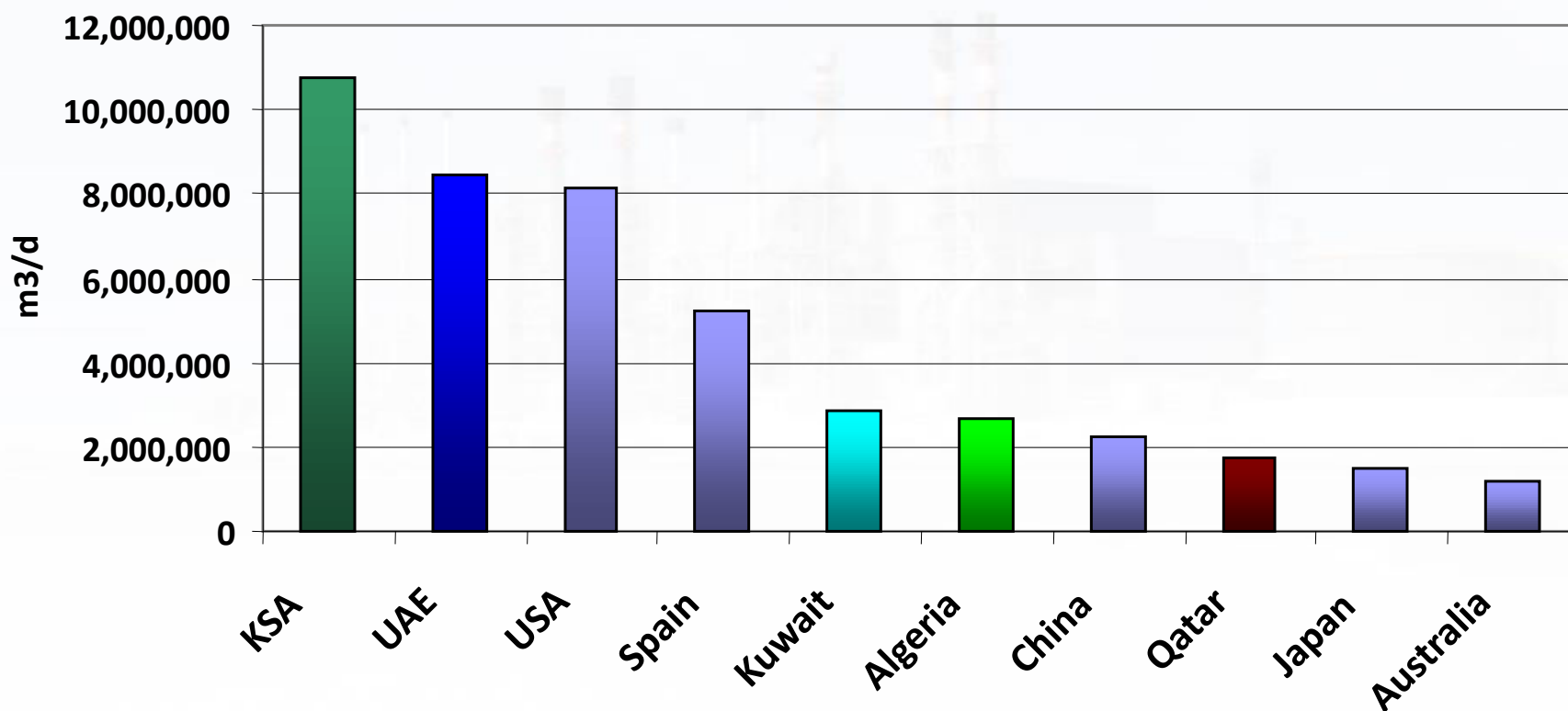
Annual Installed Capacity, 1980 - 2014

Developments on Membrane Desalination led to :

- ✓ Lower Capital Cost
- ✓ Lower Power Consumption
- ✓ Better Salt Rejection
- ✓ Increased Recovery Rates



Top 10 Desalination Countries

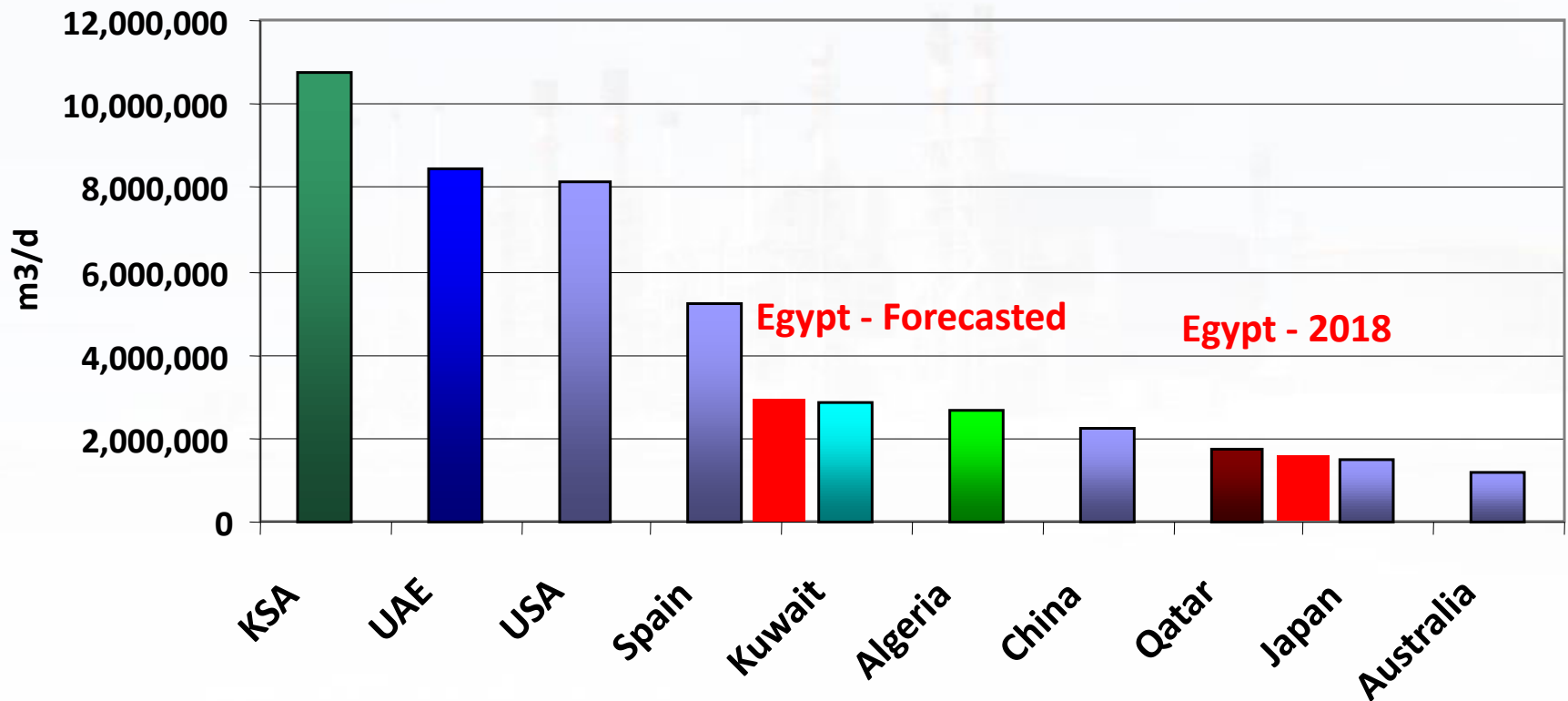


Source: WDR/GWI DesalData

Desalination Potential - Egypt

SN	Project Name	Capacity m ³ /d	Status
1	Remeila	24,000	In Operation
2	Nabq Central	20,000	In Operation
3	Baghoush	24,000	In Operation
4	El Yosr	80,000	In Commissioning
5	Marassi North Coast	20,000	In Operation
6	El Tor	30,000	Under Construction
7	El Alamein	150,000	Under Construction
8	NCIC	32,000	Under Construction
9	El Galalah	150,000	Under Construction
10	Port Said	150,000	Under Construction
11	Other small to medium desalination plants	250,000	In Operation
12	New Capital City	500,000	Planned
13	Plant Expansions	350,000	Planned
Total		1,780,000	

Top 10 Desalination Countries



Desalination – Process Scheme:



Water Reuse

Most Sustainable Endeavor..



Water Reuse

- Recent applications include:
 - ✓ **Industrial Reuse Applications**
- The Early applications were
 - Cooling Towers
- ✓ Irrigation of Landscapes
 - Process Water
- ✓ Irrigation of Edible & Non-Edible Crops
This is no longer the case
 - ✓ Toilet To Tap (TTT)
 - Orange County-California
 - Newater-Singapore



Water Reuse, Most Sustainable Endeavour

Fossil Power Generation



+

Renewable Power Generation



kWh

Water Desalination



Potable Water

Community / Consumers



Wastewater Treatment Plant



Reuse For Irrigation



Waste

Desalination & Reuse, Solutions are Both Combined

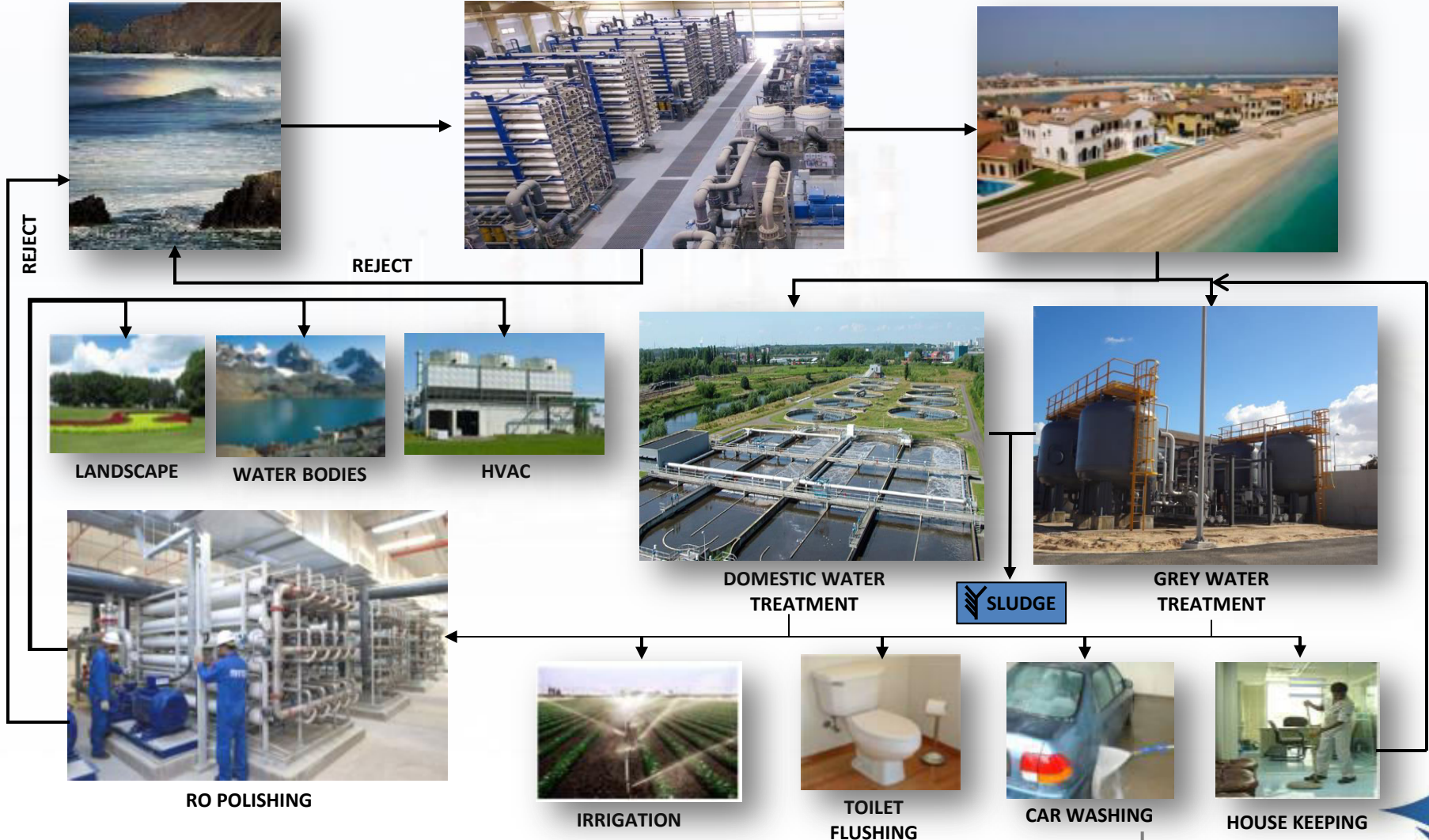
SEA



SWRO

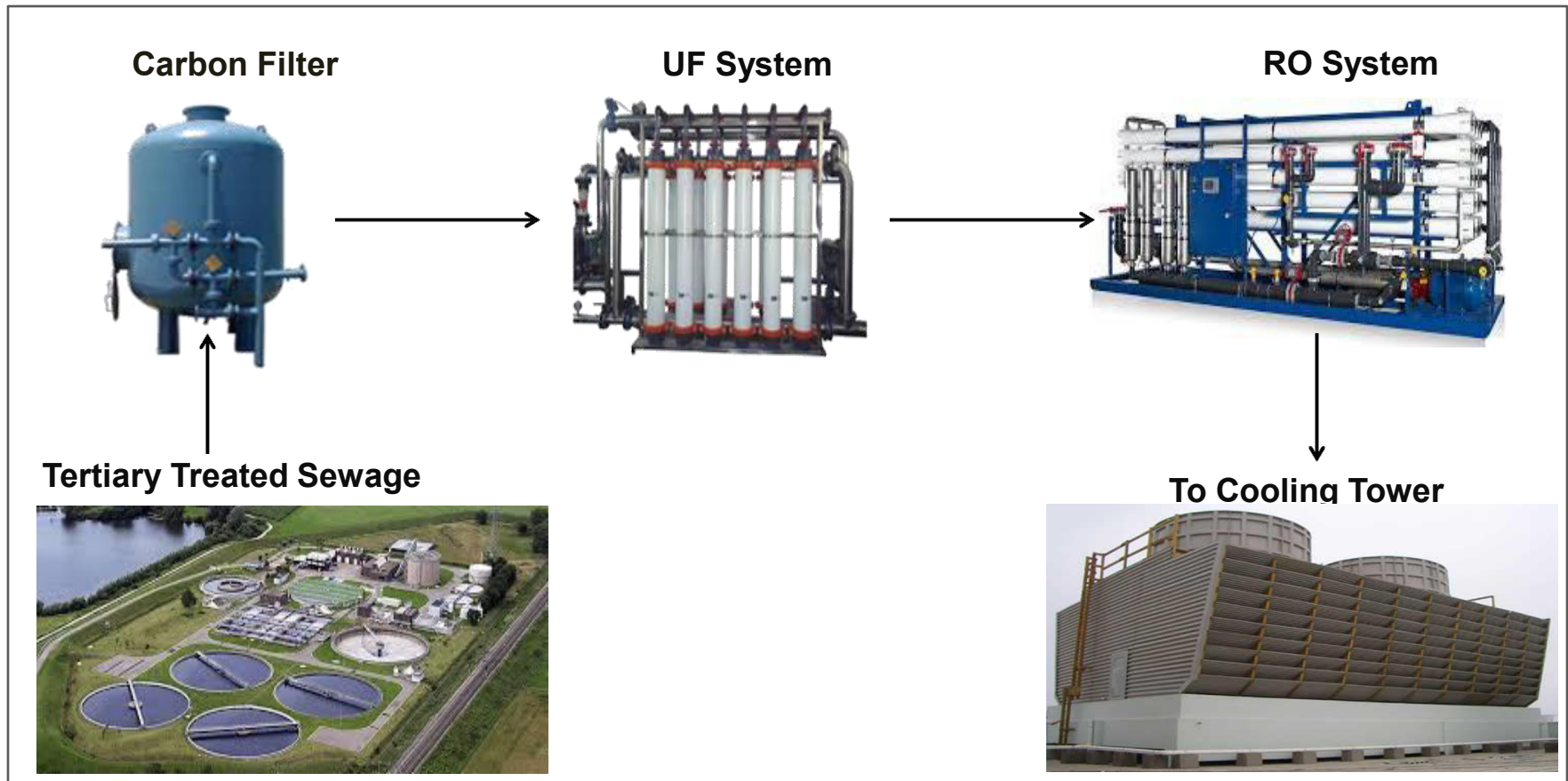


CONSUMERS

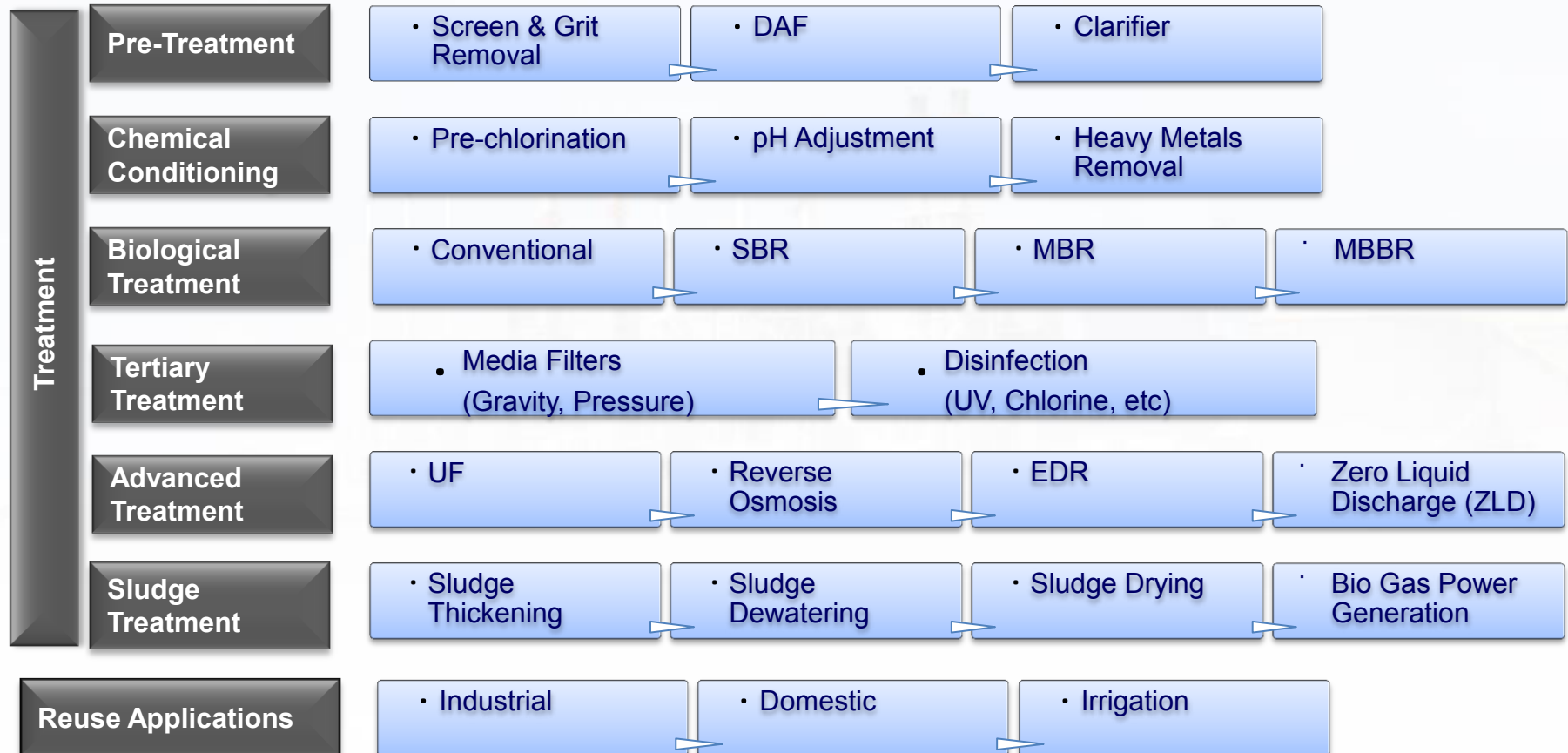


Water Reuse Process-LISCO

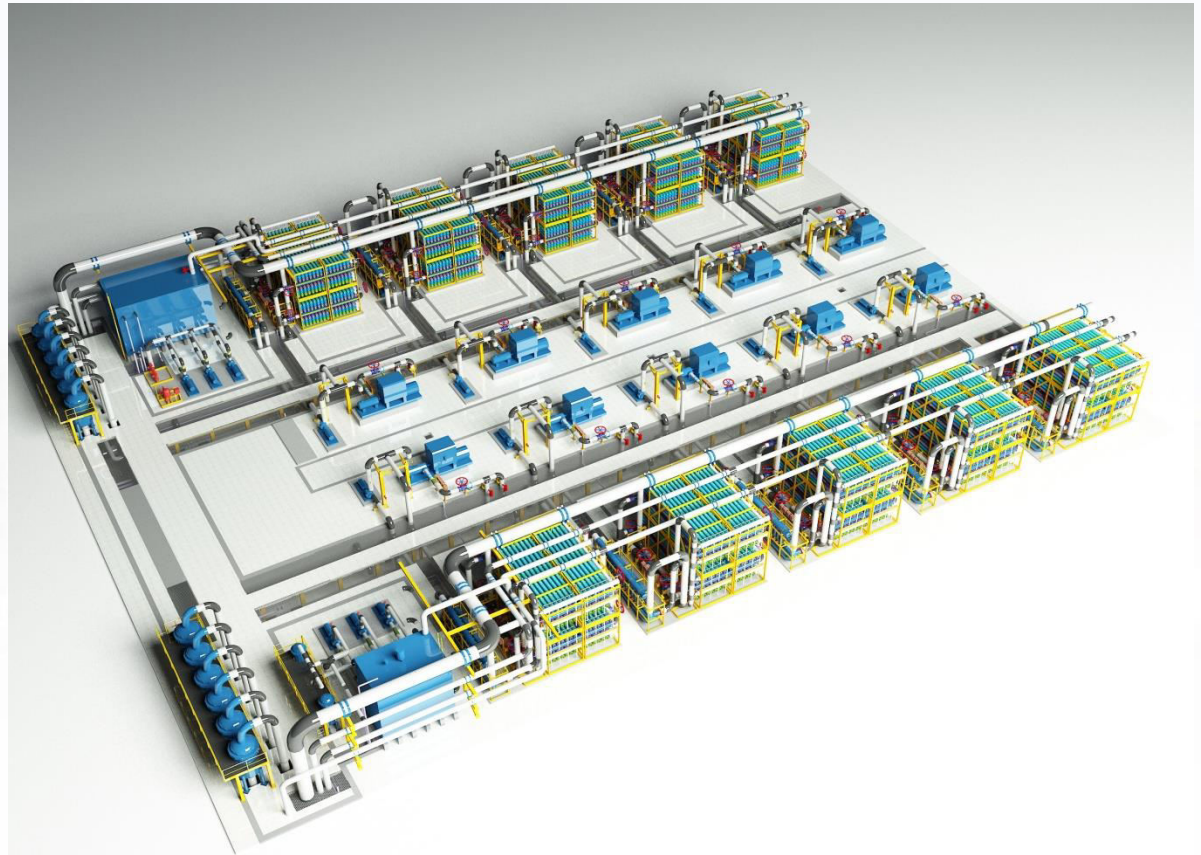
From Treated Sewage To Cooling Water Circulation System



Water Reuse – Process Scheme:



Projects ..





Pearl Desalination Plant - Qatar



Pearl Desalination Plant - Qatar



Pearl Desalination Plant - Qatar



Pearl Desalination Plant - Qatar









Toggourt Desalination Plant - Algeria



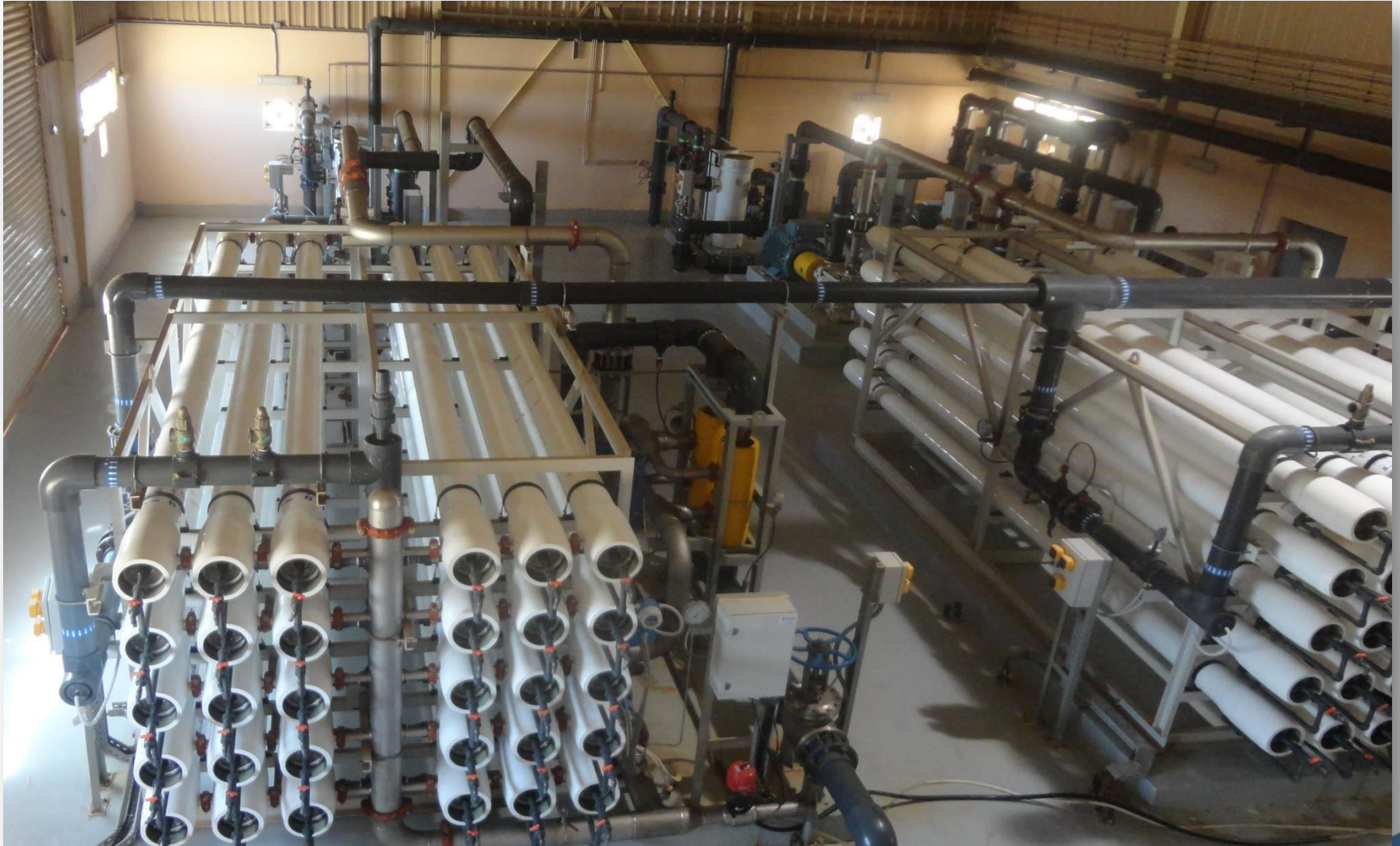
Marsa Alam Desalination Plant - Egypt



Marsa Alam Desalination Plant - Egypt



Marassi Desalination Plant - Egypt



Marassi Desalination Plant - Egypt







New West Damietta- Power Plant - Egypt





Burullos Power Plant - Egypt









El-Galalah Desalination Plant

Walk-Through Video



Thank You..