



Sustainable Water  
Integrated Management (SWIM) -  
Support Mechanism



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*Water is too precious to waste*

**EXPERT GROUP MEETING ON CUMULATIVE ENVIRONMENTAL IMPACTS OF  
DESALINATION ON THE MEDITERRANEAN. Brussels 23 June 2014.**

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# **PROSPECTS OF DESALINATION IN MEDITERRANEAN REGION**

# I- PREDICTED DESALINATION CAPACITY IN MEDITERRANEAN COUNTRIES

- Based on GWI-Desal-Data (2013), the Med Region will witness an incremental increase in seawater desalination production of slightly more than one million m<sup>3</sup>/day during the period extending from 2013 to 2016 to reach some 15 Million m<sup>3</sup>/day.
- According to Plan Bleu (2010) the seawater desalination market in the Med Region is projected to multiply its capacity by threefold to fourfold by 2030.
- It will be reaching 30 to 40 million m<sup>3</sup>/day exceeding the current 12 billion m<sup>3</sup>/year installed capacity.

## II- PROSPECTS OF SEAWATER DESALINATION IN MEDITERRANEAN COUNTRIES

- **ALGERIA**: The government has earmarked a budget for the **2010 - 2014 plan** of \$15-16 billion to develop nonconventional water resources including desalination. The total capacity of the new seawater desalination program will total 2.5 million m<sup>3</sup>/d. The current program is expected to meet the needs of the coastal population until 2030, so the desalination market in Algeria is likely to enter a much quieter phase beyond 2030.
- **ISRAEL**: the **National Desalination Plan (NDP)** outlines an increase in desalinated water up to at least 550 million m<sup>3</sup>/yr by 2013, and up to 750 million m<sup>3</sup>/yr by 2020.

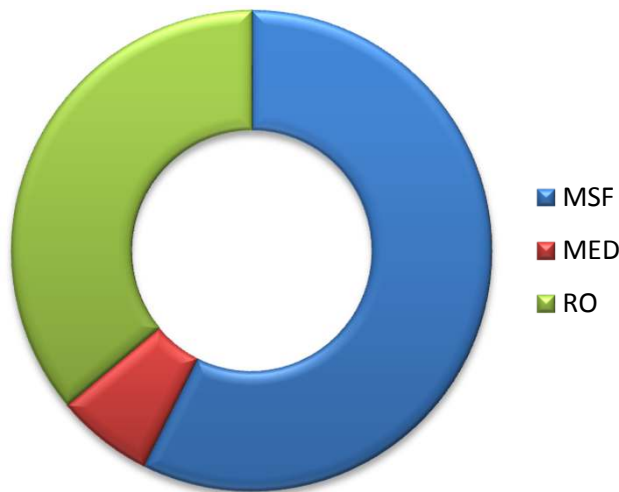
- **MOROCCO**: Desalination has been used as a last resort because of its cost, particularly in the southern provinces where the population tends to be sparse and concentrated along the coast where fresh water resources are limited. However, Morocco will be increasing its desalination capacity nearly tenfold (1000%) by 2015 by the Office National de l'Eau Potable (ONEP).
- **TUNISIA**: Tunisia plans to add another 286,000 m<sup>3</sup>/d of desalination capacity by 2020, with RO of seawater accounting for the large majority of it. With financial support from the Japanese Government, a new 1,800 m<sup>3</sup>/day RO inland desalination using brackish groundwater is under construction employing Photo Voltaic (PV) cells.

- **PALESTINE**: In Gaza, the plan consists of constructing a 100 million m<sup>3</sup>/year = 274,000 m<sup>3</sup>/day desalination facility over two phases. The estimated cost is in the range of US\$ 450 million. The plan has been approved and financing is underway.
- **LIBYA**: Alerted by the potential decline in the quality and/or quantity of water from the Great Man Made River, the government planned in 2010 a multi-million m<sup>3</sup>/d desalination program under the auspices of the General Desalination Company. The plan shows the ambitious objective of the country to quadruple (400%) its desalination capacity by 2015.

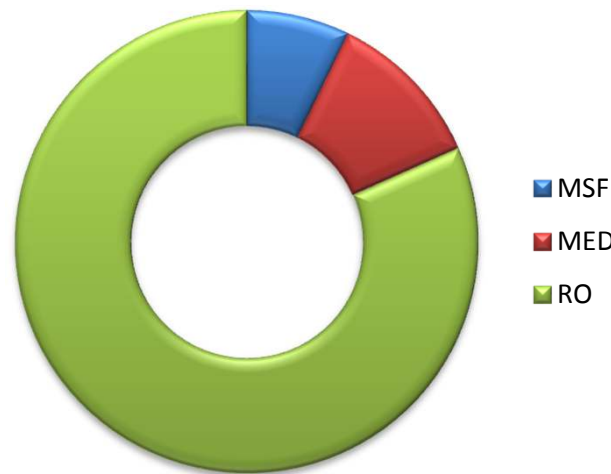
- **EGYPT**: In 2010, the deposed president of the country issued a decree preventing any water transfer from the Nile valley to governorates located East or West of the country. In conformity with the decree, desalination production will grow with the construction of large number of small and medium scale desalination plants to supply water to new settlements particularly in the North Coast of Egypt on the Med sea.
- **SPAIN**: as a result of the severe economic downturn that hit the country in 2008, the total spending on water infrastructure in Spain's 2010 budget was reduced by over 19%, decreasing from €4.22 billion to €3.4 billion. Desalination projects have turned to alternative funding sources such as EIB for loans to finance desalination projects. It appears that plans for additional desalination plants might be hindered for the coming few years in Spain.

# III- PROSPECTS OF SEAWATER DESALINATION TECHNOLOGIES IN THE MED REGION

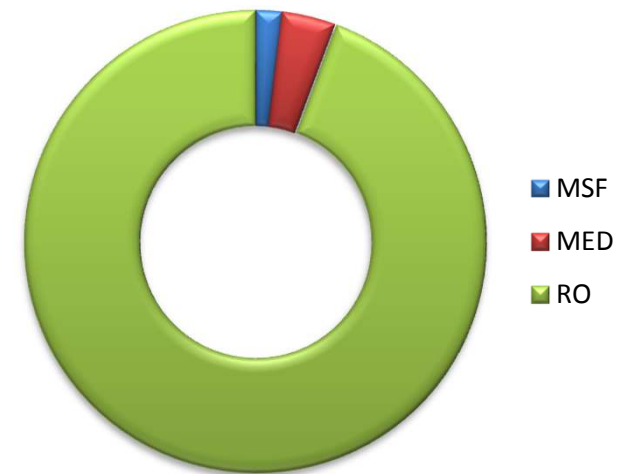
1983-1993



1993-2003



2003-2013



*Trends in the market share of desalination technologies in the Mediterranean region during the last three decades.*

*Source of data: GWI-Desal-Data (2013).*



## IV- RENEWABLE ENERGIES FOR SEAWATER DESALINATION IN SMCs

- Renewable energy (RE) in the form of solar and wind energies, particularly concentrating solar power (CSP) has tremendous potential to provide energy needed for desalination of seawater without much CO<sub>2</sub> emissions in the Med region.
- So far, CSP-powered desalination is expensive and significant developments are still needed to enable CSP-powered desalination fill the water scarcity gap in the region.
- According to World Bank (2012), technological innovations are expected to reduce costs of CSP-thermal desalination to approximately US\$ 0.9/m<sup>3</sup> by 2050.

# SWIM-SM OPINION ON PROSPECTS OF SEAWATER DESALINATION IN THE MED REGION

1. Compared to the period extending from 2000 to 2013 exhibiting 560% increase in installed capacity, desalination of seawater will continue to grow but at a slower pace in most Med countries.
2. Emerging disputes on shared transboundary water resources in downstream SMCs will represent a new strong driving force towards more desalination to secure drinking water supply within a national security context.
3. RO will be the dominating future seawater desalination technology in the region.

4. Countries that have already bridged most of their water supply gaps through desalination, such as Algeria, Israel and Spain, are likely to show some slowdown in their momentum and might enter into a relatively quieter phase.
5. Persisting regional economic and financial crisis in the Med region might curb the implementation of some of the ambitious national desalination plans in the region.
6. Political instability in some SMCs, might hinder and/or delay the financing and construction of their planned desalination plans.

7. In case future desalination in the Med region maintains its total reliance on oil and/or gas, the rising energy costs and subsequently the price of desalinated water is predicted to increase due to greater competition for the dwindling fossil fuel reserves.
8. Apart from financing and political instability, the main challenges that South Mediterranean countries will be facing in financing and implementing their future desalination plans are i- reduction in capital & operational cost, ii- diminishment of reliance on fossil fuels and iii- producing environmentally acceptable solutions.

9. Desalination using solar energy, as an emerging technology, is already capturing the attention and imagination of water and environment officials in Med countries.
10. Despite the interest of water planners with Renewable Energy (RE) in desalination, It is projected that it will take a couple of decades before phasing out the currently operating **fossil fuel** desalination plants in the region.

مع خالص شكري  
وامتناني

Thank you  
for your attention

Merci pour  
votre attention



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