



Sustainable Water
Integrated Management (SWIM) -
Support Mechanism



Project funded by
the European Union

Water is too precious to waste

**DESALINATION AS A NONCONVENTIONAL WATER RESOURCES IN THE SWIM-
SM REGION**

ACTIVITIES PROPOSED FOR 2014 PLAN OF ACTIONS

From 3-18 June 2013,

Third SC Meeting, 12-13 November 2013, Athens

PREAMBLE

- Based on the fact finding missions during the project inception phase, it became evident that non-conventional water resources are an absolute necessity if countries are to bridge the gaps between supplies and demands.
- Further to plans for the full exploitation of treated wastewater reuse, desalination using RESs emerged as a techno-economically feasible option that needed further investigations.

SWIM OVERARCHING OBJECTIVE FOR DESALINATION

The overarching objective of SWIM-SM desalination activities is to advance sustainable development in PCs through sustainable desalination within an IWRM context after exhausting all water demand management options.

ACTIVITIES DURING 2012

1. A review of BAT suitable for countries of the region with a special focus on desalination for rural areas. The main objective was review & compile the BAT that can be catered to the specificity of countries of the region using Renewable Energy Systems (RESs).
2. Establishment of a Core Desalination Group (CDG). In an effort to ensure the quality and credibility of its views and orientation, SWIM-SM formed the CDG composed of internationally renowned experts to advise SWIM-SM with the involvement of National desalination experts on the validity and integrity of SWIM-SM produced reports.

During 2012 (Continued)

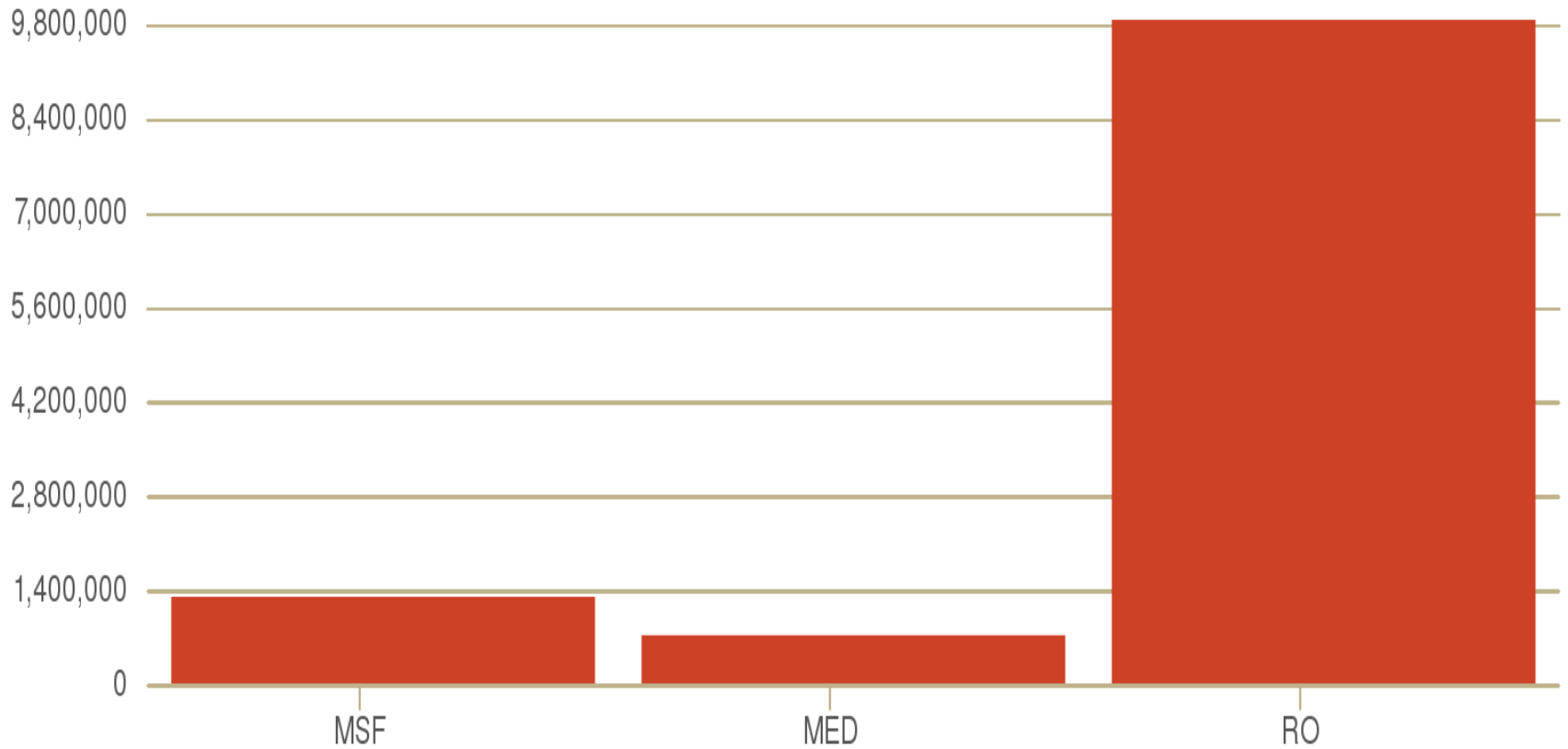
3. Convened an Expert Group Meeting to review, discuss & validate the findings of SWIM-SM assessment on the subject, to advise SWIM-SM on state-of-the art development in the field of desalination using RESs.
4. Produced a report on the economic aspects of desalination entitled "Economic considerations for planning desalination in South Mediterranean Countries".

ACTIVITIES DURING 2013

1. Organization of a capacity development workshop on modeling the cost of desalination, in collaboration with MEDRC, to predict the cost of desalination based on scale and technologies used. (Completed)
2. Assessment of potential cumulative environmental impacts of desalination plants conglomerating around the Mediterranean in synergy with MED-POL. (60% complete)
3. Convene a regional Expert Group Meeting in Athens on Potential Cumulative Environmental Impacts of Desalination Plants on the Mediterranean Sea to substantiate and verify the outcomes of the assessment. Deferred to February 2014 after completion of assessment, in synergy with UNEP-MAP, H2020, MEDRC, etc.

Total capacity by technology (m³/d)

■ Data set 1



Source: DesalData.com

SOME PRELIMINARY DATE

Daily CO₂ emissions during 2013 from Desalination plants around the Med Sea:

1. From RO: 19,852.32 metric ton of CO₂/day
2. From MSF: 13,576.00 metric ton of CO₂/day
3. From MED: 7,907.11 metric ton of CO₂/day

Total: **41,335 metric ton CO₂/day**

SOME PRELIMINARY DATA

Metals Discharged from MSF & MED in 2013	Reported Range in ppb	Lowest possible discharged load in Kg/year	Highest possible discharged load in Kg/year
Copper	15-100	84,520	562,830
Iron	25	140,525	---
Nickel	0.002-2.0	11.16	11,272
Chromium	0.035-0.35	199	1,990
Molybdenum	0.004-0.4	22.1	2,219

ORIENTATION FOR 2014

- Based on the outcomes of the 2012 & 2013 activities, views and recommendations of the CDG in addition to priorities identified by national experts, and the preliminary data available from the assessment of cumulative environmental impacts of desalination, SWIM-SM was able to orient itself to address the real needs of its PCs in its plan for the year 2014.
- This orientation is intended to ensure continuity by taking stock from results and recommendations emanating from first two years program implementation and through synergy with partners dealing with the issue to guarantee complementarities.

Specific objectives for 2014 activities

1. To achieve a consensus by convening a high-level techno-political policy dialogue in Brussels (TBC) to debate the prospects of desalination around the Mediterranean Sea basin in light of expert's opinion on potential cumulative environmental impacts of seawater desalination in collaboration with UNEP-MAP, MED-POL, EBD, UfM, etc.
2. Build capacity of seawater desalination officials on state-of-the-art practices in desalination using renewable energies through 3 days training workshop followed by 2 days study tour in an advanced desalination center using Concentrated Solar Power (CSP) in Europe.

ACTIVITY I

Convene a high-level techno-political policy dialogue in Brussels to debate the prospects of desalination in the Mediterranean Sea.

OBJECTIVE

To reach a consensus by debating the prospects of desalination around the Mediterranean Sea basin in light of expert's opinion on potential cumulative environmental impacts of seawater desalination.

APPROACH

- The policy dialogue shall be attended by (1) One high ranking water policy makers, (2) One high level representatives of national environmental authorities, (3) One national planner, (4) SWIM-SM Core Desalination Group (CDG), (5) One national expert, (6) Two regional NGOs, (7) 4 academicians from relevant disciplines.
- This activity will be coordinated and synergized with relevant regional & international organizations.
- In addition to the nine SWIM-SM PCs, the regional dialogue might be enlarged to include European countries on the Mediterranean Sea such as Spain, Greece, Cyprus, France, Malta, etc.

The dialogue will encompass the following issues:

1. Available water resources & demand characteristics in the Med Region.
2. Candidate desalination processes based on available water resources and Renewable Energy Sources adaptable to the region.
3. Sustainability of desalination with focus on cumulative impacts on the marine environment & CO₂ emissions.
4. Regional desalination policies for future development.
5. Identification of capacity development needs.

ACTIVITY II

Convene a capacity development workshop (3 days) followed by a study tour (2 days) on state-of-the-art practices in desalination using renewable energies

Objective:

- To build the capacity & expose desalination decision makers on state-of-the-art practices in desalination using renewable energies through 3 days training workshop followed by 2 days study tour in an advanced desalination center using Concentrated Solar Power (CSP) in Europe (most likely Spain).

APPROACH

The capacity building workshop and study tour shall be attended by water policy makers, representatives of national environmental authorities & two regional NGOs. This activity will be coordinated and synergized with relevant regional and international organizations such MED-POL, MEDRC, etc.

1. To demonstrate the maturity & operation of sustainable desalination systems, currently operating online or in prototype, using different renewable energy technologies with a focus CSP.
2. To address technical issues such as energy demand of different desalination technologies (RO, MSF, MED), environmental implications of energy use, air pollution and impact mitigation, etc.
3. To provide the necessary understanding on why CSP has an outstanding meaning for future sustainable desalination in SWIM-SM region.
4. To address management issues such as planning, management, legal issues, funding models, etc.

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Thank you
for your attention

Merci pour
votre attention



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