



CONCEPT NOTE

ACTIVITIES 1.3.2.2

EXPERT GROUP MEETING ON CUMULATIVE ENVIRONMENTAL IMPACTS OF DESALINATION ON THE MEDITERRANEAN

SWIM-SM Activities 1.3.2.2 In coordination with UNEP-MAP

23 - 24 June 2014

1 BACKGROUND INFORMATION

SWIM is a Regional Technical Support Program that includes the following Partner Countries (PCs): Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria (temporarily suspended) and Tunisia. The Program is funded by the European Neighborhood and Partnership Instrument (ENPI) South/Environment. The project complements and adds value to the Horizon 2020 Initiative to de-pollute the Mediterranean Sea by addressing in particular water issues, in synergy with three relevant EC funded Programs, namely the Mediterranean Hot Spots Investment Program - Project Preparation and Implementation Facility (MeHSIP-PPIF), the Capacity Building/Mediterranean Environment Program (CB/MEP) and the ENPI Shared Environmental Information System (ENPI/SEIS).

Its overall objective is to promote actively the extensive dissemination of sustainable water management policies and practices in the region given the context of increasing water scarcity, combined pressure on water resources from a wide range of users and desertification processes, in connection with climate change.

The specific objectives of the SWIM-SM are to: (1) Raise the awareness of decision-makers and stakeholders in the Partner Countries on existing and upcoming threats on water resources, on the necessity to switch to more viable water consumption models as well as on possible solutions to face the challenges; (2) to support the Partner Countries in designing and implementing sustainable water management policies at the national and local levels, in liaison with on-going relevant international initiatives; and (3) Contribute to institutional strengthening, to the development of the necessary planning and management skills and to the transfer of know-how.



1.1 Orientation

In most South Mediterranean countries, there is growing concern that the available water resources are now facing or will soon encounter severe chronic shortages of freshwater that might make life impossible. This situation is likely to deteriorate further in view of the increased population, fluctuating economic growth, economic reliance on irrigated agriculture and the unpredictable impacts of climate change (CC).

Fortunately, advances in desalination technology have made it an economically viable alternative source of fresh water in the region. Consequently, in response to shortages of naturally renewable water supplies, many Mediterranean countries are bound to construct and operate large desalination facilities.

Starting from 1970 to the year 2013, over 1532 seawater desalination plants had been installed around the Mediterranean Sea. As of 2013, these plants have a total cumulative installed capacity of some 12 Million m³/day. In the last 13 years (2000 to 2013), the reported installed capacity has dramatically increased by an astounding 560 %.

In principle, desalination as a nonconventional water supply should be considered as a last resort after exhausting all water saving and demand management options.

Within the scope of Work Package 3 (WP3) – "Activation of Water Management Plans" Activity 3.1, the EU-funded SWIM-SM Project is performing several tasks with the aim to develop mechanisms and procedures to facilitate regional dialogue, consultations and exchange of experience among the most water intensive sectors such as agriculture, tourism and urban development. This is served within the four SWIM-SM Thematic Pillars including the one on Non-Conventional Water Resources Management.

To this effect, SWIM-SM project implemented a sequence of cumulative activities during 2012 & 2013. The 2014 activities were 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.

As a part of the 2012 activities and in order to ensure the inclusion of state-of-the-art knowledge, and following recommendation by the European Commission (EC), an Advisory Core Desalination Group (CDG) was formed within SWIM-SM. It brings together five internationally renowned experts to review and discuss the outcomes of the range of desalination material (assessments, studies, reports, etc) and related activities to be undertaken by SWIM-SM. Such advice assist SWIM-SM to service its PCs on policy orientations, to provide articulated suggestions to EU technical, political and financing institutions on related aspects, and to convey messages to the wider stakeholder community in the region towards more sustainable desalination practices. At the same time, synergy with other regional initiatives and programmes on the subject is pursued, including with a scope to promote replicable cases.

In 2013 SWIM assessed the potential cumulative environmental impacts of desalination plants conglomerating around the Mediterranean in synergy with UNEP/MAP MED-POL Program. The main objectives of the assessment of potential cumulative environmental impacts of desalination plants conglomerating around the Mediterranean was to identify the current installed capacity and prospects of desalination in the SWIM-SM region; and to conceptually



investigate the cumulative environmental impacts of mega desalination plants conglomerating around the shores lines of the Mediterranean. In order to give a more comprehensive and realistic image of the environmental impacts of desalination on the Mediterranean sea, the scope of the assessment was expanded to encompass all Mediterranean countries rather than SWIM-SM PCs only. In an effort to materialize the abovementioned objectives, the following elements were tackled:

- Conducted an inventory of the currently operating mega desalination plants including technical details such as utilized technology, production capacity, chemicals consumed, etc.
- Investigated the prospects of desalination around the Mediterranean Basin.
- Assessed the brine discharge in terms of volume, pollution load, physical and chemical characteristics, etc.
- Assessed desalination atmospheric emissions with special focus on CO₂ as a Global Warming Gas contributing the CC.
- Undertook a conceptual assessment of the potential fate, transport, bio-accumulation, bio-magnification and environmental impacts of desalination related contaminants.
- Discussed the potential cumulative impacts of brine discharges on the marine eco-system and adapted a nine steps methodology for assessing cumulative environmental impacts of desalination projects.

The report is ultimately aiming at providing decision makers in SWIM-SM Partner Countries (PCs) with a close-up look on current cumulative desalination capacity and resulting emissions to near-shore marine environment and the atmosphere. It also projected the prospects of desalination in the region with an estimation of volume of future discharges up to the year 2030. The report is also providing a conceptual account and analysis of the potential fate, transport, bio-accumulation and bio-magnification of various pollutants to the marine environment. The report also concluded by developing a framework to assess the cumulative environmental impacts of seawater desalination plants.

Within such a framework, SWIM-SM is planning to hold an Expert Group Meeting (EGM) with the participation of the CDG in Brussels from 23 to 24 June 2014. The EGM will be devoted to (1) reviewing the outcomes of the assessment of the potential cumulative environmental impacts of seawater desalination conglomerating around the Mediterranean Sea undertaken by SWIM-SM during 2013, and (2) discuss and formulate a draft regional strategic policy note on desalination in the Mediterranean region. The sessions will be attended by experts from countries of the SWIM-SM region, SWIM-SM project Focal points (FPs), H2020 Liaison Officers (LOs), the EC, UNEP-MAP MEDPOL focal points or their representatives, UfM, WB, EIB, the CDG in addition to experts from selected non-SWIM-SM European countries (Spain, Malta, Cyprus, etc.).

The EGM aims at establishing a dialogue between SWIM-SM KEs, the CDG, the EC, UNEP/MAP MEDPOL focal points, UfM, high ranking water and environment officials from SWIM countries and selected national desalination experts on the validity and outcomes of all desalination activities undertaken by SWIM-SM project with particular emphasis on the regional assessment report. Conclusions and recommendations shall be drawn from all SWIM-SM desalination activities undertaken during the span of the project with the aim of shaping a regional vision and drafting policy options for desalination in Mediterranean Countries. Within such a context and in light of the confirmed environmental impacts of seawater desalination, a draft regional



strategic policy note on prospects of the industry in the Med region shall be formulated.

2 AIM, OBJECTIVE(S), APPROACH & EXPECTED RESULTS

The main objective of the EGM (23 & 24 June 2014) is (1) to review, discuss and validate the findings of SWIM-SM assessment of cumulative environmental impacts of desalination in the Med region report; and (2) to review the overall results of SWIM-SM activities on desalination with special focus on the outcomes of the assessment report with the aim of establishing a regional dialogue that culminate into the formulation of a draft strategic policy note on prospects of desalination industry in the Med region with a focus on its environmental impacts.

2.1 Approach to meet meetings objectives

In order to achieve the meetings objectives, a highly dynamic, interactive and participatory approach will be adopted, according to the following:

- During the first day of the EGM, SWIM-SM TL will provide briefings on the main outcomes of the SWIM-SM regional assessment of cumulative environmental impacts of desalination in the Mediterranean region. Each presentation shall be followed by holding moderated round tables of lengthy discussion. Plenary sessions involving national experts designated by the PCs and the CDG will be providing the forum to establish an interactive dialogue. In the second day of the EGM, the morning sessions will be devoted for representatives from SWIM-SM countries to provide a brief account on their countries vision and policies for desalination and their national strategies to bridge the demand-supply gap. This shall be also followed by a reflection and evaluation of the results culminating from overall SWIM-SM project desalination activities. The second half of the second day of the EGM (24 of June) will be devoted for discussing and adopting a draft strategic policy note for the Mediterranean region.

2.2 Expected Outcome

- A validated, complimented and/or amended final version of the assessment regional report on the potential cumulative environmental impacts of seawater desalination conglomerating around the Mediterranean Sea. The final report shall be reflecting the inputs and views of the CDG, regional experts and collaborating agencies and organizations.
- A review of national desalination vision, policies and strategies to bridge the demand-supply gap in SWIM-SM countries while giving environmental aspects adequate consideration.
- A deliberated and adopted regional desalination strategic policy note that is based on (1) vision of national, regional, international desalination experts and main results with particular emphasis on the associated environmental aspects, and on (2) recommendations emanating from SWIM-SM project during the span of its implementation.



2.3 Profile, affiliation and number of participants:

- **The EGM will involve the following:**

- 1- One water expert on desalination from each PC.
- 2- One desalination expert from 3 non SWIM countries (Spain, Malta and Cyprus).
- 3- The FPs and LOs from each PC.
- 4- The 5 members of the Core Desalination Group (CDG).
- 5- Representatives of the WB, UfM, EIB, MED-POL
- 6- Focal points of UNEP-MAP, MEDPOL will be sponsored by MEDPOL.
- 7- SWIM-SM + LDK support team + EC staff
- 8- WWF, Global Footprint Network, IUCN, etc.