



Sustainable Water Integrated Management (SWIM) - Support Mechanism

Project funded by the European Union

**WASTEWATER TREATMENT AND REUSE,
WITH EMPHASIS ON RURAL AREAS**

**CONCEPT NOTE FOR 2ND SC IN BRUSSELS
16 TO 17 OCTOBER 2012**

ACTIVITIES PROPOSED FOR 2013 & 2014 PLAN OF ACTIONS



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I. PREAMBLE

Water scarcity in the Southern Mediterranean Region, comprising the SWIM Partner Countries (PCs) Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the occupied Palestinian territory, Syria and Tunisia, is among the highest in the world. Water consumption in the PCs is expected to increase, while the water deficit is expected to rise. Wastewater reuse is limited in many countries, and groundwater overuse is increasing.

Countries	Total wastewater produced (10 ⁹ m ³ /year)	Volume of treated wastewater (10 ⁹ m ³ /year)	Volume of treated wastewater (10 ⁹ m ³ /year)
Egypt	3.76	2.971	0.7
Jordan	0.117	0.111	0.102
Lebanon	0.31	0.004	0.002
Morocco	0.7	0.177	0.08
Tunisia	0.461	0.240	0.068

Wastewater treatment and reuse in selected countries based on the Dubai Expert Group Meeting in 2011 and FAO AQUASTAT 2009.

Using treated wastewater as a source of non-conventional water, can help fill the gap in water deficit and protect existing resources. In the PCs. Wastewater treatment and reuse in rural areas does not exceed 30% in some countries and is totally inexistent in others. Consequently, rural areas suffer from pollution, and the potential for illness caused by untreated waste. Instead of being used to fill the scarcity gap, treated and untreated sewage is dumped in receiving media such as groundwater aquifers, rivers and seas.

Although all SWIM partner countries have strategies to increase the volume of treated and reused wastewater, progress is slow. Countries are still faced with barriers related to limitations in policy, legislation, skills, financing, etc. Private sector participation in financing water infrastructure is highly encouraged by the line ministries.

During the inception phase of SWIM-SM, several countries requested support treatment and reuse in agriculture in rural areas including an examination of apposite best available technologies. Consequently, activities during the first year of SWIM-SM's implementation were developed to respond to the needs of the PCS. These activities were:

1. ***Concept note on non-conventional water.*** Prepared early on in the project, it set the framework for the interventions supporting non-conventional water.
2. ***Expert Group meeting.*** The expert group meeting, in September 2011, reviewed the concept note on non-conventional water (NCW) the component related to wastewater treatment and



reuse and provided recommendations for the future work of SWIM-SM on NCW. The main recommendation of the expert group was that SWIM-SM focuses its work on rural areas.

Based on the findings and recommendations of the inception and the expert group meetings it was decided to undertake the below activities in 2012:

- 1. Assessment of best available technologies for the treatment and reuse of wastewater in irrigation and groundwater recharge.** The purpose of the assessment was to identify technologies for wastewater treatment and reuse that are suitable for rural areas in partner countries. The assessment also presents recommendations for the inclusion of wastewater treatment and reuse in national policies, strategies and plans. Overall, the assessment is a tool that can support the promotion of wastewater treatment and reuse in rural areas of the SWIM partner countries.
- 2. Two sub-regional trainings on best available technologies for wastewater treatment and reuse.** The findings of the assessment were used in a capacity building workshop that exposed participants to the innovative technologies used for treatment of wastewater and its reuse. The participants were also exposed to desalination techniques using renewable energy sources.
- 3. Documentation of successful interventions in selected countries with regard to increased efficiency and effectiveness of wastewater reuse.** 4 countries, Egypt, Morocco, Israel and Jordan, were selected to provide 3 best practices per country related to wastewater reuse. Selected best practices cover policy, awareness raising, public-sector and private-sector partnerships, and criteria related to wastewater treatment and its reuse.

II. REACTION TO STAKEHOLDERS RECOMMENDATIONS IN THE 2013 WORK PLAN:

Meetings during missions to different PCs, interactions with stakeholders during events and trainings and follow-up on past and current relevant projects and events have lead to the decision to pursue support on wastewater treatment and reuse in irrigation for 2013. Groundwater recharge was excluded from SWIM-SM support because of negative feedback on the issue from stakeholders. All PCs, however, have expressed strong interest in improving treatment and reuse and are taking steps to improve performance.



Recent expert group meetings¹ outside SWIM-SM have identified several challenges and barriers improve sewage treatment and the use of treated wastewater. The focus of SWIM-SM for 2013 is to identify priority barriers in partner countries. One recurrent recommendation expressed by the experts in the World Bank meeting in the UAE in 2011, was the involvement of the private sector in financing, operating and managing infrastructure through different methods of public-private partnerships. This fact was echoed by some of the stakeholders that SWIM-SM had the possibility to meet and interact with.

As mentioned earlier, the project will focus on identifying priority challenges in wastewater treatment and reuse through desk and field studies in selected countries. Based on the results of the assessment work SWIM-SM will provide capacity development to PCs.

Consequently, the workplan of 2013 reflects the above findings and decisions.

III. OBJECTIVES OF PROPOSED ACTIVITIES FOR 2013.

Therefore, for the second year of SWIM-SM's implementation, a thorough regional assessment is proposed in order to determine needs, challenges and barriers towards treatment and reuse in PCs. Building on and following on related reports undertaken by regional institutions and programs, the assessment will cover the different aspects of wastewater within an integrated water resources management framework, including the conditions linked to financing and private sector participation in wastewater infrastructure. Priority barriers and challenges will be determined based the outcomes of the first year of SWIM implementation, on a review of other organizations work and field visits to the countries. Recommendations on priority actions will be developed and discussed with the concerned stakeholders for future actions. A set of more targeted activities will be also developed for four PCs to match the specific country needs. Based on the assessment and identified priority actions, a capacity building program including study tours and training courses will be organized to develop the capacity of stakeholders in wastewater treatment and reuse.

SWIM-SM expects to achieve the following outcomes:

- Needs for improved wastewater treatment and reuse are assessed
- The capacity of stakeholders for wastewater treatment and reuse is built/further enhanced
- Conditions for participation of the private sector for developing related infrastructure are explored
- Wastewater treatment and reuse is promoted.

¹ Water Reuse in the Arab World from Principle to Practice, voices from the field: summary of proceedings. UAE 2011. The World Bank



IV. PROPOSED ACTIVITIES.

The proposed activities for 2013 are the following:

- 1. Regional assessment on the status of wastewater treatment with emphasis on rural areas with more in depth analysis in 4 countries.**
 - a. Assessment of root causes, barriers and challenges to the increased coverage of wastewater treatment and reuse
 - b. Development of a report based on a regional review and in depth analysis in four countries

This assessment will start with a regional review covering all the PCs. It will draw a line at the end of 2012 based on literature reviews from expert publications and project reports. It will endeavour to identify the root causes of barriers in order to move forward. The assessment will be deepened through meetings with relevant stakeholders in 4 interested countries. The in country assessment will not just focus again on barriers and challenges, but will move forward and propose and discuss with the different stakeholders options for removing these barriers and their feasibility. The assessment will identify priority actions that will strongly support moving forward on wastewater treatment and reuse. Initial investigations by the project seem to indicate that there is a need for improved private sector involvement in the water sector. Many PCs have positive experiences from PSPs. Private financing for water infrastructure construction operation and management seems to have yielded positive results in many PCs. As mentioned earlier, the expert group meeting of Dubai, strongly highlights the need for private sector involvement.

In conclusion, the assessment will serve as a tool for identifying priority feasible actions for promoting wastewater treatment and reuse in PCs. It will help identify further capacity development actions by SWIM-SM as a project and set a plan for the countries.

- 2. Trainings on wastewater treatment and reuse including a study tour**
 - a. Assessment of training needs
 - b. Organization of trainings/courses and study tours

The above-mentioned assessment will help in identifying capacity development needs for the partner countries. Based on these needs, a program will be developed in coordination with the stakeholders and implemented in 2013. It will include courses, workshops and a study tour. SWIM-SM will work in close coordination with the H2020-CB/MEP and relevant SWIM-DEMO projects in order to improve results and avoid duplication.

V. SYNERGIES

In the implementation of its work, SWIM-SM collaborates closely with SWIM-DEMO projects in order to improve results through synergies and reduce overlap and redundancy. The projects that have complementarities with non-conventional water are the following:



1. **IMPROWARE.** This demo project is working on wastewater treatment and reuse but in coastal areas. However, relevant and common knowledge, expertise and findings can be shared.
2. **SUSTAIN WATER MED.** This demo project is working on promoting wastewater treatment and reuse technologies suitable for rural areas. The objective of SUSTAIN WATER MED fit perfectly with the objectives of pillar A the wastewater treatment and reuse component. Synergies with the project can be developed and knowledge and expertise shared. Activities can also be co-organized between SWIM-SM and SUSTAIN WATER MED

The activities of SWIM-SM link also with other regional initiatives and these are:

1. MeHSIP. The Mediterranean Hot Spots Initiative project
2. Horizon 2020-CB-MEP, The capacity building component of the H2020 initiative
3. EU framework directives on wastewater treatment
4. MDGs The Millennium Development Goals and specially the goals related to sanitation and environmental conservation
5. SustainableMed which is a 5 year program aimed at enhancing and accelerating the implementation of trans-boundary pollution reduction, improving water resources management, and developing biodiversity conservation measures in priority hotspots and sensitive areas in selected Mediterranean basin countries that would help to achieve the Strategic Action Plans (SAP MED and SAP BIO) targets.
6. MED EUWI The Mediterranean Component of the EU Water Initiative
7. GEF UNEP/MAP MedPartnership
8. UfM related projects

The process followed by SWIM-SM gradually develops the capacity of the interested parties in wastewater treatment and reuse. The process started with an identifications of needs, during the inception meetings, a validation of results by an expert group, introduction to sewage treatment and reuse processes and technologies to participants from the countries paralleled by an ongoing process of identification of future actions based on interactions with stakeholders and regional and national interventions.