



**COST ASSESSMENT OF WATER RESOURCES DEGRADATION (CAWRD)
IN SELECTED SOUTHERN MEDITERRANEAN COUNTRIES
CONCEPT NOTE FOR 2014**



1. INTRODUCTION:

In its work package No. 1 on water governance and mainstreaming, SWIM-SM aims at supporting institutional strengthening and contributes towards ensuring that national water strategies and plans properly address issues of sustainable water resource management, water considerations are promoted and mainstreamed in other relevant sectoral policies and strategies (for example agriculture, tourism and industry), as well as in national development plans. The anticipated outcomes are that: (a) Water considerations are promoted using a participative approach, also at local level; (b) Water concerns are mainstreamed in other relevant sectoral policies and in national development plans; (c) Economic valuation is carried out to assess the costs and benefits of mitigation actions on water degradation; and (d) Climate change considerations are mainstreamed in national strategies, plans and policies, with primary emphasis on no-regret actions.

In this regards, SWIM-SM has designed and implemented under the Work package #1, a pillar on the cost assessment of water resources degradation (CAWRD) at the basin level because it is at this level that water governance can be strengthened and water can be mainstreamed in other sectors.

The general vision of this pillar is to provide the decision makers with the necessary tools for making informed decisions on water resources management based on economical cost and benefits, taking into consideration the environmental negative externalities. This pillar consists of four sub-components;

- (a) Cost of water resources degradation due to water and waste water pollution with the aim to place a monetary value on the consequences of the degradation;
- (b) Cost Benefit or Cost Effectiveness Analyses of Remedial Actions and Preparation of Investment Plans for one major basin in 4 Partners Countries, including estimates in monetary terms for the overall health, social, economic and environmental benefits linked to these alternatives in the selected watershed;
- (c) Building the capacity of the decision makers at the sub-national/basin level and the Universities to transfer knowledge, especially with regards to the methodologies used for the preparation of investment plans; and
- (d) Validation and dissemination of the Investment Plans at the Watershed/Basin Level to build consensus on the investment plans, seek the Government support to implement and replicate the investment plans.

During the first two years 2012 and 2013, SWIM-SM has focussed primarily on the first two components a) and b) of this pillar, namely the cost assessment of water resources degradation and the cost of remediation in four basins belonging to four countries (see below). In 2014, SWIM will focus on the third and fourth component c) and d) of this pillar namely, capacity building and validation and dissemination of the investment plans at the regional level.

2. RESULTS OF CAWRD IN 2012

During 2012, SWIM –SM estimated the CAWRD in two basins, namely (a) the Oum Er-Rbia Basin in Morocco with a watershed of 48,000 Km² (7% of the surface of Morocco) and a population of 5.0 million



(15% of the total population; and (b) the Medjerda Basin on Tunisia with a water shed surface of 15,930 km² (9.7% of the surface of Tunisia) and a population of 1.33 million (9% of the Tunisian population). The results of the cost of degradation and remediation of the two basins are highlighted in Table 1 below. The two studies were presented at two well attended consultation meetings on 4th of December in Tunis and on the 7th of December 2012 in Rabat respectively.

Table 1: Summary of the costs of water resources degradation and water resources remediation

	Moroco Oum Er Rbia (River length: 600 Kms) Watershed surface : 48,000 Km²	Tunisia Medjerda (River length: 350 kms) Watershed surface: 15,930 Km²
Cost of water resources degradation	6.3 billion DH 590 million Euro	191.4 million DT 101 million Euro
Percentage of GDP of the basin and at national levels	7.9% (Basin) 0.8% (National)	3.3% (Basin) 0.2% (National)
Percentage of degradation due to water and waste water	79.3%	68%
Cost of Remediation over 20 years	7.53 billion DH 685 million Euro	269 million DT 150 million (Euro)
Percentage of cost of remediation for water and waste water	76%	55.7 %

3. RESULTS OF CAWRD IN 2013

Two others basins were selected at the request of the SWIM focal points. The first basin was in the Seybouse in Algeria which was considered by the Algerian authorities to be one of the most polluted rivers. The assessment of this basin will enable to have an overview of the CAWRD at the basin level in the Maghreb region. The other basin was the Litani in Lebanon, which is the longest and most important river and is considered to be “The Lebanon’s Castle of Water and Agriculture.” Two identification missions were organized in Algeria from 3-10 May 2013 and in Lebanon from April 3-11, 2013, in order to meet the water and environment authorities at the national and local levels and also to collect data and all relevant documents related to each of these two basins.



The Seybouse basin has a surface of 6,471 Km² (0.27% of the surface of Algeria and with a population of 1.6 million (4.1% of the total population). The Litani basin has a watershed of 2,168 km² (20.6% of the surface area of Lebanon and with a population of 1.04 million (23.6% of the total population)

The results of the cost of degradation and remediation of the two basins are highlighted in Table 2 below.

Table 2: Summary of costs of water resources degradation and water resources remediation

	Seybouse (River length: 240 Kms) Watershed surface : 6,471 Km²	Upper Litani (River length: 170 kms) Watershed surface: 2.168 Km²
Cost of water resources degradation	27.7 billion DA 258 million Euro	330 billion LBP 165 million Euro
Percentage of GDP of the basin and at national levels	4.1% (Basin) 0.26% (National)	2.2% (Basin) 0.6% (National)
Percentage of degradation due to water and waste water	73%	78%
Cost of Remediation over 20 years	13 billion DA 130 million Euro	671 billion LBP 335 million Euro
Percentage of cost of remediation for water and waste water	63%	46.5%

4. ACTIVITIES PLANNED FOR 2014

The cost assessment of water degradation and remediation of the first two sub components of the pillar will be completed by the end of December 2013. SWIM-SM will build on the results of the 4 basins to complete the implementation of the two other components of the pillar namely capacity building and building and validation and dissemination of the investment plan developed in the four basins. The activities in 2014 are considered to be the consolidation phase of this pillar, as through these two sub-components, synergies will be established not only among the 4 PCs but will be extended to the other PCs (Israel, Jordan, the Occupied Palestinian Territories and Egypt) which have similar basin issues and for which lessons learned from these four basins can be transferred to these countries.

The consolidation phase will consist of the following tasks:



Task 1: Capacity Building: The purpose of this task is to provide technical training of practitioners as well as sensitization of policymakers and other stakeholders in the use of CAWRD. This will include the preparation of four case studies on the four basins that will be used as training materials in two workshops; One for the Mashrek sub-region in English for Lebanon, Egypt, Jordan and the Occupied Palestinian Territories and which can take place in Beirut and the other for the Maghreb sub-region in French for Morocco, Algeria and Tunisia which can take place in Tunis or Morocco. The targeted audience include: government staff working on water resources issues with relevant expertise, namely trained economists and environmental/water specialists. In addition, academics (including post-graduate students) and researchers can also be included in the desired target group.

This capacity building will be carried out in collaboration with the Marseilles Center for the Mediterranean Integration as well as with the Capacity Building/Mediterranean Environment Program (CB/MEP) of Horizon 2020.

The validation and dissemination of the Investment Plans generated from the 4 studies will consist of the following two tasks:

Task 2: Development of a Policy Paper on the CAWRD in the four basins. The purpose of this paper is to review the similarities and differences in the CAWRD of the four countries; highlight the policy implications resulting from each of the CAWRD and the lessons learned, and propose a conceptual policy and cooperation framework that could be applied sub-regionally at the level of the Maghreb countries. More specifically this task will consist of:

- a) Examination of the four CAWRD reports and summarize the policy actions, the similarities and differences, as well as the lessons learned;
- b) Identification the policy actions and the proposed investments at the sub-regional level that will be analysed from a cost/benefit point of view;
- c) Preparation of the draft and final policy paper on a conceptual policy framework for collaboration between Morocco, Algeria and Tunisia in implementing the most cost effective joint policy actions and investments as well the implementation of specific investments in Lebanon; and
- d) Discussion of the policy paper in a regional dissemination workshop to seek the views on strengthening the water governance at the basin level.

Task 3: Environment-Water Assessment. The purpose of this task is to better mainstream the environment externalities in the integrated water resources management plan at the basin level in one of the four countries for which the CAWRD was prepared. This task will consist of:

- a) Take stock of previous work done on the basin in relation with the water sector and the environmental impacts generated by this sector for the different usages. Assess the current situation in terms of water usage in agriculture and industry, expected growth rate and related pollution emissions, environmental impacts both at the local and national level, on the basis of existing studies and reports.



- b) Identify gaps, especially with regards to market-based tools and non market-based tools, promotion of environmentally sound water usage, and impacts on monitoring and enforcement of the national environmental regulations;
- c) Prepare a “most likely” demand scenario for the assessment of water supply and allocation options including water pricing, together with their implications on the environment including climate change, on a sectoral basis, paying attention to the agriculture and industrial sectors and environment (environmental flows);
- d) Determine the most profitable and most attractive water conservation and efficiency practices in agriculture, industry and the environment;
- e) Propose mechanism to finance environmental benefits such as payment for environmental services; and
- f) Develop the recommendations resulting from the study in particular related to the environmental impact of alternative water supply and allocation strategies, taking into consideration the necessary economic instruments to encourage investment in water conservation and efficiency and affordability.

5. MAJOR OUTCOMES:

The major outcomes are:

- A policy paper on the cost of water resources degradation and lessons learned in the four basins;
- 2 case studies prepared and adapted for the training workshops;
- 50-60 professionals trained on the cost assessment of environment and water degradation;
- An environment- water assessment report on the mainstreaming of environment externalities in integrated water resources management plan at the basin level; and
- A final report on the findings and recommendations of the pillar as well as the synergies established as a result of this pillar.

6. TARGET GROUPS

The target groups that will benefit from these activities are:

- The decision makers and senior technical staff at the Ministry of Energy and Water Resources, Ministry of the Environment and Ministry of Finance
- Senior technical staff of the basin agencies
- Mayors and staff of the municipalities included in the basins
- University professors and Reserchers in environment, water and economics
- Local NGOs



7. ILLUSTRATIVE SCHEDULE

The illustrative schedule for the activities of 2014 are:

Months/activity		1	2	3	4	5	6	7	8	9
Policy Paper on Basins	Data collection and Analysis									
	Draft Final Report									
	Final report									
Capacity Building	Preparation of case studies and training materials									
	Consultation workshops in Maghreb and Mashrek									
	Final Report									
Water/Environment Assessment	Data Collection									
	Data Analysis									
	Daft Final Report									
	Final Report									