



Secretariat of the Union for the Mediterranean  
 Secrétariat de l'Union pour la Méditerranée  
 الأمانة العامة للإتحاد من أجل المتوسط

Union for the Mediterranean Secretariat

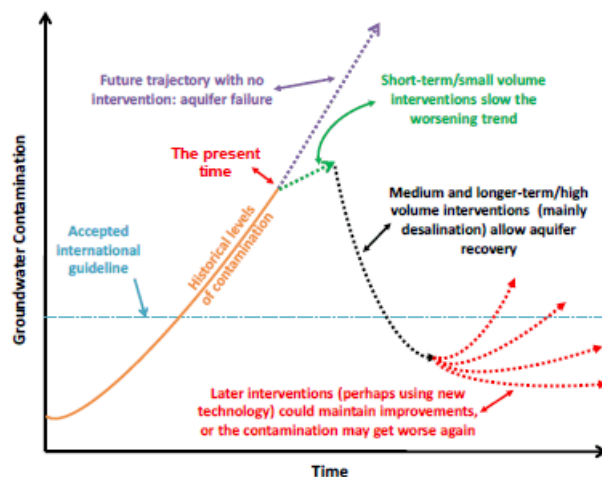
## Gaza Desalination Project *"The Largest Single Facility to be built in Gaza"*

### Fact Sheet Project background

The availability of "fresh" water in Palestine is amongst the lowest in the world. In the Gaza Strip the only available water source is groundwater from the deteriorating Coastal Aquifer underlying the Gaza Strip, as well as Israel and Egypt. The sustainable yield of the aquifer in the Gaza Strip is only 55 million cubic meters (MCM)/year, however, the 1.7 million Palestinians in Gaza consume in excess of 170 MCM/year from the aquifer – thus taking approximately three times as much as the aquifer can sustainably recharge each year. The over pumping of groundwater has led to the damage of the trans-boundary aquifer due in part to a large increase in groundwater salinity following from seawater intrusion into the aquifer from the Mediterranean. Levels of salinity found in the aquifer under Gaza have risen continuously over the last two decades, and are now far in excess of the World Health Organization standards for drinking water. According to the World Bank the situation has become so dire that "only 5-10% of the aquifer is now yielding drinking quality water" (World Bank Report, 20 April 2009 Pg. VI).

With no alternative existing source of fresh water, a large-scale desalination plant is an absolute requirement to address the water deficit in Gaza. The urgency for the Desalination Facility for Gaza has increased with the rising level of Humanitarian crisis in Gaza related to inadequate water resources with related impacts on human health.

**Historical profile showing problems relating to the groundwater in Gaza, with indications of the effects of short-term, medium-term and longer term interventions.**



### Project Overall Rationale

The desalination of water from the Mediterranean would substantially alleviate the over pumping of groundwater from the Coastal Aquifer which underlies the Gaza Strip as a clear environmental benefit. This outcome aligns with the strategic objectives of the Union for the Mediterranean (UfM) in protecting coastal aquifers, especially when considering it is accompanied under a Palestinian Water Programme by the development of new wastewater treatment plants in Gaza which shall actively prevent the further pollution of the Mediterranean as well as the Coastal Aquifer.

The deterioration of the trans-boundary aquifer has likely impacts on neighboring countries which share an interest in protecting this shared source of fresh water. Importantly, there is a corresponding conservation and environmental protection need to address the wastewater generated in Gaza to avoid not only filtration of untreated wastewater into the aquifer (e.g. northern Gaza wastewater treatment facility), but to provide an effective alternative to the current practice of pumping partially or untreated wastewater into the Mediterranean for the central and southern Gaza wastewater treatment facilities. This directly services the interests of the littoral states of the Eastern Mediterranean as well as the environmental protection objectives of the Union for the Mediterranean. Lastly, the construction of the facility and conveyance system in Gaza offers a substantial opportunity for job creation in their construction and to lesser degree subsequent operation.

### Project Appraisal by UfM Secretariat

At the UfM Water Expert Group Meeting, held in Barcelona on 18 May 2011 and attended by Water Experts representing 22 UfM member countries and

participants (Albania, Algeria, Austria, Croatia, Cyprus, Egypt, France, Germany, Greece, Israel, Italy, Jordan, Lebanon, Malta, Mauritania, Morocco, Netherlands, Palestine, Spain, Sweden, Tunisia, Turkey, the European Commission, the European Investment Bank and the League of Arab States), the national Water Experts unanimously and enthusiastically proposed to the SOM the "labeling" by the UfM Senior Officials of the Desalination Project for Gaza.

The Palestinian Water Authority submitted the Gaza Desalination Project to the Environment & Water Division (EWD) of the UfM Secretariat on 9 June 2011, where the project proposal, together with its studies and assessments - was appraised by EWD, which considered this major project as an important national Project with regional impact and implications for the following reasons:

1. The Project will help meet the future drinking water medium- to long-term needs for 1.6 million Palestinians living in the Gaza Strip, which is a critical humanitarian issue.
2. The Project will help stabilize and regenerate the only fresh water source in Gaza, which is the "Coastal Aquifer" that runs mainly beneath the Gaza Strip but also beneath the neighboring countries.
3. The Project will contribute to the political stability of the region through the removal of the water scarcity issue from the web of the multiple and complex issues facing the Gaza Strip.

4. The Project will be a step towards effective reduction of pollution in the Eastern Mediterranean, through the construction of a desalination facility, and a modern water distribution system, as an initial component of a broader water and waste water programme including development of a number of waste water treatment facilities.

5. The construction of the Desalination facility and the conveyance system in Gaza will offer a substantial opportunity for job creation in their construction and subsequent operation as it will represent the largest single project to be built to date in Gaza.

#### Labeling by Union for the Mediterranean (UfM)

At their 22 June 2011 meeting held in Brussels, Senior Officials representing the 43-member countries of the UfM unanimously "labelled" the Gaza Desalination Project as the first UfM project and requested the Secretariat to support the Palestinian Water Authority in finding the necessary financial requirement for the Project.

#### Project Outline

The project has four components, to be implemented in parallel in order to ensure the success and sustainability of the Desalination Facility.

The Desalination Plant (Most Likely Sea Water Reverse Osmosis), of 55 Million cubic meter per year (MCM) for the first phase. The site will provide for a capacity of 110MCM at a later phase.

The associated Projects include:

- Water Transmission, Reservoirs and Distribution
- Non-revenue Water (NRW) Reduction and Revenue Collection Efficiency Improvement
- Power Supply dedicated to SWRO Plant

#### Estimated Cost

*Cost Estimates and disbursement schedule*

Project Description	Cost Million USD	Disbursement schedule					
		2012	2013	2014	2015	2016	2017
Desalination plant (M\$)	230	1.0	9.0	50.0	80.0	50.0	40.0
Power plant (M\$)	40			5.0	20.0	15.0	
Main carrier (M\$)	140		5.0	60.0	50.0	25.0	
NRW-reduction (M\$)	35		2.0	10.0	10.0	10.0	3.0
Implement. Cons. (M\$)	10	0.5	3.0	2.0	2.0	2.0	0.5
<b>Total investment cost</b>	<b>455</b>	<b>1.5</b>	<b>19.0</b>	<b>127.0</b>	<b>162.0</b>	<b>102.0</b>	<b>43.5</b>

#### Technical Assistance for Feasibility and conditions of implementation

A first phase of the preparatory studies have been conducted and financed by the European Investment Bank, to provide practical recommendations to the PWA in order to ensure the successful implementation of the project. The funding support for the required study has been made available through FEMIP, at a cost of around €0.5m. A synthesis of the previous feasibility studies and reports (USAID feasibility study of 2003 for the project, Norway funded study on the water supply options etc.) leading to a high level financial analysis of the economics of the sector and has been performed. These recommendations together with the financial analysis have been summarized in an Information Memorandum to potential financiers presenting the project and demonstrating that the conditions for success have been or will be successfully addressed (exploration of access arrangements for personnel, equipment and materials during construction; plant location; plant requirements; energy requirements; distribution system requirements; probable construction and operating costs; training of construction workforce, operators and managers; possible sources and arrangements for project sponsorship; management and oversight structure for the construction project; operating costs and subsidy requirements).

A project implementation consultant will be hired and shall perform the preparatory work for the Engineering, Procurement, and Construction (EPC) contract. EIB is ready to finance this technical assistance which will cost 4Million€ approximately.

#### Environmental Assessment

The UfM Secretariat has initiated important dialogue with the United Nations Environment Programme (UNEP) that has extensive knowledge and experience on the Gaza Strip environmental situation including documentation on desalination options and recommendations, and which UNEP has shared with the Secretariat. Most importantly, the highest levels of UNEP have endorsed the concept of a desalination facility for Gaza Strip as the only and most feasible long-term alternative to supply Gaza with drinking water and offered technical support to the Secretariat. UNEP will also support the second phase of the long-term technical assistance and already sent to the UfM secretariat valuable input on environmental aspects.

#### Site/Land Allocation:

The Palestinian Water Authority (PWA) has confirmed that a 80.000 sq. m. of land adjacent to the sea in southern Gaza has been allocated and secured, near Dar El Balah.

#### Funding Mechanism

The Palestinian Authority (PA) is reflecting the establishment of a Trust Fund mechanism to deal with the financing of the project, including receiving and disbursing of funds in a transparent and accountable manner, and in accordance to the highest accounting and auditing standards. The European Investment Bank (EIB), the World Bank (WB) and the Islamic Development Bank (IsDB) are coordinating to find the best mechanism and institutional arrangement to manage this Fund.

#### Funding Sources

The UfM Secretariat is implementing a fund-raising plan agreed upon with the PWA, which includes correspondence with (and visiting) several Arab, European and other potential donor countries and Funds, in order to request their participation in a core funding group as per pledges made in the for the Conference on the Reconstruction of Gaza held on 2 March 2009 in Sharm El-Sheikh, Egypt.

Countries who have committed significant amounts for Gaza reconstruction (other than USA) at Sharm el-Sheikh Meeting (March 2009) include Kingdom of Saudi Arabia (\$1 billion) State of Qatar (\$200m) Republic of Algeria (\$200m) State of Kuwait (\$200m) Japan (\$200m) United Arab Emirates (\$174m) Denmark (\$220m) Germany (\$189m) Netherlands (\$170m) Spain (\$149m) Italy (\$100m) Turkey (\$93m) Sweden (\$79m) European Union (\$55m) Finland (\$50m) Belgium (\$50m) France (\$38m) UK (\$30m) Bahrain (\$23m) Morocco (\$15m). Other UfM countries who have committed more than \$1m to Gaza include Austria, Cyprus, Greece, Ireland, Luxembourg and Portugal.

Following visits to Kuwait (Kuwait Development Fund) and Saudi Arabia (Saudi Development Fund) and close collaboration with the Islamic Development Bank, the Arab Gulf states were willing to finance 50% of the Project costs (amounting to 10-12% of their pledges at Sharm El-Sheikh Conference in 2009) and indicated their wish to see an Arab-European partnership for the financing of the project. At the World Water Forum held in Marseille in March 2012, France announced a pledge and support to the project for an amount of 10 million euros, being the first European Engagement for the project.

The Islamic Development Bank is strongly supporting the project and has agreed to coordinate the Arab pledges for the Project, which are expected to amount half of the project cost estimate and expressed the will for a strong partnership in this project with the Europeans through a co-financing. Several countries have already expressed their positive interest including Norway, Turkey, Algeria and Germany. EIB, the World Bank and the EC have also expressed support and interest to engage in project preparation and follow up.

## Timeline

- Pledges for the Projects will be pursued by PWA and UfM Secretariat during 2012.
- A donor meeting of countries which have agreed to pledge support to the Project will be convened by last trimester of 2012.
- The finalization of the Project Implementation studies will take place during 2013.
- The appointment of a Project Management Unit and the ensuing tendering processes for the EPC contractor will be done in 2014, with the actual start of work on the Project to start by the second half of 2014.
- Following that, the project duration and completion is estimated to take up to three years (2014-2016).

## Main Reports/Studies

1. Aqua Resources International. **Gaza Sea Water Desalination Plant Study**. Sponsored by USAID, West Bank Gaza Mission through Development Alternatives Inc. (in Cooperation with CDM). Final, 2003.
2. World Bank. **Palestinian Economic Prospects: Gaza Recovery and West Bank Revival**. Economic Monitoring Report to the Adhoc Liaison Committee. 8 June 2009.
3. United Nations Environmental Programme. **Environment Assessment of the Gaza Strip following the Escalation of hostilities December 2008 – January 2009**, September 2009.
4. Technical Engineering Consulting Group. **Final Report for the Domestic Water Distribution System in Gaza**. 14 May 2011.
5. Palestinian Water Authority. **Comparative Study of Options for an Additional Supply of Water for the Gaza Strip**. Final Report. 31 July 2011.
6. Philip Robinson and Associates, Windhoek, Namibia. (Sponsored by Norway).
6. Palestinian Water Authority. **Gaza Desalination Plant Proposal**. Submitted to the Secretariat, Union for the Mediterranean. 9 June 2011.
7. EIB & PWA. **Water Supply to Gaza Preparatory Studies for a Seawater Desalination Plant**, Project Information Memorandum. 20 April 2012

Prepared by the Environment and Water Division  
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\*We are the Secretariat of the Union for the Mediterranean created by the 43 Euro-Mediterranean Heads of State and Government in Paris on 13 July 2008. Foreign Affairs Ministers in their meeting in Marseille on 4 November 2008 decided that the headquarters of the Secretariat would be in Barcelona. The Statutes of the Secretariat were adopted on 3 May 2010 by the Senior Officials of the Member States of the UfM. A headquarters agreement was concluded between the UfMs and the Government of Spain on 4 May 2010, granting the Secretariat the privileges and immunities of an international organization under the Spanish law (<http://www.ufmsecretariat.org/en/> )