

MEDITERRANEAN SEA

treatment plant

# IMPROWARE

**INNOVATIVE MEANS TO PROTECT WATER RESOURCES IN THE MEDITERRANEAN COASTAL AREAS THROUGH RE-INJECTION OF TREATED WATER**



Italian Ministry for the Environment Land and Sea

Bruxelles, 16 October, SWIM Coordination Meeting



File Data and Simi Peninsula - February 23, 2008 - MODIS MODIS LAND Describes

# Expected results



## 1. In the two site countries

- to develop cost-effective, environmentally-friendly, easily-replicable methodologies to treat waste waters
- to use wastewaters to recharge aquifers developed as “pilot” models;
- to increase water availability for agricultural activities;
- to contrast saltwater intrusion in coastal aquifers building up a barrier;
- to improve living conditions of rural communities;
- to increase the employment opportunities.

# Expected results



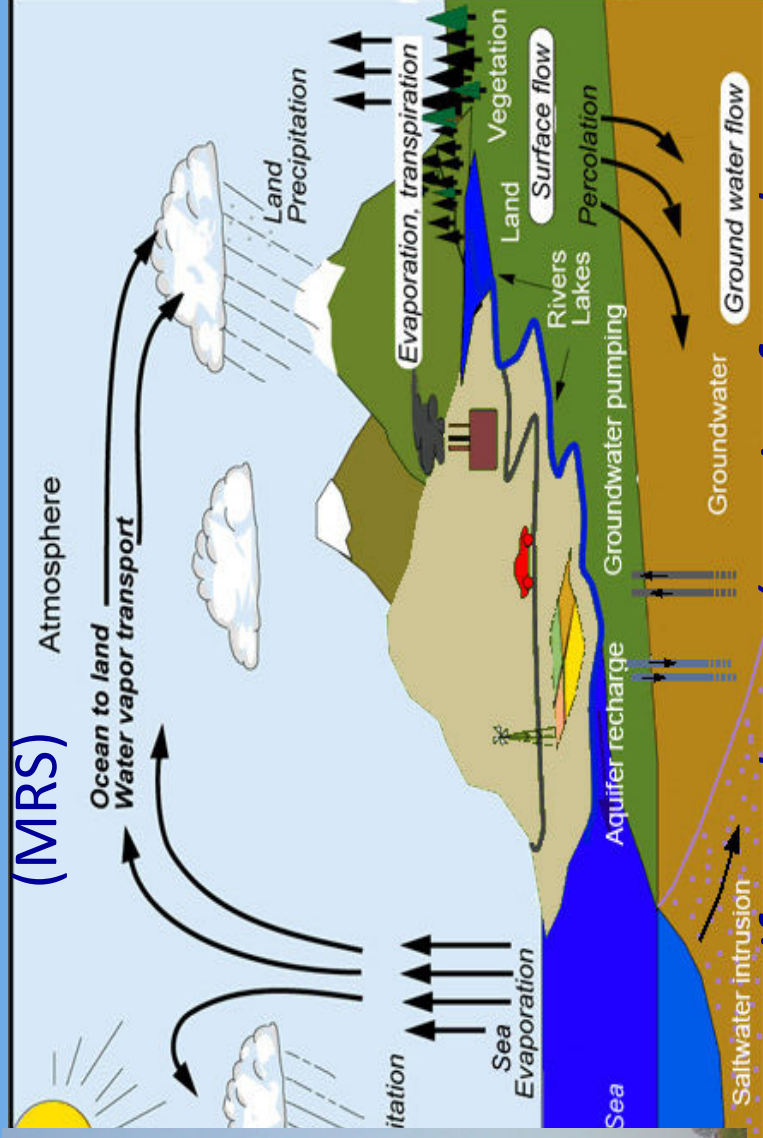
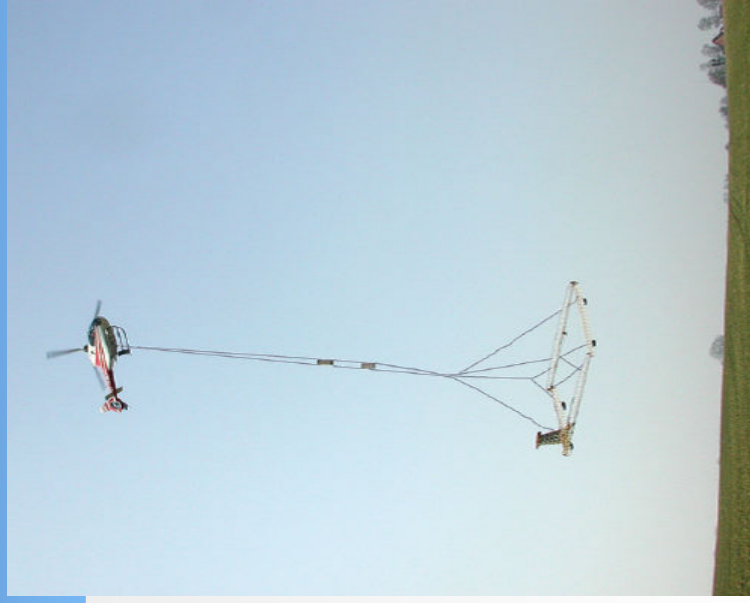
## 2. In all countries of the ENPI Mediterranean region

- know-how transferred;
- planning and management skills improved;
- regional co-operation on sustainable and integrated water management issues increased;
- policy decision-makers and communities involved empowered to:
  - Better dealing with increasing demand for water resources;
  - adaptation to climate changes;
  - Combating desertification.

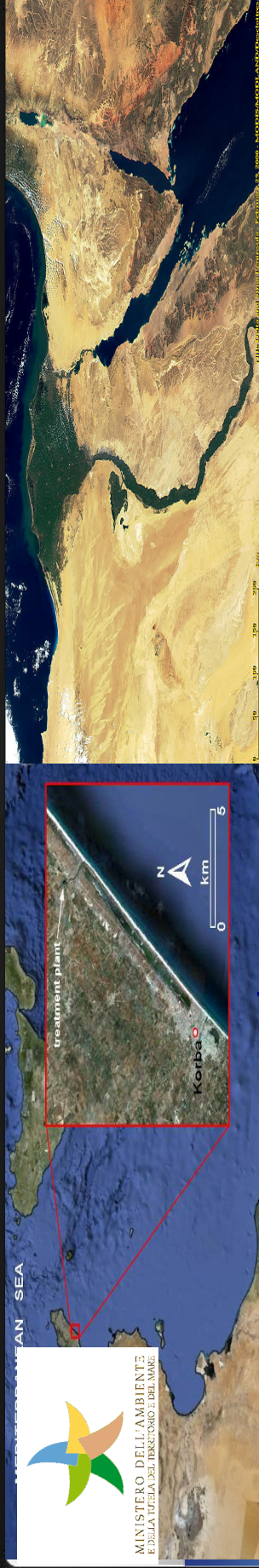
# Main Activities



1. *Aquifer characterization by geophysical investigation by airborne electromagnetics (AEM) for both near surface and deeper penetration, and b) Magnetic Resonance Sounding (MRS)*



2. *Modelling to support aquifer recharge (starting from the use of CATHY, UNIPD, and CODESA)*



### *3. Pilot Activities in two Sites*

Implementing pilot activities in 2 demonstration sites:

in Egypt, by building a new pilot plant;

in Tunisia by improving the existing treatment and aquifer recharge plant

applying specific methodologies for reusing wastewaters to recharge coastal aquifers in arid regions suffering from saltwater intrusion.

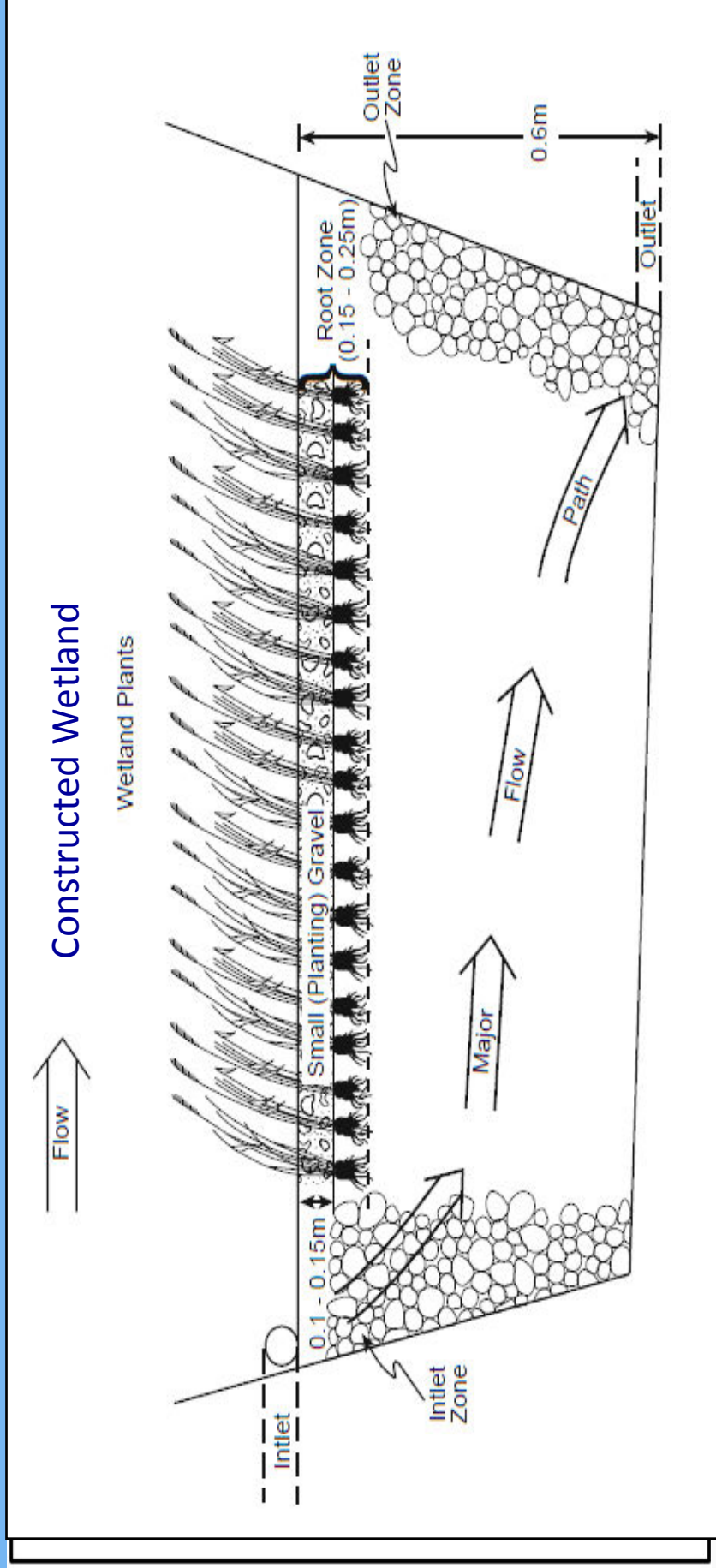


**Sample: Station de pompage**



**Sample: Constructed Wetlands**

## 4. Comparison of different methodologies used in the two sites.



Schematic representation of the actions planned to be performed in the two demonstration sites.

## 5. *Capacity Building and communication*

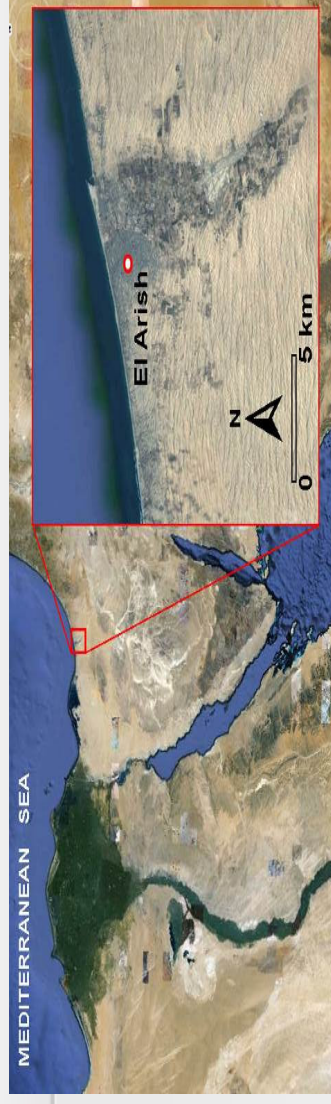


- Deliver Technology and know how transfer components;
- Ensure extension and communication, Community awareness
- Improve technical and institutional capacities
- Export the experiences gained to other ENPI Mediterranean countries by disseminating the results of the project, demonstrating best practices

## ***Status of the Project and role of the Italian Ministry for the Environment***



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- Not yet kicked off. Despite this it was necessary to implement a significant number of activities. This was possible thanks to:**
- **Italian Ministry financial and personnel resources;**
  - **Italian Ministry institutional networking and sense of duty.**
  - **Withdrawal of a partner**
  - **The original selected site in Egypt was in Sinai, region affected by security issues. The Egyptian Government invoked force majeure to identify another suitable site, selection is still in process**





## Additional steps associated



- The new location in Egypt will be selected near the Med shorelines, likely in any site extending from the city of Port Said in the East to Saloum at the far West of the country.
- **Assessment of the current adequacy of water quality of WWTP effluent for the groundwater recharge.**
- **Assessment of needed upgrading of WWTP and measures to enhance efficiency of operation with the aim of producing a better wastewater effluent quality for groundwater recharge.**
- **This would include potential upstream segregation of industrial wastewater discharging in the domestic sewers to avoid any potential ground water degradation.**

● **Improware is also in the process, in agreement with EU, of revising part of the activities related to “reinjection”:**

- **Transferring the reinjection activities to Tunisia;**
- **Simulated modelled reinjection in Egypt,**

● **Thanks to it IMPROWARE will identify the best available groundwater recharging technologies, according to the hydrogeological assumptions and the circumstances.**

● **In Tunisia the different technologies will be compared becoming subject of Technology Transfer and Capacity Building schemes to be implemented in Tunisia,**

● **There, IMELS already established a Center for these issues in the area of Energy, named MEDREC;**

● **Build capacity through training followed by study tours for mid-level water and environment officials in Europe to learn of successful groundwater recharge best practices and success stories.**



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# Thank you for your kind attention

*Ministry for the Environment, Land and Sea of Italy*



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