

B I O D I V E R S I T Y

D E S E R T I F I C A T I O N

# EIECP

## Support Programme to the National Environmental Action Plan: Decision Support System for Water Resources Component Egypt

- › CAPACITY BUILDING
- › CULTURAL HERITAGE
- › DECISION SUPPORT SYSTEM
- › ENVIRONMENTAL SUSTAINABILITY
- › SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT
- › WATER RESOURCES



Arab Republic of Egypt  
Ministry of Water Resources And Irrigation



Ministero degli Affari Esteri



## Background and rationale

This programme was agreed in the Memorandum of Understanding signed in 1998 between the Italian Government and the Government of the Arab Republic of Egypt. The Egyptian-Italian Environmental Cooperation Program (EIECP) is carried out within the framework of donor initiatives aimed at assisting the Country in the implementation of the National Environmental Action Plan (NEAP).

The national institution responsible for the whole programme is the Egyptian Environmental Affairs Agency (EEAA), under the Ministry of Environment. EEAA is responsible for environmental policy-making and implementation at the national level and aims at executing specific interventions in the sectors of water, environmental protection and cultural heritage conservation.

**The first Programme phase, which is coming to an end at the beginning of 2003, includes five components.**

- Program Coordination Unit (PCU): this component is responsible for strategy definition, project formulation, overall coordination, integration of components and impact monitoring at the policy level. Its institutional counterpart is EEAA.
- Decision Support System for Water Resources Management based on Environmental Balance (DSS): this component aims at designing an informatics

model to support the relevant Egyptian institutions, EEAA and the Ministry for Water Resources and Irrigation (MWR&I), to make informed decisions on water management. Its institutional counterpart is the National Water Research Centre, under the above mentioned Ministry. This component stems from the growing awareness in Egyptian development thinking that the sustainable management of water resources is crucial to a lasting improvement of the Egyptian people's livelihoods. It has also been acknowledged that water is a limiting factor for economic growth and that uncertainties (hydrological stochastic pattern and future demand), environmental and socio-economic aspects, and political issues (strategies, restrictions) have to be taken into account and harmonised through more sophisticated decision support tools to be used by planners. In particular, actions that are designed to solve the problems of intercrossing relationships often fail to take into consideration their cumulative effects. It is usually assumed that the set of actions aimed at solving the identified problems is good as such, without further analysis.

- Siwa: this component aims at supporting local institutions to develop a strategy for conservation, management and the participatory sustainable use of agricultural and natural resources in the Siwa Oasis. The institutional counterpart to this component is Matruh Governorate and IUCN provides the technical assistance (see specific project leaflet in folder).

- Wadi El Rayan: this component regards the Wadi El Rayan Protected Area in the Fayoum Oasis. It aims at conserving protected areas, habitats and biological diversity, which are exposed to adverse environmental circumstances and unsustainable activities. This project component also plays a pilot role for other protected areas. The institutional counterpart to this component is EEAA Nature Conservation Sector; IUCN provides the technical assistance (see specific project leaflet in folder).
- Cultural Heritage: this project aims at the production of environmental risk maps for Saqqara area monuments, which are exposed to anthropic pressure. The institutional counterpart is the Supreme Council of Antiquities (SCA) of the Ministry of Culture.

A National Steering Committee chaired by EEAA supervises the whole Programme. The Programme Coordination Unit is attached to the Italian Embassy in Egypt and is headed by an Italian and an Egyptian Coordinator. Each project is under the responsibility of a Project Management Unit, headed by an Italian and an Egyptian co-manager, and is carried out in close coordination with the concerned Egyptian implementing agency. The first phase lasted four years and total Italian funds amounted to more than 7 million euros. The formulation of the Programme Second Phase is almost completed and foresees nine projects:

- Programme Coordination Unit
- DSS for Water Resources Planning based on Environmental Balance
- Siwa Environmental Amelioration





## Goal, objectives and expected outputs

EIECP's overall objective is to contribute to the protection of Egypt's natural and cultural resources, through strengthening EEAA capacities in planning and management for environmentally sustainable development.

**Its immediate objectives are as follows.**

- Wadi El Rayan Protected Area
- Systemic Approach for Solid Waste Management in Egyptian Rural Governorates, Pilot Integrated Management Scheme in El Minia Governorate
- Management Plan for Gabal Elba Protected Area (see specific project leaflet in folder)
- Institutional Support to SCA for Environmental Monitoring and Management of Cultural Heritage Sites in Fayoum Oasis and North Saqqara Necropolis
- Legal and Institutional Support to EEAA
- Institutional Strengthening of Nature Conservation Division.

The global financial envelope tentatively foreseen amounts to 18 million euros, 50% through a bilateral grant and 50% under a debt swap initiative, again provided by the Italian Cooperation. An amount of about 2 million euros has been earmarked for DSSP, for a three-year intervention.

- Strengthen Egyptian capacities to analyse, plan and implement adequate measures for the conservation and rehabilitation of natural, cultural and man-made environments.
- Enhance current strategies and ways to protect and expand the available natural resources base, aiming to increase productivity, reduce migration and improve the living conditions in rural areas.
- Contribute to reinforce the role of EEAA, as the central coordinating and supervising body, and its partner institutions for the protection and promotion of the environment.

The overall goal of the Decision Support System is to build the Egyptian technical-scientific capability to assess and evaluate possible alternative planning and

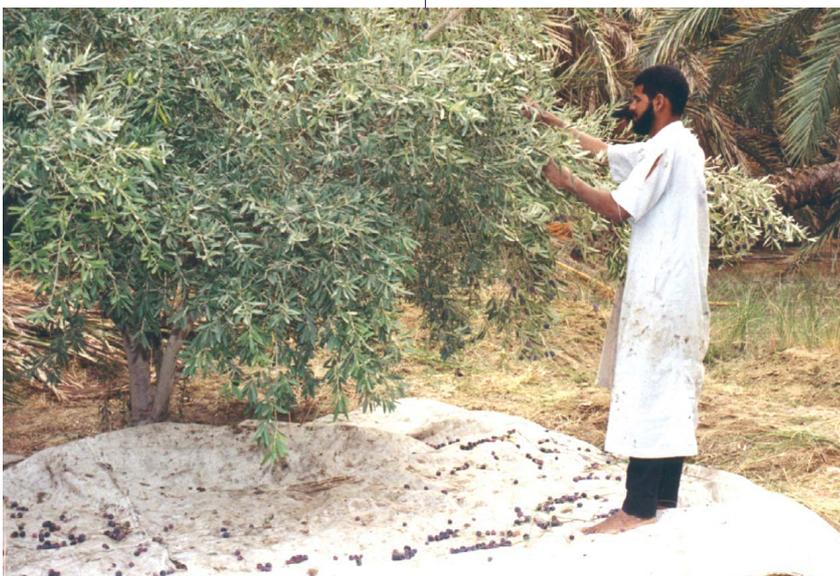


management solutions through a systemic approach.

**The specific objectives are the following.**

- Propose a methodology for the integration of environmental and socio-economic aspects in the Water Resources (WR) planning exercise.
- Develop a computer-based tool that increases the decision makers' ability to analyse and evaluate, stimulating the adoption of a wider and more integrated perspective in the planning process, as well as fostering the multi-actor dialogue.
- Contribute to the capacity-building of the researchers and decision-makers of the relevant institutions. In particular, these institutions are the National Water Research Center (NWRC), which acts as the implementing agency through its Strategic Research Unit (SRU), the EEAA and the Planning Sector of the Ministry of Water Resources and Irrigation (MWRI-PS).

Rather than 'vertically' adding a bit of knowledge, by gaining insight into some particular aspects, the underlying principle here is to broaden the understanding of the Egyptian system 'horizontally', and integrate the knowledge and tools already available through an innovative cross-sectoral and multidisciplinary view.





The Mediterranean Agronomic Institute (MAI-Bari) participates in the Project, through an agreement signed with NWRC, by providing technical assistance. A contract has also been signed, upon request of SRU, between MAI-Bari and ET&P-Bologna to provide the basic software AVS-Express, expertise and some training courses to SRU staff.

## Implementation and results

The DSSP component started in March 1998 and has been extended up to December 2002.

Main achievements are as follows.

- A methodology for the integration of environmental and socio-economic aspects in the analysis of WR scenarios and development measures has been finalized. This methodology and the informatics tool, i.e. the DSS, are tailor-made to meet the scope of solving present problems with planning activities in Egypt; they are definitely innovative and stand at the highest technical-scientific level on the international scene.
- Models and their organisation have been designed in a simulator capable of predicting the effects of possible development measures and scenarios, the computer-based tool (DSS) capable of handling the proposed methodology has been developed, and an integrated Geographic Information - Database system has been set up.
- A good level of technical and computational capacity in the NWRC/SRU staff has been built-up.



## Lessons learned

In order to fully capitalise on the efforts and resources spent, the second phase will take stock of the lessons learned so far.

- Difficulties in the implementation of the data collection campaigns: the decision was taken in 1998 to re-orient the Project from a data-driven modelling approach to a conceptual approach. Data collection needs to be improved, and the procedures for their collection shall be enhanced, setting up inter-institutional data-sharing agreements.
- Difficulties in the acquisition of the existing mathematical water resources planning models: some of them did not fit with the specific requirements of the DSSP, while others were not really operational. Ownership of the suitable existing models was a critical issue that forced the Project staff to formulate their own simplified versions of these models.
- Lack of coordination with other international cooperation projects working in the same field of Water Resources planning: this had negative effects on the acquisition of data and on the useful debate for the development of water management alternatives and planning tools.

