



## EGYPT

# CLIMATE CHANGE MITIGATION ENERGY EFFICIENCY TECHNICAL ASSISTANCE TO MED REHABILITATION OF PUMPING STATIONS II PROGRAM



<b>Client</b>	Ministry of Water Resources and Irrigation (MWRI), Mechanical and Electrical Department (MED)
<b>Financing</b>	Kreditanstalt für Wiederaufbau (KfW)
<b>Duration of Services</b>	09/2004 – 09/2014
<b>Cost of Implementation</b>	55 Mio. Euro
<b>Value of Services</b>	Technical Assistance 2,835,699 € Training 1,356,265 €
<b>Partner</b>	HAMZA, Egypt

### Scope of Services

- Technical assistance and capacity building of MWRI/MED for execution of pumping rehabilitation program
- Analysis of power demand
- Identification of energy saving potentials
- Technical 'specifications for new pumps
- Recommendations for energy saving O&M measures

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## Context and Challenge

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Pumping activities in the water and irrigation sector in Egypt take up a significant share of total electric power generation. As the electricity is gained mainly by burning of fossil fuels the sector is an important source of greenhouse gas emissions.

Most irrigation systems are located along the Nile. A cascade of pumping stations is conveying water from the river to large scale irrigation systems (a total lift of the main canals to the fields reaches up to 50 m). The potential for optimized pumping efficiency is significant. Old pumps as well as inefficiencies in the operation and maintenance of pumping stations are resulting in high amounts of energy consumption. By reducing the consumption of electricity of pumping stations, the project measures contribute to the mitigation of greenhouse gas emissions - which are a major driver of global warming and climate change.

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## Project Description

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The project is financed by KfW and the European Investment Bank (EIB). An increasing number of pumping stations - currently more than 25 - in Upper and Middle Egypt as well as in the Nile Delta are included in the program. A major objective of the Project Executing Agency (MED) is to tap energy efficiency potentials of existing pumping stations and to reduce operational costs.

CES is providing technical assistance and capacity-building to MED. In order to realize energy efficiency potentials, assistance is mainly needed in the preparation and execution of the rehabilitation program. In a first step major power users and potentials for energy saving are identified. The energy efficiency options proposed help to monitor and develop tailor made efficiency measures for each pumping station. Based on these findings, the implemented measures are reaching from the procurement of new energy efficient pumps, exchange of electromechanical equipment optimization of pump station operation, improved maintenance and repair procedures of pumps, up to the construction new energy efficient pumping stations.

Capacity building is needed in preparation and execution of the rehabilitation programs of MED. CES is assisting MED in the management of project implementation by providing direct support as well as by elaborating with the MED professional staff standardized procedures for monitoring Contractors' performance, approval of Contractor's drawings and layout data (depending on the type of contract), management of variation orders, supervision of quality and time schedules, reporting to MED Central Office and to financing agency as well as additional services supporting the project implementation. Training needs assessment and a training program is provided (seminars, workshops, in-service training, and refresher courses)



The assistance of CES during the execution of the individual rehabilitation projects includes site visits during critical stages, attendance of meetings with the Contractors as deemed necessary by the Project Manager and approved by the MED Project Director, recommendations to MED on technical, administrative and financial issues whenever deemed necessary by the Consultant. Since during the course of the implementation the need of several changes and adaptations of pumping stations became necessary, the continuation of the Consultants Technical Assistance has been guaranteed by several Addenda comprising the rehabilitation and construction of more than 25 Pumping Stations during the extended time.