

**BRIEF SUMMARY OF PROJECTS CARRIED OUT
BY
THE HYDRAULICS RESEARCH INSTITUTE**

Industrial hydraulics

1- Intake of the Red Sea Drinking Water Plant

Consultant : HRI

Period : 1996- 1997

The study objective was to find a solution to the sedimentation problem in front of the intake of Quena and the Red Sea municipal water treatment plants at Quena City.

The study comprised field investigations, data collection, bathymetric surveys of 4 km length were carried out and desk study.

2- Suitability of Suggested Location of Water Treatment Plant Intake in New-Minia City

Consultant : HRI

Period : 1998 – 1999

The study objective was to study the technical aspects and suitability of suggested intake of water treatment plant in New-Minia City.

The study comprised hydrographic survey of 6.0 km at problem area, water velocity distribution, analyzing of bed samples and calculating the sediment transport, water surface velocities, and also the water levels from 1995 to 1998 and water discharges. It was recommended to use another location away from the suggested one with about 2.5 km north.

3- Mankabad Berthing for the Super Phosphate Factory (Assuit)

Consultant : HRI

Period : 1993 - 1994

The study objective was to select the suitable berthing location at the factory zone, the location should be stable from morphological point of view, so both erosion and sedimentation had to be prevented under different river flow conditions and the required navigational properties should be checked to ensure safe maneuvering.

The study comprised field investigations, data collection, bathymetric surveys of 4 km length were carried out and desk study was conducted to compare different locations.

4- Water Hammer Calculation Studies

Consultant : Ministry of Irrigation & Water Resources

Period : 1996-1997

The study objectives were to investigate the water hammer phenomena, cavitation problem, the system balance, and the hydraulic characteristics of the plant. The net head, the hydraulic efficiency and the power of the plant. Periods were as follows:

The plant	The period
El-Batts Plant, Fayoum Governorate	: 1996
El-Shabab Pump Plant, Ismailia Governorate	: 1996
El-Biadia Pump Plant, Luxor City, Quena Governorate	: 1997
El-Salam Pump Plant, Abou-Simple City, Aswan Governorate	: 1997
Wadi El-Rayan Pump Plant, El-Fayoum Governorate	: 1998

5- Development of King Abdul Aziz Endowment (DOKAAE)

Consultant : HRI

Period : 2005-2006

The study was carried out in order to conduct the transient state analysis for the domestic piping network inside the towers and provide the necessary recommendations for the safe protection of the network.

In order to conduct this analysis two computer programs were used. These programs are WaterCAD V.6 and Wanda V.3.03.

The results obtained from the unsteady simulation of the system showed that there is no need for any anti-hammer protection for the system. It was also recommended to add an additional non-return valve at the beginning of the riser pipeline after connecting the outlets of the two pumps.