

»» Project Information

Water – Egypt

Promoting Integrated Water Resources Management in Egypt

Egypt has extremely low levels of precipitation and, with 600 m³ of renewable freshwater available per resident every year, it is one of the most arid countries on Earth (countries with less than 1000 m³ per resident and year are considered arid). Nearly all of its freshwater comes from the Nile. The result is that 90% of the 97 million Egyptians live on the narrow banks of the Nile and in the Nile Delta, which only makes up 5% of the country's territory. Apart from some groundwater oases, the rest of the country is desert. The Assiut barrage makes it possible to irrigate all of central Egypt's farmland in the governorates of Asyut, Minya, Beni Suef and Faiyum.

Context

Despite increasing diversification within Egypt's economic structure, the agricultural sector remains one of the country's main economic sectors and is the basis for much of its residents' incomes. Agriculture in the Nile Valley from Aswan to Cairo depends on irrigation made possible by the Aswan High Dam, the Aswan Low Dam and the three Esna, Naga Hammadi and Assiut barrages on the Nile. The barrages were built 70 to 100 years ago and reached the end of their technical and economic service life a few years ago. The Esna and Naga Hammadi barrages have already been replaced, the latter with funds from German Financial Cooperation and the European Investment Bank (EIB). The present Assiut barrage was built from 1892 to 1902 and was refurbished and raised from 1934 to 1936. Due to its age and constant stress from water discharge from the Nile, it was no longer sufficiently safe at the time of the project appraisal: most of the mechanical elements

were very old and worn. Failure of the barrage would have placed regular irrigation of 690,000 ha of farmland at risk for years until the replacement was completed. The barrage supplies the Ibrahimiyya Canal with water. The 350-kilometre-long canal branches off above the barrage, runs parallel to the Nile and is extremely important for irrigating farmland in this region. Twice as much water flows through the Ibrahimiyya Canal as it does through the Main River in Germany, for example. The canal irrigates farmland three times the size of the German state of Saarland. The barrage also serves to regulate water levels in the Nile and also retain water to a limited extent with the aim of conserving scarce irrigation water.

Project name	Assiut barrage and hydropower plant
Commissioned by	German Federal Ministry for Economic Cooperation and Development
Country/Region	Arab Republic of Egypt Assiut governorate
Lead executing agency	Ministry of Water Resources and Irrigation (MWRI) Egyptian Electricity Holding Company (EEHC)





Project Assiut. Source: KfW Bankengruppe, photographer: Pedro Costa Gomes

Project approach

This project is one of the largest FC-infrastructure projects in Egypt and in the FC-financed water sector in general. The project will receive financing amounting to EUR 300 million in FC funds. New construction on the Assiut barrage includes building an earth dam over the Nile into which the actual barrage will be integrated with gates for flow regulation, a new double navigation lock for ship traffic, a hydropower plant and a multi-lane road flyover. Moreover, energy production from the hydropower plant is around 200 GWh per year. Maintenance of the Ibrahimiyya Canal's withdrawal dam and the existing navigation locks in the canal and old Assiut barrage are also part of the project.

Implementing the project is a highly complex task. The Nile had to be diverted during the construction phase of the barrage. To do this, workers needed to ram huge walls into the ground while Nile water was flowing so that they could then pump the barrage construction site dry. A highly specialised company from Germany took on responsibility for this task.

One element of the project is a package of environmental measures for preventing and reducing negative environmental effects and compensating those affected.

Impact

The Assiut project secures income and creates employment opportunities for five million people, most of them poor, who subsist on smallholder farming. They grow wheat, maize, vegetables and cotton, and breed cattle. They grow this food mainly for themselves and their families and supply the local market. The Assiut project secures their income and creates additional opportunities to increase it. This is particularly significant because the region is experiencing high population

growth and rural flight. Without any basis for income, many people would be forced to move away. The construction phase created about 6,800 jobs, mainly in the construction sector, but also in the metal and electrical industries. Around 300 people are permanently employed by the barrage and hydropower plant operator. Beyond that, the project has improved overland and river transport. A new four-lane public bridge across the Nile has also acted as a feeder road to the city of Assiut with over a million inhabitants.

Around 100,000 tonnes of carbon emissions are prevented annually by using hydropower generation as a renewable energy source. A total of 130,000 households benefit from electricity provided by the hydropower plant. The project is therefore also contributing to global environmental protection.



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