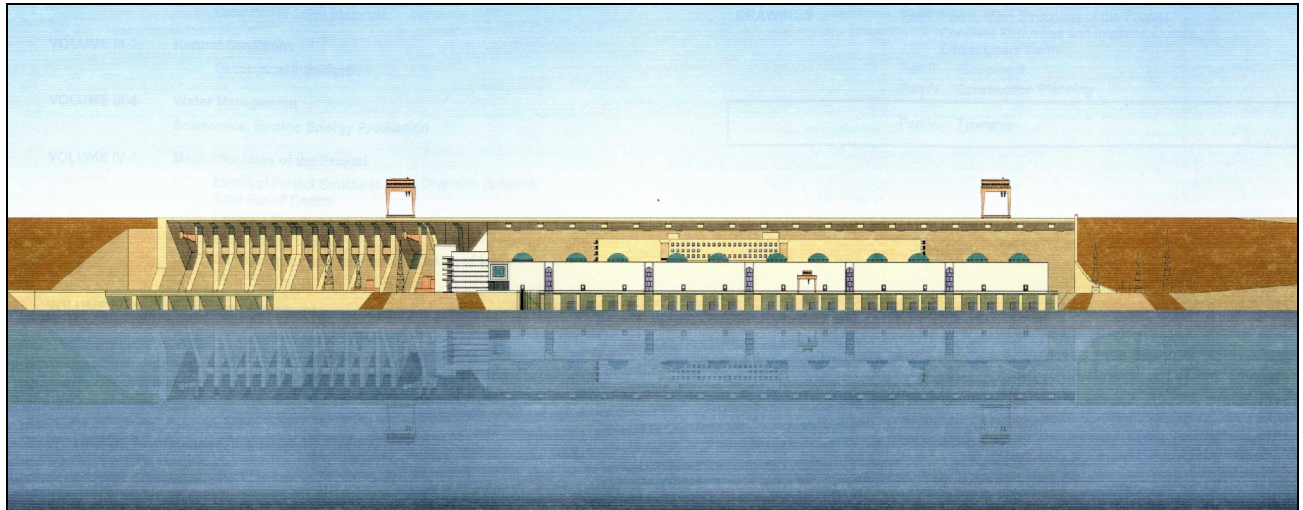


## Dams

## Merowe Sudan



The Merowe dam site is located downstream of the 4th cataract of the Nile River, about 350 km north of Khartoum.

The dam is about 9.2 km long in total and consists of:

- a 311 m long homogeneous earth dyke and a 4.4 km long major concrete face rockfill dam on the right bank;
- a 154 m long spillway and a 370 m long power intake dam in the right river channel and on the Marwa Island; and
- a 841 m long major earth core rockfill dam in the left river channel and a 1.4 km concrete face rockfill dam and 1.7 km long earth dyke on the left bank.

The embankment dams will mostly be founded on migmatites and granite-gneiss. The earth core rockfill dam in the left river channel is to be founded partly on some 30 deep alluvial deposits.

The project has a river basin area of 2,87 million km<sup>2</sup>. River diversion will be carried out by a two-phase approach: First, the right river channel is closed using upstream and downstream cofferdams to construct concrete structures. The height of both cofferdams in the right channel is designed for a flood of 12,300 m<sup>3</sup>/s through the left channel. During the second phase of diversion, the river is diverted through low-level sluices of the spillway to construct the cofferdams and the embankment dam in the left river channel.

The spillway consists of two surface gates at el. 280.50 m and 12 low-level sluices at el. 264.00 m.

The hydropower plant is located at the downstream toe of the power intake dam. The powerhouse is an open-air type with 10 Francis turbines of 125 MW capacity each with a discharge capacity of about 300 m<sup>3</sup>/s each.

### Client:

Merowe Dam Project Implementation Unit, Khartoum  
Ministry of Irrigation and Water Resources

### Main Data:

Major concrete face rockfill dams	
• maximum height	52 m
• crest lengths	1,437 m + 4,364 m
• upstream slope	1V : 1.3H
• downstream slope	1V : 1.6H
• volume	6.1 x 10 <sup>6</sup> m <sup>3</sup>
Major earth core rockfill dam	
• maximum height	67 m
• crest length	841 m
• upstream slope	1V : 2H
• downstream slope	1V : 1.8H
• volume	10 x 10 <sup>6</sup> m <sup>3</sup>
Spillway capacity	19,900 m <sup>3</sup> /s
Turbine type	Francis
Installed capacity	1,250 MW
Rated net head	43 m
Powerhouse; L/W/H	335/43/56 m
Penstock diameter	8.50 m

### Execution:

since 2000

### Services:

- Review of tender design and tender documents
- Review and supervision of additional geotechnical investigations
- Updating of tender design and tender documents
- Tendering, evaluation, negotiations and contracting
- Construction design and review/approval of E&M design
- Construction management, contract administration, construction and erection supervision (full QA)
- Assistance during commissioning and defects liability period