

Xiaolangdi Dam

Rockfill dam

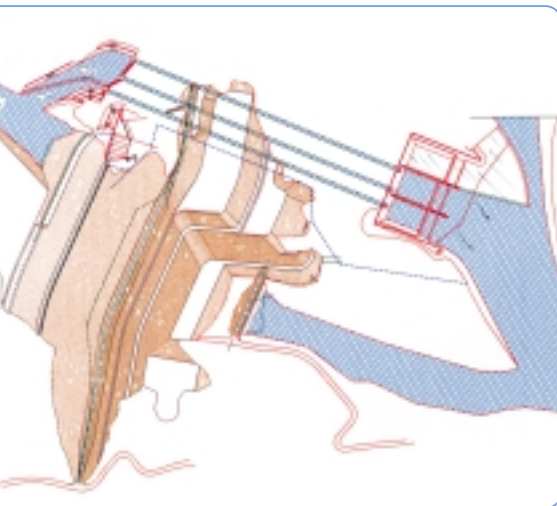


The Xiaolangdi Multipurpose Project in the People's Republic of China is located on the yellow River in Henan Province. The main purposes of the dam are sediment management and better flood protection for more than 100 million people living downstream.

The Yellow River owes its name to its high sediment content. Downstream,

sedimentation causes an annual 10 cm rise of the river bed so that the dikes along the 800 km long lower reaches have to be constantly increased in height in order to ensure flood protection. With the construction of the dam, downstream sedimentation will be stopped for approximately 20 – 30 years. Afterwards, the sediment will regularly be flushed

out of the reservoir and further on into the Yellow Sea. Other benefits to be achieved are power generation (6 x 300 MW) and water supply for irrigation of 2 million hectares of farmland.



Lot 1 comprised construction of the 154 m high earth and rockfill dam. The dam has a crest length of 1,666 m, a base width of 900 m and a fill volume of 50 million m³. The upstream cofferdam is integrated into the main dam. The main dam has a sloping, impervious core from loess loam with a two-sided filter.

HOCHTIEF Construction AG

Opernplatz 2
45128 Essen
Germany
Telephone: +49 201 824-2745
Fax: +49 201 824-2822

www.hochtief-construction.de
info-construction@hochtief.de

Works on the dam started in 1994 and comprise excavation, treatment, transport and placement of large earth and rockfill quantities. Large earth and rockfill quantities had to be removed from within the river bed and the two flanks. The scope of work also comprised extensive injection works at both river banks in the area of the flanks and construction of a deep slurry wall in the river bed — performed as diaphragm wall and by the jet grouting method respectively — to ensure subsoil waterproofing.

The river diversion which was completed in 1997 and the subsequent large-scale foundation works in the river bed proved to be particularly complicated. Unexpected rock formation under the river bed required major re-scheduling of foundation works. Nevertheless the project was completed 13 months ahead of schedule.

Client

The People's Republic of China, Ministry of Water Resources, Yellow River Water and Hydroelectric Power Development Corporation, Zhengzhou, Henan, P.R. of China

Construction Supervision

CIPM Yellow River Joint Venture, Montreal, Quebec, Canada; Xiaolangdi Engineering Consulting Company, Limited

Contractor

Joint Venture River Contractors: Impregilo, Milan/Italy HOCHTIEF, Essen/Germany Italstrade, Milan/Italy Fourteenth Construction Bureau, Kunming/China

Rockfill dam

Crest length: 1,666 m
Crest width: 15 m
Base width: 900 m
Dam height: 154 m

Dam volume

50.0 million m³
Rock fill: 34.5 million m³
Core material: 9.5 million m³
Filter material: 6.0 million m³

Storage capacity

12.5 billion m³

Diaphragm wall

Surface: 6,700 m²
Thickness: 1.20 m
Max. depth: 70 m

Jet grouting

11,000 m²

Grout curtain

100,000 lin. m

Execution period

September 1994 to November 2000