

## Hongjiadu Hydropower Project



Hongjiadu Hydropower Project is the one and the first project in the key “West-East Electricity Transfer Strategy”. It is located on the Liuchong River upper stream of Wu River in Guizhou Province, and is the only hydropower project with the multi-annual regulation among the 11-cascade power projects on the main reach in Wu River. The total reservoir storage capacity is 4.947 billion m<sup>3</sup>, the dam height is 179.5m, the total installed capacity is 600MW and annual power output is 1.559 TWh. As the Project has a very good regulating ability so it can increase the power output for Dongfeng, Suofengying, Wujiangdu etc. It takes mainly the tasks of peak power regulation, frequency and emergency regulations, improving the electricity net operation, and providing water to industry, agriculture, improving the comprehensive benefits including ecological environments, traveling, aqua-culture etc.

The dam type is CFRD, the crest elevation is 1147.50m, the crest length is 427.79m, the maximum dam height is 179.5m. The anti-seepage structures is consisted of deck, toe slab, toe slab foundation curtain pouring and joint seal system.

The widths of toe slabs are 4.5m in all, the layout manner of longitudinal direction is continuous, perpetual slot not being arranged. Toe slab is situated on the fresh bedrock that 0.5m below micro-weathering, jointed with bed rock by anchor rod. Toe slab is connected with the face slab by slot sealing around. Impervious curtain is set in toe slab foundation, which is the important constituents of face slab dam anti-seepage system. The total area of steel concrete face slab is  $72.2 \times 10^3 \text{m}^2$ , the thickness is 0.3 to 0.91m and width of slots is 15m in all. According to the requirement for passing flood, the slab dam construction period is divided into 3 phases, during the first phase the face slab pouring elevation will arrive below 1025m; during the second phase, the face slab pouring elevation will be from 1025 to 1095m; during the third phase, the face slab pouring elevation will be from 1095 to 1142.7m.



**Hydrology**

catchment area: 9900 km<sup>2</sup>

mean annual flow: 149 m<sup>3</sup>/s

design flood standard and flow (P=0.2%): 6550 m<sup>3</sup>/s

mean annual sediment transportation: 7.13 × 10<sup>6</sup> t

check flood standard and flow (P=0.2%): 11000 m<sup>3</sup>/s

**Reservoir**

normal storage W.L.: 1140.0 m

dead W.L.: 976.0 m

design flood level: 1141.34 m

check flood level: 1145.4 m

total reservoir storage capacity: 4.947 × 10<sup>9</sup> m<sup>3</sup>

effective reservoir storage capacity: 4.497 × 10<sup>9</sup> m<sup>3</sup>

reservoir area: 80.5 km<sup>2</sup>

**CFRD**

crest elevation: 147.5 m

crest length: 427.79 m

crest width: 10.95 m

maximum dam height: 179.5 m

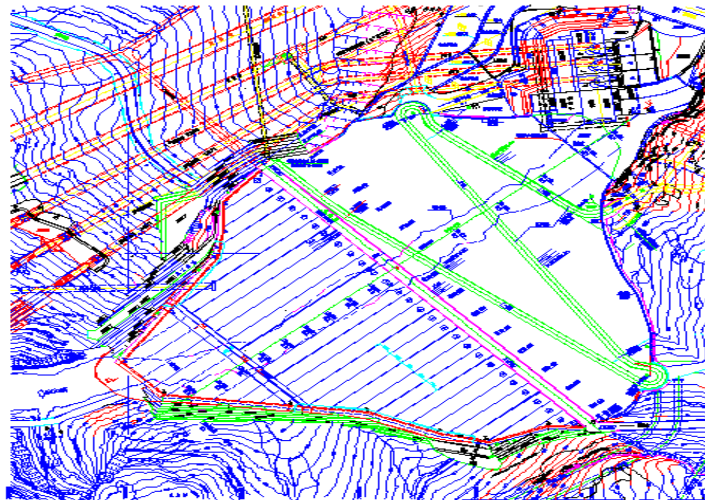
ratio of width to height of dam: 2.38

dam slope of upstream and downstream: 1:1.40

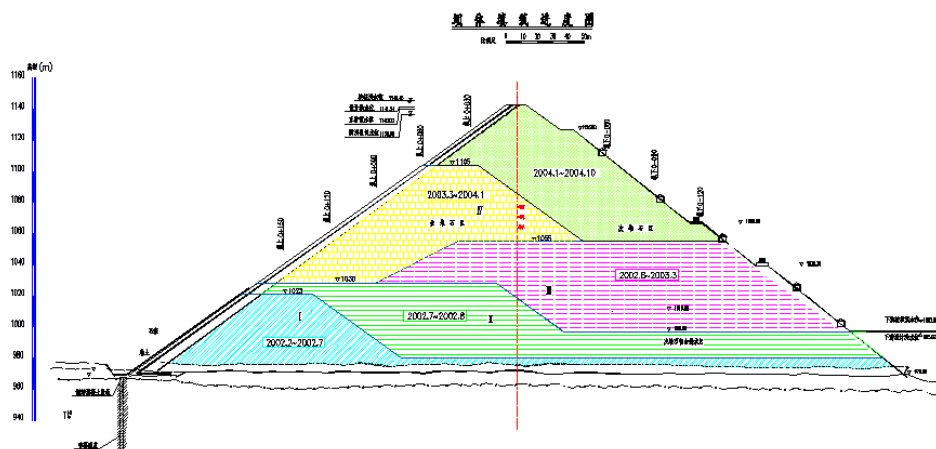
filling volume: 9.2 × 10<sup>6</sup> m<sup>3</sup>

total volume of slab concrete: 38250 m<sup>3</sup>

the total slab area: 72000 m<sup>2</sup>



Layout Hongjiadu CFRD Dam



Section of dam body