

## Goupitan Hydropower Project



Bird's view of Goupitan Hydropower Project

### Hydrology

catchment area	43250 km <sup>2</sup>
mean Annual flow	716 m <sup>3</sup> /s
actual maximum flow	15500 m <sup>3</sup> /s
design flood flow	27900 m <sup>3</sup> /s
check flood flow	35600 m <sup>3</sup> /s

### Reservoir

normal storage W.L.	630 m
dead W.L.	845 m
reservoir inundation area	94.29 km <sup>2</sup>
inundation influence area	1.85 km <sup>2</sup>
flood control W.L.:	626.24 m
check flood W.L.:	638.33 m
total reservoir storage:	6.451 billion m <sup>3</sup>
effective storage:	6.451 billion m <sup>3</sup>
flood control storage:	0.2-0.4billion m <sup>3</sup>
active storage:	3.151billion m <sup>3</sup>
design diversion flow:	1909 m <sup>3</sup> /s

### Dam

type: concrete double-curvature arch dam
crest elevation of dam: 640.50m
crest length of dam: 557.11m
characteristic of foundation: E.L.408m
maximum height of dam: 232.50m

### Discharge structures

surface spillway: 12 × 13(width×height) E.L. 617m
middle outlet: 7×6m
bottom outlet: 4×6m

### Power house

type: underground
main power house size: 230.46×27×73.32m

### Navigation building

type: three-steps vertical ship lock
navigation capacity: 500 t
annual capacity: 414.8 million tone

Goupitan Hydropower Project is situated in the main reach of Wu River in Guizhou Province. It is the fifth one among developed hydropower projects. It is the key project for the “West-East Electricity Transfer”. The Project is the controlling project of Guizhou Wu River Hydropower Development Company, whose development is very important not only to local social-economic development, but also to national energy safety. It gives priority to power generation, saving coal resources and reducing the greenhouse emission. Furthermore, it also gives consideration to the benefits of flood controlling, water supply, irrigation, traveling, navigation, breeding, employment, poverty mitigation etc. The normal storage water level of reservoir is 630 m, the corresponding storage capacity is 5.564 billion m<sup>3</sup>, active storage capacity is 31.54 billion m<sup>3</sup>. The total installed capacity of the Project is 3000 MW, annual power production is 9.667 TWh. The total construction

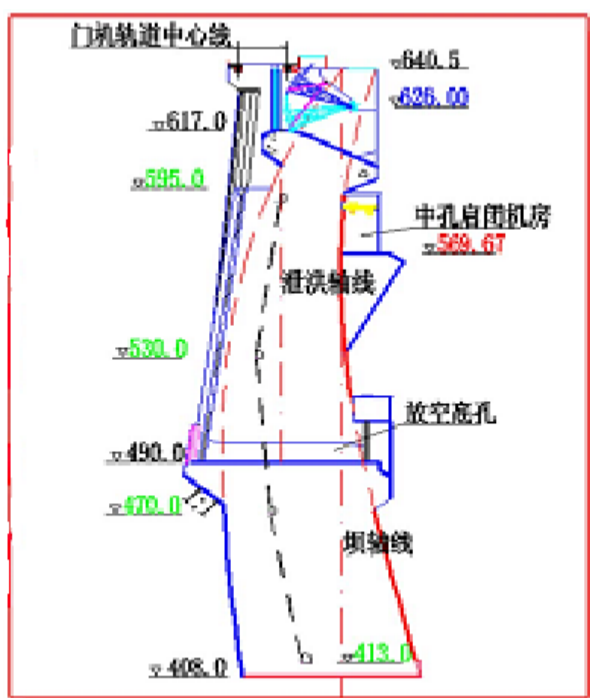
period is 9 years and 2 months and the total investment is 13.842 billion RMB.

The Project consists of dam, flood discharging and energy dissipating structures, underground powerhouse in the right bank and large plunge pool. The type of dam is a parabola concrete double-curvature arch dam with the maximum height of 232.5 m. The underground powerhouse is located on the right bank and it mainly consists of intake, headrace tunnel, main powerhouse, main transform cavern and tailrace tunnel.

Meanwhile, the environmental protection and water-soil conservation in Goupitan Hydropower Project are strictly followed the national laws and regulations. The concept of environmental protection is to build harmonic development condition between the human beings and nature. That is not to endanger the environment as the construction, not to destroy the balance of eco-system as to develop the economy, not to make the natural environment go back as the human's activities.

Goupitan Hydropower Project plans to resettle about 19983 people (1020 people in construction site, 79 people in blasting influence area, 18884 people in reservoir inundation area). At the end of 2005, 12569 people have been moved, which is 63% of the total. The resettlement people are arranged in 41 counties and towns according to the environmental protection and resettlement plan.

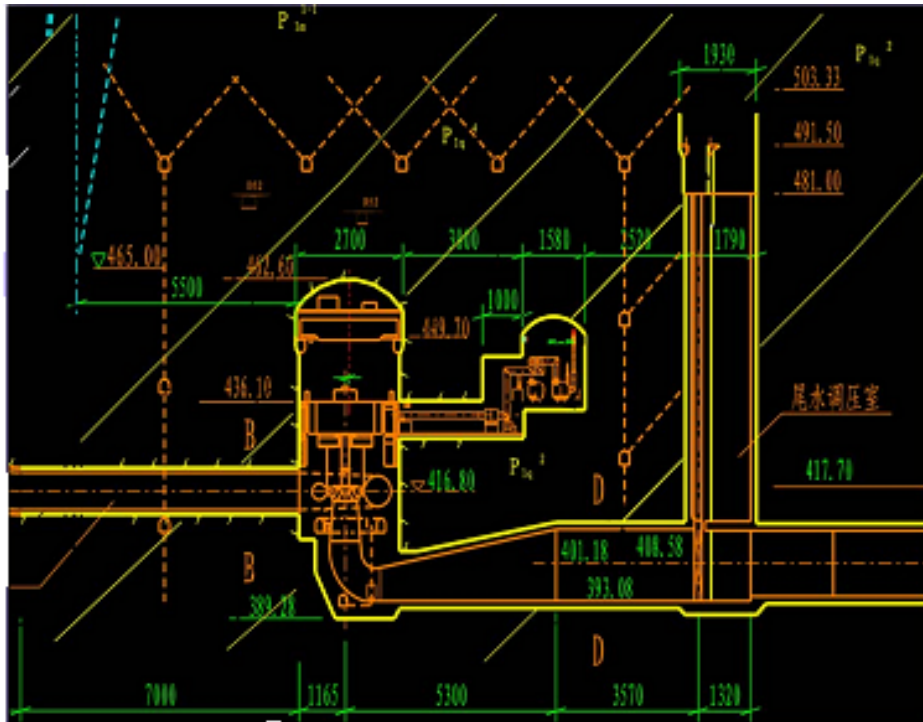
The construction of Goupitan Hydropower Project began on Nov.8<sup>th</sup> in 2003, and realized river closure on Nov. in 2004, which establish the foundation for its complement in 2009.



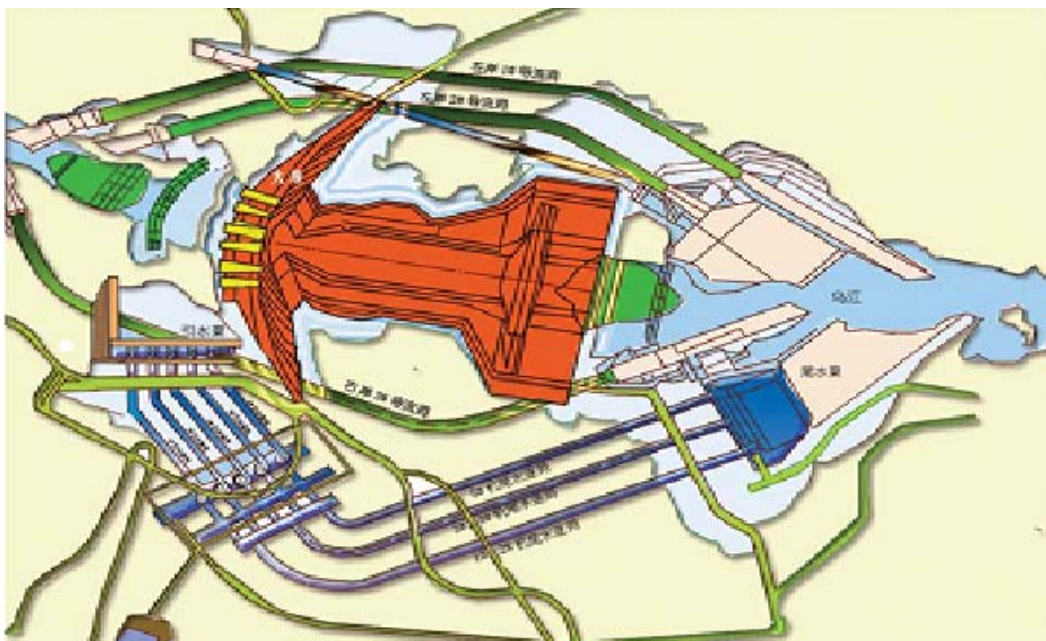
Profile of dam



Site of Wu River main reach cascade hydropower project-----Goupitan Hydropower Project



Longitudinal profile of powerhouse



Layout of Project