Xiaolangdi Multipurpose Dam Project

Main dam—typical section

Orifice tunnel profile

Power tunnel profile
The Xiaolangdi Multipurpose Dam Project is located in the mouth of the last gorge in the middle reach of the Yellow River, about 40 km north of Luoyang, Henan Province. It is a key place to control flood and sediment in the lower reach of the Yellow River. This is an extremely large multipurpose dam project oriented to such main objectives as flood control, ice control, sediment reduction, as well as irrigation, water supply and power generation. Upon completion, the project will raise the flood control level in the lower reach from the present 60 year floods to 1000 year floods, essentially relieving the lower reach from ice-jam risks. Sediment retention by making use of the dead storage will defer bed raising in the lower reach by 20-25 years. With total installed capacity of 1800MW, the long-term average output will be 5.1 GWh.

**Reservoir features**
- Total storage: 12.65 billion m$^3$
  - Among of which:
    - Flood control storage: 4.05 billion m$^3$
    - Regulation storage: 1.05 billion m$^3$
    - Sediment deposit storage: 7.55 billion m$^3$
    - Normal pool level: 275m

**Hydrological sediment features**
- Basin area upstream of dam site: 694155 km$^2$
- Long-term average flow: 1342 m$^3$/s
- Design peak flood flow, one in 1000 year flood: 40000 m$^3$/s
- Check peak flood flow, one in 10000 year flood: 52300 m$^3$/s
- Real long-term average sediment passage: 1.351 billion m$^3$
- Real maximum sediment content: 941kg/ m$^3$

**Dam features**
- Type: Rockfill dam with an inclined core
- Maximum height: 160m
- Dam crest length: 1667m
- Embankment: 50.73 million m$^3$

**Powerhouse features**
- Type: underground
- Size (L×W×H): 251×26×61m
- Installed capacity: 6×300MW
- Design water head: 112m
- Long-term average output: 5.1GWh

**Flood-discharge features**
- No. of orifice tunnels: 3
- No. of sediment tunnels: 3
- No. of free-flow tunnels: 3
- Plunge pool
- Service spillway