

Three Gorges Dam



長江三峽大壩 (Chángjiāng Sānxiá DàBà)

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CVEN 5838
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History

- Originally envisioned by Sun Yat-sen in 1919
- In 1932, the Nationalist Government began preliminary plans
- In 1944, China sent 55 engineers to the US to be trained
- Mao Zedong supported the dam construction but Gezhouba Dam had already started in 1949
- In the early 1980's, the project moved forward with planning
- Approved by the National Peoples Congress in 1992

Location

Three Gorges Dam



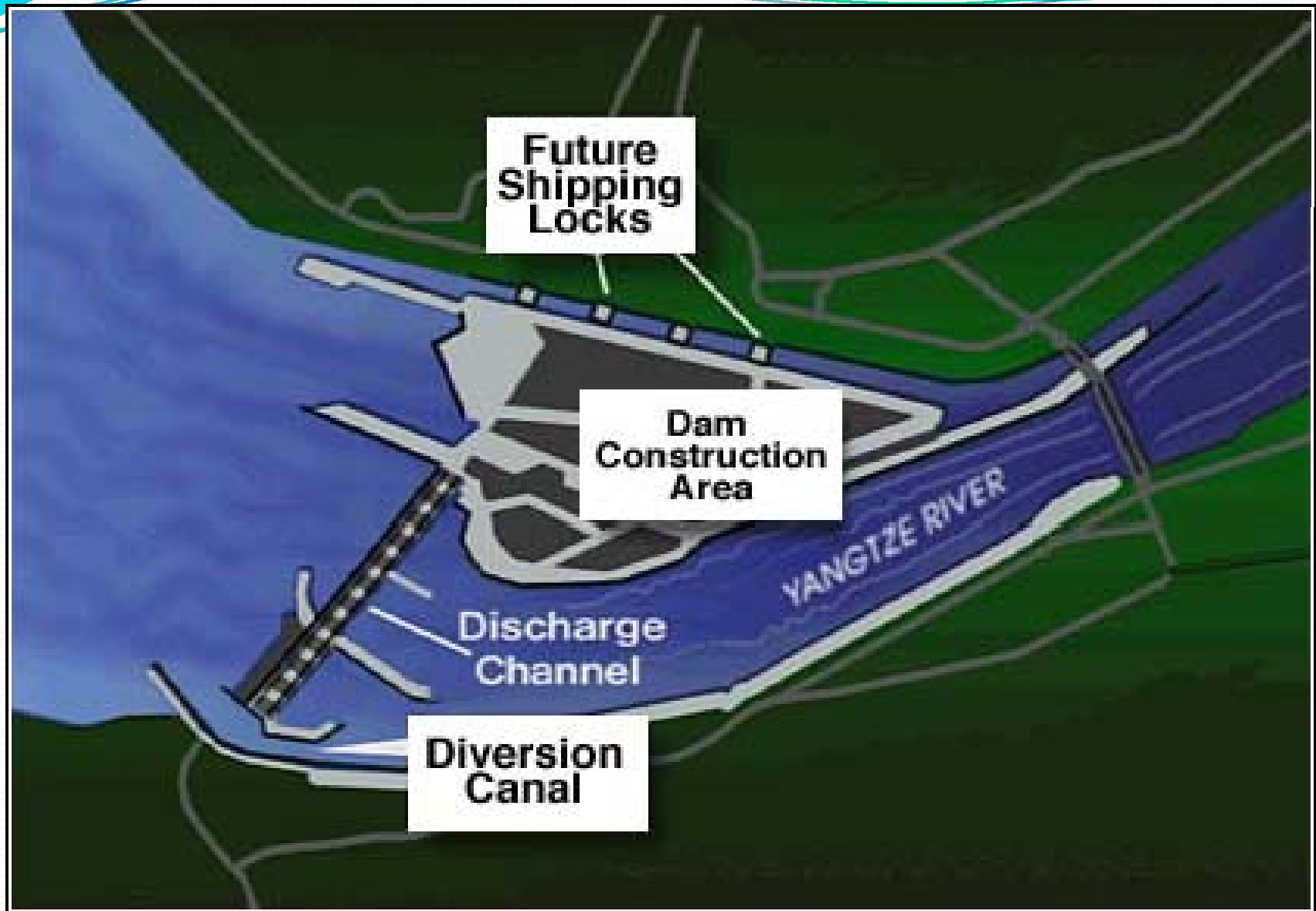
Spans the Yangtze River in Yichang, Hubei, China- 1200 miles upstream of Shanghai



Shen May 15, 2006



July 17, 2000

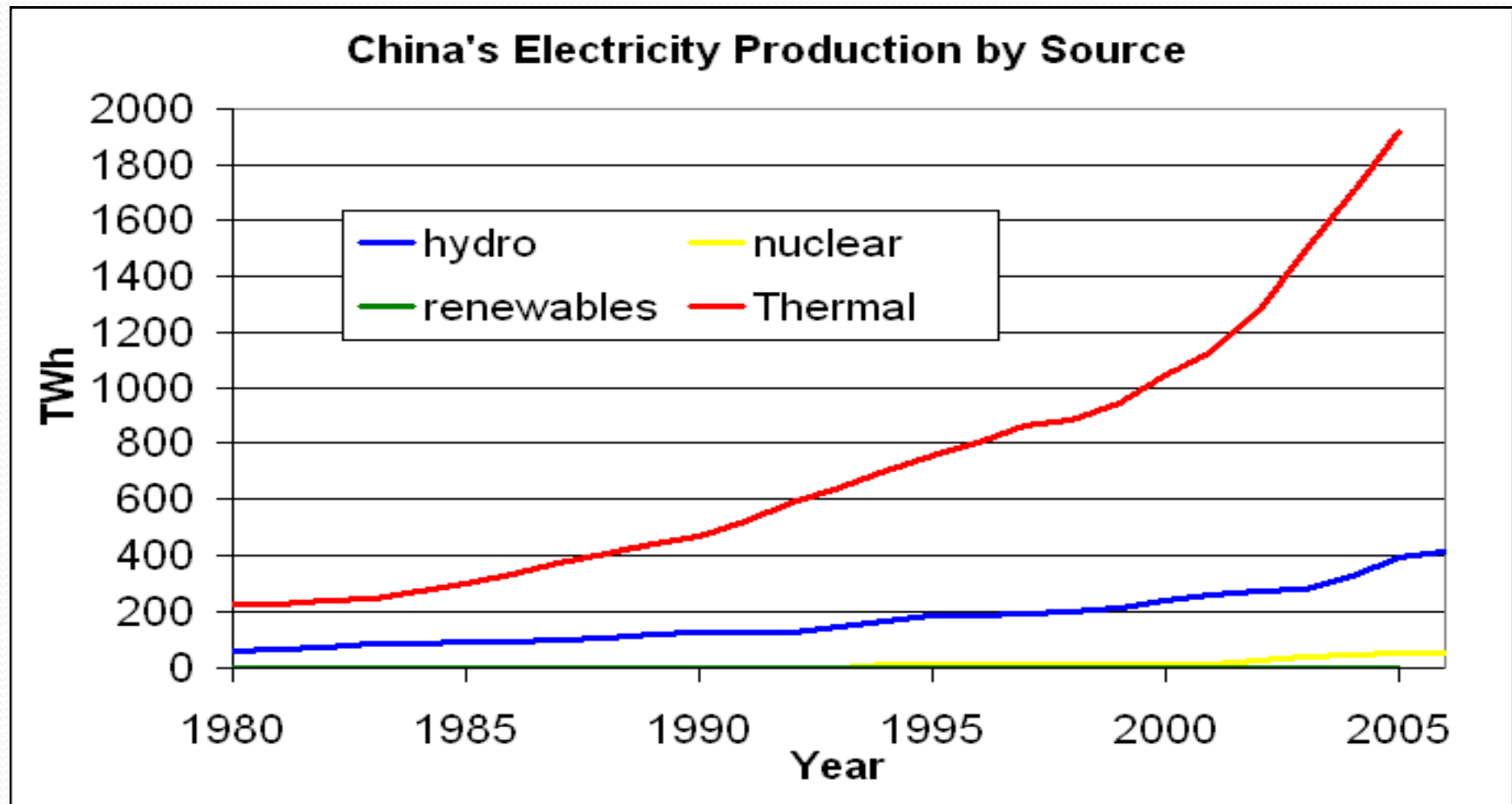




Cost and Ownership

- World largest construction project ever at a cost of \$25 billion which is \$5 billion under budget
- Will be repaid after 1000 TWh of electricity is produced- approximately 10 years of full operation
- Owned by the government and funded
 - Three Gorges Dam Construction Fund
 - Revenue from Gezhouba Dam
 - Policy Loans from China Development Bank
 - Corporate Bonds and more

Hydropower Generating Capacity



Navigation and Ship Locks

- There are 2 five stage ship locks taking 4 hours
- Increase river shipping from 10 million to 100 million tons annually
- 280m long x 35 m wide x 5 m deep
- A ship lift is being installed



Spillways and Outlet Works

- World's largest submerged spillways
- 27 spillway units each can let through the an average flow equivalent to the Missouri River
- Concerns about such high volumes and pressures causing cavitation and erosion





Dam Drawbacks and Criticisms

- 1.2 million people relocated (less than 1% of budget for relocation)
- 15 million people affected if dam collapses
- Local and cultural aesthetics destroyed
- The dam sits on a seismic fault- weight of dam and pressure of water force more seismic activity
- Sedimentation problems
- National Security concerns
- Built to show China's emergence as a technological and economic superpower



Dam Failures and Incidents

- April 2002- construction stopped due to cracks on face
- In 2003, one of the generators broke and 500,000 people were without electricity for 3 weeks
- On November 20th, 2007, a landslide occurred that crushed a bus and killed 31 people
- Numerous occurrences of political activists being arrested
- Local corruption- \$930 million of construction money went missing

Environmental Impact

- Degraded water quality
- Detriments to wildlife
- Riverbank collapse
- Submergence of factories, mines and waste dumps





Future Upstream Projects

- In order to cut down on sedimentation and control flow rates, China plans to build 4 dams upstream
 - Wudongde Dam
 - Baihetan Dam
 - Xiluodu Dam
 - Xiangjiaba Dam

An aerial photograph of a massive concrete dam under construction, stretching across a wide river valley. The dam's structure is composed of several long, parallel concrete sections with visible construction equipment and cranes on top. The water on either side is a deep blue-green. In the background, hazy mountains are visible under a clear sky. The word "XINHUA" is printed in large, bold, white capital letters in the bottom right corner of the image.

QUESTIONS?

XINHUA