China's Three Gorges Dam to Begin Flood Control With a Bang

BEIJING, China, May 29, 2006 (ENS) - The moment of truth for the world's largest dam will arrive on June 6. The main concrete wall of the Three Gorges dam on the Yangtze River must begin to hold water after a temporary cofferdam is demolished in a series of planned explosions.

The last of three cofferdams used in building the massive dam, the 140 meter (460 feet) high and 580 meter (.3 mile) long cofferdam generated power for construction crews building the main dam's right bank and served as a temporary barrier, excluding water from an area of the main dam that will soon be submerged.

The final concrete was poured for the dam's main wall on May 20, so the cofferdam is no longer needed, and preparations for the June 6 blasting operation have been completed, said a source with the China Three Gorges Project Corporation.

About 200,000 cubic meters of concrete will be removed during demolition. Explosives have been placed 35 meters (115 feet) underwater, making the blast "extremely difficult," said the company.

The cofferdam removal means the main dam is expected to begin its flood control function in time for the 2006 flood season. China's main flood season usually lasts from June to August.

The dam is planned to protect 1.5 million hectares of farmland and towns in the Jianghan Plain and Dongting Lake area from flood damage. The region is inhabited by some 15 million people.
Officials with the China Three Gorges Project Corporation say the dam was engineered to prevent 10 year floods, control 100 year floods and "even in case of a rare occurrence of 1,000 year flood, mass damages or injuries can still be prevented."

Deadly floods are a frequent occurrence along the Yangtze, China's longest and the world's third longest river, after the Nile and the Amazon. Floods have claimed more than one million lives in the past 100 years. The latest flood in 1998 claimed about 1,000 lives and caused approximately 100 billion yuan (US$12.5 billion) in economic losses.

The Three Gorges - the Qutang, Wuxia and Xiling Gorges - extend for about 200 kilometers on the upper and middle reaches of the Yangtze River.

The 185 meter (607 foot) high and 2,309 meter (1.4 mile) long dam across the middle reach of the Three Gorges is the world's largest dam of reinforced concrete, with a total of 28 million cubic meters of concrete poured.

Located in the central province of Hubei, near the town of Sandouping, the massive dam is said to have cost US$25 billion over the 17 years it has been in planning and construction.

Designed for power generation as well as flood control, when operating at full capacity, now scheduled for 2008, the project's 26 hydropower turbines are expected to produce 18.2 million kilowatts, up to one-ninth of China's output.

Compared to the coal-fired power stations with equivalent generating capacity, the Three Gorges Power Plant will decrease emission of 100 million tons of the greenhouse gas carbon dioxide, according to the China Three Gorges Project Corporation. The emission of two million tons of sulfur dioxide and 0.37 million tons of nitrogen oxides, which both contribute to acid rain, will also be prevented, company officials said.

The project includes the largest system of locks ever built, engineered to bring cargo ships 1,500 miles inland to Chongqing, the capital of the municipality carved from Sichuan province in 1997 to govern the project.
Pu Haiqing, deputy director of the State Council Three Gorges Project Construction Committee, told the official state news agency Xinhua that the completion of the dam completes just one phase of the project, and a great deal of work remains, including resettlement and environmental protection.

Now that construction of the Three Gorges dam is almost completed, an independent and transparent financial and environmental audit is needed, says Probe International, a nongovernmental organization based in Toronto that has been a persistent critic of the dam.

"To sort economic fact from fiction, China needs a comprehensive independent audit of the real costs of the Three Gorges project," says Probe International Executive Director Patricia Adams.

The energy and environmental think tank has worked for two decades with Chinese environmentalists and scholars to monitor the Three Gorges project, and led the international campaign against Canadian financing for the multibillion-dollar scheme.

"The audit should document all the revenue raised and spent building the dam," Adams says. "The project's environmental consequences and the dam-related disaster risks must also be quantified and taken fully into account."

Claims by the government and dam authorities that the Three Gorges project will cost about 200 billion yuan (US$25 billion) have never been independently verified, says Adams.

"No one knows for sure how much money has been poured into the project since construction began over a decade ago, or what costs will be paid out of the dam's electricity revenues. Nor is it clear whether the official cost estimate includes an additional six turbines in an underground powerhouse that was not part of the original project design," she says.

The same financial uncertainty applies to the Three Gorges Corporation's profits, says Adams. She points out that The Three Gorges' listed subsidiary, Yangtze Power Company, reported profits of US$417.5 million last year but those profits have not been verified by China's new power-industry regulator, the State Electricity Regulatory Commission.
factored into the price, Probe International estimates the true cost of Three Gorges power would be at least several times the government fixed price of US$0.03 per kilowatt-hour.

Adams says that any full audit of the Three Gorges project must review, "Corruption and abuses in the resettlement of more than one million people."

The audit must include "dangerous" buildup of silt in the Three Gorges Reservoir behind the dam that will flood 632 square kilometers (395 square miles) of land to create a reservoir about 644 kilometers (400 miles) long by 112 kilometers (70 miles) wide.

Adams is concerned about the impact of silt buildup on the entire project's performance and revenues.

Auditors should also consider the increased risk of earthquakes and landslides due to the presence of the reservoir, she says, as well as damage to fish stocks due to changes in river conditions and the blocking of fish migration routes.

The China Three Gorges Project Corporation says the dam will relieve the invasion of saline tide in the Yangtze River's estuary where it empties into the East China Sea near Shanghai.

Probe International says salt-water intrusion and land erosion problems in the Yangtze estuary will be increased, not relieved, by the upstream dam project.

Earlier this month, Chongqing Municipality's Kai County announced a tree planting drive to create greenbelts in the peripheral area of the reservoir, formed by the periodic variation of the shoreline. This "fluctuation" area is expected to cover 45.2 square kilometers (11,169 acres).

Last year, the county says it planted 2,533 hectares (6,260 acres) of forests around the reservoir.

For a diagram of the role of cofferdams in Three Gorges construction, visit:
http://www.britishdams.org/about_dams/3gorges.htm