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Will Fukushima Make China Reconsider Its Hydropower Boom?

Peter Bosshard

While the Three Gorges Dam was under construction, it was celebrated by China's leaders as a symbol of economic and technological progress. With a capacity of 18,200 megawatts, it is the world's biggest hydropower plant and generates about 2 percent of the country's electricity. Yet since the dam project was completed in 2008, its massive social, environmental and geological impacts have become ever more apparent. At the same time, recurrent droughts have placed a question mark over the project's expected benefits.

On May 18, China's State Council acknowledged the serious problems of the [Three Gorges Dam](#) in an unexpected [statement](#). "The project is now greatly benefiting the society in the aspects of flood prevention, power generation, river transportation and water resource utilization," the council maintained, but it has also "caused some urgent problems in terms of environmental protection, the prevention of geological hazards and the welfare of the relocated communities." On the same day, the government announced specific measures to improve the living conditions of the people displaced by the dam, protect the Yangtze's ecosystem and prevent geological disasters.



Three Gorges Dam

Chinese government officials have admitted the problems of the hydropower project on the Yangtze before. "We thought of all the possible issues," Weng Lida, the secretary general of the Yangtze River Forum, told the [Wall Street Journal](#) in August 2007. "But the problems are all more serious than we expected." Around the same time, [senior officials warned](#) that the project had caused an array of ecological problems, including more frequent landslides and pollution, which could result in an environmental "catastrophe" if preventive measures were not taken. So what is new about the State Council's recent acknowledgment? And what does it mean for China's future dam building plans?

For a few years, the massive impacts of the Three Gorges Dam appeared to dampen the Chinese government's appetite for new mega-dams. Several new projects on the Yangtze and Nu rivers were [suspended](#) in 2004 and 2009. Representatives of the country's well-connected hydropower bureaucracy complained that this period, during which fewer dams than planned were built, amounted to "[wasted years](#)."

In recent months, the imperative of limiting future greenhouse gas emissions has led to the revival of China's ambitious hydropower expansion plans. "We must proceed [with hydropower dams]," an official from the Nu Valley commented in January. "The resources here are too good; not to develop is not an option." In February, the National Energy Administration announced that under China's new Five-Year Plan, the government was going to approve no less than [140 gigawatts](#)

[of new hydropower projects](#). This amounts to more than seven Three Gorges dams and is more than any other country has built in its entire history. The energy administration indicated that new dam cascades were to be built on the Nu River, the middle and upper reaches of the Yangtze and its tributaries, and the upper Mekong.

China's National People's Congress adopted the new Five-Year Plan in March, but the plan for the energy sector is still under discussion. Opinions within the government appear to be sharply divided. Pushing back against the dam builders, a senior official in the Ministry of Environmental Protection warned that "hydropower could cause [more severe pollution](#) than coal-fired power plants" in terms of ecological impacts, resettlement problems and geological hazards.

In recent years, geological and seismic risks have appeared as a key factor in assessing the costs and benefits of Chinese hydropower projects. The fluctuating water levels of the Three Gorges reservoir have destabilized hundreds of miles of slopes along the Yangtze and [triggered massive landslides](#). Controlling this unexpectedly massive erosion will require additional investments of more than 10 billion dollars and the displacement of an additional 300,000 people.¹ The devastating earthquake of 2008 in Sichuan Province further illustrated the geological risk of building hydropower projects. The quake damaged hundreds of dams and according to scientists in China and the US, may have been triggered by [problems associated with a reservoir](#).

Most of the projects discussed under the new Five-Year Plan would be built in China's mountainous Southwestern region, which is marked by numerous active fault lines. At the invitation of environmental organizations, Sun Wenpeng and Xu Daoyi, two senior Chinese geologists, visited the [Nu Valley](#) earlier this year and investigated the region's unique tectonic formations. [They found that](#) "the tectonic movement in the Three Parallel Rivers area [of the Nu, upper Mekong and upper Yangtze] is stronger than anywhere in the world" and asked, "how can they build a cascade of dams here?" The scientists noted the frequency of strong earthquakes and massive landslides in the region, and warned that the proposed "Nu River hydropower cascade development may increase the risks of geological disasters." They submitted their findings to the Premier Wen Jiabao, who is himself a geologist by training.

The massive earthquake and tsunami in Japan, and the disaster at the Fukushima nuclear power plant, raised new questions regarding China's power sector plan. The government quickly suspended the nation's ambitious plans for future nuclear power stations, which seemed to make a further expansion of the hydropower sector all the more inevitable. Yet as the Fukushima disaster unfolded, the risks of building new dam cascades on China's Southwestern fault lines could no longer be ignored. Chinese dams already have the world's worst safety record, and the rupture of a large dam would send a tsunami of catastrophic proportions down the country's densely populated river valleys.

In April, Hu Siyi, a vice-minister of water resources, called the risk of earthquakes and other natural disasters the [biggest obstacle to dam building](#) in the country's Southwest. He acknowledged that the ability of water projects "to resist floods, earthquakes and other natural disasters has become an issue of increasing public concern." This was the hydropower bureaucracy's first recognition of the new risk factors. The recent statement by the State Council also repeatedly refers to the geological impacts of large dams.

In the past, Premier Wen Jiabao has repeatedly intervened to protect rivers from being dammed. In 2004 and 2009 he personally stopped projects on the undammed Nu River from going forward. Discussing the new Five-Year Plan, he [commented in an internet chat](#) that "we must not any longer sacrifice the environment for the sake of rapid growth and reckless [investment]." Wen Jiabao also chaired the government meeting which issued the recent statement on the Three Gorges Dam. By recalling the project's unresolved legacy, he may have sent a shot across the bow of the zealous dam builders who would happily



Nu River

ignore the lessons of past projects and the seismic risks of China's Southwestern region.

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Notes

- ¹ [Link](#).