

Dams in Distress

History

- [Print Article](#)
- [Write the Editors](#)

In 1975, over 60 dams collapsed after a rainstorm in Zhumadian city, Henan Province, causing the world's worst ever technological disaster. Recent revelations about the incident have brought scrutiny to thousands of potentially unstable dams in China

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Photos from Henan Flood
Disaster in August 1975 by
Henan Provincial Water
Resources Bureau



The flood basin, located in Xiping County, Zhumadian city
Photos from Henan Flood Disaster in August 1975 by Henan Provincial Water Resources Bureau



Post-disaster Shahedian town of Zhumadian city
Photos from Henan Flood Disaster in August 1975 by Henan Provincial Water Resources Bureau



Survivors struggle in the water
Photos from Henan Flood Disaster in August 1975 by

Henan Provincial Water Resources Bureau



A dyke is destroyed by
floodwaters Photos from
Henan Flood Disaster in
August 1975 by Henan
Provincial Water Resources
Bureau

Battered by frequent rainstorms and typhoons this summer, many flood-prone regions in China have hastened to drain their reservoirs, for fear that the dams that hold them in could burst at any moment. “In extreme weather, like storms and typhoons, dilapidated dams pose a serious safety risk,” warned Liu Ning, China’s vice-minister of water resources.

“Mostly built during the Great Leap Forward [1958-1960] and the Cultural Revolution [1966-1976], ‘risk dams’ refer to those that fall under national criteria for being vulnerable to floods or incapable of functioning as originally designed,” Xie Huiliang, a retired senior hydraulic engineer, told *NewsChina*.

According to a research project jointly conducted by the Ministry of Water Resources and the Ministry of Finance, about 200 “risk dams” collapsed in China each year between the 1950s and 1970s, the most devastating of which happened in 1975 – the Banqiao Dam disaster, in Zhumadian city, central China’s Henan Province. In 2005, the

Discovery Channel listed the Banqiao collapse as the world's largest technological disaster, alleging that 240,000 were killed.

“The Henan dam burst was no less destructive than the Tangshan earthquake in 1976 [believed to be the deadliest earthquake of the 20th century, with an estimated 242,769 killed], but few Chinese people know about it,” Chen Bin, a witness to the disaster, told *NewsChina*.

‘Dragon!’

On August 5, 1975, the year's third-largest typhoon took shape off the coast of the southern province of Fujian, moved northwest and hit Henan Province, bringing with it record rainstorms.

“Everything was hazed over by the downpour. We could not see or hear anything several steps away...flocks of birds were knocked out of the sky by huge raindrops,” said Chen.

According to meteorological statistics at the time, the precipitation over the 20,000 square kilometers of land struck by the typhoon registered 400-1,000mm between August 5 and 7, with Linzhuang village in Zhumadian city seeing the heaviest – 830mm of rain fell within six hours, roughly equivalent to the annual rainfall in an average year.

The storm quickly raised water levels of the upper reaches of the area's rivers, putting immense pressure on reservoirs and causing small dams to collapse one after another. The runaway flood poured over the broken dams and eventually struck the Zhumadian area, the site of the Banqiao Dam, one of the four largest dams in the province.

“At 9 PM, August 7, the water level was 2 centimeters below the top of the dam, but it spilled over at midnight,” records the book *Henan Flood Disaster in August 1975* by the Henan Provincial Water Resources Bureau in 2005.

“People were still trying to hold back the mounting torrents by reinforcing the dam [with sandbags]...when suddenly there was an overwhelmingly violent crash. The violent

deluge poured down through the collapsed dam,” the book continues. “Some shouted in terror that ‘the dragon’ [local slang for a flood] had arrived.”

“The disaster happened overnight. When I woke up, I found the flood water reached up to my knees,” Chen Bin told *NewsChina*. “We were lucky to have enough time to flee, while many people were drowned in their sleep.”

Chen Zhijia, who worked at the Banqiao Reservoir at the time, said it seemed as though “the world was disappearing.” “I didn’t know where I was – just floating around in the water, screams and cries ringing in my ears. Suddenly, all the voices died down, leaving me in deadly silence,” he recalled in a history program by China’s State broadcaster CCTV in 2010.

“The flood overran our village, uprooting the trees and smashing the houses to pieces. All the villagers clinging to the trees and perching on the rooftops were engulfed by the mountainous waves...I was surrounded by a vast ‘sea,’ with naked human bodies and dead animals floating by,” recalled Wu Futang from Weiwan village, in *World’s Largest Dam Burst – Zhumadian Flood in 1975*, a 2005 book by scholar Qian Gang.

Two days later, Wu Futang groped his way back to his home village, only to find heaps of ruins littered with human and animal corpses.

Henan Flood Disaster in August 1975, the government-sponsored book, records the deadly flood with stark figures. “Two large dams, Banqiao and Shimantan, plus two medium-sized and 58 small ones were broken down by the flood. Nearly 10 billion cubic meters of water created 10-meter-high waves and ravaged the whole Zhumadian area in a matter of hours. More than four million people in 30 counties were trapped in the water, with five million houses and one million animals washed away. The railway section across the area became twisted, cutting off transportation for 16 days.”

Death Toll

Despite the enormous scale of the disaster, the 1975 dam burst remained unknown to

the Chinese people at large. The catastrophe was covered up until the 1990s, when books and documents about the incident were made available to the Chinese public.

“I was told not to make any public reports about the disaster, and to keep the death toll secret,” Zhang Guangyou, a Xinhua News Agency reporter who covered the disaster, revealed in *Witnessing the 1975 Flood*, published in 2002. “My superiors did not tell me the reason until the early 1980s. According to him, the government of the time blocked the information, for fear the news could trigger public panic, and annoy Chairman Mao and Premier Zhou Enlai, both of whom were bed-ridden with serious illnesses.”

To this day, the Chinese government has never confirmed the death toll. The inscription on the memorial built on the dam site in 1987 errs on the side of ambiguity: “The flood swallowed thousands of lives.”

According to the initial statistics by the Henan provincial government in late August, 1975, 85,600 locals were killed in the disaster. Including non-locals, the death toll was “likely no more than 100,000.”

The History of Chinese Disasters by Meng Zhaohua and Peng Chuanrong revealed that over 10 million people were struck by the flood, about 100,000 of whom “were immediately washed away.” Cai Zeyi and Zhao Sixiong, two researchers from the Chinese Academy of Sciences, also gave a similar figure.

However, in the book *Floods in Chinese History* by former water resources minister Qian Zhengying, published in 2006, the death toll was given as 26,000. Though the figure was later cited by government sources as the official death toll, it has been widely questioned by the public.

“I heard Suiping County [an area seriously affected by the flood] alone lost 18,000 lives. How could the total death toll stop at 26,000?” Chen Bin questioned.

A new lead came in the 1980s, when eight members of the National Committee of the CPPCC (the Chinese People’s Political Consultative Conference), the country’s political

advisory body, gave a death toll roughly the same as that given by the Discovery Channel. In their jointly-written report, they indicated that the figure of 100,000 referred only to those who drowned, while 130,000 more died in the post-disaster epidemics and famine, though no government documents or records have ever revealed this information.

Zhang Hongcai, a medical worker with the rescue team in the Zhumadian area, described in the CCTV program how serious the epidemic was. “Piles of bodies were left in the sun, giving off an unbearable stench. Branches and poles were crawling with swarms of flies, looking like thick dark ropes from a distance,” he said.

“They (flies) were in such huge numbers that the government had to send in airplanes to spray pesticides. About 248 tons of pesticide were used,” Kong Fanbin, then rescue commander, told CCTV.

Their testimony is verified by archival records in the disaster-hit regions. For example, a government document from Suiping County revealed that 240,000 were infected with various diseases, and altogether 12,527 received treatment within nine days. A record at the health bureau of Xincai County also revealed that they found over 630,000 cases of illness from August 17 to September 15.

Who to Blame?

The Banqiao Dam was built in 1951, the year after Chairman Mao called for dams to be built to tame the disaster-prone Huaihe River, which flows through Henan Province.

Zhumadian city had built more than 100 new dams between 1956 and 1957. However, since the government placed far more importance on capacity than discharging, many dams were built below the designed standard of flood prevention, according to Chen Xing, the former general engineer of the Henan Provincial Water Resources Bureau. He revealed in his memoir that the local government made repeated efforts to reduce the number of vents on the sluice gates in order to enlarge the reservoir's capacity.

“Some attributed the dam burst to the delay in opening the sluice gates to release the flood water. But I did three tests and found that even if we had released the water in time, the flood-relief channels alone were not enough to discharge all the water,” Huang Mingshuan, then head of the hydrological station of the Banqiao Reservoir, told *Southern Metropolis Weekly* in 2010.

“The dams built in the 1950s usually adopted the low Soviet standards of flood prevention, and due to the lack of hydrogeological data, it was hard for the designers to correctly foresee the flood risks in the region where a dam was to be built,” explained Xie Huiliang, the senior hydraulic engineer.

“Worse still, the over-exploitation of land for the Great Leap Forward campaign had seriously damaged the vegetation, further weakening the bases of the dams,” he added.

According to statistics from the Ministry of Water Resources in 2003, China had built over 84,000 dams between 1949 and 1999, among which over 30,000 are unsafe. Today, perched over more than 400 cities and counties, they remain a threat to 150 million people.