

Moving Water: By Land and by Air

by Mike Billington

March 5—China’s water problem is in one sense the opposite of that in the United States. In North America, the northwest regions of Alaska and Canada’s far west receive an abundance of precipitation, while the U.S. southwest and northern Mexico are water-starved. It is the opposite in China—the southeast region in the Yangtze River basin has abundant fresh water resources, while the northeast, which holds a large portion of the nation’s population, industry, and arable land, is desperately short of water.

But the big difference is that China is dealing with this imbalance, by moving water from the south to the north, while the United States has done nothing to resolve its problem, and thus suffers periodic droughts, resulting in recurring economic and social disasters. The North American Water and Power Alliance (NAWAPA), promoted by President Kennedy, would have moved Alaskan water south to the West and Southwest of the United States, and into northern

Mexico—it would have been the largest infrastructure program ever undertaken by mankind. But like most large-scale scientific and infrastructural projects in the United States, NAWAPA died with JFK and his brother.

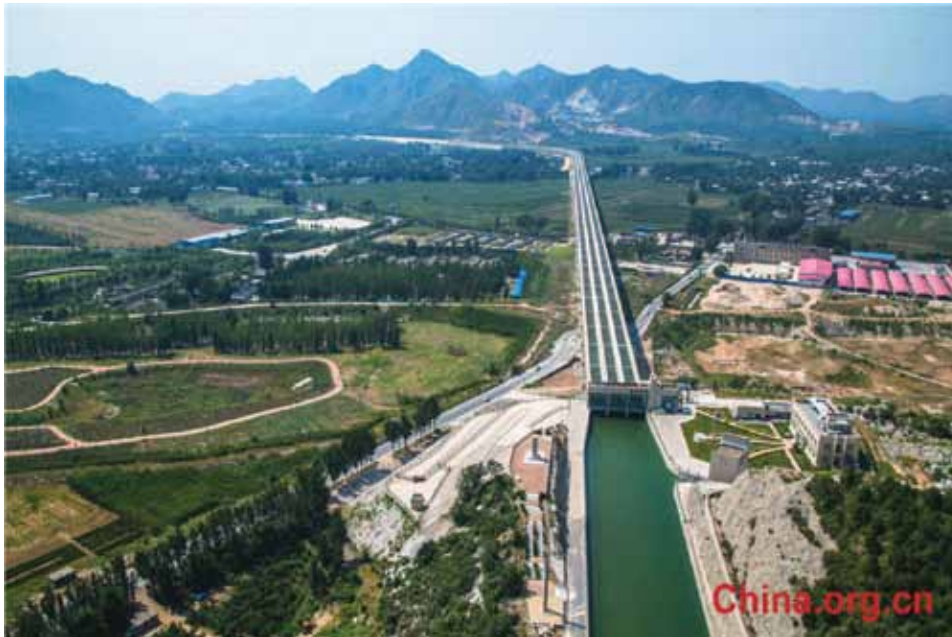
China, on the other hand, has unleashed the most massive water-moving program in human history, which is already partially in service and doing its job on behalf of current and future generations. The South-North Water Transfer Project (SNWTP) is China’s multi-pronged Great Project to move water from the Yangtze River in the South to the Yellow River region in the North. Mao Zedong set in motion a feasibility study for such a project during a tour of the Yellow River region in 1952. It took 50 years until the plan was launched in 2002.

There are three canal routes which, when completed, will together move 44 cubic km/yr of water to the North. For comparison, the Yangtze discharges on



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Central route starting-point Taocha in Xichuan County, Nanyang, Henan Province. Looking “upstream,” toward the Danjiangkou Reservoir.



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The Caohe River Aqueduct.

average nearly 1,000 cu. km/yr into the East China Sea, while the Yellow River's average is only 8 cu. km/yr. The severity of the water crisis in Beijing, with a population of 24.9 million in its metropolitan area, is such that the huge amount of water to be transferred by the SNWTP will only meet about one third of the need for this rapidly growing region. Other means, including massive desalination plants, are also being developed.

The total combined length of the planned canals, is nearly 4,350 km, the approximate distance from New York to Los Angeles. The three routes are:

- The *Eastern Route* which follows the ancient Beijing-Hangzhou Grand Canal route, was built between the 5th Century BC and the 6th Century AD to carry grain from the South to the North. When completed, the Eastern Route will deliver 14.8 cu. km/yr of water

from the Yangtze River, near its point of discharge into the East China Sea, north to Tianjin, 108 km southeast of Beijing. The Eastern Route was partially opened in December 2013. Pumping stations move the water along the uphill route, while a tunnel carries the water under the Yellow River, and from there, an aqueduct carries the water to reservoirs near Tianjin.

- The *Central Route*, completed in December 2014, moves water from the Han River tributary of the Yangtze, from a reservoir at Danjiangkou in Hubei Province, to the capital of Beijing

and nearby Tianjin. The existing dam at Danjiangkou was raised by 13 meters, allowing the water to flow downhill into the canal, and then flow through the 1,400

South-North Water Diversion Project



Sources: Chinese Ministry of Water Resources; futuretimeline.net; Will Post

km route to Beijing entirely by gravity. This is the longest canal in the world, although the planned canal to move water from the Congo River to replenish Lake Chad in the African Sahel, will be still longer, at 2,500 km. (A feasibility study for the Lake Chad project is being conducted by Italy's Bonifica SpA and China's PowerChina: see article, page 6.)

The initial flow through the Central Route provides 9.5 cu. km to Beijing annually, but this will increase to 13 cu. km by 2030. Twin tunnels carry the water under the Yellow River. About 330,000 people were resettled from the region of the expanded Danjiangkou Reservoir and from along the route of the canal. A "green belt" is being built along the entire route to reduce pollution from local industry and agriculture. There is also a tentative plan to move water from the Three Gorges Dam Reservoir by canal to the Danjiangkou Reservoir, to increase the flow northwards without undermining the industries and agriculture which depend on the water of the Han River.

- The *Western Route* will consist of three canals moving water from the headwaters of the Yangtze in the Qinghai-Tibetan Plateau and western Yunnan Plateau, to the headwaters of the Yellow River. Crossing the divide between these two watersheds in this mountainous region will be a huge engineering feat, which is still in the planning stage. When completed, these canals will transfer 17 cu. km of water to the Yellow River, expanding its flow to the Yellow Sea.

The Qinghai-Tibetan Plateau is known as *Sanjiangyuan*, i.e. "The Source of Three Rivers" (the Yangtze, the Yellow, and the Mekong). Also originating in southwestern China are the Brahmaputra and the Salween. Plans have been sketched out to transfer water to the North from the headwaters of the



The Danjiangkou Dam in Hubei Province.

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The head of the middle route of the South-North Water Diversion Project.

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The exit of the Qilihe Canal Inverted Siphon Project.

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The Xiheishan flow division gate.



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The Longquan Bridge in Shijiazhuang, capital city of Hebei Province.



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The landscape bridge in Xingtai, Hebei Province.

three rivers which flow out from China—the Mekong, the Brahmaputra, and the Salween—which flow through India, Bangladesh, Myanmar, Laos, Thailand and Vietnam. But these are long-term plans at best, and would require agreement from the other nations. The completed Central Route is an engineering miracle—one of many miracles which are becoming common occurrences these days in China. Its water passes through tunnels dug under four rivers, and over the Caohe River Aqueduct in Henan Province, which is one of the “longest and most sophisticated ever built,” according to a CCTV report. The water enters Beijing through a 9-km tunnel flowing 15 stories below ground, before finally being pumped into a new reservoir near the Summer Palace.

New Miracles in the Works

Two other projects are in the planning stages which can be considered part of the South-North transfer project. One is the Tianhe (Heavenly River) Project. Wang Guangqian, the president of Qinghai University and a member of the Chinese Academy of Sciences, is leading a team studying means of moving water in the atmospheric boundary layer and the troposphere, from above the headwaters of the Yangtze, north toward the headwaters of the Yellow River, and then provoking precipitation. The process is expected to move 5 cu. km of water into the North via the Yellow River annually.

A 45-minute video presentation titled “[China’s ‘Heavenly River,’ the Future of Water](#),” by the LaRouche PAC science team, is available.

A second project is directed at the vast arid regions of the far west of China, in the Xinjiang Uyghur Autonomous Region. The idea is to build a series of tunnels and waterfalls, bringing water from the Qinghai-Tibetan Plateau to Xinjiang. The engineers working on the project call it the “Turning Xinjiang into



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Water tunnel of 600 km, under construction in Yunnan, is part of a pilot project to test technical capabilities to construct the Tibet-Xinjiang tunnel.

California Project.” Central California, once a desert, became America’s breadbasket when the Central Valley Project, launched under Franklin Roosevelt in 1933, moved water from northern California to the San Joaquin Valley.

The proposed project would transfer water from the

Yarlung Tsangpo River in Tibet (known as the “water tower of Asia”), through a series of tunnels and manmade waterfalls, to green part of the Taklamakan Desert in Xinjiang. The project would require large dams and pumping stations as well as tunnels, and would pose huge engineering challenges, as well as a huge cost. A water diversion project currently underway in Yunnan Province, which includes a 600 km tunnel, is seen as a demonstration project “to show we have the brains, muscle and tools to build super-long tunnels in hazardous terrain—and the cost doesn’t break the bank,” said Zhang Chuan-qing at the Chinese Academy of Sciences’ Institute of Rock and Soil Mechanics.

A plan for the Tibet-Xinjiang tunnel project was submitted to the central government in March 2017. A team of over 100 scientists did the planning.

Videos of the central route can be seen at: <https://www.youtube.com/watch?v=7s5UungzXhw> and <https://www.youtube.com/watch?v=oBhAqvbcpgE&t=16s>



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The Shunping section of China’s South-North Water Diversion Project.