

Water consumption

A canal too far

The world's biggest water-diversion project will do little to alleviate water scarcity

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THREE years ago the residents of Hualiba village in central China's Henan province were moved 10km (six miles) from their homes into squat, yellow houses far from any source of work or their newly allocated fields. These days only the very young and very old live there. Close to their old farms, a giant concrete canal now cuts a swathe. From October 31st the channel will gush with water flowing from China's lush south to the parched north.



The new waterway is part of the biggest water-diversion scheme in the world: the second arm of what is known as the South-North Water Diversion Project. This is designed to solve an age-old imbalance. The north of China has only a fifth of the country's naturally available fresh water but two-thirds of the farmland. The problem has grown in recent decades because of rapid urban growth and heavy pollution of scarce water supplies.

The result is a chronic shortage. The World Bank defines water scarcity as less than 1,000 cubic metres (35,300 cubic feet) of fresh water per person per year. Eleven of China's 31 provinces are dryer than this. Each Beijing resident has only 145 cubic metres a year of available fresh water. In 2009 the government said that nearly half the water in seven main rivers in China was unfit for human consumption. All this has encouraged ever greater use of groundwater. Much of this is now polluted too.

In 1952 Mao Zedong suggested the north could "borrow" water from the south. After his death China's economic boom boosted demand for such a scheme and provided the cash to enable it. In 2002 the diversion project got under way. An initial phase was completed last year. This involved deepening and broadening the existing Grand Canal, which was built some 1,400 years ago, to take 14.8 billion cubic metres of water a year more than 1,100km northward from the

Yangzi river basin towards the port city of Tianjin.

In late October the second, far more ambitious and costly route is due to open. This new watercourse, over a decade in the making, will push 13 billion cubic metres of water more than 1,200km from the Danjiangkou dam in the central province of Hubei to the capital, Beijing. The aim is to allow industry and agriculture to keep functioning; already in 2008 Beijing started pumping in emergency supplies from its neighbouring province, Hebei. The new canal will help avert an imminent crisis. But the gap between water supply and demand will remain large and keep growing.

The transfer will supply about a third of Beijing's annual demand. A spur of the canal will provide an even greater proportion of Tianjin's. But these shares will shrink over time. Even if people use less water, population growth, the expansion of cities and industrialisation will increase China's overall demand. By lubricating further water-intensive growth the current project may even end up exacerbating water stress in the north.

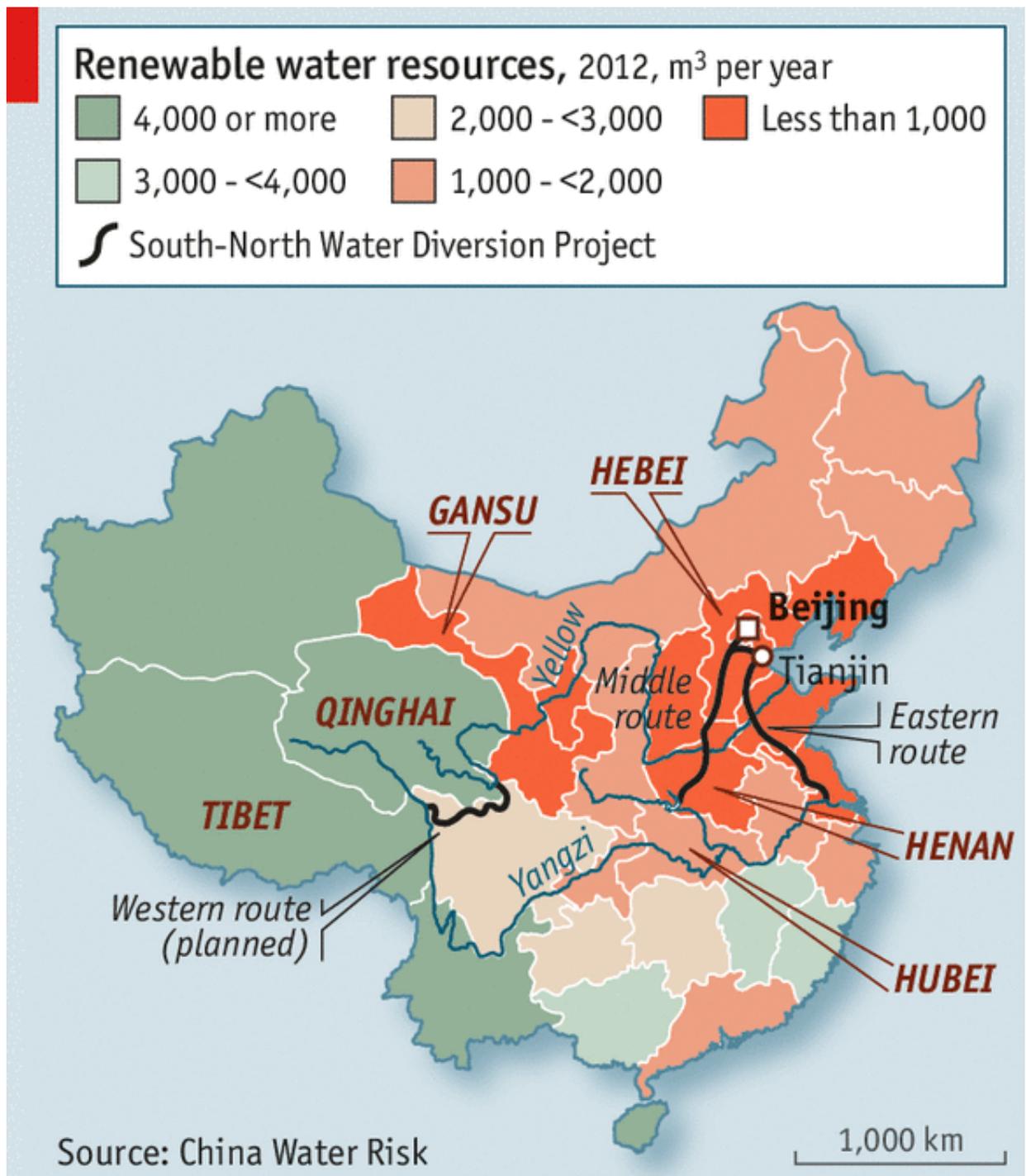
Shifting billions of cubic metres across the country has caused huge disruption. The government says it has moved 330,000 people to make way for the central route. Laixiang Sun of the University of Maryland in America reckons the number uprooted is at least half a million. There will also be health and environmental costs. Diverting river-water northward could promote the spread of diseases common in the south, particularly schistosomiasis, a debilitating snail-borne disease. Reduced flow in the Yangzi may make coastal water supplies vulnerable to intrusion by seawater and increase the potential for drought.

The financial cost is also high. Mr Sun puts the cost of the project at more than \$62 billion—far higher than the original \$15 billion price tag. His estimate does not include the running of the project or the building of 13 new water-treatment plants to clean the water.

By increasing supply, the government is failing to confront the real source of the problem: high demand for water and inefficient use of it. Chinese industry uses ten times more water per unit of production than the average in industrialised countries, according to a report by the World Bank in 2009. A big reason for this is that water in China is far too cheap. In May 2014 Beijing introduced a new system that makes tap water more expensive the more people use. But prices are still far from market levels. Officials turn a blind eye to widespread extraction of un-tariffed groundwater by city dwellers and farmers, despite plummeting groundwater levels.

Raising the price would cut demand and encourage more efficient use. It should also help lure industry away from water-scarce areas where prices would be set at higher rates. Arid areas that are forced by the government to pipe water into desiccated cities like Beijing could offset their losses by charging higher tariffs.

Yet
such



solutions make officials nervous. They do not want to scare industries away from cities by charging them more for water. They also do not want to face angry protests by residents. Hence they prefer shifting water around in pipes and canals. Britt Crow-Miller of Portland State University describes the diversion project as “a physical demonstration of political power”. In Henan giant billboards make this clear: they call on locals to support the project “to bring the capital clean water and blue skies”. No reciprocal signs ask Beijingers to thank their southern comrades.

In the absence of any grand plan to cut demand, the government will need to keep the water flowing north. This makes it more likely that a third part of the diversion project might one day

go ahead. This would deploy tricky engineering at great altitude to transfer water from the headwaters of the Yangzi to the upper reaches of the Yellow river across the Tibetan plateau. Such a massive project would still not solve the problem. But it might keep water flowing for a few years more—and in China politics is thicker than water.

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