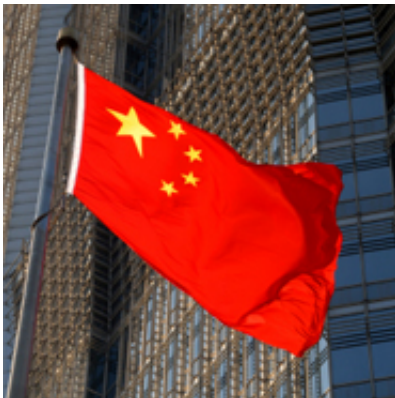


# China's water stress set to worsen with transfer initiatives

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New research paints a grim picture for the future of China's water supply, as its booming economy continues to heap pressure on its natural resources, according to scientists at the University of East Anglia (UEA), the University of Leeds and other international institutions.

Research published today in the *Proceedings of the National Academy of Sciences* (PNAS) compiles for the first time a full inventory of physical [water](#) transfers and 'virtual' water redistribution via trade between China's provinces.

The study determined that water stress is only partially mitigated by China's current two-pronged approach: physical water transfers to water-

depleted regions, including the major South-North water transfer projects, or the 'virtual' water embodied in traded products between regions and countries.

Moreover, the efforts are exacerbating [water stress](#) for China's poorer water-exporting regions, with virtual water transfers accounting for more than one-third of the country's national water supply. Up to 65 per cent of the water supply in some provinces is earmarked for [virtual water](#) redistribution, to be used for infrastructure and for producing exports.

Until China significantly improves its water use efficiency and addresses the impact its expanding economy is having on its natural resources, the situation will continue to deteriorate, the researchers conclude.

An international effort led by the Beijing Forestry University (China), UEA and Leeds (UK) and the University of Maryland (US), the research analyses data from 2007 and looks ahead to China's water distribution plans in 2030.

Water stress is likely to become more severe in the main water-exporting provinces, based on policy initiatives aimed at boosting development in wealthier regions to meet consumption demands.

Prof Dabo Guan of UEA's School of International Development said: "China needs to shift its focus to water demand management instead of a supply oriented approach if it is going to seriously address the overwhelming pressures on its water supplies.

"China's current transfer programme is pouring good water after bad: the problems of water-stressed regions aren't being alleviated and the provinces sharing their water are suffering greatly."

Prof Guan, professor in climate change economics, together with his

colleague, Prof Martin Tillotson of Leeds, published research in 2014 showing 75 per cent of China's lakes and rivers and 50 per cent of its groundwater supplies are contaminated, the result of urban household consumption, export of goods and services and infrastructure investment.

Prof Tillotson, chair in water management and director of water@leeds, said: "Even allowing for future efficiency gains in agricultural and industrial water consumption, China's water transfers are likely to be insufficient to offset increased demand due to the effects of economic and population growth.

"A much greater focus needs to be placed on regulating or incentivising reductions in demand-led consumption."

**More information:** 'Physical and virtual water transfers for regional water stress alleviation in China' is published in *Proceedings of the National Academy of Sciences (PNAS)* on January 12, 2015.

[www.pnas.org/cgi/doi/10.1073/pnas.1404130112](http://www.pnas.org/cgi/doi/10.1073/pnas.1404130112)

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