



China Begins To Get Serious About Water Conservation

By Christina Larson

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Where there's a will, there might be a way. And when it comes to conserving water – or any natural resource – motivation is an essential, if not sufficient, ingredient in making progress. Over the last three years, China's central government has become much more attuned to the challenge of saving water, a scarce resource in the vast country. It remains to be seen how effectively new water-efficiency policies will be implemented, but it's clear that China's top leaders are finally coming to recognize that water, like energy before it, should be regulated and used wisely in order to sustain economic growth. That, at least, is a reason for optimism.

It's not hard to find vivid past examples of water shortages, often exacerbated by careless management, in China. For several years in the late 1990s, the Yellow River failed to reach the sea, wreaking havoc on agricultural irrigation in eastern Shandong province where China's Mother River usually spills out into the sea. The reason, according to Kang Yaohu, Director of the Chinese Academy of Sciences' Key Lab of Water Cycle and Related Land Surface Processes in Beijing, was partly "less precipitation" in those years and partly "unmanaged increases" in water withdrawals for agriculture and industry. Another example: in 2012 China's Ministry of Land and Resources reported that unsustainable extraction of groundwater has led to the ground literally sinking beneath 50 major cities, including Shanghai, otherwise a glittering example of modernity.

China is at a natural disadvantage when it comes to water management. While the global average per capita water availability is 7,100 cubic meters, China's availability per capita sits at just 2,100 cubic meters. In parts of northern China, the situation is even more dire, with just 454 cubic meters per person in regions near the Yellow River Basin, according to Christine Boyle, founder of Blue Horizon Insight and a frequent advisor to the World Bank on China's water management. As China's urban population swells, with an estimated 250 million more people moving into Chinese cities by 2030, the demand on that precious water resource is expected to increase.

While the challenge is significant, it's not going ignored. Over last three years, China's authorities have turned "unprecedented" policy attention to water conservation and water-use efficiency, says Kang. Related targets have been incorporated into China's major policy documents – including the current 12th Five Year Plan; 2011's Planning Document Number 1; and the National Integrated Water Resources Plan for 2010-2030, prepared by the Ministry of Water Resources and endorsed last year by the State Council. Ecologists and environmentalists in China are cautiously optimistic about the new spotlight on water savings.

The first time water-use efficiency showed up as a "major focus" in China's high-level planning

documents was in 2011, explains Junguo Liu of Beijing Forestry University; that year, the annual Planning Document Number 1 was dedicated to rural agricultural modernization. According to the 2010 Statistical Yearbook, the agricultural sector is the leading consumer of water in China, slurping up 62 percent of water used annually. (Next is industry at 23 percent; followed by municipal and household water use at 12.5 percent.) However, only about half the water withdrawn for agriculture actually makes it to the field, with the rest evaporating from open-air channels, siphoned off illegally for other purposes, or wasted through inefficient irrigation methods. "A lot of older equipment" for irrigation "wastes too much water," says Liu.

China's current 12th Five Year Plan (covering 2011-2015) marked a notable shift from previous years, which had focused almost exclusively on economic growth – the new plan also stressed the theme of scientific development. It set targets for reducing polluting agricultural runoff, as well as a goal of increasing irrigation water-use efficiency by 11 percent. Together, these two policies lay out "the ambitious aim of overhauling China's irrigation works completely in the next ten years," says Boyle. And this time, the policy-making seems more serious than aspirational. "For the first time, the government also put in place financing mechanisms instead of just stating goals," Boyle adds.

Most recently, China's Ministry of Water Resources prepared a plan, endorsed by the State Council last year, to govern the use of water in China through 2030. It notably articulated a set of "red lines," or key limits. The first was to cap total water use at 700 billion cubic meters per year by 2030, which the ministry determined as the maximum sustainable level. (It's still 16 percent more than the nearly 600 billion cubic meters China consumed in 2009.) The second was to increase the water-use efficiency of the agricultural sector so that at least 60 percent of water withdrawn reaches the field – and to cut by two-thirds industrial water usage per unit of industrial GDP by 2030. The third target pertains to improving water quality and rates of wastewater treatment. To implement these goals, the government created regional water allocation plans for China's seven

major river basins. The State Council approved the first of these watershed plans late last year, and the final one this March.

There are already examples of localities that have made progress in improving water-use efficiency. Take Tianjin, a large city near Beijing on the dry northern China plain, for example. According to Beijing Forestry University Junguo Liu's research, the local government worked successfully with farmers in surrounding regions to improve agricultural water-use efficiency (how much water reaches the field) from 57 percent to 63 percent between 2005 and 2008. He sees such progress in a short period as an encouraging sign.

In order for the new policy goals to have broad impact, there must be transparent implementation and public oversight, argues Ma Jun, a former environmental journalist who now directs the nonprofit Institute of Public and Environmental Affairs in Beijing. "In principle, they're all very important," says Ma. He cautions, however, "in reality, we have to pay attention to what happens after policies are passed." He believes future large infrastructure projects, such as power plants or refineries, should be evaluated on the basis on their expected water impacts. Yet he also acknowledges that, at present, existing requirements for environmental impact assessments meant to ensure other kinds of ecological red lines aren't crossed "are not functioning well in China – it's often a sheer formality. Fundamentally, China needs more environmental checks and balances."

Meanwhile, in addition to top-down interest in water conservation, there are also examples of private sector actors in China taking steps to save drops, often for financial reasons. On a recent tour of small-and medium-size factories in southern Guangdong province, several factory managers expressed interest in using water, energy, and raw materials more efficiently – to offset rising labor costs and slimmer profit margins (demand from the West, especially Europe, hasn't recovered to pre-2008 levels). For instance, Circle Furniture is a small manufacturer in Guangdong whose products retails at J.C. Penney and other overseas retailers. The factory has just moved out of high-rent Shenzhen to the inland city of Huizhou, to save costs. "The land is our own, and we pay no rent," says co-owner Lisa Deng. Water is used in preparing paints and also in prepping wood and metal to be painted and finished. At the new factory, Deng and her husband and co-owner Bruce Lee have installed equipment for treating and reusing water. "Not just one time use," says Deng. "It's more efficient to recycle."

To get private companies on board with policy goals, aligning economic incentives with official targets is especially important. Rick Dlinn, a longtime supply-chain consultant at Sourcing Solutions in New Mexico, has worked with factories in Asia since the 1970s. As "compliance [with new labor and environmental standards] has moved to the forefront over the last 15 years," Dlinn says positive change is possible if Chinese business owners are "convinced that at every step they do will add value to their business." Fortunately, some are already discovering, as Circle Furniture has, that it can be more convenient to conserve than to waste.

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