



Why China Needs New Institutions to Cope with Looming Water Scarcity

Scott Michel Moore, University of Pennsylvania

Few places in the world are facing such acute scarcity of water as is northern China, the region surrounding the nation's capital in Beijing. Over the past three decades, rapid economic development and population growth have caused a dramatic water shortage in the region. Groundwater tables have dropped so precipitously that in some places wells cannot be dug deep enough to reach water. Climate change is making rainfall more unpredictable, further darkening the picture for a region that is vital to both the Chinese and world economies. This brief looks at the so-far inadequate responses of the Chinese government and makes the case that new institutions are needed to allow China to meet this growing challenge.

What China is Currently Doing

Two major policies constitute the Chinese government's response to growing water scarcity in the north, but growing demand for water is rendering them inadequate.

- Through its **Yellow River Water Quantity Allocation Plan** China's central government imposes water use quotas for each of the province-level units that rely on the Yellow River. However, because of growing demands for urban drinking water and energy production, provincial water use regularly exceeds the limits set out in the plan.
- Building on the success of similar initiatives in countries like Australia, the Chinese government has established pilot **water rights trading** programs that assign water use rights to farmers and enterprises and facilitate trading of those rights to encourage overall conservation. However, these complex programs remain in an experimental phase, and Chinese administrative officials are having trouble carrying them out effectively.

Planned Responses

In addition to these initiatives, Beijing has launched two nation-wide projects expected to address water scarcity in northern China as well as in other parts of the country – bold and gargantuan efforts that must surmount enormous implementation challenges.

- Through the **South-North Water Transfer Project**, an endeavor initially envisioned by Mao Tse-tung, China is investing an estimated 65 billion U.S. dollars to build three giant canals intended to eventually pump some 45 cubic kilometers of water per year from the water-rich south to the parched north. But pollution issues and increasing pressure on water resources in the southern regions themselves raise difficult questions about the viability of this project.

- First announced in 2011, the **Three Red Lines** policy establishes national standards for water quality and water-use efficiency, and would place a “hard cap” on total national water use of 700 billion cubic meters annually by 2030. No other country in the world has sought to cap total national water use in this manner, and it remains unclear how China would implement and enforce such a difficult and unprecedented policy.

The High – and Serious Consequences – of Failure

The Chinese government’s current and planned responses to water scarcity in northern China not only face high individual risks of failure, but also depend on effective integration across policy domains. If they fail or fall apart, as seems likely, these efforts could actually make water scarcity much worse. The stakes are high, in short, because of several well-documented risks:

- **Over-emphasis on grandiose technological solutions.** The South-North Water Transfer Project is an extremely expensive and disruptive solution to the problem of water supply and scarcity in northern China. From an economic point of view, the Chinese government would do better to invest in conservation measures and water pricing reforms.
- **Inadequate rule of law.** Market-based policy reforms meant to mitigate water scarcity – reforms such as the introduction of water rights trading – are regularly undermined by the known weaknesses of legal norms and administrative bodies in China. Plagued by corruption and capacity issues, these official bodies often prove unable to fairly assign rights to use water and protect the rights of various water users.
- **Central-local conflicts.** Despite the authoritarian character of Chinese government, central officials in Beijing often have difficulty implementing and overseeing policies that must be carried through at lower levels of government. The career prospects of provincial government leaders depend largely on facilitating economic growth in their regions, so these officials at present have little incentive to invest in long-term, sustainable solutions to water scarcity.

The Acute Need to Develop New Institutions

Institutional reform is, in short, essential if China is to meet the challenge of current and projected future water scarcity. This is especially true if the country aspires to carry through nation-wide efforts like the South-North Water Transfer Project and the Three Red Lines policy.

Fortunately, there is an established model to build upon. In 2007, China established the National Leading Committee on Climate Change to coordinate the country’s climate and energy policy, with all major government agencies represented. This approach has demonstrated the country’s capacity to tackle systemic, environmentally-related development issues. Creating a similar body to coordinate water resource management efforts could help to raise the profile of water scarcity as an issue that China’s bureaucracies and lower-level governments must jointly address. This approach could also temper the fondness of the Ministry of Water Resources for inflexible engineering and regulatory approaches, rather than market-based solutions. Like its sister body for climate change, a National Leading Committee on Water Scarcity could provide an authoritative venue for working out flexible plans and new administrative incentives to address one of the

most pressing challenges to sustainable development in China.

Read more in Scott Moore, "Hydropolitics in China: The Pursuit of Localized Preferences in a Centralized System." *The China Quarterly* (2014).