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# Could water markets encourage collaboration and reduce conflict?

Markets are not the solution to all water problems but offer an example of the innovation needed for sustainable management

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From the drought-afflicted US south-west to parched northern China, major water users continue on their unsustainable path. Photograph: Zhang Haiyan/Xinhua Press/Corbis

This week an estimated 3,000 water professionals convened in Stockholm for World Water Week. The theme of the conference – inspired by the UN General Assembly, which declared 2013 International Year of Water Co-operation – was "water co-operation and building partnerships".

The choice of theme highlights a fundamental challenge for the water sector: its practitioners have limited control over its performance.

The water sector only manages the underlying natural infrastructure in a particular place – the rivers, lakes, and groundwater that nature provides. We can build supply infrastructure, such as reservoirs and distribution networks, but because water is heavy, it is almost invariably uneconomic to move it very far in large quantities.

Aside from marginal technologies like desalination – far too expensive outside specific uses such as municipal supply – freshwater availability is fundamentally controlled by nature. All that the water sector can do is manage it, for the purposes of storing and allocating it across users.

By comparison, solutions to the world's energy problems are largely based on choices in the hands of the energy sector. For example, choices of feedstock that are either

traded on the global markets, such as gas, coal, oil, nuclear, biomass for example, or free and inexhaustible, like wind and sunlight. So the energy sector has significant degrees of freedom to adjust its supply, by making technology choices, the cost of which can be passed on to users.

In water, it is users, rather than suppliers, that for the most part control outcomes. For example, irrigated agriculture accounts for over 70% of withdrawals of water from nature and more than 90% of its consumption. Reducing agricultural consumption is almost entirely in the hands of farmers, through choice of crop and farming practices.

Hence, the acute need for co-operation. Of course, the hard problem is not realising that we need co-operation; it is finding out how to achieve it. Unfortunately the conference in Stockholm was not teeming with farmers, despite being among the principal actors whose co-operation is needed.

Meanwhile from the south-west of the United States to the parched regions of northern China, major water users across economies continue on their current unsustainable path. And at the end of this path is the proverbial cliff. Clearly, relying only on voluntary co-operation is akin to relying on voluntary taxation: hardly a reliable route to sustainability.

But there are some interesting solutions out there. In 1994 the state of Victoria, Australia, established its first water market. Soon after it was extended to the entire Murray-Darling basin, creating the largest market for water entitlements in the world.

There is always a risk of being misunderstood when talking about markets in water. This is not about "privatising water", which typically refers to a water utility context, nor is it about giving the private sector control of a basic human right. A market, in this context, is an institution created by government to facilitate the allocation of water. In essence, the public continues to control the water through overall allocation, but its access – the entitlement to use it for economic purposes – is traded among users.

While Australia suffered the most dramatic drought of any developed country between 2003 and 2012, with a drop in rainfall of up to 70%, the existence of its water market helped to soften the blow to agriculture significantly in the Murray-Darling. Through the market, water was dynamically allocated to the most productive water users: somebody with water but less productive crops still earned a living by not wasting water, selling it to farmers who were able to make the most of it. The market created a mechanism to avoid conflict and encourage collaboration, albeit of a different kind. Furthermore, the transparent pricing of water revealed the value of improving irrigation systems to increase future efficiency and profitability of the farms in the region.

Trading water can also help meet environmental objectives. The 1,450-mile Colorado River provides water to more than 33 million people and 4m acres of farmland. However, demands on the river have caused it to run dry before it can reach the sea at its delta in Mexico's Gulf of California. A year ago, my colleagues worked with a number of other stakeholders in the south-west US and Mexico to purchase access to water for the purposes of flushing the dried up delta, thus reconnecting the river to the sea. This effort is part of a new bi-national agreement between Mexico and the United States, which will allow the US to maintain more water during years of drought and Mexico to store more water north of the border during wetter years.

But, this type of co-operation has yet to crack through at scale. Markets are far from a solution to all problems, nor are they appropriate for all situations. However, they

demonstrate the level of institutional innovation required to shift the world to a more sustainable path for water.

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