City water planners are finding it increasingly difficult to secure additional water supplies in many water-short regions. Although overall water use in the United States has been relatively stable since the 1980s, urban water demands—driven by population growth and expanding economic production—continue to rise in many cities, outstripping gains in water use efficiency and other demand-management strategies. The ability to acquire new water supplies by purchasing permanent water rights or leasing water on a temporary basis is providing new options for city water planners in some parts of the world, including the western United States. By purchasing or leasing water rights, many cities have been able to avoid or postpone investments in more expensive or complicated water supply options such as long-distance water importation, water reuse, or desalination.

The ability to buy or sell water rights does not exist everywhere, but as water becomes increasingly scarce around the globe, many governments are moving toward water-rights systems that may provide opportunities for water trading in the future—i.e.,
the establishment of a water market. This article presents a brief overview of the regulatory systems and policies that generally help to facilitate water trading and highlights some of the potential benefits and pitfalls of water markets.

What is a Water Market?

As with most other markets, a water market involves the sale or purchase of a commodity; in this case, the commodity being traded is the right to use a specified volume of water. This does not mean that the actual water itself is being bought or sold; instead, what is being traded is a right, permit, or entitlement to use a specified volume of water. Those rights to use water are issued by government entities, such as a state government; the government retains ownership of the water, held in the public interest. The right to use water takes on many of the characteristics of a property right, but it is a right to use, not an ownership of, the water.

This is a subtle but important distinction because many critics of water markets erroneously assume that purchased water can be used without restriction, in any way that the purchaser cares to use it, such as by hoarding it, shipping it around the world, or drying up the water source. The government entities issuing rights to use water will almost always place conditions or restrictions on the use of the water, and can revoke a water right if those conditions are violated. This provides governments with the means to protect their citizens or the environment against adverse consequences, such as by prohibiting the export of purchased water out of the basin of origin or limiting how much water can be consumptively used from a water source. In this manner, some portion of the available water can be reserved or allocated for social priorities such as ensuring that every citizen has reasonable access to water for basic needs, supplying schools or hospitals or parks with water, or protecting the ecologic health of freshwater ecosystems.

A water market brings together willing buyers and sellers of water rights. Buyers are looking for the right to use more water, and sellers are willing to trade some of their water rights for monetary compensation. In some places, such as Australia, water markets function much like a stock exchange: willing sellers advertise their water for sale or lease on an Internet bulletin board at a specified price. The parties involved in water trading typically include representatives from city water utilities, energy-generating facilities, irrigation districts or individual farmers, manufacturers, or conservation organizations.

There is no real need or benefit to be gained from the establishment of a water market in many parts of the world where water is still plentiful and users can readily access what they need. In fact, in many places the use of water does not even require a permit or right because there is no need to regulate its use. However, when water is scarce and many individuals or entities are
competing for the use of a limited supply, a water market can provide some significant benefits. Before further discussing those benefits as well as some potential pitfalls, a couple of important prerequisites need to be clarified.

Essential prerequisites for water markets. First and most important, the rights to use water must be clearly defined and quantified so that each water user understands how much water he or she is entitled to use. When the volume of the use rights held by each water user is quantified, it creates the possibility of trading—i.e., a water right can be bought, sold, or leased in whole or in part.

Additionally, some type of limit must be placed on the total volume of water that can be extracted from the water source by all users. Without such a limit or cap on water consumption, the water source can eventually be depleted to the extent that the certainty or reliability of all water rights is jeopardized, thereby compromising their value and discouraging trade. When water extraction is capped, a water market can function in a manner akin to cap-and-trade systems.

To illustrate this point, consider the fact that in the United States most states require some type of permit for drilling a groundwater well. Those permits—if they specify how much water each pumper is allowed to extract—might form the basis of a groundwater market in which individual permit holders could sell or lease their groundwater permit. However, if the total volume of groundwater extraction from the source aquifer is not limited or capped and aggregate groundwater pumping exceeds the aquifer’s natural recharge rate, the groundwater level will be lowered to the point that it is no longer economically feasible for groundwater users to extract it (consider the Ogallala Aquifer, for example). Their groundwater permits would at that point become essentially useless and without value.

If, on the other hand, the total volume of pumping were to be capped at a level that prevents declines in groundwater levels, all groundwater permits would be secured, and potential buyers of the permits would feel secure in knowing that the volume of water being purchased would continue to be available in the future. Those potential buyers might be new parties coming into the area and seeking to use groundwater, or they may be existing users wanting to expand the volume of their pumping. The buyers are willing to pay other pumpers to sell a portion of or their entire groundwater permit. This situation gives rise to a water market: some parties need water and are willing to pay for it, and other parties are willing to take monetary compensation for using less water.

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