

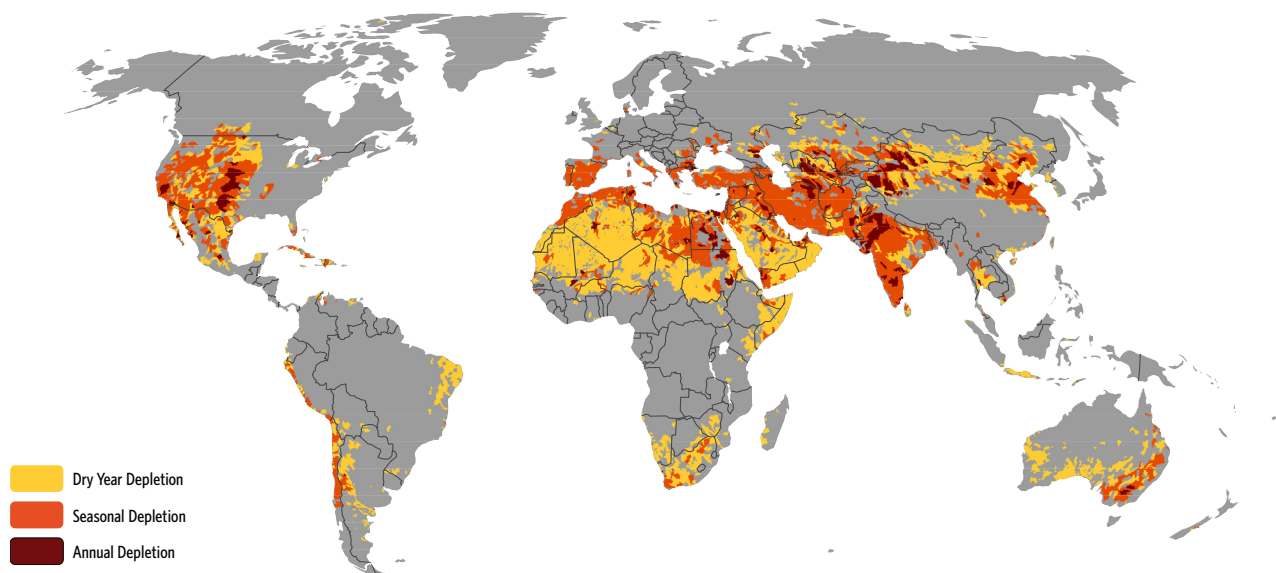
# Investing in Our Water Future

## A Role for Impact Investment in Water Security

As water scarcity spreads and intensifies around the world, water markets—which create incentives for improved water efficiency by establishing water’s unique value as an asset—are emerging as a viable approach to managing water supplies more sustainably and productively. Community water trusts utilize the framework provided by water markets to help rebalance water use for the benefit of freshwater ecosystems and underserved communities while continuing to support the agricultural communities whose livelihoods rely on this important resource. By becoming an active participant in the water markets, community water trusts are also able to capitalize on the underlying financial appreciation of water as an asset. This value proposition, combined with the strong environmental and ecological returns of the model, has attracted the interest and support of private sector investors.

### Global Water Scarcity

Around the world, communities, businesses and ecosystems are running out of water. More than half of the world’s cities and three-fourths of all irrigated farms are experiencing water shortages on a recurring basis with damaging economic consequences. Freshwater species are disappearing as their habitats are dried-up by water extractions.



**Figure 1.** This map highlights water sources (rivers and aquifers) that are being heavily depleted by water use, thereby placing communities and freshwater ecosystems at risk of water shortages. Annual depletion means that the renewable water supply is regularly depleted by more than 75 percent. Seasonal depletion means that heavy depletion occurs only in certain months. Dry year depletion means that water shortages occur only during drier years or droughts. (from Brauman et al. 2015<sup>1</sup>)

### How did we get into this mess?

The simplest answer is that we have not been able to balance our water use with the available water supply in many places. Water shortages result when water demands are allowed to grow beyond the limits of the reliable, affordable water supply. Some water user communities are chronically exhausting their available water supplies year after year. Others do so only during drier years or droughts (Figure 1). Regardless of their frequency, water shortages are causing widespread and severe economic and ecological damage.

A number of factors have led to this precarious situation, but one is paramount.

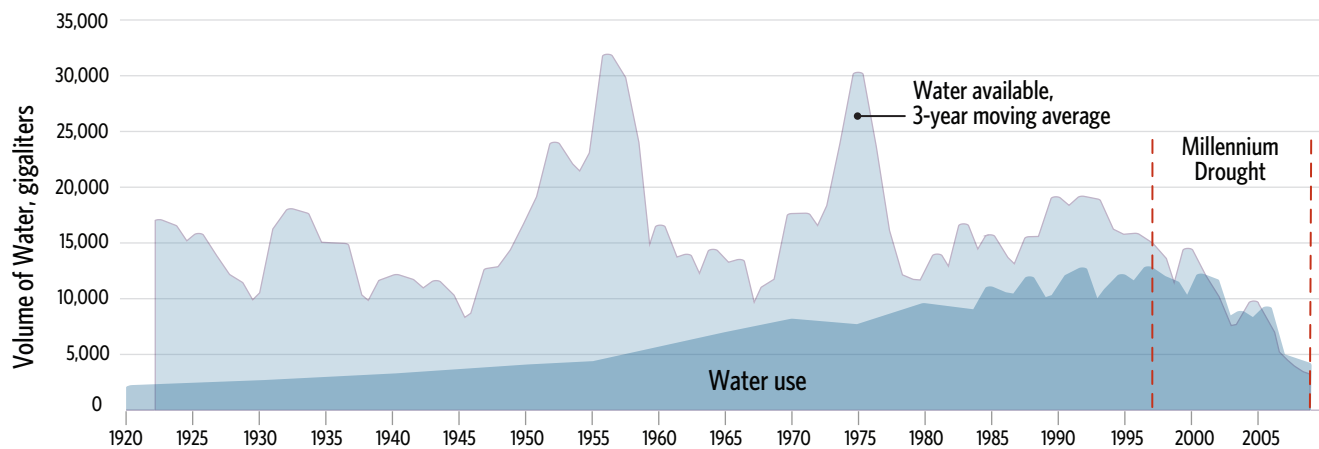
<sup>1</sup> “Water Depletion: Seasonal and drought-related water scarcity poses risks to food security and urban water supplies” by Kate A Brauman, Brian Richter, Sandra Postel, Marcus Malsy, and Martina Floerke. *Science Magazine*, in review, 2015.



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## The Risk of Over-Allocating Water Supplies

In many places around the world, governmental authorities have allowed water use to rise to dangerously high levels (e.g., Figure 2) relative to available water supply. In regions where water access is governed by the issuance of water use permits or rights, authorities have in many cases over-allocated those rights relative to available water supplies. Few governments have recognized the need to reserve some water from allocation to sustain the ecological health of freshwater ecosystems.



**Figure 2.** This graph shows water use in the Murray-Darling Basin of Australia relative to available water supply. Water use rose steadily until the Millennium Drought set in during the mid-1990s. During that decade-long drought, water use declined abruptly because there was insufficient water available to meet the needs of irrigators in the basin, resulting in a sharp drop in agricultural production and widespread economic losses. Ecological damage became apparent decades earlier when water use began to approach the limits of water availability, leaving insufficient water for freshwater ecosystems. (Data provided by Murray Darling Basin Authority and Commonwealth Scientific and Industrial Research Organisation)

Over-allocation of water supplies creates risks that many water users do not well understand, most notably the risk that a secure flow of water may not be guaranteed even in the near future. These risks are frequently not taken into account when a farmer, manufacturer or city water utility manager makes plans, investments and commitments assuming they will have access to a certain, reliable supply of water. Very few water users understand the probabilities of coming up short and, therefore, find themselves in a situation where, unable to reduce their water use sufficiently to meet declining supply, they must invest increasingly large sums of money into securing adequate water resources for future use. Unsurprisingly, this scenario can have disastrous consequences for both nature and vulnerable communities as dwindling resources frequently end up in the hands of those able to pay to improve their access to them.

New policies and new ways of managing water are urgently needed to protect water user communities and freshwater ecosystems as the frequency of water shortages increases.

## A New Way Forward: Cap and Trade

To secure our water future, water use must be managed such that it remains well within the limits of water availability and adequate water is left in freshwater ecosystems to support their health and productivity.

Historically, most efforts to balance water supply and demand focused exclusively on securing supply such as building reservoirs, importing water from other water basins or building desalination plants. However, these water supply options are becoming increasingly costly, time-consuming and politically contentious in many water-scarce regions, driving water managers and political leaders to take a closer look at other strategies to meet urgent water needs.

Fortunately, some innovative ideas and valuable lessons are emerging from Australia and other countries that point to some promising ways forward. Two principles for managing water demands and facilitating water sharing are proving to be instrumental:

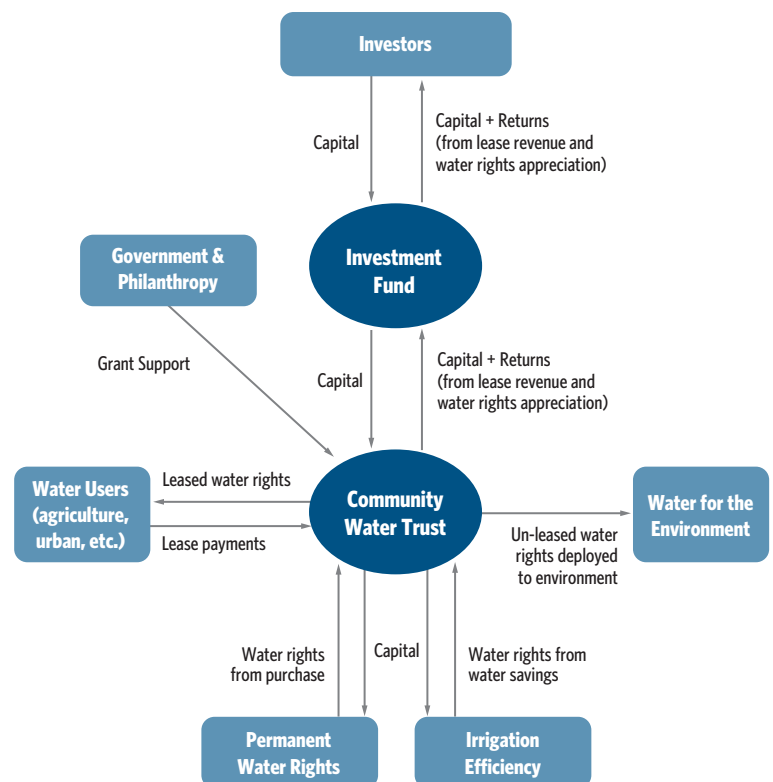
- Establish a Cap.** Setting a limit (cap) on the total volume of water that can be consumed from each water source (river, lake or aquifer) greatly reduces the risk of over-allocation and ecological collapse while providing water users with a clear line of sight to their future water availability, thereby enabling them to better manage their water supplies. In Australia, a new cap was set in 2007 at a level averaging 20 percent lower than water use levels of the 1990s with the specific intention of reserving sufficient environmental flows.
- Facilitate an Active Water Market.** Enabling the easy and efficient transfer (trade) of water rights from one user to another allows market participants to effectively allocate the water amongst themselves, transferring water to those who demand it most in a given year. This also allows more efficient water users to profit from their water savings while providing the opportunity for water to be secured on behalf of the environment. Water market reforms that removed hindrances to water trading have greatly aided the ability for farmers to share water during dry times in the Murray-Darling Basin. Additionally, the Commonwealth Government of Australia appropriated more than US\$10 billion to secure water rights across the Basin on behalf of the environment.

As a result of these policy and management reforms, water users in the Murray-Darling Basin are much less vulnerable to water shortages, and freshwater ecosystems are rebounding with restored water flows.

## Community Water Trusts: A Catalytic Intervention

The Nature Conservancy is now advancing a new institutional arrangement that can help communities and governments move toward increased sustainability in water use based on the principles outlined above. Generically referred to as community water trusts, the purpose of these novel institutions is to help ensure that freshwater ecosystems, underserved individuals and communities, and existing agricultural communities can benefit from sustainable water use in balance. The mission of these community water trusts is not to supplant the water management responsibilities of governments, but, instead, to serve as an accelerant to encourage and stimulate governments to refine the regulatory environment in which water markets operate by adopting the cap and trade principles outlined above.

The financial opportunity presented by an investment in water in a system with well-defined water rights will attract private investors looking to diversify their investment portfolios while also generating an environmental and social return. This new source of funding for critical environmental and social outcomes will not only provide the opportunity to meaningfully increase the impact footprint of the projects, it may also motivate targeted and more efficient regulatory change.



**Figure 3.** The flow of money and water as managed by the Murray-Darling Basin community water trust.

Community water trusts will achieve these environmental and social goals by acquiring a portfolio of water rights and then managing the portfolio each year to accomplish targeted outcomes as illustrated in Figure 3.

- Water rights are acquired either through direct purchase from willing sellers, or by helping farmers to irrigate more efficiently, with agreement that the water rights no longer needed by farmers will be transferred to the trust. These actions serve to reduce overall water consumption.
- Funding for the water rights acquisition and the trust's operations is provided by private capital (including impact investors<sup>2</sup>), and can be supported by philanthropic donations and/or government grants.
- A portion of the acquired water rights portfolio is used to restore degraded freshwater ecosystems. In some instances, this simply involves leaving water in the river instead of diverting it, but sometimes it requires moving water into floodplain areas or wetlands using pumps, pipes and ditches. The volume and timing of water restoration is based on scientific prescriptions, and ecological results are monitored carefully to facilitate adaptive management of environmental water.
- The remaining portion of the water is leased back to water users, helping to generate financial returns to investors and ensuring that a large portion of the water remains in the hands of the agricultural community.

### Launching a Community Water Trust in the Murray-Darling Basin

The Nature Conservancy, in partnership with the Murray Darling Wetlands Working Group (a local non-governmental organization), is preparing to launch its first community water trust in Australia.

Current projections indicate that the trust will be able to restore more than 40,000 acres (16,000 hectares) of wetlands over the coming decade to the great benefit of people, frogs, fish, turtles and waterfowl. Most of these floodplain wetlands have received no inundation for decades because large water storage reservoirs in the basin now capture the flood flows that would have spilled onto floodplains and into wetland areas. Because many of the targeted wetland sites are located on Aboriginal cultural lands, the environmental watering efforts of the trust will restore key cultural and spiritual lands held by this underserved community. These environmental watering projects of the trust will supplement the important environmental restoration efforts being undertaken by state and federal governments in Australia.

Each year, the water rights portfolio held by the trust will be traded on a counter-cyclical basis. When water is scarce and demand is higher, more water is made available to agriculture through leasing. Conversely, when water is abundant and agricultural demand is lower, more water is made available to wetlands. This cycle is consistent with natural rhythms of wetland inundation which occurs only during wetter years. This strategy also ensures that agricultural communities continue to have access to sufficient water resources when they need it.

The water trading activities of the trust will help advance improved water use efficiency and water productivity. By creating an opportunity to trade water rights, farmers are motivated to save water so they can sell the unused portion of their rights. In turn, the availability of lease water from the trust during critically dry periods will help farmers avoid water shortages.

The trust offers an attractive opportunity for investors interested in earning financial returns while also enabling important social and environmental outcomes. In addition to generating financial returns, the trust's trading strategy provides sufficient annual funding to ensure ongoing environmental watering and monitoring activities without the need for philanthropic support.

For more information about community water trusts and associated investment opportunities, please contact Lauren Ferstandig (lferstandig@tnc.org) or Brian Richter (brichter@tnc.org).

<sup>2</sup> "Impact investors" is a distinction used to recognize investors that are willing to take a more modest return on their investments when their money is being used for social or environmental benefits.



*The Rockefeller Foundation is supporting development of the community water trust concept.*



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