Book Review

A Path Forward for Water

By Andrew Ayres
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_liquid Asset_ examines how the public and private sectors can better collaborate on our society’s pressing water problems.

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The American West is struggling to maintain its river systems, with water diversions for applied uses having strained their ecology. Both public institutions and private entities have tried, separately and in tandem, to address the problem.

The Western Rivers Conservancy is a nonprofit that purchases land and water rights for conservation. The conservancy—whose motto is “Sometimes to save a river, you have to buy it”—has restored waterways throughout 11 Western states for more than two decades. Funding comes in part from philanthropic donations but also from state budgets. The nonprofit’s staff builds relationships and negotiates contracts—areas where they tend to have a comparative advantage over public institutions because they can structure deals more flexibly, have specialized experience with contracts, and do not have conflicting regulatory relationships with landowners. The land and water assets they acquire are then often transferred to state or federal agencies, which have the managerial capacity to ensure that the resources continue to provide environmental and ecological benefits for years to come.

Such complementarity between private and public institutions warrants attention. Until relatively recently, scholars often viewed the public and private sectors as substitutes for managing natural resources. But in _Liquid Asset: How Business and Government Can Partner to Solve the Freshwater Crisis_, Barton H. Thompson Jr. argues that greater involvement of the private sector in water management can amplify success in tackling a host of water issues, from the degraded conditions of rivers to the technical, managerial, and financing issues that arise in providing water for irrigation and drinking. Thompson, the Robert E. Paradise Professor of Natural Resources Law at Stanford University, presents _Liquid Asset_ as both “a story of the unique contributions that the private sector can bring” to water management and “an investigation of how far governments can trust the private sector.”

He recommends regulatory and organizational reforms to encourage greater private involvement and advises businesses to engage in self-examination about how to dive into the political world of water. Together, these changes can advance both private and public interests in effective, sustainable water management.

Thompson acknowledges that private sector engagement in water management is not new. Investor-owned utilities are not uncommon, and the influence of consultants, philanthropic organizations, and nonprofits—which Thompson collectively describes as “a critical but often invisible segment of the private water sector”—has grown over time. While major infrastructure projects of the past—think of the Hoover Dam—were undertaken by governments, we are long past the emergence of a large private sector influence in water. Against this backdrop, Thompson focuses on where this engagement grows, becomes more effective, and helps to solve both old and new problems.

Thompson focuses on major ongoing water problems that managers and policy makers must address, including the reliable provision of quality drinking water, ecosystem health, groundwater overdraft, and infrastructure development and maintenance. For example, water users turn to groundwater as a buffer supply when drought hits, but the practice becomes unsustainable if they pump more water in dry years than is replenished in wet years. The temptation to meet demand through such overdraft has historically been “simply too great to resist,” Thompson says, and represents one of the greatest lingering challenges for water management. He also observes that conditions around these problems are not static. For example, the traditional dividing line between the United States’ arid West and humid East was the 100th meridian, but, as Thompson notes, it “has moved east to around the 98th meridian.” Climate change will alter the timing and reliability of water supplies and increase demand, complicating the path forward for water users and managers.

Thompson identifies four areas where private actors can facilitate solutions to these problems: technological innovation, water marketing, private infrastructure financing, and water data and analytics. The private sector in water is diverse, and engagement will vary. Some businesses, especially engineering firms, provide services to the water sector directly and are able to drive technological innovation by integrating it into their services or recommending it to clients. Others that rely on water as an input—like food and beverage companies—have a stake in supporting long-term, sustainable solutions such as improved measurement tools and water markets.

The finance industry has a long history of supporting large-scale water projects (e.g., flood control and irrigation infrastructure), and _Liquid Asset_ details how it is adapting to meet new challenges—for example, by offering more tailored products and risk-sharing agreements.

But greater public-private coordination faces barriers. First, Thompson explains that a history of water management via “an incumbent and historically conservative public sector that views itself as a trustee of the public interest” makes for difficult inroads for private actors. Bureaucrats are often reluctant to shake things up, since,
he argues, “successful innovation offers little upside to managers, particularly when managers are wrestling with short-term budgets and priorities and when the innovation’s payoff is in the future.” The highly political nature of water management, he adds, means that taking even well-understood risks can “lead to managers losing their jobs.”

Examples from water marketing support Thompson’s argument: Innovative drought-time transfer proposals between local agencies in California’s Central Valley—intended to move water from one area to another that is experiencing acute scarcity—have sometimes run into roadblocks from locals concerned about the environmental and economic effects of selling water. Board members for public agencies have faced not just public pushback but also lawsuits and campaigns to remove them from their positions. Water marketers face high transaction costs in approval processes administered by often risk-averse state or federal officials.

A further barrier is the geographically fragmented landscape of water management. As Thompson notes, “90 percent of Americans receive water from one of approximately 152,000 [drinking water] supply systems.” This fragmentation also occurs in agricultural settings, as well as flood- and stormwater control jurisdictions. It constrains economies of scale—in particular, Thompson writes, “many public water agencies are neither sufficiently large nor financially viable enough to be effective”—and increases transaction costs, making it harder to organize for solutions and for firms to market products. Finally, Thompson argues that difficulties in raising water prices, due to both political and legal constraints, hamper funding for needed innovation.

Taking steps to improve the prospects for private engagement is imperative, since both ongoing and looming water-management challenges will require innovation, flexibility, efficiency, and financing. Thompson offers several recommendations to help water-management institutions better accommodate public-private collaboration, including targeted public sector reforms, judicious regulatory adjustments, and clearer operating guidelines for private entities engaging in water. Specifically, he suggests consolidating existing management systems and increasing flexibility in water marketing. Today, many small systems “are often unable to replace their aging infrastructure,” Thompson says, so consolidation could provide for greater reliability and opportunities for innovation by expanding revenues and financing capacity. Additionally, some current water marketing rules constrain trade to protect various interests, and, the overall impact, Thompson argues, has been that these rules, despite sometimes “furnishing important protections, [have] historically been far costlier than needed, discouraging valuable trades.”

Thompson’s portrayal of these barriers and solutions draws on relevant research and stakeholders. But while he acknowledges that climate change is accentuating existing problems, he could go further in explaining how adaptation will benefit from effective collaboration between public and private entities. Climate change will stress existing institutions by, among other things, increasing uncertainty, variability, and risk. Here, the benefits of public-private collaboration are especially salient.

For example, as droughts become more frequent and severe, sustainably managing groundwater—a crucial buffer against drought—will become paramount for all water users. Thompson describes an essential tool in this effort: managed aquifer recharge (MAR), which involves intentionally diverting surface water during wet times into groundwater storage using recharge basins, injection wells, and other means. Because MAR “is cheaper, safer, and less environmentally damaging” than surface storage, it “is a crucial method for ensuring sustainable water management in the West.” In the past, MAR was undertaken largely by governments, but the frontier is in decentralized systems that leverage private know-how and resources to get water in the ground where doing so is easiest—and most valuable.

Thompson lays out several reasons that private entities need to be careful when recharging (e.g., because it can affect groundwater quality), but he could go further in explaining the challenges that government agencies will face in supporting change. Regulators will need to permit projects more quickly, create more secure rights to water for recharge, and, in some cases, allow for more flexibility in how water rights are exercised and administered than was previously possible. These changes involve crafting clear yet flexible rules on how much water can be recharged, where, using which methods, and so on. Such change can be difficult for regulators, partially due to risk aversion and partially due to legal and administrative constraints. Yet achieving the necessary certain and flexibility will be critical not just for ensuring that private capital can invest in MAR but also for planning with confidence for long-term groundwater sustainability in an increasingly uncertain climate.

Overcoming future water challenges will require significant change, but such reform has proven difficult. The public tends to distrust private actors managing one of society’s most valuable natural resources and yet, at the same time, often believes that government needs to get out of the way. In contrast, Thompson’s Liquid Asset outlines the logic of beneficial collaboration between private and public. Some proposed changes are tweaks (e.g., reforming water-marketing rules), while others are grander (e.g., consolidation of management agencies). For both the large and the small, Thompson charts a path forward that is useful for scholars, leaders, and policy makers.

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