The Business of Water: Market Environmentalism in the Water Sector

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Abstract

This article reviews the literature relevant to market environmentalism in the water sector, focusing on five themes: the privatization of resource ownership and management, the commercialization of resource management organizations, the environmental valuation and pricing of resources, the marketization of trading and exchange mechanisms, and the liberalization of governance. For each dimension, the discussion addresses a topic of contemporary academic interest (and policy and political relevance): privatization and protest, the contradictions of commercialization, the distinction between environmental valuation and commodification, the multiplication of modes of marketization, and the limits to the liberalization of environmental governance. Specific attention is given to unresolved questions and tensions in the debate over market environmentalism, particularly the tension between human rights and environmental rights and among state, market, and community roles in water management.

Keywords

water, commercialization, governance, management, markets, market environmentalism, liberalization, pricing, valuation
INTRODUCTION

The past few decades have witnessed a rapid increase in the development of markets and the involvement of businesses in resource management and environmental governance across a broad range of resource sectors: water, wetlands, forestry, fisheries, and atmospheric carbon (1–3). A diverse set of processes has been deployed by a range of actors: Private companies and nongovernmental organizations have assumed more significant roles in ownership, management, and certification; market-based trading mechanisms, incentives, and regulatory instruments have been developed and tested by governments and nongovernmental actors; and the concept of environmental services has become widespread. Taken together, these trends represent significant—and controversial—shifts in our approach to water management, which are linked to broader trends in environmental governance (such as globalization, decentralization, and cross-scale governance) (4).

As explored in this review, controversy surrounding these trends, grouped under the label of market environmentalism, has been sustained. Proponents argue that market environmentalism addresses critically urgent environmental crises, enabling continued economic growth while mitigating environmental impacts. Opponents, by contrast, reject market environmentalism as the appropriation of resources and the environmental commons for private profit, which (they argue) deepens, rather than reduces or resolves, socioenvironmental problems. As explored below, the debate typically pits defenders of state management against advocates of market- and private-sector management, with communitarian models of resource governance overlooked, dismissed as being of limited applicability given the challenges of replication at large scales, or strategically mobilized by both sides in the public-versus-private debate.

The case of freshwater—the focus of this review—is emblematic of these broader debates over market environmentalism. The engagement of the private sector and markets in water supply has been widespread over the past two decades and has included water markets, the privatization of water supply utility companies, the corporatization of water utilities, full-cost water pricing, bottled water, and the abstraction of water by beverage companies. A particularly controversial issue has been the rapid growth in private provision of urban water services, as some of the world’s largest multinational companies—including Bechtel, Enron, and Vivendi—have expanded their operations worldwide with significant success: The world’s largest private water company now has over 100 million customers (5).
The growth of market environmentalism must be understood in the context of debates over the global water crisis, given growing concerns among academics and policy makers about the vulnerability of human populations and ecosystems (6–12). In many instances, market environmentalism is proposed as a solution to the intertwined set of issues (human water insecurity, freshwater biodiversity loss, water-food-energy nexus trade-offs) invoked in debates over the global water crisis. Of course, Linton (13, 14) rightly points out that the concept of a global water crisis is a simplifying abstraction, given that water availability is highly temporally and spatially varied. Rather than a singular global water crisis, Linton argues that we should speak of a set of interrelated water crises at multiple scales (13, 14); both problems and solutions may vary across sites and scales. Nonetheless, the discursive construction and biophysical reality of the global water crisis merit our attention, in part because of the controversy inspired by debates about market environmentalism in the water sector. This controversy is the result of water’s multiple roles: It is simultaneously an economic input, an aesthetic reference, a religious symbol, a public service, a private good, a cornerstone of public health, and a biophysical necessity for humans and ecosystems alike. Because water fulfills multiple functions and holds multiple meanings, it is thus unsurprising that it generates multiple and often opposing views.

This review explores these perspectives and arguments, focusing on five dimensions of market environmentalism: the privatization of resource ownership and management, the commercialization of resource management organizations, the environmental valuation and pricing of resources, the marketization of trading and exchange mechanisms, and the liberalization of governance. For each dimension, the discussion addresses a topic of contemporary academic interest and of policy and political relevance: privatization and protest, the contradictions of commercialization, the distinction between environmental valuation and commodification, the multiplication of modes of marketization, and the limits to the liberalization of environmental governance. Specific attention is given to unresolved questions and tensions in the debate over market environmentalism, notably the tension between human rights and environmental rights and the tension among state, market, and community roles in water management. Prior to exploring these issues, the review summarizes recent scholarship examining the history of market environmentalism, which emerged as a response and successor to the state hydraulic paradigm in water management.

THE RISE AND FALL OF THE STATE HYDRAULIC PARADIGM

To analyze the origins and causes of market environmentalism in the water sector, scholars have recently devoted increasing attention to analyzing the rise and fall of the state hydraulic paradigm (15). Perspectives drawn from (and often combining) history, science and technology studies, geography, law, political ecology, political economy, sociology, and anthropology have been mobilized to analyze the dramatic and unprecedented global growth of state involvement during the twentieth century in the management and ownership of water. As discussed below, scholars have documented how state dominance of freshwater supply management in the twentieth century was justified by a set of interrelated economic, ethical, and geopolitical arguments (16, 17) that have influenced water management in countries as diverse as the United States, Yemen, India, China, Spain, Peru, and Greece (18–22).

Earlier work emphasized the impacts of urbanization and industrialization in the late nineteenth century and analyzed the factors (such as water pollution, fears of water-borne diseases, and fire hazards in urban areas) motivating calls for state oversight and ownership of water resources (23). Historians have studied the interactions between hydraulic development and municipal water supply development, justified by the (rarely met) goal of universal water supply (24, 25). Sociologists
and engineers have studied the command-and-control management and governance practices associated with this paradigm, analyzing the interrelationship between hydraulic technologies deployed at a range of governance scales and the (assumed-to-be) inevitable growth in water demands engendered by industrialization, agricultural intensification, and population growth (26, 27).

Sufficient supplies of safe water enabled populations to achieve a basic, dignified living standard and facilitated social inclusion; as such, access to sufficient amounts of clean water came to be viewed as a precondition to participation in public life (28). This was particularly the case given that nineteenth-century experiments with privatization tended to result in the exclusion of poor neighborhoods by private companies, which cherry-picked profitable neighborhoods and types of consumers (29). The potential risks—particularly acute in the large urban centers of the nineteenth century ravaged by water-borne diseases such as cholera and typhoid—were an important justification for producing water as a quasi-public good through the provision of universal networks (30). These arguments continue to play an important role in the analysis of access to water supply—and political claims to extend access—in the context of contemporary developmental states (31). For example, scholars draw on the concept of natural monopoly, a key justification for expansion of state involvement in the twentieth century, to argue in favor of state ownership and/or extensive state regulation (32).

In summary, scholars have documented the positive contributions of the state hydraulic paradigm to both public health and equity and have mobilized their analyses of the successes of the state hydraulic paradigm to argue for more (not less) state involvement in water supply worldwide.

Simultaneously, however, scholars have turned their attention to critiques of the state hydraulic paradigm. Geographers, for example, have documented the reconceptualization of water as a sinew of development as states actively sought to extend control over and develop water resources, focusing on subsidized supply-side, large-scale, state-run hydraulic infrastructure projects for a range of (at times conflicting) purposes, including hazard (flood and drought) mitigation, irrigated agriculture, drinking-water supply, and hydroelectricity (33). Ecological economists have critiqued the assumptions embedded within the state hydraulic paradigm, demonstrating, for example, that the ever-increasing supply-side logic served to create (rather than solve) water crises (34). Political economists have analyzed the social and economic impacts and have documented political protests associated with large hydraulic projects around the world, from the Hoover Dam (United States) to the Ataturk Dam (Turkey) to the Aswan Dam (Egypt) (35, 36). Economists have criticized the costs (and cost-benefit methodologies) associated with hydraulic projects (37).

In a parallel research development, scholars have examined the politics of state-led water management, linking geopolitical agendas to processes of economic development, state formation, and identity formation at multiple scales (38). States, of course, are eager to assume control over water resources given their strategic political and territorial importance, and the conflicts that arose over water—as a flow resource required for multiple functions (agricultural, industrial, drinking water)—often pitted upstream and downstream neighbors against one another. Wolf (39) has documented the hundreds of twentieth-century bilateral water treaties signed in order to secure geopolitical advantage. The question of water wars has been of particular interest: Political scientists, for example, have explored how water has become a flash point for contested transnational politics and global institution building—an incentive for both conflict and cooperation (40–43).

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1State ownership and oversight were also justified by the high economic costs of supplying water through purpose-built, dedicated infrastructure. Water is expensive to transport relative to its value per unit volume, and so it requires large capital investments in infrastructure networks (sunk costs), such that duplication of the network is inefficient. A single firm using one network can supply a service at a lower total cost than two or more firms using separate networks. Water supply is thus highly susceptible to monopolistic control and is open to the abuse of monopoly power (e.g., overcharging).
Associated with debates over delegated governance (and the shift from government to governance), several scholars have explored the possible contributions of social learning in distributed networks as a means of resolving some of the perceived governance shortcomings associated with conventional (top-down, expert-dominated) state-led water management processes (44, 45).

Associated with this critique, scholars have also documented growing concern about the impacts of the state hydraulic paradigm and have called for new paradigms of water management (46). Against the backdrop of an increase in environmental concern, greater awareness has emerged about the effects and costs of hydraulic development, particularly large dams, including impacts on displaced communities, ecological impacts (e.g., extirpation of fish species), destruction of cultural sites, and unexpectedly high rates of siltation upstream as well as salinization in downstream agricultural areas fed by hydraulic schemes (47). Others have critiqued the supply-led focus and the underlying assumption that economic growth necessarily implies increasing consumption of water resources (46).

A unifying theme in these debates is the assertion that environmental considerations were generally overlooked within the conventional state hydraulic paradigm. Predicated on assumptions of abundant water supplies, the self-purification capacities of the hydrological cycle, and the (mis)characterization of water as a renewable resource, the state hydraulic paradigm paid relatively little attention to environmental impacts—whether water quality–or quantity–related. Indeed, state management was sometimes associated with significant environmental degradation, irrespective of broader political economic regimes, as the cases of the Aral Sea and the Colorado River suggest (48). Some studies have documented the fact that state management has been associated with systematic deterioration of water supply infrastructure in both low- and high-income countries (24). Several commentators pointed out the difficulty of balancing revenue-generation imperatives with environmental protection goals given low-income consumers’ inability to pay, the high capital costs of water supply infrastructure combined with relatively low economic rates of return, and weakening fiscal capacity in the context of underpriced water resources (49, 50). At the same time, broader debates over the need for new approaches to water governance, including those more ecologically sensitive, participatory, and focused on water conservation, have emerged, deepening the critique of the state hydraulic paradigm (46).

An important synergy between academic and policy debates is observable; many aspects of this critique were crystallized by internal debates within multilateral financial institutions regarding the failure of many governments to effectively manage water resources (51). For example, in the 1990s the World Bank signaled a new policy direction in which privatization and decentralization were to become central elements of the Bank’s water agenda, in line with the broader strategy at the Bank and the then-emerging Washington Consensus, which was succeeded by the Bank’s adoption of the Dublin Principles (including the assertion that water should be recognized as an economic good) in 1994 (52). The Bank’s subsequent development of an active private-sector development strategy for water in the 1990s, aligned with the Bank’s broader private-sector development strategy (29), was associated with similar agendas at other multilateral development banks and bilateral aid agencies (e.g., the United States Agency for International Development and the UK’s Department for International Development) (29). This, in turn, spurred scholarly interest both in promoting
and critiquing privatization and market environmentalism, particularly by a range of scholars who actively participated as policy activists in the intense international debates that ensued (e.g., 53, 54).

These issues are best understood within the context of broader political economic debates: Market environmentalism came to the fore at the height of the Washington Consensus, which emphasized financial liberalization, privatization, deregulation, the creation of secure property rights, tax reform, the introduction of competition, and public-sector fiscal discipline (including the selective redirection of public funds toward public goods that facilitate income redistribution, such as education, primary health care, and infrastructure) (55). These debates were associated (in the water sector and beyond) with a broad-ranging critique of government provision of water, rooted in the state failure hypothesis. The state failure criticism of public water provision echoed the widespread neoliberal turn in public policy and development policy of the 1980s, shaped by public choice theory and the new institutional economics. The government failure argument (as it is sometimes called) posits that states are less efficient and effective than private-sector organizations and markets. In the water sector, the state failure argument takes many forms. In some instances, emphasis is placed on the poacher-gamekeeper problem—governments that own and manage water are likely to exhibit poor performance (particularly with respect to the environment) because they have no incentive to self-penalize. In other instances, the state failure argument focuses on the fact that expensive, capital-intensive hydraulic works are particularly susceptible to pork-barrel politics and associated problems: overdesigned “white elephant” projects, overstaffing (or, worse, “ghost” employees), bribery, and corruption. Others point to the track record of governments in managing water supply and resources. Despite notable legislative advances, such as the Clean Water Act in the United States and similar legislation on water quality in the European Union, water quality and freshwater aquatic biodiversity have continued to decline in many countries (56). Greater awareness also emerged about the (still hotly debated) effects and (often unquantified) costs of hydraulic development (47). This concern has been heightened by a growing realization that the postwar economic boom had obscured the systematic deterioration of water supply infrastructure in many countries (24) because of governments’ inability (or unwillingness) to finance infrastructure combined with public environmental concern and technological innovations to increase the appeal of alternative approaches to water management. In lower- and middle-income countries, concerns have been focused on the impacts of infrastructure underinvestment, water scarcity, pollution, and public health—particularly in the context of rapid urbanization in recent decades, which has often overwhelmed municipal governments’ abilities to supply networked water services (57).

The scholarly literature on the state hydraulic paradigm is characterized, in short, by an interesting tension. On the one hand, the impacts of the state hydraulic paradigm have come under multidimensional critique—environmental, socioeconomic, and geopolitical—over the past two decades. The response, on the part of some scholars and policy makers, has been to promote market environmentalism as the solution to the ills of the public sector. On the other hand, the success of the state hydraulic model in industrialized countries has motivated continued calls for its expansion (and resistance to market environmentalism), given that the only examples of near-universal domestic water access have been state-led efforts. Both perspectives share one point in common: The state hydraulic paradigm entered into crisis by the 1980s, creating an opportunity for the rise of market environmentalism.

**DEFINING MARKET ENVIRONMENTALISM**

For the purposes of this review, market environmentalism is defined as a doctrine premised on the synergies between environmental conservation and protection, economic growth, market
The goal of market environmentalism, simply put, is to achieve positive environmental outcomes through the introduction of markets and market-derived institutions and organizations. The rapid increase of market environmentalism over the past few decades has incited controversy. Drawing on a broad-ranging critique of the shortcomings of governments (state failures), proponents argue that markets and private actors will outperform governments in resource management, creating a virtuous feedback loop between economic growth and environmental protection. By contrast, opponents point to the shortcomings of markets (market failures), arguing that private actors—particularly those motivated by profit—will fail to conserve resources and will cause negative environmental impacts over the long term.

Before exploring these arguments in greater detail below, it is important to discuss the multifaceted nature of market environmentalism. In its application, market environmentalism constitutes a diverse, interrelated set of processes, which may unfold concurrently, although not always simultaneously, and often with internal inconsistencies (Table 1). As indicated in Table 1, five processes make up the core of market environmentalism: the privatization of resource ownership and management, the commercialization of resource management organizations, environmental economic valuation and water pricing, the marketization of trading and exchange mechanisms, and the neoliberalization of governance. These processes are described as follows:

- Privatization entails the transfer of ownership or management of resources to private individuals or companies, such as the patenting of genetic material unearthed through bioprospecting (60). This may involve a full transfer of ownership (full privatization) or a temporary transfer of control through long-term leases or management contracts (private-sector participation).
- Commercialization entails the incorporation of market-derived business models and institutions (rules, norms, and customs) in resource management organizations with the goal of reforming their performance (and evaluation) in line with commercial principles. Corporatization is one example; another is new public management (NPM) in which market-based allocation, performance measures, and incentive structures are introduced in government departments.
- Economic valuation entails the (frequently controversial) pricing of resources and associated ecosystem services, often using nonmarket valuation techniques (61). Closely associated with the subdisciplines of environmental and ecological economics, a range of techniques (e.g., contingent valuation) is used to determine prices and to incorporate these prices into the costs passed on to consumers with the goal of inducing more environmentally friendly behaviors, such as reductions in resource consumption (62).
- Marketization entails the creation of markets as trading and exchange mechanisms with the goals of improving the efficiency of resource allocation and/or reducing resource consumption or pollution emissions. There has been a notable increase in the use of markets in resource management over the past several decades, including the application of markets to hitherto unmarketized sectors (e.g., carbon markets) and the expansion of preexisting market models (e.g., tradable quotas in fisheries, water markets).
- The liberalization of governance entails the retreat and/or strategic reconfiguration of government roles in decision making, usually via a combination of deregulation, devolution, decentralization, and delegation to nonstate actors. This may entail, for example, the introduction of market- and agent-focused instruments to deploy market-based, individual

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1Synonyms include free market environmentalism, liberal environmentalism, and green neoliberalism.
Table 1  Market environmentalism in the water sector

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Examples</th>
<th>Details (references)</th>
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<tbody>
<tr>
<td>Privatization/appropriation</td>
<td>Divestiture (also termed asset sale)</td>
<td>Sale of water supply infrastructure to private sector [e.g., England and Wales (178, 179)]</td>
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<tr>
<td></td>
<td>Land/water grabbing</td>
<td>Corporate land/water rights acquisition [e.g., sub-Saharan Africa (96)]</td>
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<td></td>
<td>Private-sector participation or</td>
<td>Outsourcing of water supply system management to private companies (29)</td>
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<td></td>
<td>partnerships</td>
<td></td>
</tr>
<tr>
<td>Commercialization</td>
<td>Corporatization</td>
<td>Conversion of the business model for municipal water supply from a local government department to a publicly owned corporation (114)</td>
</tr>
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<td></td>
<td>New public management</td>
<td>Introduction of alternative service delivery in water supply management [e.g., Ontario, Canada (180)]</td>
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<tr>
<td>Environment economic valuation</td>
<td>Full-cost pricing</td>
<td>Water pricing for irrigation water and associated private property rights (126)</td>
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<tr>
<td></td>
<td>Environmental valuation/ecosystem</td>
<td>Environmental valuation of water incorporated into decision making (29)</td>
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<td></td>
<td>service pricing</td>
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<tr>
<td>Marketization</td>
<td>Creation of water markets</td>
<td>Introduction of a water market [e.g., in Chile (145)]</td>
</tr>
<tr>
<td>Liberalization of governance</td>
<td>Deregulation</td>
<td>Cessation of direct state oversight of water quality mechanisms [e.g., Ontario, Canada (181)]</td>
</tr>
<tr>
<td></td>
<td>Delegation and decentralization of</td>
<td>Delegation to nonstate actors, often combined with rescaling from national to provincial/state and/or local authorities (182)</td>
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<td>decision making authority</td>
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Incentives to change behavior, which contrast the hierarchically organized, command-and-control regulatory mechanisms typically associated with state-led governance (63).

Market environmentalism thus includes—but is broader than—environmental governance, which refers to “the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes” (4, p. 298). In turn, governance is broader than government; hence, market environmentalism is enacted by a range of governmental, private-sector, and civil society actors. In short, market environmentalism—if fully applied—entails a wide-ranging set of transformations in how we manage, allocate, and make decisions about resources and environmental management (64). But it is important to emphasize that these five processes are not necessarily deployed simultaneously. Many assume that market environmentalism automatically entails privatization—the transfer of ownership to private hands. Yet full privatization is, in fact, relatively rare; market environmentalism entails a much broader set of strategies and may in some instances not involve privatization at all. Payments for ecosystem services, for example, might be implemented without privatization, or the liberalization of governance (61). Moreover, market environmentalism is neither straightforward nor uncontested, as the discussion of the water sector, below, illustrates.
THEMES IN MARKET ENVIRONMENTALISM IN THE WATER SECTOR

To analyze emerging trends in market environmentalism in the water sector in a manner that is sufficiently general yet concise for a review, this article focuses on the five dimensions of market environmentalism. For each dimension, the discussion addresses a topic of contemporary academic interest and of policy and political relevance: privatization and protest; the contradictions of commercialization; the distinction between valuation and commodification; the multiplication of modes of marketization; and the tensions at the heart of debates over the liberalization of environmental governance, particularly the tensions between human rights and environmental rights, as well as those among state, market, and community roles in water management.

Privatization: Protest and Partnerships

Davis (5) provided a comprehensive summary of water privatization debates across the range of different forms (e.g., service, leasing, build-operate-transfer, and complete privatization contracts) (see also 65–67). In the past decade, the debate has evolved. One question of interest has been whether the involvement of private-sector companies (either through various types of management contracts or outright asset sale) can contribute to solving the global water crisis. Indeed, one of the central justifications for privatization in the 1990s was the fact that more than one billion people around the world lack access to clean, safe drinking water (12, 68). Despite expensive investment programs funded by governments and bilateral aid agencies, morbidity and mortality from lack of safe water access remain significant public health issues (69).

Proponents of market environmentalism argue that private finance, management, and ownership are necessary to meet the challenge of human water security and claim that government management of urban water supply is beset by several interrelated problems, including low rates of cost recovery, low tariffs, underinvestment, deteriorating infrastructure, overstaffing, inefficient management, and unresponsiveness to the needs of the poor. From this perspective, proponents of market environmentalism argue that it is unethical not to involve private companies if they can perform better than governments at providing water, particularly to the poor. An additional set of incentives pertains to politicians, as privatization (in theory) offers the opportunity to devolve political accountability for price increases and to obtain financing—incentives that coincide, in some instances, with theoretical arguments in favor of market environmentalism.

In contrast, opponents argue that the involvement of private actors tends to decrease, rather than increase, water security. In particular, opponents of private ownership and management argue that government-run water supply systems, if properly supported and well resourced, are more effective, equitable, and responsive; have access to cheaper forms of finance (and thus lower tariffs); and perform just as well as their private-sector counterparts. Proponents and opponents of market environmentalism disagree not only on the goals of water management (e.g., efficiency, equity, environmental protection) but also on the methods for comparative assessment of the performance of different providers and the impacts of distinct regulatory regimes.

To assess these claims, researchers have conducted meta-analyses of privatization, assessing the performance and outcomes of private-sector participation in developing countries (67, 70, 71). Scholars have reviewed the effects of privatization on a range of issues, including prices (54, 72, 73), coverage for the urban poor (74), governance (75), and—controversially—public health (31, 76–79). The politics of privatization also received intensified attention from, for example, studies of the incentives of various stakeholders, the politicization of government bureaucracies, and the knowledge networks via which privatization was disseminated and promoted (80–82).
As the numbers of privatization contracts decreased in many regions (with the exception of China), scholars also began scrutinizing the limits of privatization, particularly as a means of providing universal coverage (notably to the urban poor) (29, 83, 84). Following the financial crisis of 2008–2009, private companies strategically reconfigured their approach, changing modes of financing (e.g., from equity to debt financing) and opting for lower-risk contracts (85). New operators emerged in middle-income countries (e.g., Brazil, China, Russia, Malaysia) to challenge the oligopolistic structure of the sector, dominated by European and American firms. Although the number of customers of private companies continues to grow, this new growth is concentrated in more profitable (usually middle- and high-income) cities, regions, and countries—particularly in China (86).

A balanced assessment of the record of private water companies suggests that hopes that privatization would solve the world’s water crisis were overblown but that privatization will continue to be pursued as an option for water supply access in communities and countries with sufficient ability to pay, and will thus continue to raise ethical concerns (87). Given this continued influence, scholars and donors have increasingly been focusing attention on the potential for partnerships (public-public, public-private, and community/social-private) in filling gaps in water supply provision, including informal water vendors and community-based organizations (88–91). Criticisms of this new emphasis on partnerships have included the claim that they endorse state inaction, exacerbate gender inequality with respect to household labor and livelihoods, and create two-tier systems of water supply (31, 92, 93). Proponents argue, in response, that hybrid environmental governance strategies are the new normal: Purely market-, government-, or civil society–based strategies are rare (and perhaps even fictitious); the governance of water requires the articulation of organizations and actors in multiple domains (4).

The debate over privatization has also taken a new turn. Originally focused on water supply, scholars have increasingly turned their attention to the issue of water resources in the past decade. Of particular interest has been the topic of water grabbing (associated with land grabbing) (94, 95). Water grabbing entails the diversion of water resources by companies (and in some instances governments) without due process and/or appropriate compensation, thereby depriving local communities that depend on water for livelihoods. Recent interest in water grabbing has arisen because of the trend in land grabbing associated with large-scale agricultural investments for biofuel and food production, often driven by food speculation and/or extraterritorial strategies for increasing food security by actors from relatively wealthy yet land- or water-poor countries (e.g., Saudi Arabia, China) that purchase land and/or water rights in low- and middle-income countries (96–98).

Water grabbing may take multiple forms, including land purchases (to which water rights are often legally attached) and the subsequent conversion of that land into large-scale agricultural production, outright purchases of water rights and water infrastructure, or appropriation by dispossession in which community rights to water (often not formally recognized in law) are denied as corporate (or state) actors expropriate land and/or water resources for agricultural or hydraulic development (99–101). The recent debate over water/land grabbing, for example, frames the appropriation of water as an economic strategy carried out by extraeconomic means, which is deeply embedded in political—and at times coercive and violent—relationships (102).

As with private-sector participation in water management in the 1990s, water grabbing has generated controversy and protests (53, 93, 103–107). Although grievances vary (and are highly context specific), a set of common themes emerges in these protests, notably concerning the impacts of privatization on consumers and workers (e.g., pricing and access to services, employment) as well as on the environment. In many instances, a nascent red-green alliance (e.g., labor and environmentalists) has cohered around the antiprivatization agenda (as in Cochabamba, Toronto, Jakarta, and Vancouver). Unsurprisingly, antiprivatization protests are often articulated with, and
amplified by, more generalized political economic protests. Latin America (e.g., Argentina and Bolivia) experienced significant public protests on a range of water-related issues from the late 1990s onward, and southern Africa has also seen sustained protests, in some cases associated with high-profile court cases (e.g., Phiri/Soweto in South Africa) (103, 108–110). This ongoing resistance indicates that privatization—in its varied forms—continues to be a contested and controversial topic.

The Contradictions of Commercialization

Civil service units and public sector organizations have been subject to significant reform pressures over the past few decades. In many instances, these reforms are associated with NPM and alternative service delivery (ASD) models, including, for example, corporatization and outsourcing of activities previously provided directly by government agencies or departments. In turn, these are associated with the broader trend of neoliberalism (the doctrine that the market can, and indeed should, act as a guide and medium for all human action) in policy (100).

In the water sector, commercialization often entails the involvement of private companies in management (but not ownership) of water supply infrastructure; corporatization or the introduction of private-sector business models and market principles into government management; the contracting out of other water-related responsibilities to nongovernmental actors; and the introduction of market-based allocation, performance measures, and incentive structures. Such reforms have been introduced around the world, in countries as diverse as Germany, India, and Zambia (111–113), often creating hybrid models that mix aspects of public- and private-sector governance and delivery (e.g., 114).

Frequently, advocates of such reforms argue that they will improve efficiency, lower costs, and (in some instances) enhance other aspects of service delivery. Proponents of reforms also argue that some forms of commercialization, such as corporatization, may, under the right circumstances, reduce political interference in water prices (115). Critics, in contrast, argue that NPM and ASD may attenuate accountability, reduce transparency, and devolve responsibility without a concomitant reallocation of resources (116).

Market failures. Proponents of commercialization are usually well aware that—despite the growing trend of market environmentalism—many aspects of water management are likely to remain under state ownership and management. This is because there are several market failures usually identified with respect to water supply, including natural monopoly, externalities, and public goods (117, 118).

First, water supply is cited as an example of what economists term a natural monopoly insofar as supply by one firm entails lower costs than supply by more than one firm. The incumbent firm will have an overwhelming cost advantage compared with any new entrant, and thus the market tends to be characterized by only one seller, with all of the problems associated with monopoly power.

Second, externalities—defined as the costs or benefits arising from water production not accounted for in the price mechanism, which thus do not accrue to the producer—are another type of market failure that characterizes water supply. Externalities may be both negative (pollution) and positive (the social benefits gained from the widespread availability of safe and adequate water supply and sanitation) (50). Externalities pertain to both quantity and quality; lack of access to water has important (and potentially disastrous) consequences for hygiene and public health, and pollution of water sources by one user can quickly affect others.

Proponents of the market failure argument typically refer to a third characteristic of water supply: that the public health outcomes associated with water supply infrastructure—particularly
sanitation—are a public good (nonexcludable and nonrivalrous). Given that negative externalities are widespread in the water sector, markets typically fail to provide for public goods; furthermore, profit-making strategies raise serious ethical concerns. This appears to be the case in the water sector because private companies tend to focus on water supply and are very rarely involved in solely sanitation-related operations (at least on a concession contract basis).

**Water insecurity.** As described in the preceding section, market failures pose significant challenges to those seeking to pursue commercialization. Another important reason that commercialization in the water sector is likely to be limited pertains to the broader security concerns associated with water resources.

Given population growth and forecasts of increasing per capita consumption, as well as the potential impacts of climate change, many scientists and policy makers predict increasing water insecurity. Water stress is already a widespread and growing phenomenon (12, 119). This is not likely to be offset by increased water efficiency, as many of the gains have been made in wealthy countries (such as the United Kingdom and United States, where water withdrawals per capita began declining in the mid-1980s, dropping to 10% below their peak by 2000) and increases in efficiency are often extremely costly (46). Furthermore, water insecurity may be exacerbated in some instances by threats to drinking-water supply from a range of sources (e.g., human impacts on the aquatic environment, contamination, or even terrorist attacks) (6, 120). Concern over water availability has thus given rise to concern over threats to economic growth, human livelihoods, and the environment from water-related hazards (e.g., floods and droughts), as well as from growing water stress and scarcity (56, 121, 122). In addition, a newer concern has emerged regarding the water-energy-food nexus, which highlights the challenges in meeting the energy and food demands of growing populations, given constraints on water availability. Water security, from this perspective, is linked to food and energy security; commentators have focused on the trade-offs that are likely to arise in the next 20 to 30 years (123, 124).

This debate over the global water crisis is likely to imply intensified concern over water security on the part of national governments. The United States, for example, recently launched the US Water Partnership (under the leadership of then-US Secretary of State Hilary Clinton), which links concerns over water security directly to American geopolitical and national security interests (8). Given these concerns, states may be less willing to cede control over the development of water resources and large-scale hydraulic infrastructure to nonstate actors.

There is thus a deep contradiction at the heart of contemporary commercialization initiatives. On the one hand, governments desire the putative efficiency increases that might come with the adoption of private sector–style incentives, management techniques, and organizational/business models. On the other hand, governments are increasingly concerned over water insecurity and the associated potential threats to broader security interests; hence, there is a powerful impulse toward increasing government oversight and control. This contradiction is deep-seated and not (at least in the short term) resolvable; there is likely to be a push-pull approach to commercialization on the part of governments seeking to balance these competing interests and demands.

**The Pricing Debate: Valuation Versus Commodification**

Rapidly rising water consumption by humans has led to significant impacts on the environment, including freshwater biodiversity and water-related ecosystem services (122, 125). These impacts

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4Water supply itself is technically not a public good because it is rivalrous, i.e., one person’s consumption may diminish another person’s ability to consume.
are likely to be exacerbated in the future given population growth and increased hydrological variability, particularly in the context of climate change (12). The global water crisis is, in other words, a crisis for nonhumans as well as humans.

In response, advocates of market environmentalism call for the economic valuation of water (the process of calculating monetary values for environmental goods and services and incorporating this valuation into policy and management) (126). Proponents argue that environmental valuation (e.g., of the ecosystem services provided by wetlands) is urgently required to provide the correct price signals necessary to incentivize changes in behavior, notably reducing both water consumption and pollution, as well as allocating water to its highest-value uses. Others argue that economic valuation can also serve to engage stakeholders and address governance failures (such as lack of access to information) that negatively affect attempts to improve water resource allocation (e.g., 127). Valuation, in short, is advocated as a means of improving water security and potentially even water governance.

Environmental valuation is one component of full-cost pricing models for water whereby prices should reflect the full cost of infrastructure and maintenance and consumers pay for what they use. The implementation of full-cost pricing requires the introduction of technologies (e.g., water meters) for measurement and billing (128). Full-cost water pricing may radically alter the relationships among consumers (users), water providers, and the environment. For example, full-cost pricing may involve the introduction of economic equity (the benefit or willingness-to-pay principle), displacing a commitment to social equity (the ability-to-pay principle). Consumer access is legitimated not by a citizen’s entitlement to water as a service but rather by a customer’s purchase of water as a quasi commodity. Thus, market environmentalism implies a reconfiguration of the hydrosocial contract between users and their environment; in response, accountability mechanisms and governance processes evolve, framing consumers as customers rather than citizens. Treating water as a business, in short, reconfigures not only water management but also our decision-making processes, our views of our environment, our water suppliers, and one another.

Given the large-scale inefficiencies and outright waste associated with the underpricing of water in key sectors (such as irrigated agriculture in many countries), these arguments for valuation have gained much support. However, examples of implementation of pricing based on full market valuation are rare, in part because of the technical difficulty of pricing and in part because of the political consequences, given that valuation subverts the subsidized pricing and social equity principles that tend to be associated with public utility systems. For example, valuation has generated controversy when it affects (in general implying the reduction of) cross subsidies; previously widely accepted, cross subsidies are now more frequently debated, particularly when urban water utilities seek full-cost recovery. This, in turn, leads to ambiguity in policy and legal approaches to valuation. Take, for example, the case of the EU’s Water Framework Directive (WFD), which mandates full-cost pricing, the devolution of governance (through creating local watershed councils), and cost-benefit analyses (129, 130). The WFD cannot be neatly framed as an exercise in market environmentalism; despite the recommendation of pricing and valuation, it simultaneously asserts the nonmarketization of water in its first clause: “Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such” (131, p. 1).

As the case of the WFD illustrates, valuation raises complex political issues. The existence of a “noncommercial” clause in the WFD reflects the views of opponents of market environmentalism, who sometimes (incorrectly) assume that valuation is synonymous with privatization and/or commodification. From this perspective, valuation is undesirable because it opens the door to privatization; opponents argue that this enables profits to be made from water, which is unethical given that water is a substance essential for life and human dignity (132). These opponents of valuation often argue that environmental protection and water conservation should be fostered
through an ethic of water use, whether based on solidarity, scientifically determined limits to water use, traditional (often indigenous) water-use practices, or various forms of eco-spirituality.

Here, it is important to inject some clarity into the debate. Valuation is not synonymous with privatization or commodification. The goal of economic valuation may be to enable environmental protection, remediation, and restoration through introducing environmental values into the cost-benefit analyses that guide water supply management decision making. Economic valuation is intended to provide incentives for water conservation and for the use of alternative supplies (gray water, reclaimed wastewater, desalinated water, recycled water). The prices developed through valuation techniques may also be used as a tool for educating consumers in a new ethic of water use.

None of this, it should be emphasized, implies the full commodification of water, which only occurs when private property rights, full-cost pricing, and marketization (the introduction of water markets as trading mechanisms) are in place (133, 134). Water is, in fact, a difficult resource to fully commodify because it is difficult to exchange—given that it is expensive to transport relative to unit volume and is hence relatively inefficient and expensive to transport in large quantities over long distances. If we assume that commodification requires the conversion of a class of services or goods into discrete, interchangeable units that can be abstracted from their socioecological context, priced, traded and sold, transported, and privately owned, then the commodification of water appears to be extremely difficult for several reasons.

First, as a flow resource, water plays an important ecological role and equally serves as an ecological vector; mixing of waters from different sources (as in bulk transport, using waterways as conduits) poses significant ecological challenges, which may be a barrier to the large-scale transfer of water resources. Second, the market failures referred to above (natural monopoly, externalities, public goods) pose significant challenges to full commodification.

One exception is the bottled water market, which is in part made possible by the physical bounding of water in containers, temporarily halting the flow of water and rendering more straightforward the creation of private property rights, standardization, transportation, and pricing per unit volume. Reputedly one of the fastest-growing segments of the beverage industry, bottled water now represents an estimated $70 billion in sales worldwide (135, 136). Traded globally, with a proliferation of brands and offerings (from vitamin-infused water to glacier water), bottled water is the best example of complete commodification of water. Academic studies of bottled water characterize it as a social phenomenon associated with heightened anxieties about health, decreased public trust in government, and successful marketing linking bottled water consumption to consumer aspirations regarding physical appearance, exercise, and identity (137–141). Despite significant consumer resistance and public campaigns opposing water as a commodity, the growth in the bottled water market seems to be significant and sustained (142–144).

This exception aside, full commodification of water is relatively rare. Valuation, by contrast, is much more widespread. But it is important not to confuse the two; valuation, in short, does not necessarily imply commodification. However, the water-pricing debate has been complicated by this confusion; it remains to be seen whether the useful aspects of valuation can overcome these political (as well as technical) barriers to implementation.

Marketization: Water Markets, Water Rights, and the Human Right to Water

Ironically, while water markets are emblematic of market environmentalism, they are the most rare (at least numerically) of the trends discussed in this article. Formal water markets exist in countries as diverse as Australia, Canada (Alberta), Chile, South Africa, Spain (the Canary Islands), and the United States (specifically in some of the western states) (145–151). Even though practices vary
significantly, water markets may be defined through three key elements: water rights, water trading mechanisms, and physical infrastructure for transferring water.

Water rights are legally defined water access entitlements; simply put, a water right grants the user the right to use water from a specific source. The form of these rights may vary significantly. Common forms include land-based water rights (for example, giving the user the right to use groundwater under the land he/she owns), riparian rights (allowing a user to access water flowing through their property), and the “first in time, first in right” system used in the western United States and Canada.

Water rights, in isolation, do not constitute a market. Rather, a market exists when a trading system is set up, whereby rights may be bought and sold. These trades can be temporary or permanent, depending on the legal status of the water rights. Pricing techniques vary; some jurisdictions use environmental valuation, whereas others allow supply and demand to determine prices (within certain limits).

The third key element of a water market is a mechanism for transferring water between users. In water markets organized around a surface water body (e.g., river, stream, or lake), the water body serves as the mechanism for transferring water. To sell to downstream users, for example, upstream users simply refrain from abstracting the amount of water that they have traded. In other water markets, artificial transfer mechanisms (such as canals) are used.

Proponents of water markets argue that they are critically necessary as a means of allocating ever increasingly scarce resources to their most efficient uses. In particular, proponents argue that water markets are useful in water-scarce areas, allowing communities to respond to water shortages by purchasing water (for example, urban communities purchasing water from rural farmers). This, proponents argue, may allow urban areas to avoid supply-side solutions (e.g., dams), which are increasingly expensive and difficult, given the decreasing availability of cost-effective sites for dam construction and increasing awareness of the negative environmental impacts of dams. Governments are often keenly interested in water markets because they may offer the opportunity to shift extremely expensive operations and maintenance costs for water transfer infrastructure schemes (such as canals) to private users. Proponents of Australia’s water market, for example, argue that the market has allowed Australians to increase the efficiency of water use while avoiding expensive new infrastructure projects (146).

In response, opponents argue that water markets raise concerns that, taken together, require state oversight of resource allocation and sectoral trade-offs. One such concern is the urban-rural divide: Rural users (often farmers) are vulnerable to political pressure from cities to transfer water, often threatening the sustainability of rural livelihoods. Underpricing of rural agricultural commodities may make trades seem economically efficient, but the broader economic impacts on rural communities are not included in water-pricing models. Another concern focuses on environmental justice issues related to water quality (152, 153), given that nonhuman actors do not have the same ability to participate in the market and secure water for their needs (e.g., in-stream flow minima). And yet another concern focuses on environmental impacts; in many instances, the question of the ecological integrity of the receiving watershed has not received sufficient scrutiny. Moreover, environmental needs are often undervalued (or not valued at all); even when they are valued, the price paid by urban and industrial users may outweigh water pricing as determined by conventional environmental valuation methods. Budds (148), for example, raises these points with respect to water markets in Chile; rural farmers were disadvantaged, and environmental impacts were poorly integrated into the Chilean water market, raising serious distributional justice and equity issues. Haddad’s work (154) on California suggests that water markets are difficult to create, even under favorable governance and economic circumstances, which in turn suggests we should be skeptical of their potential elsewhere.
For these reasons, debates over water markets (and indeed privatization and commodification more generally) are often associated with broader debates over the human right to water. As a nonsubstitutable resource essential for life, water is discursively framed as a human right by those campaigning against market environmentalism (although it was not explicitly included as a human right in the original UN Declaration of Human Rights) (155). It is worth noting that the literature on the human right to water and on water markets share a concern in common for equity and inclusion with respect to water access and water safety. However, those who favor the human right to water tend to prefer state involvement, whereas those who favor water markets tend to be proponents of private-sector delivery.

After more than a decade of being hotly debated, the issue of the human right to water remains controversial. Some governments (including the Netherlands and the United Kingdom) express their public commitment for a human right to water, and a few (such as France, South Africa, and Uruguay) have taken the bold step of embedding the right in legislation (156, 157). But these are the exceptions, and some governments (such as Canada) have rejected calls for the creation of a human right to water.

Nonetheless, the case for the existence of the human right to water appears to be gaining ground, notably through the work of the UN Special Rapporteur on the Human Right to Water (158). International human rights law seems set in the near future to recognize the human right to water, although critical legal scholars and activists have noted that the fulfillment of this right, in practice, still faces significant difficulties (159).

The relevance to the debate over market environmentalism is threefold. First, the human right to water has been mobilized as an argument against water privatization (although with limited success, given that human rights law is compatible, at least in its current formulation, with private provision of basic services) (160). Second, human rights are not necessarily sufficient criteria for the fulfillment of universal, equitable access to water supply; for example, those countries who do have a human right to water (e.g., South Africa) have nonetheless encountered significant political, financial, and technical barriers to the achievement of universal access (103). Third, the human right to water implies that water may not be defined in narrowly economistic terms. Even though water has economic value, it cannot be defined simply as a commodity, for ethical as well as technical reasons.

**Liberalization of Governance: Balancing Harmonization and Subsidiarity**

The final theme to be discussed in this review is that of governance reform, where governance is defined as the “range of political, organizational, and administrative processes through which community interests are articulated, their input is incorporated, decisions are made and implemented, and decision makers are held accountable in the development and management of water resources and delivery of water services” (161, p. 2). The debate over alternative governance architectures (162) in the water sector has attracted significant scholarly attention. Much attention has been devoted, in particular, to the reform of institutions, defined as the laws, rules, norms, and customs that govern decision-making behavior. Of particular interest to this article is the fact that market environmentalism–inspired calls for governance reform stress the importance of liberalization. Although complex, liberalization usually includes delegation to nonstate actors, combined with devolution and sharing decision making with lower (or higher) scales of governance (Figure 1).5

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5Governance typologies often include some combination of the following categories: (a) top-down versus bottom-up (hierarchical) or (b) market-led versus government-led schemes. Both of these approaches are problematic, as they conflate rescaling
Figure 1
Delegation of decision-making power, focusing on the two key axes of reforms and excluding references to markets and the private sector.

A frequent justification for these reforms is that they will enable better achievement of good governance principles, including accountability, equity, environmental and economic sustainability, participation and empowerment of stakeholders, and transparency (163).

The reforms proposed in Figure 1 must be contextualized within broader debates over water governance, notably evolving approaches to Integrated Water Resources Management (IWRM). IWRM perspectives traditionally stressed the importance of integrated management (of land and surface and groundwater use, across organizations and scales), given the importance of balancing trade-offs between protection of ecosystems and economic development (in line with the Brundtland Report–inspired conceptualization of sustainable development) (164). More recently, IWRM advocates have begun debating systems perspectives, framing governance as a complex system that interacts with biophysical, technological, and social systems (165). Briefly, this systems approach emphasizes the inevitability of uncertainty and the limited predictability of socioecological (inherently complex) systems to which governance frameworks (and managers) must adapt. This, in turn, motivates the adoption of adaptive governance (166), a form of social coordination in which governance is enacted through networks that connect individuals, organizations, agencies, and institutions at multiple scales; is characterized by nested polycentric institutional and decision-making arrangements; and requires collaborative, flexible, learning-based approaches to

with delegation to nonstate actors (in the former case) and artificially separate two actors in a broader continuum of distributed governance (in the latter case).
management (167). The goal of this approach to governance is greater resilience (168), understood as the capacity of a socioecological system to resist (successfully maintain equilibrium in response to) external shocks. Many scholars argue (although not uncontroversially) that delegated and devolved water governance frameworks will engender greater resilience, in part through the processes of social learning that they foster (44, 45, 167).

IWRM debates, in other words, overlap with processes of the liberalization of governance. As a result, some scholars have argued that IWRM has been discursively captured by a neoliberal agenda (169, 170). Others argue that this is a myopic perspective and that it is imperative for water governance to foster resilience (using whatever governance reforms necessary) given the significant challenges facing the water sector at multiple scales (171). This debate has, in some instances, been characterized by a lack of analytical clarity regarding the definition and scope of water governance (172). For example, the scale and complexity of water management issues are often much broader than the scale of debates over water availability for drinking and domestic purposes, and many debates fail to clarify this scalar distinction. This has led some scholars to question the degree to which governance reforms are indeed associated with positive outcomes, noting that relatively few empirical studies have been conducted to date (173).

A central point of contention in this broader debate is the appropriate balance between subsidiarity and harmonization. Harmonization may be defined as a process of standardization and centralization of standard setting, intended to achieve regulatory clarity and efficiency. Subsidiarity may be defined as the principle whereby a central authority does not take action (except in the areas that fall within its exclusive competence) unless it is more effective than action taken at lower scales, in some instances by nongovernmental actors. The range of existing water governance arrangements is vast: from highly decentralized approaches that emphasize subsidiarity (e.g., Canada), to systems that seek to balance harmonization and subsidiarity (e.g., the European Union), to systems that are highly centralized (174).

The limited amount of empirical evidence on governance reforms suggests the need for caution in drawing conclusions. However, it is clear that reforms have proceeded in numerous jurisdictions; the scope and nature of this trend is worth briefly discussing. First, governance reforms have generally tended to encourage polycentrism: A broader range of nongovernmental actors and stakeholders is playing a role in decision making, justified by the argument that social learning is enabled and improved through the involvement of a greater diversity of actors in on-the-ground management and decision-making processes. This justification underpins, for example, calls for public participation in water governance (and, indeed, in environmental governance more generally). Polycentrism implies the involvement of multiple actors at multiple scales. Hence, a second innovative aspect of water governance reforms is the emphasis on multilevel governance, such as multistakeholder watershed management platforms, which have been initiated in many jurisdictions for a variety of reasons, including increased emphasis on watershed-based and integrated management of environmental issues, awareness of the multilevel causes and impacts of water-related threats (particularly, although not uniquely, with regard to the water-energy-food nexus), and concern over the multiscalar implications of climate change for water resources (175).

These issues provide interesting challenges to the watershed-focused emphasis of traditional IWRM governance models; in emphasizing multiscale linkages, the watershed loses its central place as the primary unit of analysis and water management. In other words, the liberalization of governance may, at times, challenge the notion that the watershed is the optimal scale from which to address complex water security challenges. For example, the focus on the watershed is potentially undermined by the growing importance of virtual water flows—notably those associated with global trade (176). Given the multiple scales at which these trade-offs occur, reliance on watershed
management alone may be insufficient. This is exacerbated because aquifer/groundwater boundaries (and subsurface hydrological gradients) and ecological boundaries (e.g., biomes) do not neatly coincide with watersheds (177). The most important (and controversial) insight from the debate over water governance reforms, in short, may be the claim that a watershed-focused approach is insufficient for adequately addressing the water security challenge, which is to balance human and environmental water needs in order to safeguard essential ecosystem services and biodiversity across the global water system.

CONCLUSION

This review of the changing terrain of market environmentalism in the water sector has emphasized four points. First, market environmentalism entails a broad range of processes and is not synonymous with (or limited to) privatization. Rather, market environmentalism is a complex set of interrelated processes that may include (in addition to privatization) commercialization, environmental valuation and pricing, the marketization of trading and exchange mechanisms, and the liberalization of governance.

Second, market environmentalism is relatively recent and is by no means hegemonic. In many countries, it has only partially displaced a state hydraulic paradigm of water management. Indeed, many aspects of the sociohydrological cycle are still owned, managed, and regulated by governments. Debates over the business of water should bear this in mind and avoid exaggerating the degree to which private, nongovernmental activity has displaced traditional state involvement.

Third, market environmentalism is difficult to implement in practice, with tensions arising in attempts to privatize, commercialize, value, market, and liberalize water governance. This review discussed some of these tensions (for example, the tension between the desire for less government control and drivers for greater governmental control, spurred by water security–related fears). Some of these tensions arise from contradictions that are difficult to resolve in practice, notably the contradiction between monetary and nonmonetary values of water and the tension between framing water as an economic good versus incorporating noneconomic uses. These tensions, which have acted as a brake on market environmentalism, are inherent to water management and are unlikely to be effectively resolved. The question is whether—through institutional innovation, governance reforms, and political mediation—these tensions will be well or poorly handled.

Fourth, this review has explored some of the controversies and questions surrounding market environmentalism. Significant protest has arisen in many places, and coordinated campaigns have been launched at a global scale (particularly regarding the human right to water). This does not, as this review has emphasized, imply that water will return to public ownership and management. The defaults of conventional state governance are well documented; hence, a return to past practice is unlikely. Rather, the delicate balance of roles among the public sector, private companies, and communities will continue to be renegotiated, ideally with (a) less ideological extremism than observed in the privatization debate of the 1990s; (b) greater emphasis on the key imperatives at stake; and (c) prioritization of distributional justice, equity, and socioecological resilience for water resources at multiple scales for present and future generations.

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