
Neoliberal Water Management: Trends, Limitations, Reformulations

Kathryn Furlong

■ **ABSTRACT:** The impact of neoliberal policy reform on water management has been a topic of significant debate since the mid-1980s. On one side, a number of organizations have generated an abundant literature in support of neoliberal reforms to solve a range of water governance challenges. To improve water efficiency, allocation, and management, supporters have advocated the introduction and/or strengthening of market mechanisms, private sector ownership and operation, and business-like administration. Other individuals and groups have responded critically to the prescribed reforms, which rarely delivered the predicted results or became fully actualized. This article endeavors to articulate the varying sets of claims, to analyze the trends, to test them against their forecasted benefits, and to examine certain prominent proposals for reforming the reforms. The water sector experience with neoliberalization reveals several sets of contradictions within the neoliberal program, and these are discussed in the final section of the article.

■ **KEYWORDS:** development, governance, neoliberalism, privatization, reform, regulation, water supply

In 1999, the Bolivian government granted a 40-year concession for water supply in the city of Cochabamba to Aguas del Tunari, an international consortium led by Bechtel. The concession encompassed all water sources within the catchment, including the aquifer and collectively built wells. In some areas, prices skyrocketed by as much as 200 percent, and in January 2000, thousands of people took to the streets in protest. One died in the standoff, and a 90-day state of emergency was declared. Company officials fled the city, and on 9 April the government canceled the contract (Finnegan 2002; Marvin and Laurie 1999; Perreault 2006). Water supply was brought back under public management, yet the poor have seen little improvement in service levels. In addition, they continue to pay as much as 10 times the fee paid by those who are connected to the municipal system (K. Bakker 2008).

For many concerned with water sector reform, privatization is the flagship neoliberal strategy, making Cochabamba an emblematic city and its 'Guerra del Agua' a watershed moment. The city's story highlights key issues: privatization, profit-driven exclusion, repression, violence, and resistance. Neoliberalization, however, presents a breadth of (often subtler) initiatives for

water sector reform (K. Bakker 2003a). As such, the focus on privatization, while understandable, can obscure a range of issues that are key to redressing the continued exclusion of one-third of the world's population from safe and reliable water and sanitation services (Budds and McGranahan 2003; Wolff and Hallstein 2005).¹ Moreover, given its urban focus, privatization presents no solutions to the most immediate and intractable problems facing water and sanitation, which are often concentrated in rural and peri-urban areas.²

Briefly, since the 1970s (and escalating in the 1990s), water management has undergone significant philosophical, institutional, and organizational changes in many parts of the world. Examples include the introduction of private sector principles into public sector management; the involvement of new actors in governance; the extension of private property rights; liberalization, deregulation, and reregulation; new tariff structures; the creation of water markets; a greater focus on the environment and conservation; private sector partnerships (PSP); and decentralization. These initiatives have had impacts on piped water supply, raw water, watershed management, and transnational water politics. In this article, I focus on municipal supply, my area of expertise, delving only briefly into other aspects of water management.

In the next section of the article, I analyze the arguments and strategies for neoliberalization in the water sector. In the following section, I examine the trends that emerged with respect to the deployment of the central strategies. I then assess the degree to which the reforms yielded their forecasted benefits. Research conducted by both proponents and opponents indicates that many of the predicted gains were not realized. As a result, new proposals have emerged to reform the reforms, four of which are examined in the penultimate section. The article concludes with a discussion about the contradictions that pervade the neoliberal program and their implications for its analysis.

Why Neoliberalize the Water Supply? Why Not?

What Is Meant by Neoliberalization?

In the 1970s, a potent neoliberal discourse gained momentum in response to the fiscal crises facing many Western states. This discourse attributed the 'fiscal crisis of the state' to excessive spending, bloated government, and the disproportionate power of labor (see O'Connor 1973; Workman 1996). The prescription was to promote fiscal austerity and to reduce the public sector bureaucracy, regulatory 'red tape', barriers for business, government involvement in service delivery, and the power of unions (see, e.g., Harris 1994; World Bank 1981).³

Since then, neoliberalism has come to represent both a diverse set of policy reforms and an array of distinct experiences and applications. It "has many authors, and many birthplaces" (Peck 2007: 4) and is universalized neither in its origins nor its applications (Larner 2000). That said, the Thatcher and Reagan governments of the 1980s most strongly exemplify the ideology that underpins neoliberalism (Harvey 2005; Peck 2007). They represent an assertive period of neoliberalism, which has since been reconstituted in a variety of ways across space (Brenner and Theodore 2002; Larner 2003; Peck 2001a).

In general, neoliberalization constitutes a series of related institutional and organizational processes that are aimed at creating new—and expanding existing—spaces for the accumulation of capital (Block 1977; Duménil and Lévy 2004). Harvey (2003: 45) calls this "accumulation by dispossession," whereby wealth is concentrated in the hands of the few through the disenfranchisement of the many. Common techniques include deregulation, privatization, liberalization, the rise of market-based regulatory mechanisms, and the creation of markets for what were recently conceived as public goods (Harvey 2005; Kolko 1988).

In response to the fiscal crises, governments in the global North moved (to various degrees) to cut social spending, to shift from state-based to market-based regulatory mechanisms, and to open their markets to liberalized trade (Harvey 2005). In the global South, reforms were pushed through by international lender organizations such as the World Bank, the International Monetary Fund, the Inter-American Development Bank, and the Organisation for Economic Co-operation and Development (OECD) (Peet 2003; Stiglitz 2002). Neoliberal restructuring of state institutions became a condition for lending, first through structural adjustment programs (SAPs) and subsequently through ‘good governance’ approaches (Gore 2000; Hout 2007). SAPs called for significant cuts in social spending, reduced regulation, and economic liberalization to attract foreign capital (Mohan et al. 2000). Good governance would focus on creating and strengthening the necessary institutions (e.g., predictability and accountability) for “the conduct of public and private business” (World Bank discussion paper, cited in Hout 2007: 25).

Rather than the ‘hollowing out of the state’ through reduced taxation and regulatory power, the state is said to become ‘differently powerful’ through a variety of mechanisms to ensure the enrollment of labor and citizens (Gamble 1988; Peck 2001b). Peck and Tickell (2002) refer to this process as ‘roll-out’ neoliberalization (following ‘roll-back’). It involves the deployment of new regulations to enhance the power of the state in terms of surveillance and control, often of vulnerable groups (Aguar 2006; I. Bakker 2003; Peck 2001b), and to solidify and enhance the neoliberal project (Lemke 2001).

In the water sector, the roll-out or reregulatory phase of neoliberalization speaks to another related process. In order to preserve the neoliberal order, the state must also restrain it. The processes of ‘reregulation,’ following those of ‘deregulation,’ have included measures to reassert the state social welfare function to redress some of the deleterious effects of earlier neoliberal restructuring (K. Bakker 2003b). Such trends in other sectors have been interpreted as “slow reversals” of neoliberalism (Harvey 2005: 87), a reconsideration of tactics (Jessop 2002: 470), and a new approach that combines neoliberalism with social investment (Larner and Butler 2005). Such reregulation reflects Polanyi’s (1944) ‘double movement’ thesis, whereby the state must regulate anew to redress the deleterious effects of earlier rounds of liberalization.

Applying the Ideas to Water

Just as neoliberal responses to the fiscal crisis of the state were transposed to the global South, so too were they transposed across many sectors. In environmental governance, theories advancing neoliberal reforms have secured substantial influence (Bernstein 2001). The approach variously termed ‘market environmentalism,’ ‘liberal environmentalism,’ and ‘ecological modernization’ (see Bernstein 2001; Hajer 1995) has been described by Dryzek (1997: 102) as notable for its “hostility to environmental management on the part of government administrators—except ... in establishing the basic parameters of designed markets.”

It is through market environmentalism that neoliberal ideas have gained prominence in water management. Many highlight the inclusion of water as an economic good in the Dublin Principles—adopted by the United Nations at the 1992 International Conference on Water and the Environment—as a starting point for the reformulation of water along neoliberal lines (Figueres, Rockstrom, and Tortajada 2003; Rogers et al. 2002; World Bank 2004). This and other recent water reforms, however, cannot be severed from the longer historical evolutions of both water management and neoliberalism. Rather than being wholly original, they form part of a broader set of ideas and trends. As Budds and McGranahan (2003: 112) assert, instead of being “grounded in experiences from the water and sanitation sector,” water reforms are driven by “international political changes and policy shifts ... from the 1970s onwards.” More generally,

for global water governance, Conca (2006) shows how certain dominant neoliberal ideas came to be articulated in the formulation of transnational water management dictums.

Neoliberal ideas were responding to real challenges. Widespread problems in water management had gained attention by the mid-1970s. In many industrialized countries, water infrastructure suffered from underinvestment and disrepair (Gandy 1997; Kaïka 2005), water quality from insufficient treatment of municipal waste and industrial pollution (Hassan 1998), and utility capacity from rising water demand (Winpenny 1994). Simultaneously, the social and environmental effects of large water projects—including staples of the ‘hydraulic age’⁴ such as dams and diversions—were coming under question (Conca 2006). In the European Union and Canada, combinations of these issues led to new legislation for water protection and allocation (de Loë and Kreutzwiser 2007; Kaïka 2003).

If, in the global North, the eroding myth was that of the ‘technical sublime’, that is, the triumph of urban-networked infrastructure over nature (Kaïka and Swyngedouw 2000), in the global South the eroding myth was that of ‘technical universalism’ (Coutard 2008; McGranahan et al. 2001). In what Bond et al. (2002: 271) would come to call “droughts for the poor and floods for the rich,” vast tracts of the urban population in the global South were without access to public water and sewerage networks. In rural and peri-urban areas, the numbers were even more alarming (WHO and UNICEF 2008). Research highlighted the fact that governments failed to extend services to the poor, who often paid higher fees for lower-quality water obtained through a mix of sources that included private vendors and raw water (K. Bakker 2003a; Swyngedouw 2004). In many places, the situation was found to be particularly burdensome for women and girls, who were often responsible for collecting and purifying water (Bennett et al. 2005).

In the case of water management, neoliberal ideas again offered seemingly straightforward solutions to complex, protracted, and geographically diverse problems. The proposed solutions followed the discourses of market environmentalism, in which the development of markets and market-simulating mechanisms were presented as the most effective means of realizing environmental protection (K. Bakker 2003b). Examples included the market allocation of scarce resources, the establishment of private property rights, and the inclusion of new actors in resource governance (Anderson 1982; Weidner 2002).

Responsibility for the challenges described above was attributed to ‘state failure’ (Parker and Kirkpatrick 2005). From the neoliberal perspective, water is an increasingly scarce resource that cannot meet demand projections under current management practices, a problem driven by its historic and widespread undervaluation (Winpenny 1994). Market-based, full cost pricing would engender greater efficiency, appropriate allocation to the highest-value uses, and enable utilities to recover their costs and reinvest in infrastructure (Anderson and Leal 1988; Lee 1999).

Coincident with this logic is the neoliberal argument that the regulation of water would be better orchestrated through the development of markets and the injection of private sector discipline. Private sector management of water supply would reduce costs, opportunistic management, and ‘regulatory capture’ (i.e., situations in which state regulatory agencies advance commercial or special interests instead of the public interest), while increasing investment, transparency, and efficiency (Lee and Jouravlev 1997). This is because public sector management and ownership are said to suffer from diffuse property rights, politicization of resource and infrastructure management, and regulatory capture (ibid.). The issues as defined by proponents of neoliberal reforms, along with the counter-arguments of those critical of such programs, are outlined in table 1.

Those favoring public sector management argue that (1) the profit motive of private corporations leads to higher, not lower, prices, further marginalizing the poor; (2) privatization is insufficient in the absence of strong regulatory institutions; (3) the environment will suffer, due to increased incentives for externalities; (4) competition is limited to the contract, as

Table 1: Neoliberal policy prescriptions for water reform—reasonings and critiques

Issue	Policy Prescription	Reasoning	Critique
Water scarcity/ allocation	Private property rights	Create the proper incentives for management and cost control while developing the necessary conditions for markets to evolve	Enclosure of the ‘commons’ (communal resources), resulting in marginalized access and the discounting of environmental uses
	Creation of water markets	This scarce resource will be allocated to its most valuable uses, avoiding the politicization of water resource development	Vital resources, which are essential for life, cannot be left to the vagaries of the market
Water scarcity/ underinvestment in infrastructure	Full cost pricing	Will lead to improved allocation and reduced wastage, as well as improved infrastructure and service delivery	Will reduce access by low-income users and may be unrealistic, given the investments required
	Reduction of subsidies	Subsidies generally benefit industrial and wealthy customers at the expense of the poor; reducing subsidies will send proper price signals and improve resource allocation	Detrimental to low-income users, who (in less developed countries) have heretofore subsidized the services of those with service connections
Poorly performing water utilities	Public sector: from provider to regulator	Avoidance of ‘regulatory capture’, whereby the provider regulates itself, leading to better regulation and utility performance	Better regulation is necessary, but only governments can ensure that the social and environmental goals of water provision are met
	Private sector management	Reduction in government interference and the politicization of water management; introduction of competition, leading to greater efficiency, infrastructure investment, and cost reduction	Profit motive will lead to higher prices and the exclusion of the most vulnerable users; sufficient institutions are lacking to regulate the private sector; water is a ‘natural monopoly’ for which competition is limited

water constitutes a ‘natural monopoly’ and only a few international firms control the market;⁵ (5) the state can access cheaper financing than the private sector; and (6) water is a human right as opposed to a commodity (Barlow and Clarke 2002; Hall and Lobina 2007; Lobina and Hall 2008; Shiva 2002). Others simply highlight the fact that, in many cases, too little was known to embark on such “wholesale national restructuring of a sector’s institutions” without prior experimentation (Cairncross 1987: 182).

General Trends: Key Targets of Reform

Overview

Commonly identified trends in water supply reform include the introduction of economic principles into various types of management, an increased focus on the environmental implications of water resource development, and a realignment of how governments, utilities, and a variety

of non-state actors engage in the production and consumption of the resource (Conca 2006; Kallis and de Groot 2003a; Sauri and del Moral 2001). Research has also found that these currents are not always compatible and can manifest themselves differently across contexts (Jones 1998; Kallis and de Groot 2003b; Saleth and Dinar 2000). Trends underscored in the literature are summarized in table 2. While the analyses identify many common trends, they also show overlap and conflation of key processes. For example, marketization is defined as including deregulation, and decentralization and privatization are grouped as a single trend. Such conflation and overlap are common and inhibit effective comparison among instances of market environmentalism (K. Bakker 2007, 2009).

Table 2: Trends identified as a result of neoliberalization in the water sector

Study	Kallis and de Groot (2003a)	Jones (1998)	Saleth and Dinar (2000)
Region covered	European Union	Organisation for Economic Co-operation and Development (OECD)	Mexico, Chile, Brazil, Spain, Morocco, Israel, South Africa, Sri Lanka, Australia, China, India
Trends identified	<ul style="list-style-type: none"> • Naturalization: growth in the environmental focus of management • Marketization: array of processes involving, for example, deregulation and PSP • Rationalization: integration of environmental, social, and economic goals into planning 	<ul style="list-style-type: none"> • Consolidation of water utilities into larger units • Decentralized management • Government shift from provider to regulator with an increase in PSP • Greater reliance on tariffs to achieve a broad range of social, environmental, and economic goals 	<ul style="list-style-type: none"> • Importance of market-based allocation • Decentralization combined with privatization • Integrated water resources management: growth in national water plans and coordination of water files across government departments • Economic viability and physical sustainability: cost recovery, water quality standards, and pollution regulation

But such conflation is also revealing. First, it points to ambiguity within the processes themselves, whose deployment has not been homogeneous and has involved a range of experiences, levels of implementation, and reformulations (K. Bakker 2005). Second, it suggests a lack of distinction within neoliberalism when identifying policies to deal with the environment, social welfare, and economic stability. Instead, it ventures to address all issues with similar policy mechanisms. Finally, the conflation implies an internal avoidance of specificity, with many programs (such as deregulation and privatization) intended to reinforce one another. As such, rather than simply seeking to achieve particular goals external to the program (e.g., improved service provision), neoliberal reforms serve to reinforce neoliberalism itself (Lemke 2001: 203; Peck 2001a).

Specificity, however, is essential in order to provide an account of the relationship between neoliberalization and water management. Karen Bakker's (2007) organization of the processes involved in the neoliberalization of resource management provides the most explicit framing available in the literature. Arguing that neoliberal reforms should be understood in terms of targets and types of reform that can be articulated distinctly or as part of the same process, Bakker (*ibid.*: 435, table 1) divides these targets and types of reform into three groups—those pertaining to resource management institutions, resource management organizations, and resource governance. Table 3 presents a modified version of Bakker's table, adding in particular a summary of unfolding trends. The table gives an indication of the possible range of experiences that have

Table 3: Specifying neoliberal reforms with respect to water resources

Resource Area	Target	Type of Reform	Trend
Institutions (rules, norms, laws)	Property rights	Privatization (exclusive water rights, asset sale)	Peaked in the 1990s, increasingly less common
	Trade rules	Liberalization (GATS, NAFTA)	Controversial; some reregulation to avoid bulk water exports
	Legislation and regulations	Deregulation (removal of legislative 'barriers' to private sector entry, including 'costly' environmental legislation)	Trend seen in the 1980s and early 1990s; identified with SAPs in the global South
	Legislation and regulations	Reregulation (new regulations in response to neoliberal reforms)	Evident especially in the late 1990s in Western countries
Organizations (management entities)	Asset management	Private sector partnerships	Decreasing after peak in the late 1990s
	Organizational structure	Corporatization and alternative service delivery	Increasing in some countries (e.g., Canada)
Governance (decision-making practices and actors)	Resource allocation	Introduction of markets and commercialization (e.g., distance-based or peak-use pricing reforms)	Development of new and different types of markets. Pricing reforms are widespread but subject to a variety of challenges.
	Performance incentives/ sanctions	New public management (e.g., cost-benefit analysis, benchmarking). Commercialization in terms of full cost recovery.	Increasing importance in the 1990s
	Participation (users, intermediaries)	Devolution or decentralization	Increasing with different types of actors in new roles

Source: Table modified from Bakker (2007: 435, table 1).

evolved across different contexts. Following Bakker's categorization, trends with respect to the neoliberal reform of water resource institutions, organizations, and governance are discussed in turn in the following sections.

Reforming Institutions—Deregulation, Reregulation, Liberalization

In terms of institutions, water sector reform was largely directed at opening up new spaces for markets and the private sector by reworking regulations and the function of the state. In general, the neoliberal discourse vis-à-vis the state was that its appropriate role lay in regulation, whereas the private sector ought to deliver services (Lee 1999; Osborne and Gaebler 1992; World Bank 1993). Interestingly, this would frequently involve rolling back environmental regulations and market protections as a precursor to private sector engagement and investment (McCarthy and Prudham 2004). In the global South, international financial institutions (IFIs) demanded certain reforms as conditions for loans (Koeberle et al. 2005). In Africa, reforms required liberalization (the opening of domestic markets) and the privatization of state assets (Ferguson 2006). In many Western countries, reforms often involved a weakening of environmental and labor protections to render the public sector more attractive to PSP.⁶

Despite the emphasis on the regulatory role of governments, rarely did the development of the new institutions and mechanisms precede PSP or the rolling back of existing regulations. In England and Wales, for example, the reregulation of the water industry arrived several years after privatization in response to extreme price hikes, ensuing water poverty, and the return of cholera to the island (K. Bakker 2003b). The rapidity with which the regulatory regime was established has been found to have engendered several shortcomings that have proven difficult to correct (Mumssen and Williamson 2002: 39, 60). In Ontario, Canada, reregulation followed a water quality disaster in which 7 people died and more than 1,000 others became seriously ill—some permanently (Prudham 2004; Snider 2004). In the global South, researchers argue that the policies themselves presupposed certain institutions and social relations that were not strongly present, would take decades to develop, and were in fact weakened by the decline in wealth and state authority following structural adjustment (Castro 2006, 2007; Dávila-Poblete and Rico 2005; Prasad 2006: 684).

Perhaps, given the lack of coordination between these two processes, deregulation and reregulation can prove contradictory, with the former inhibiting the implementation of the latter. In British Columbia, Canada, for instance, Patrick (2009) has found that earlier rounds of deregulation have made it difficult for municipalities to implement the province's recent legislation that protects source water. On another level, international trade agreements such as NAFTA and GATS have allowed foreign companies to challenge the domestic strengthening of environmental laws to protect ground water quality when it has involved banning a polluting substance (see McCarthy 2004; Warner and Gerbasi 2004: 864–866).

Regulatory amendments have also been used to impose changes at the level of organizations and governance. In order to make entry into the water sector more attractive to private corporations, utilities were compelled to cut costs, to reduce expenditures (Hassan 1998; Mumssen and Williamson 2002: 45–46), and to operate (and be evaluated) according to business principles, such as cost-benefit analysis (Schwartz 2008). These reforms can create difficulties in meeting the costs of improved environmental regulation (Jones 1998) and can face problems where existing institutional capacity is weak (Schwartz 2008). In Latin America, Castro (2008) expects such reforms to persist (irrespective of the introduction of PSP) and to have long-term social consequences.

Reforming Organizations—Finding a Niche for the Private Sector

The private sector has participated in public service delivery (including water supply) in a myriad of forms throughout the post-war period—that is, the participation of the private sector has not been simply a feature of neoliberalism (Salamon 2002).⁷ What is new is the idea that PSP presents a universal solution to all challenges (Gleick et al. 2002; Prasad 2006). There are many means by which the private sector becomes involved in public service delivery (e.g., contracting, grants). With neoliberalization, the privatization of services (full divestiture, including asset sale) and various types of private sector contracting to operate, maintain, and/or build infrastructure were increasingly encouraged by IFIs in low-income countries and by both government and private initiatives in the OECD (Lorrain 1995).⁸

Privatization and PSP contracts have followed certain geographical trends. Notable currents include a concentration first in Latin America in the 1990s and then in East Asia and the Pacific after 2002, as well as a paucity of projects in Africa (see fig. 1) and non-urban areas (Jimenez and Perez-Foguet 2009). According to Budds and McGranahan (2003: 108), the initial concentration in Latin America can be credited to the region's large cities and sizable middle class, the indebtedness of the utilities, and the depth of existing neoliberal reforms. Contract disputes

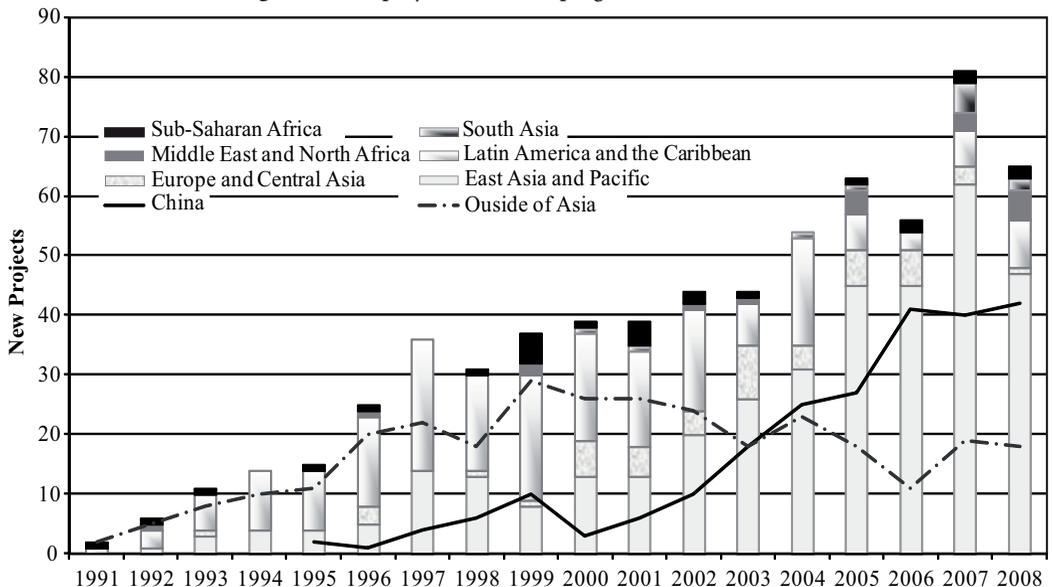
(and cancellations) would also exhibit clustering, notably with respect to large contracts in Latin America and East Asia (Jimenez and Perez-Foguet 2009: 11). As of 2008, close to 60 projects in these regions had been canceled or were under distress, representing 34 percent of investment.⁹

In terms of the type of private sector involvement, there are few examples of full or even partial divestiture; rather, concessions were most common until the early 2000s. Since then, ‘greenfield projects’ (involving the building, operation, and transfer of facilities where none had existed before) have grown in prominence (see fig. 2). However, despite the increasing number of greenfield contracts, the overall level of investment has declined since the late 1990s. In 2008, investment was less than one-third of its 1997 level (fig. 2). The type of private sector partner is also shifting—from international corporations to local and regional companies, especially in China (Marin 2009: 29).

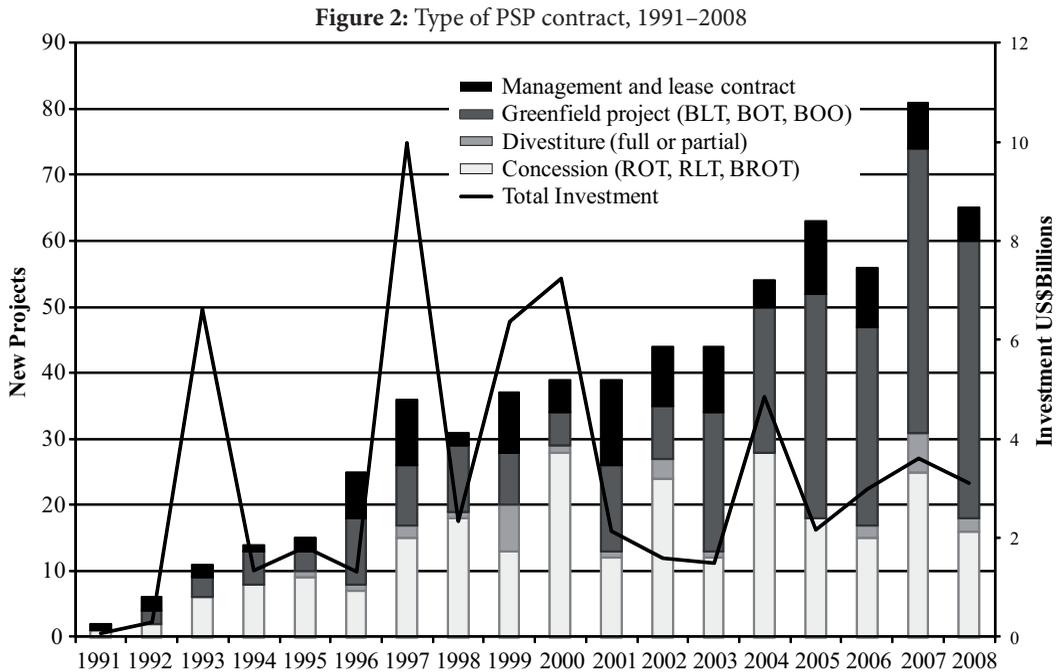
Notwithstanding the growth in the number of PSP projects, PSP remains a relatively minor approach worldwide. Approximately 90 percent of water utilities in the world’s 400 largest cities remain publicly owned and operated, while PSP participation in small cities and rural areas is highly uncommon (Hall et al. 2010: 2). Moreover, recent growth in PSP has been driven by an increase of incidence in China (involving Chinese companies), with some new projects also found in North Africa after 2005 (see fig. 1). This uneven geography was likewise a feature of the Latin American experience, with heavy concentration in Argentina (Castro 2008).

Privatization and PSP have not materialized to the promised extent, a conclusion shared by both proponents and opponents of the reform (Budds and McGranahan 2003; Estache 2005; Jimenez and Perez-Foguet 2009; Wolff and Hallstein 2005). The issue continues to present challenges, however, given that (1) the preparatory reforms have initiated “far-reaching transformations with potentially long-term consequences” (Castro 2008: 66), including legal and institutional reforms; (2) even where contracts have been rescinded, difficult challenges remain, with Argentina facing 30 separate lawsuits; and (3) the will to pursue PSP has not lessened (Castro 2008: 66; Prasad 2006). On this last point, various authors, while conceding the shortcomings of PSP, look for other avenues to improve the conditions for investing companies (see, e.g., Estache 2005; Franceys 2008; Lee and Jouravlev 1997).

Figure 1: PSP projects in developing countries, 1991–2008



Source: Data taken in 2009 from the Private Participation in Infrastructure Database of the Public-Private Infrastructure Advisory Facility (PPIAF). See <http://www.ppiaf.org/ppiaf/page/private-participation-infrastructure-database>.



Source: Data taken in 2009 from the Private Participation in Infrastructure Database of the PPIAF. See <http://www.ppiaf.org/ppiaf/page/private-participation-infrastructure-database>.

Reforming Governance 1—Commercialization, Commodification, Marketization

Market allocation and market-based regulation of resources are among the key tenets of market environmentalism in the water sector. Such practices are often predicated on the introduction of private property rights, new pricing structures, and new technologies (e.g., smart meters) that enable further commercialization. Like PSP, market environmentalism is not a new phenomenon, nor is it uniformly applied. Its prominence has increased under neoliberalization (Gleick et al. 2002), but the program must be adjusted according to the context, and ‘results’ cannot be guaranteed (Boelens 2009).

The application of commercial principles to water management has a lengthy pedigree. The long-term influence of economic interests in water resource development in California is made patent in Worster’s (1985) *Rivers of Empire*. Similarly, the interaction of commodification and decommodification of water supply in Cameroon over the last century demonstrates, according to Page (2005: 293), that “the commodification of public water supplies is not new, permanent or inevitable.” With regard to water tariffs in Latin America, Gilbert (2007) argues that although the balance of pricing and subsidization may have been challenged, the idea of charging for water services was never seriously questioned.

Nonetheless, the application of economic tools has not remained static. Several trends in water pricing, subsidization, and allocation have emerged over the neoliberal period. Across the OECD, prices have increased—in some countries by an average of as much as 8 percent per year (Jones 1998). Tariffs are being used to achieve “a wider range of economic, environmental, and social objectives” (ibid.: 640), utilities have moved from fixed to volumetric charging with more complex tariff structures and metering, the principle of full cost recovery is now widespread, costs have increased to meet new regulations, and both the level and transparency of subsidies have been challenged (ibid.). In the case of the global South, subsidies have been questioned on the grounds that they have not benefited—but rather have disadvantaged—the most needy

(Komives et al. 2005) and that the poor are willing to pay for improved services that can be achieved only through better-funded utilities (Rogers et al. 2002).

Despite the widespread drive to treat water as an economic good, the dictum remains controversial and is only partially implemented in practice. The EU Water Framework Directive (WFD) provides an example of the contradictory compromises that can emerge to accommodate varying perspectives (Kaïka 2003: 304–306). The WFD incorporates the user pays principle (UPP), prescribes full cost recovery (including environmental impacts), and advances tools for economic analysis as a basis for water management (DG Environment 2008). Yet it requires only that full cost recovery be ‘taken into account’, leaves the inclusion of environmental costs to the discretion of member states, and defines water as “not a commercial product like any other but, rather, a heritage” (European Parliament 2000; see also Kaïka 2003: 304–306). From a practical perspective, Jones (1998) has argued that in OECD countries full cost recovery for water and wastewater (and the elimination of subsidy) is unlikely, given the degree of investment needed in infrastructure. For example, following privatization in Catalonia, cross-subsidies that favored residential consumers actually increased (Miralles 2008: 159).

In terms of marketization, several prominent examples of the creation of water markets exist, for example, the Southern United States, Australia, and Spain. However, Chile is often promoted as the model to be replicated (Dinar and Saleth 2004; Lee 1999). A key lesson that can be derived from experiences with water markets is that the extent and nature of the markets developed are subject to mixtures of local conditions and external influences. On the one hand, markets are politically produced. Haughton (2002) finds that foreign governments and IFIs have crucial influence over the creation of new and modified water markets in the global South. Instead of a technocratic depoliticization of water management, the new markets reflect the political outcome of “complex multiagency multiscalar negotiations” (ibid.: 798).

On the other hand, local conditions can constrain the ability to produce the desired market arrangements. In western India, water markets did not emerge in an idealized form; rather, they had to be re-formed through interaction with already established local norms and rules (Dubash 2004). In the Andean countries, the profusion of existing water rights regimes that are long established, numerous, and locally specific has posed a significant challenge to the institution of a universal market system (Boelens 2009). Finally, in the English case, Karen Bakker (2003b) has shown that despite significant effort, the result of water sector reform was full privatization, limited commercialization and unsuccessful commodification.

Reforming Governance 2—New Actors: From Government to Governance

Of significant interest to many researchers of neoliberalism has been the apparent shift from government to governance over the last 25 years. This change entails the decentralization of state authority to lower levels of government and supra-national authorities, as well as the introduction of new actors (including private corporations, NGOs, and the voluntary sector) into the delivery, oversight, and decision-making procedures surrounding the management of public services.¹⁰

With respect to neoliberal water sector reform, the promotion of participation is among the items that Karen Bakker (2007: 442) finds in common among both proponents and opponents of PSP. The World Bank, for example, calls for improved mechanisms to promote the ‘voice’ and participation of citizens, including “direct involvement by users, nongovernmental organizations and other groups of citizens” as a necessary element of public sector reform (World Bank 2000: 23). Citizen participation is intended to improve the transparency and responsiveness of organizations, resulting in more effective and locally appropriate services that, in some cases, lead to community ownership and operation (cf. Subramanian et al. 1997).

In practice, while it is widely agreed that a transition from government to governance is occurring, the evenness and effectiveness of the introduction of new actors is variable. The WFD, for example, arguably encodes a shift from government to governance, in particular, through the introduction of water basin councils and a general rise in the influence of unelected bodies, such as private firms, lobby groups, and NGOs (Page and Kaïka 2003). Yet their ability to participate is limited by their size and financial capacity (*ibid.*). Timothy Moss and colleagues, moreover, find a range of ‘intermediaries’ working among users, service providers, and regulators, significantly affecting relationships between the physical networks and localities (T. Moss 2009; T. Moss et al. 2009). New actors, however, can have conflicting goals. For example, the private sector can be resistant to regulation and limit incentives for user participation (Kaïka 2003; Page and Bakker 2005).

The rise in prominence of new actors is likewise important in the global South. There, a range of public and private groups have long been involved in water supply (Gulyani et al. 2005; Kooy and Bakker 2008). Since the early 1980s, organizations that include development associations, NGOs, and civil society agencies have increasingly been promoted to strengthen governance and to supplement (or even to replace) the state in service provision (Ferguson 2006). In water management, this has led to the growing involvement of a range of non-governmental, community, and civil society groups in rural and peri-urban areas, as well as the private sector in cities (Cairncross 1987; McFarlane 2008).

Have the Reforms Yielded the Anticipated Results?

Lower Prices and Improved Allocation

A key tenet of market environmentalism is that water is underpriced and thus poorly allocated. Nevertheless, the theory also argues that the introduction of private sector discipline will result in lower prices through increased efficiency and reduced costs—for example, through staffing reductions and competition for contract renewals (Lee and Jouravlev 1997: 52; Shirley 2002). Generally, this claim has not been born out in practice. In the case of England and Wales, Hassan (1998: 194) describes a “spectacular” increase in prices by an average of 70 percent in the initial years following privatization (1989–1994), fueled in part by controversially high salaries within the privatized companies. The price increases led to problems of affordability and user disconnections, which would later be prohibited by law (K. Bakker 2003b; Graham 1997). In Bolivia, similar increases in tariffs following privatization meant that many users were denied their customary water service (Assies 2003; Marvin and Laurie 1999).

Price increases were often among the preparatory reforms enacted within public utilities in order to encourage PSP in the sector. The UK, Greece, and South Africa are examples (Bond 2002; Hassan 1998; Kaïka 2005). In Athens, these preparatory price increases were not rolled back after the anticipated reforms were abandoned, suggesting that privatization was used as a means of increasing prices rather than as a route to their reduction (Kaïka 2005: 160). In South Africa, the focus on cost recovery through the UPP (as opposed to cross-subsidization) has resulted in significant water debt among low-income users (McInnes 2005), as well as cutoffs and reduced water access for the poor (Loftus 2006; Ruiters 2007; Smith and Hanson 2003).

Reduced access due to high prices raises questions with respect to the predicted improvements in water allocation under full cost pricing and the introduction of water markets. Thus, beyond the enhanced agricultural activity that was taken to reflect improved allocation in the Chilean case (Rosegrant and Binswanger 1994), the assessment should also include issues such

as improved environmental protection and user access. Such an approach has been taken in Amsterdam. There, practitioners find market-based valuation techniques useful in selecting policy options that may or may not promote the further commercialization of the resource. For example, they may promote nature protection strategies and limit the extension of metering (Dalhuisen et al. 2003).

Effective and Efficient Utilities

Neoliberal reforms were also predicted to yield more effective and efficient water utilities by reducing costs and wastage through improved business practice. Below I examine the results in terms of improved service quality, reduced wastage, and improvements in conservation. With respect to service quality, some PSP projects in West Africa have been found to have generated improvements in (1) service quality and reliability, (2) effectiveness and productivity, and (3) increased revenue and balanced books (Jaglin 2002: 233).¹¹ Experience in Kenya, on the other hand, has demonstrated that raising prices does not necessarily translate into service improvements; there, even the 'non-poor' are faced with insufficient water access despite increased prices (Gulyani et al. 2005). Similarly, private sector operations in Tanzania are perceived to have a variety of detrimental impacts on users (Kjellén 2006).

In terms of greater efficiency with respect to water produced by utilities and consumed by users, the literature demonstrates that while 'environmental crises' like droughts and other forms of water shortage may encourage neoliberal reforms in the water sector, such reforms will not necessarily improve water efficiency and conservation within the utility. In the case of Athens, the 1989–1990 drought partially enabled a rescripting of water as an economic good, including the restructuring of the rate system to encourage demand management and eventually the partial privatization of the utility (Kaïka 2005: 153–160). The price increases led to an initial drop in demand of 20 percent, yet the drive for conservation later came into conflict with incentives to expand the system under partial privatization (Kallis and Coccossis 2003). Drought likewise yielded unexpected consequences for conservation under privatization in England and Wales. In 1995, Yorkshire experienced a severe drought, but users resisted compliance with conservation demands, reasoning that they were buying water from a private company. Yorkshire Water, beholden to water quantity and price-cap regulations, was forced to tanker water into the region (K. Bakker 2000; Haughton 1998; Osborn and Marvin 2001).

Research in a variety of contexts has shown that public utilities are more likely to engage in water conservation. Gleick et al. (2002: iv) find that conservation programs are generally scaled back or canceled following contracting to the private sector due to the link between revenue and sales. This concurs with findings in California that show public utilities to be more pro-active with regard to conservation than private utilities (Kallis et al. 2010). In the Canadian context, the scope of conservation programming was shown to be reduced under decreasing government leadership (through arm's-length business models) of water utilities (Furlong and Bakker 2010). However, insufficient regulation is the key issue. A public regulator can legitimate and drive conservation whether the utility is public or private (Kallis et al. 2010).

Environmental Benefits

The relatively poor performance of neoliberal reforms on conservation can be contrasted with better performance on the environment more generally. Both environmental and neoliberal initiatives have the potential to drive one another. In the case of England and Wales, privatization of water utilities was both reinforced by and facilitative of new environmental directives at

the European level that are credited with the improvement of water quality in the UK. The new European regulations made the transfer of costs to the private sector more attractive, while this transfer of costs made acquiescing to the extension of European law politically feasible (Hassan 1998: 163–166).

Nevertheless, conflicts can arise between the different goals of market environmentalism. In England, improvements to the environment were accompanied by questions of user access. In Karen Bakker's (2003b) terms, environmental externalities prior to privatization were traded for social externalities after privatization. In Buenos Aires, the water quality situation also improved following privatization as a result of upgrades in wastewater treatment. Yet significant price increases elevated tensions between the operator and the regulator (see Idelovitch and Ringskog 1995: 45–46).

International trade agreements, on the other hand, may present issues in terms of bulk water transfer and water quality. The potential for governments to lose authority over bulk water exports under NAFTA, for example, has raised alarm among activists and academics (Barlow and Clarke 2002; Boyd 2003). According to Gleick et al. (2002: 15–16), it is difficult to assess the potential impacts of agreements like GATT, NAFTA, and GATS on bulk water trade. However, should raw water be classified as a product, it would become subject to World Trade Organization rules that would restrict government action once transfers are initiated.¹² Concern over such an eventuality under NAFTA became the catalyst for a ban on bulk water transfers by all Canadian provinces and territories—a rare element of convergence in Canadian water legislation (Hill et al. 2008).

Investment in Infrastructure and Delivery to the Poor

Improved water delivery for the poor was another forecasted outcome of neoliberal reforms. In particular, PSP was expected to enable service extension to non-serviced areas through new efficiencies and cost savings. The private sector was to provide much-needed investment for the improvement and extension of water and sewerage infrastructure (GWP 2000). Since the 1990s, however, the levels of investment in water and sewerage have not increased appreciably. Instead, governments—not the private sector or development assistance—have financed infrastructure improvements, while PSP has concentrated on the more lucrative, as opposed to the most needed, projects (Budds and McGranahan 2003; Estache 2005; Jimenez and Perez-Foguet 2009). Jaglin (2002: 233) makes the observation that issues of social justice and improved services for the poor were presented as indirect consequences of neoliberalization, that is, as would-be by-products of other reforms. Consequently, there was little proper planning for their realization, and the results have been unimpressive.

The experience of private sector involvement in water supply has been geographically segmented, avoiding the poorest areas globally, regionally, and locally. In order to ensure a high probability of return on investment, private corporations must seek service areas where the demand and the ability to pay for water are both high and secure, usually valued at over \$100 million (Jimenez and Perez-Foguet 2009: 12). This mandate implies a focus on urban areas. According to Karen Bakker (2003a: 329), the private sector is unlikely to take an interest in conurbations with a population of less than 500,000. Even in urban settings, private operators exhibit reluctance to extend services to poor neighborhoods, generally by defining the least lucrative areas as beyond the city limits (e.g., Cartegena, Colombia, and La Paz, Bolivia) or by excluding 'informal' settlements within the contracted area due to their lack of legal land tenure (e.g., Córdoba and Buenos Aires, Argentina) (Budds and McGranahan 2003: 110).¹³

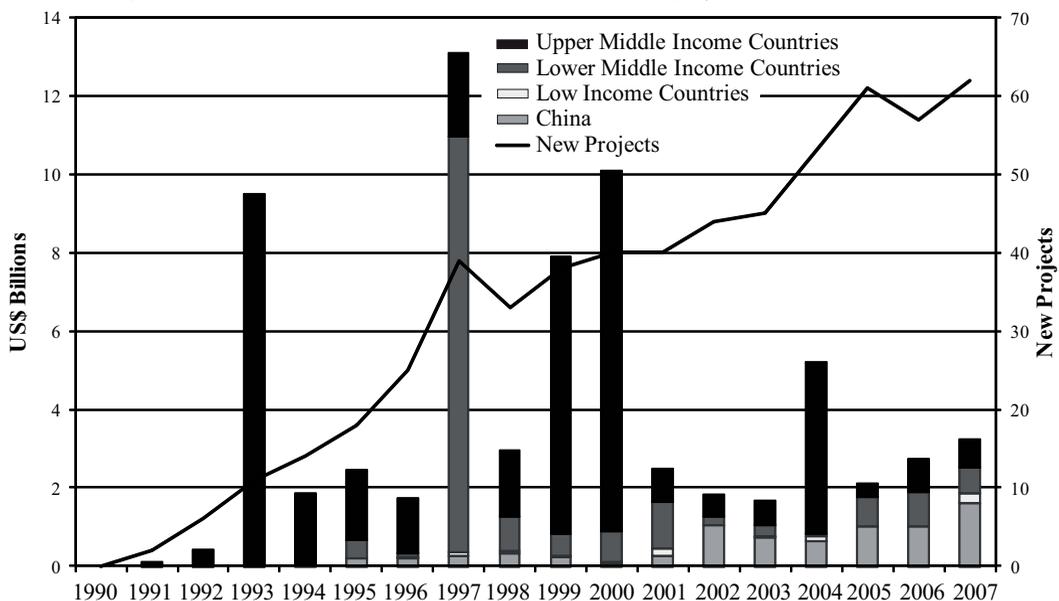
In terms of PSI in infrastructure, a similar pattern is visible. At its peak, the private sector's contribution was only 5 percent of total investment. This level has declined since the 1990s, with

the poorest countries least able to attract investment (see fig. 3). In fact, Africa received only 0.95 percent of private investment, with sub-Saharan Africa (other than South Africa) being particularly neglected (Jimenez and Perez-Foguet 2009: 2, 12). Moreover, the length and controversial nature of PSP contracts have a tendency to reduce actual levels of investment (*ibid.*: 5). Finally, given the lack of viability of investing in underserved areas, Prasad (2006: 688) finds that the private sector either ‘cherry-picks’ the most lucrative service areas or looks to development funds or the renegotiation of contracts in order to extend services to the poor.

Another postulate in support of PSP in the global South is that it would indirectly benefit the poor by freeing up scarce government resources to fund other essential services (de Azevedo 1998, cited in Haughton 2002: 793). The data, however, indicate that the majority of investment in water supply has come from the public sector, even where PSP contracts are found. OECD and World Bank data show that, since its peak in 1997, private sector investment (PSI) in water and sanitation has decreased by more than two-thirds, even though the number of PSP contracts has increased (OECD 2009: 211) (fig. 3). Indeed, Estache (2005) finds that increased PSP is highly correlated with increases in public sector investment and fiscal deficit but not with increases in private investment or GDP. Thus, while he notes some correlation between privatization and increased access and regulation, he concludes that it is the public sector that invests (*ibid.*: 8–9).

This means a reliance on official development assistance (ODA) and government funds to support infrastructure development. ODA, however, provides barely a fraction of the investment that is needed in developing and middle-income countries (Budds and McGranahan 2003: 100; Jimenez and Perez-Foguet 2009). Moreover, ODA has a tendency to bypass the poorest countries, instead favoring middle-income countries (Prasad 2006: 678). Concurrently, local government contributions (although the most significant) remained essentially static throughout the 1990s, due to donor requirements for reductions in public spending, compounded by a general lack of resources (Jimenez and Perez-Foguet 2009: 1–2). The result is that, in some locations,

Figure 3: Private sector investment compared with new projects in water, 1991–2008



Source: Data taken in 2009 from the Private Participation in Infrastructure Database of the PPIAF. See <http://www.ppiaf.org/ppiaf/page/private-participation-infrastructure-database>. Note: Low income: GNI per capita < \$875; lower middle income: GNI \$876–\$3,465; upper middle income: GNI \$3,466–\$10,725.

progress toward the UN's Millennium Development Goals (MDGs) is actually regressing (WHO and UNICEF 2006).¹⁴

Prominent private sector representatives have themselves argued that the expectations for private investment were unrealistic. The Business and Industry CEO Panel, for example, questioned whether the private sector represented a "realistic solution to underinvestment in water systems" (J. Moss et al. 2003: 12; see also Wolff and Palaniappan 2004). The chief executive of Saur Group, which manages close to 6,000 water contracts, has similarly articulated the limits of PSI, given a premature emphasis on concession contracts, increased risk in developing countries, unrealistic standards, and the inability of users to pay for the required investments without subsidy (Talbot 2002). The World Bank has likewise acknowledged that the risks associated with service to the poor are too large a burden for the private sector (World Bank 2005a, 2005b, cited in Prasad 2006: 676).

Although there is broad consensus that PSI has not worked for poor or low-income countries, there is some debate as to whether OECD countries have themselves seen the expected levels of investment. According to the World Bank (Estache 2005), PSI has worked well for high-income countries. For Castro (2008: 69), however, in instances of high-profile privatization contracts in Europe, the promised investment has not materialized. In the case of Thames Water in England, funding came from revenues (96.4 percent) and debt (3.6 percent), while in Athens it came from revenues (80.6 percent) and subsidies.¹⁵

New and Reformed Strategies

Adjusting the Program

Given the variety of challenges to producing the desired reforms and achieving the promised results, proponents of neoliberalization have advanced adjustments to the reforms. Examples include the development of 'pro-poor' contracting and regulatory mechanisms (Komives 2002; Trémolet and Hunt 2006), differentiated models for private sector involvement (Crean 2002; Hardoy and Schusterman 2000), the promotion of GATS to stimulate private investment in water and sanitation (Franceys 2008), and the facilitation of water markets through the Internet (Meyers 2002).

Once again these changes in water management reflect broader shifts in neoliberal thinking rather than policies developed specifically for the water sector. One example is the 'new minimalist approach', which focuses on pro-poor programming and the expansion of the informal sector while retaining key neoliberal tenets, such as private property rights, administrative streamlining, the removal of subsidies, and contracting out (Altenburg and Drachenfels 2006). Similarly, the post-Washington Consensus (PWC) retains neoliberal principles while seeking a strong focus on participation so as to avoid negative impacts on the poor (Ruckert 2006). For the water sector, PWC means continued support for privatization with a new sensitivity for effective regulatory institutions, competition, and the mitigation of impacts on the poor through various methods of subsidization (ibid.: 57, 59). This transfer of costs to the public sector is described by Ruckert (2007: 101) as "accumulation by subsidization."

Pro-poor PSP Projects

Pro-poor water and sewerage contracts are an example of the implementation of adjusted neoliberal prescriptions. Experience is widespread, with projects in Latin America, Africa, and Asia.

Three key themes in the pro-poor literature are (1) the promotion of differentiated (cheaper) services for poor households, (2) participation to determine users' willingness to pay (and thus the appropriate level of service), and (3) government subsidy to meet service needs for the poor (Debomy et al. 2005; Komives 2001; Trémolet and Hunt 2006). Where a service area has mixed income and service levels, for example, some prescribe an open PSP model that involves other actors in service delivery, as well as a government fund to support services for the poor (Hardoy and Schusterman 2000). While these moves appear to establish a form of cherry-picking, the diversity of PSP approaches that have emerged (including pro-poor) also demonstrates the limitations of neoliberal water sector reform, with the English model as "the exception rather than the rule" (Haughton 2002: 804).

Among the early examples of pro-poor PSP projects is that of La Paz-El Alto, Bolivia. There, the government designed a contract specifically aimed at expanding an equal level of service to unconnected residents (Komives 2002). The contract stipulated the tariffs and connection fees, the type of connection (in-house), and the minimum schedule for network expansion. The contract was awarded to Aguas del Illimani in 1997. Despite positive results, including timely network extension in the first two years (Komives 2001), in 2003 residents engaged in a mass protest against the utility (Laurie and Crespo 2007).

There are differing perspectives on what went wrong. According to the World Bank, the concessionaire was meeting agreed targets, but it required greater flexibility in determining the level and type of service (as neighborhood consultation could reveal the desire for a cheaper level of service), the removal of barriers to servicing the poor (e.g., issues with land tenure), and financial incentives consistent with extending services (Komives 2001: 62). Laurie and Crespo (2007), on the other hand, reject differentiated service types (in this case, condominium water and sewerage connections),¹⁶ highlight the fact that the contract received only one bid, and explore the hidden costs of the PSP contract, such as the elimination of subsidies for public institutions, which led to high municipal water debt and water cutoffs to hospitals and schools in 2003. Others point out that the project did not make any money in its first three years, thus raising questions about its repeatability (Budds and McGranahan 2003: 109).

Community Management

The advancement of community-led or participatory management of local water supplies is a proposal that appeals to both proponents and opponents of neoliberalization. The advancement of participatory, community-led management for certain segments of society has existed in World Bank literature since the early 1990s as part of its advocacy of privatization. In its report *Water Resources Management*, the World Bank (1993) highlights the use of community associations for service delivery, as well as participation to understand the level of service desired by the poor. In its report of the following year, the World Bank (1994: 8, 10) details the role of community sectors in providing services to rural areas and low-income settlements where "commercial and competitive activity is constrained." For similar reasons but different purposes, community management is also advocated as a response to the neglect of rural and low-income areas by traditional state utilities and the private sector. Those who promote community management often see it as an alternative that is capable of addressing the specificity of local needs, that is more readily achievable in many neglected areas than waiting for the state, and that gives a sense of empowerment and ownership to local residents (see K. Bakker 2008).

Community management has also met with reservations. A key concern is its potential to facilitate cherry-picking by the private sector, leaving already disadvantaged groups with inferior services from which the state and the private sector have both divested (K. Bakker 2008). In

Jaglin's (2002: 232) terms, community-run supplies reflect "a compromise between the ambition to provide universal access to water and the principle of cost recovery." Such programs thus contain elements of differentiated services, but the costs are transferred to user organizations rather than the government, which might otherwise provide subsidies (*ibid.*). According to Jaglin's research, participatory approaches can help to extend services but can also result in unstable systems, given the difficulty of raising capital. They thus risk producing a lower level of service provision that can be "very difficult to upgrade" (*ibid.*).

Other researchers express unease with the romanticization of 'community', just as they might with the idealization of the private sector (McGranahan and Mulenga 2009). Rather than uniform and uniquely just results, proponents should expect to confront a range of outcomes, not all of which are in opposition to neoliberalization. As Page (2003) shows, community-led management is not antithetical to commodification and can take place as an active disengagement from state services, having repercussions for the solvency of the wider state-run system. Moreover, participatory processes can be complex and time-consuming (Sabatier et al. 2005), may not exhibit fairness (Cooke and Kothari 2001), and can be hindered by a shortage of political capital or funds (Blair 2000). Karen Bakker (2007: 445–446) lists various other alternatives to neoliberalization, finding the most progressive to be those that involve reforming state governance while strengthening "alternative local models of resource management," which, like public utility partnerships, may be replicable across contexts.

Public Utility Partnerships

Public utility partnerships (PUPs) involve the development of capacity-building relationships between publicly owned utilities. PUPs may be local, regional, or international and generally involve one public utility providing support to one or more others that have not yet achieved the same level of sophistication (technical, managerial, etc.) or service provision (water quality and quantity, coverage, etc.). Activities have included training, consulting, management and administration services, financial remodeling, and joint investment initiatives (Hall 2000: 3). Such relationships have been growing over the past 20 years, and, with 130 PUPs in 70 countries, "far more countries host PUPs than host PPPs [i.e., PSPs] in water" (Hall et al. 2010: 10).

PUPs have been supported through EU initiatives—such as the Baltic Sea Joint Comprehensive Environmental Action Programme and the TACIS (Technical Assistance to the Commonwealth of Independent States) program—with many of them operating between Western European countries and those of the former Eastern bloc (Hall 2000). The United Nations Secretary-General's Advisory Board on Water and Sanitation (UNSGAB) operates the Water Operators Partnerships (WOPs) program directed at "providing support for capacity building of public water operators" (UNSGAB 2007). Funding has come from a range of donors including the World Bank, the EU (which promised 40 million euros for 2010), and the International Bank for Reconstruction and Development (Hall 2000).

Researchers at the Public Services International Research Unit (PSIRU) of the University of Greenwich find that PUPs are successful in capacity building and knowledge transfer. They attribute this to "underlying objectives and motivations, the basis of the partnership and the configuration of accountability networks," as well as to mutual trust and a public sector ethos (Lobina and Hall 2006: 3, 6). The researchers do, however, identify some potential issues. These include instances when PUPs involve the restructuring of the host utility (usually corporatization), joint ventures (when the visiting partner obtains some level of ownership), and the subsequent introduction of PSP (Hall 2000: 8). Like PSP, PUPs can take on many forms. Beyond the straight capacity-building relationship between two public sector utilities, PUPs have included

relationships whereby publicly owned water corporations have engaged in contracted services both within their own countries and internationally, for profit and as development projects.

Public Corporations

Publicly owned corporations for water supply are not new, but interest in them is growing, given their embodiment of certain private sector principles—such as cost recovery, business-like management, and independence from government (Schwartz and Blokland 2002: 221)—and the opportunities they present for amalgamating small utilities (Rouse 2009). In the South African context, Smith (2004) refers to such organizational models as the ‘second wave’ of neoliberalism. Others go further, classifying the model as a form of privatization as it “is often seen as a first step towards more explicit forms of private sector involvement” (McDonald and Ruiters 2005: 3). However, experiences are not easily generalized. Supported by federal regulation, Bogotá’s municipal water corporation EAAB has achieved coverage and water quality levels that place it among the top-performing utilities in Latin America (Gilbert 2007; Murillo and Nieto 1997).

In Colombia, the municipal corporation model has been in place for water supply in many cities for more than half a century: in Bogotá since 1914, Cali since 1931, and Medellín since 1955. In the Netherlands, the model’s dominance has grown rapidly since 1975 (Blokland and Schwartz 1999). Both cases present interesting takes on PUPs. The *Empresas Públicas de Medellín (EPM)*¹⁷ is a public corporation that is wholly owned by the city of Medellín, to which it pays a dividend (\$274 million in 2008).¹⁸ It has contracts for water and energy supply across Colombia, both lucrative ones (e.g., Bogotá, now concluded) and others directed at development (e.g., Quibdo). The company has made extensive social investments, including service extension, the building of public libraries, youth programs, and community lighting, among others (EMP 2008b).

In the Netherlands, while public limited corporations (PLCs) are responsible for water supply, public ownership of these PLCs is guaranteed by amendments made to the Water Supply Act in 2004. In 2006, Holland’s two largest PLCs formed a subsidiary, *Vitens-Evides International (VEI)*, with the goal of supporting progress toward the MDGs through WOPs.¹⁹ VEI’s funding is raised through donor agencies, among them the Netherlands Development Corporation, the World Bank, the European Bank for Reconstruction and Development, and the Asian Development Bank.²⁰ VEI currently has nine international projects in seven countries, including two management contracts (Ghana and Malawi) with a total budget of 36.35 million euros (VEI 2009).²¹ The management contracts are established on a cost recovery basis following the same philosophy as WOPs. Nevertheless, such contracts can be controversial. The Ghanaian contract was the subject of such extensive criticism on the part of the National Coalition against Privatization (NCAP 2009) that the Ghanaian government decided to look into canceling the contract.²²

Conclusion

This article presents a review of the literature on water supply neoliberalization, assessing its conceptual roots, trends, outcomes, and reformulations. First, I detailed the particular prescriptions for water sector reform under neoliberalization, contextualizing them within the neoliberal ideas from which they derive. I then presented the actual trends in water sector reform over the neoliberal period, focusing on reforms to the institutions, organizations, and governance of water management. Building on this discussion of trends, I next analyzed the degree to which the program has brought about the results predicted by its proponents. On most indicators, the

program falls short of meeting its claims. In cases where improvements are seen, they may come at the expense of regression in other areas.

This is among the key findings of the article—that contradictions exist in the program between the prescriptions and the predicted outcomes, among the reforms themselves, and between the ideology and the ability to impose it. First, in terms of programs and goals, obvious examples include the incompatibility between user-pay full cost recovery and declining prices; between PSP and increased investment in infrastructure; and between business-driven management and improved water conservation. The limits of the program in meeting the range of outcomes envisioned is perhaps unsurprising, given the inherent assumption that vastly different policy goals (e.g., increased access for the poor and environmental improvements) can be met through like organizational reforms (e.g., PSP). Second, the policy prescriptions themselves can come into conflict with one another. For instance, it was shown how earlier rounds of deregulation can inhibit the effectiveness of future reregulation. Moreover, PSP and privatization led to the need for further regulation, as opposed to deregulation, and imposed limits to participation that would include the empowerment of non-state actors beyond the private sector, such as community groups. Finally, there is the contradiction between the ideology and the ability to impose it. Most prominent is the stated doctrine of reduced government involvement in terms of both regulation and service delivery. In practice, this results in the need for reregulation in order to preserve the neoliberal order (e.g., by mitigating its most deleterious consequences, such as water cutoffs), as well as a dependence on public sector subsidies to ensure the system's maintenance (Ruckert's "accumulation by subsidization").

Given these challenges, as opposed to direct implementation, a constant revision of programs and of their focus and goals is necessary. In these reformulations we see the attempt of proponents of neoliberalism to narrow the scope of their ambition, acknowledging, for instance, their inability to extend service to low-income areas or to secure reinvestment in infrastructure.

The evidence of contradictions and of the limited achievement of stated goals does not complete the need for analysis. As Ferguson (1990: 254) states, the most important aspect of a reform is "not so much what it fails to do but what it does do; it may be that its real importance in the end lies in the 'side effects.'" Thus, for example, beyond the fact that privatization has been limited, it is important to recognize that ultimately PSP has proved to be a regional and urban force, as opposed to a global one; that it has moved from a multinational to a national corporate program; that it has driven and been driven by reregulation; and that it has created possibilities for a host of new actors beyond the state. PSP hints at a resource neoliberalization that seeks opportunity rather than uniformity. It does not need to pit the state against the private sector, nor is it always obliged to seek out new and radical methods. Instead, it may draw on existing practices (such as state subsidization and even service delivery) to sustain its programs while reformulating its goals.

■ ACKNOWLEDGMENTS

This work was conducted under the auspices of a Social Sciences and Humanities Research Council (SSHRC) Postdoctoral Fellowship at the Stockholm Environment Institute (SEI). I am grateful to the SEI for providing the necessary facilities, as well as a stimulating intellectual environment in which to research and write, and to the SSHRC of Canada for providing financial support. I would also like to thank Peter Rudberg and two anonymous reviewers for their thoughtful comments.

■ **KATHRYN FURLONG** is an Assistant Professor in Geography at the Université de Montréal. Her research examines governance issues related to the delivery of municipal services, particularly water supply. Her PhD dissertation (University of British Columbia, 2007), examining water utility restructuring under neoliberalization in Ontario, was co-selected as best dissertation by the Economic Geography Specialty Group of the Association of American Geographers in 2008. Her recent and forthcoming published work analyzes the assumed stability of large technical networks, the contradictions in alternative service delivery, and the hidden theories embedded in the water wars thesis. Her current research focuses on the municipally owned corporation for utility services in the Republic of Colombia.

■ NOTES

1. Recent assessments show that 2.5 billion people lack access to improved sanitation facilities, including 1.2 billion who have none at all (WHO and UNICEF 2008: 2), and that 884 million people are still reliant on unimproved drinking water (*ibid.*: 23).
2. Private sector partnerships (PSP) are rarely, if ever, found in rural areas of the global South because these regions “often present a commercially unattractive combination of low demand and high cost of service provision” (Andrés et al. 2008: 46). Yet 86 percent of those lacking access to improved drinking water and 74 percent of those lacking access to improved sanitation live in rural areas (WHO and UNICEF 2008: 53).
3. For a critique of these neoliberal reforms, see Harvey (2005) and Stiglitz (2002).
4. The ‘hydraulic age’ refers to the period in water management defined by supply-driven management, large infrastructure projects, and universal water provision at low or no cost to the user (see Goubert 1986; Melosi 2000).
5. In 2001, five companies represented 80 percent of the population served through PSP in the global South: Suez (36 percent), Saur (15 percent), Veolia (12 percent), Agbar (11 percent), and Thames Water (6 percent). Between 2001 and 2007, their share of the market decreased to less than 60 percent, as new private operators grew in prominence (Marin 2009: 29–30).
6. For the circumstances and outcomes of these reforms in Ontario, Canada, see Prudham (2004).
7. Already in 1982, the private sector (non-profit and for-profit) delivered 60 percent of “government-financed human services” at the local level in the US (Salamon 2002: 3). The phenomenon is also widespread among European welfare states (except Scandinavia) (*ibid.*: 6).
8. There are several contracting options. See Kessides (1993: 19) for a comparison of the various organizational arrangements, including contracting, build-operate-transfer (BOT), leasing, etc.
9. See the World Bank Group’s Web page, “Private Participation in Infrastructure Database: Sector Data Snapshots Water and Sewerage,” http://ppi.worldbank.org/explore/ppi_exploreSector.aspx?sectorID=4 (accessed 1 July 2010).
10. A number of authors have written about this shift. See, for example, Brenner (2004), Jessop (1999), Jouve (2005), and Rhodes (1997).
11. Jaglin (2002) draws on the work of Lavigne (1995), Plane (1998), and Rivera (1996).
12. For a full debate on issues surrounding water and GATS, see the special issue of *Progress in Development Studies*, edited by Brown et al. (2008).
13. Here Budds and McGranahan (2003) draw on the work of Carbonel (2000), Nickson (2001a, 2001b), and Trémolet (2002).
14. Between 1990 and 2004, the number of people lacking access to safe drinking water and sanitation in sub-Saharan Africa increased by 23 percent and 30 percent, respectively (WHO and UNICEF 2006: 2, 10).
15. The data, which come from the PRINWASS project coordinated by J. E. Castro (see Azpiazu and Schorr 2004; Kallis and Coccossis 2004), are available at <http://www.prinwass.org>.

16. Condominial connections reduce costs by using smaller diameter pipes and shallower burying methods. In the case of La Paz-El Alto, community labor was also used to lay the pipes and was compensated through reduced connection fees (Laurie and Crespo 2007).
17. The EPM is responsible for water, sewerage, and energy services.
18. The level of the dividend paid to the municipality by EPM is set at 30 percent of profits. In 2008, the dividend constituted 19.6 percent of the municipal budget (EPM 2008a, 2008b).
19. Vitens-Evides International, "Position Paper," <http://www.vitensevidesinternational.com/downloads.html> (accessed 1 July 2010).
20. Vitens-Evides International, "Corporate Brochure," <http://www.vitensevidesinternational.com/downloads.html> (accessed 1 July 2010).
21. Information on the Malawi contract is not included in the 2008 report as it began in 2009. The information can be found on the VEI Web site at <http://www.vitensevidesinternational.com/projects/malawi.html>.
22. "I'll Look into AVR Operations—Minister-Designat," Ghana Business News, 24 February 2009, <http://ghanabusinessnews.com/2009/02/24/i%E2%80%99ll-look-into-avr1-operations-%E2%80%93-minister-designate/> (accessed 1 July 2010).

■ REFERENCES

- Aguiar, Luis L. M. 2006. "Janitors and Sweatshop Citizenship in Canada." *Antipode* 38 (3): 440–461.
- Altenburg, Tilman, and Christian von Drachenfels. 2006. "The 'New Minimalist Approach' to Private-Sector Development: A Critical Assessment." *Development Policy Review* 24 (4): 387–411.
- Anderson, Terry L. 1982. "The New Resource Economics: Old Ideas and New Applications." *American Journal of Agricultural Economics* 64 (5): 928–934.
- Anderson, Terry L., and Donald R. Leal. 1988. "Going with the Flow: Expanding the Water Markets." *Cato Policy Analysis* 104. <http://www.cato.org/pubs/pas/pa104.html>.
- Andrés, Luis A., J. Luis Guasch, Thomas Haven, and Vivien Foster. 2008. *Impact of Private Sector Participation in Infrastructure: Lights, Shadows, and the Road Ahead*. Washington, DC: World Bank.
- Assies, Willem. 2003. "David versus Goliath in Cochabamba: Water Rights, Neoliberalism, and the Revival of Social Protest in Bolivia." *Latin American Perspectives* 30 (3): 14–36.
- Azpiazu, Daniel, and Martin Schorr. 2004. *Cross-Comparative Report on the Economic-Financial Dimension*. Oxford: PRINWASS Project, University of Oxford.
- Bakker, Isabella. 2003. "Neo-Liberal Governance and the Reprivatization of Social Reproduction: Social Provisioning and Shifting Gender Orders." Pp. 66–82 in *Power, Production and Social Reproduction*, ed. I. Bakker and S. Gill. New York: Palgrave MacMillan.
- Bakker, Karen. 2000. "Privatizing Water, Producing Scarcity: The Yorkshire Drought of 1995." *Economic Geography* 76 (1): 4–27.
- _____. 2003a. "Archipelagos and Networks: Urbanization and Water Privatization in the South." *Geographical Journal* 169 (4): 328–341.
- _____. 2003b. *An Uncooperative Commodity: Privatizing Water in England and Wales*. Oxford: Oxford University Press.
- _____. 2005. "Neoliberalizing Nature? Market Environmentalism in Water Supply in England and Wales." *Annals of the Association of American Geographers* 95 (3): 542–565.
- _____. 2007. "The 'Commons' versus the 'Commodity': Alter-Globalization, Anti-Privatization and the Human Right to Water in the Global South." *Antipode* 39 (3): 430–455.
- _____. 2008. "The Ambiguity of Community: Debating Alternatives to Private-Sector Provision of Urban Water Supply." *Water Alternatives* 1 (2): 236–252.
- _____. 2009. "Neoliberal Nature, Ecological Fixes and the Pitfalls of Comparative Research." *Environment and Planning A* 41 (8): 1781–1787.

- Barlow, Maude, and Tony Clarke. 2002. *Blue Gold: The Battle against the Corporate Theft of the World's Water*. London: Earthscan.
- Bennett, Vivienne, Sonia Dávila-Poblete, and María Nieves Rico, eds. 2005. *Opposing Currents: The Politics of Water and Gender in Latin America*. Pittsburgh, PA: University of Pittsburgh Press.
- Bernstein, Steven. 2001. *The Compromise of Liberal Environmentalism*. New York: Columbia University Press.
- Blair, Harry. 2000. "Participation and Accountability at the Periphery: Democratic Local Governance in Six Countries." *World Development* 28 (1): 21–39.
- Block, Fred L. 1977. *The Origins of the International Economic Disorder: A Study of United States International Monetary Policy from World War II to the Present*. Berkeley: University of California Press.
- Blokland, Maarten, and Klaas Schwartz. 1999. "The Dutch Public Water PLC." Pp. 63–80 in *Private Business, Public Owners: Government Shareholdings in Water Enterprises*, ed. M. Blokland, O. Braadbaart, and K. Schwartz. The Hague: Dutch Ministry of Housing, Spatial Planning and the Environment in collaboration with the Water Supply and Sanitation Council.
- Boelens, Rutgerd. 2009. "The Politics of Disciplining Water Rights." *Development and Change* 40 (2): 307–331.
- Bond, Patrick, ed. 2002. *Unsustainable South Africa: Environment, Development and Social Protest*. Scottsville, South Africa: University of Natal Press.
- Bond, Patrick, Greg Ruiters, and Robyn Stein. 2002. "Droughts and Floods: Water Prices and Values in the Time of Cholera." Pp. 255–299 in *Unsustainable South Africa: Environment, Development and Social Protest*, ed. P. Bond. Scottsville, South Africa: University of Natal Press.
- Boyd, David R. 2003. *Unnatural Law: Rethinking Canadian Environmental Law and Policy*. Vancouver: University of British Columbia Press.
- Brenner, Neil. 2004. "Urban Governance and the Production of New State Spaces in Western Europe, 1960–2000." *Review of International Political Economy* 11 (3): 447–488.
- Brenner, Neil, and Nik Theodore. 2002. "Cities and the Geographies of 'Actually Existing Neoliberalism.'" *Antipode* 34 (3): 349–379.
- Brown, Ed, Jonathan Cloke, and Mansoor Ali, eds. 2008. "Special Issue: GATS and Development: The Case of the Water Sector." *Progress in Development Studies* 8 (1): 1–128.
- Budds, Jessica, and Gordan McGranahan. 2003. "Are the Debates on Water Privatization Missing the Point? Experiences from Africa, Asia and Latin America." *Environment and Urbanization* 15 (2): 87–113.
- Cairncross, Sandy. 1987. "The Private Sector and Water Supply in Developing Countries: Partnerships or Profiteering?" *Health Policy and Planning* 2 (2): 180–182.
- Carbonel, Alain. 2000. "Supply of Water and Sanitation to Low-Income Households in La Paz under the Aguas Del Illimani Concession." Paper presented at "Infrastructure for Development: Private Solutions and the Poor," Private Provision of Infrastructure Advisory Facility, Department for International Development, and World Bank, London.
- Castro, José Esteban. 2006. *Water, Power and Citizenship: Social Struggle in the Basin of Mexico*. St Antony's Series, ed. J. Zielonka. Houndmills, UK, and New York: Palgrave Macmillan in association with St Antony's College, Oxford University.
- _____. 2007. "Systemic Conditions Affecting the Universalisation of Water and Sanitation Services: A Sociological Exploration." *Journal of Comparative Social Welfare* 23 (2): 105–119.
- _____. 2008. "Neoliberal Water and Sanitation Policies as a Failed Development Strategy: Lessons from Developing Countries." *Progress in Development Studies* 8 (1): 63–83.
- Conca, Ken. 2006. *Governing Water: Contentious Transnational Politics and Global Institution Building*. Cambridge, MA: MIT Press.
- Cooke, Bill, and Uma Kothari, eds. 2001. *Participation: The New Tyranny*. London: Zed Books.
- Coutard, Oliver. 2008. "Placing Splintering Urbanism: Introduction." *Geoforum* 39 (6): 1815–1820.
- Crean, Michael J. 2002. "A Public Sector Alternative for the New Millennium." Pp. 439–458 in *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management*, ed. P. Seidenstat, D. Haarmeyer, and S. Hakim. New York: John Wiley and Sons.
- Dalhuisen, Jasper M., Caroline A. Rodenburg, Henri L. F. de Groot, and Peter Nijkamp. 2003. "Sustainable Water Management Policy: Lessons from Amsterdam." *European Planning Studies* 11 (3): 263–281.

- Dávila-Poblete, Sonia, and María Nieves Rico. 2005. "Global Water and Gender Policies: Latin American Challenges." Pp. 30–49 in *Opposing Currents: The Politics of Water and Gender in Latin America*, ed. V. Bennett, S. Dávila-Poblete, and M. N. Rico. Pittsburgh, PA: University of Pittsburgh Press.
- de Azevedo, Sérgio. 1998. "Law and the Future of Urban Management in the Third World Metropolis." Pp. 258–273 in *Illegal Cities: Law and Urban Change in Developing Countries*, ed. E. Fernandes and A. Varley. London: Zed Press.
- de Loë, Rob, and Reid Kreutzwiser. 2007. "Challenging the Status Quo: The Evolution of Water Governance in Canada." Pp. 85–103 in *Eau Canada: The Future of Canada's Water*, ed. K. Bakker. Vancouver: University of British Columbia Press.
- Debomy, Sylvie, Donald T. Lauria, and Omar S. Hopkins. 2005. "Pro-Poor Subsidies for Water Connections in West Africa: A Preliminary Study." Water Supply and Sanitation Working Notes 4, World Bank Group.
- DG Environment. 2008. "Water Note 5: Economics in Water Policy: The Value of Europe's Waters." European Commission Water Information System for Europe (WISE), Brussels.
- Dinar, Ariel, and R. Maria Salet. 2004. *Institutional Economics of Water: A Cross-Country Analysis of Institutions and Performance*. Washington, DC: World Bank.
- Dryzek, John S. 1997. *The Politics of the Earth: Environmental Discourses*. Oxford: Oxford University Press.
- Dubash, Navroz. 2004. "Water, Markets, and Embedded Institutions in Western India." Pp. 218–243 in *Liberation Ecologies: Environment, Development, Social Movements*, ed. R. Peet and M. Watts. London: Taylor and Francis.
- Duménil, Gérard, and Dominique Lévy. 2004. *Capital Resurgent: Roots of the Neoliberal Revolution*. Trans. D. Jeffers. Cambridge, MA: Harvard University Press.
- EPM (Empresas Públicas de Medellín). 2008a. *Informe Financiero 2008*. Medellín, Colombia: Empresas Públicas de Medellín.
- _____. 2008b. *Informe Social 2008*. Medellín, Colombia: Empresas Públicas de Medellín.
- Estache, Antonio. 2005. "PPI Partnerships versus PPI Divorces in LDCs." Policy Research Working Paper Series No. 3470. World Bank, Washington, DC.
- European Parliament. 2000. "Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy." Pp. 1–73, vol. L: Official Journal L 327.
- Ferguson, James. 1990. *The Anti-Politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. Cambridge: Cambridge University Press.
- _____. 2006. *Global Shadows: Africa in the Neoliberal World Order*. Durham, NC, and London: Duke University Press.
- Figueres, Caroline, Johan Rockstrom, and Cecilia Tortajada, eds. 2003. *Rethinking Water Management: Innovative Approaches to Contemporary Issues*. London: Earthscan.
- Finnegan, William. 2002. "Leasing the Rain." *New Yorker*, 8 April, 45–53.
- Franceys, Richard. 2008. "GATS, 'Privatization' and Institutional Development for Urban Water Provision: Future Postponed?" *Progress in Development Studies* 8 (1): 45–58.
- Furlong, Kathryn, and Karen Bakker. 2010. "The Contradictions of 'Alternative' Service Delivery: Governance, Business Models, and Sustainability in Municipal Water Supply." *Environment and Planning C: Government and Policy* 28 (2): 349–368.
- Gamble, Andrew. 1988. *The Free Economy and the Strong State: The Politics of Thatcherism*. Basingstoke: Macmillan Education.
- Gandy, Matthew. 1997. "The Making of a Regulatory Crisis: Restructuring New York City's Water Supply." *Transactions of the Institute of British Geographers* 22 (3): 338–358.
- Gilbert, Alan. 2007. "Water for All: How to Combine Public Management with Commercial Practice for the Benefit of the Poor?" *Urban Studies* 44 (8): 1559–1579.
- Gleick, Peter H., Gary Wolff, Elizabeth L. Chalecki, and Rachel Reyes. 2002. *The New Economy of Water: The Risks and Benefits of Globalization and Privatization of Fresh Water*. Oakland, CA: Pacific Institute.
- Gore, Charles. 2000. "The Rise and Fall of the Washington Consensus as a Paradigm for Developing Countries." *World Development* 28 (5): 789–804.

- Goubert, Jean-Pierre. 1986. *The Conquest of Water: The Advent of Health in the Industrial Age*. Oxford: Blackwell.
- Graham, Stephen. 1997. "Liberalized Utilities, New Technologies and Urban Social Polarization: The UK Experience." *European Urban and Regional Studies* 4 (2): 135–150.
- Gulyani, Sumila, Debabrata Talukdar, and R. Mukami Kariuki. 2005. "Universal (Non)Service? Water Markets, Household Demand and the Poor in Urban Kenya." *Urban Studies* 42 (8): 1247–1474.
- GWP (Global Water Partnership). 2000. *Towards Water Security: Framework for Action 2000*. Stockholm and London: Global Water Partnership.
- Hajer, Maarten A. 1995. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Clarendon Press.
- Hall, David. 2000. *Water Partnerships: Public-Public Partnerships and 'Twinning' in Water and Sanitation*. London: Public Services International Research Unit (PSIRU), University of Greenwich.
- Hall, David, and Emanuele Lobina. 2007. "Profitability and the Poor: Corporate Strategies, Innovation and Sustainability." *Geoforum* 38 (5): 772–785.
- Hall, David, Emanuele Lobina, and Violeta Corral. 2010. *Replacing Failed Private Water Contracts*. London: Public Services International Research Unit (PSIRU), University of Greenwich.
- Hardoy, Ana, and Ricardo Schusterman. 2000. "New Models for the Privatization of Water and Sanitation for the Urban Poor." *Environment and Urbanization* 12 (2): 63–75.
- Harris, Mike. 1994. "The Common Sense Revolution." Policy document of the Progressive Conservative Party of Ontario, Toronto.
- Harvey, David. 2003. *The New Imperialism*. Oxford: Oxford University Press.
- _____. 2005. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Hassan, John. 1998. *A History of Water in Modern England and Wales*. Manchester: Manchester University Press.
- Houghton, Graham. 1998. "Private Profits—Public Drought: The Creation of a Crisis in Water Management for West Yorkshire." *Transactions of the Institute of British Geographers* 23 (4): 419–433.
- _____. 2002. "Market Making: Internationalisation and Global Water Markets." *Environment and Planning A* 34 (5): 791–807.
- Hill, Carey, Kathryn Furlong, Karen Bakker, and Alice Cohen. 2008. "Harmonization versus Subsidiarity in Water Governance: A Review of Water Governance and Legislation in the Canadian Provinces and Territories." *Canadian Water Resources Journal* 33 (4): 315–332.
- Hout, Wil. 2007. *The Politics of Aid Selectivity: Good Governance Criteria in World Bank, US, and Dutch Development Assistance*. Abingdon and New York: Routledge.
- Idelovitch, Emanuel, and Klas Ringskog. 1995. "Private Sector Participation in Water Supply and Sanitation in Latin America." Paper provided by World Bank Latin America and the Caribbean Region Department, Washington, DC.
- Jaglin, Sylvie. 2002. "The Right to Water versus Cost Recovery: Participation, Urban Water Supply and the Poor in Sub-Saharan Africa." *Environment and Urbanization* 14 (1): 231–245.
- Jessop, Bob. 1999. "The Changing Governance of Welfare: Recent Trends in Its Primary Functions, Scale, and Modes of Coordination." *Social Policy and Administration* 33 (4): 348–359.
- _____. 2002. "Liberalism, Neo-Liberalism, and Urban Governance: A State Theoretical Perspective." *Antipode* 34 (3): 452–472.
- Jimenez, Alejandro, and Agusti Perez-Foguet. 2009. "International Investments in the Water Sector." *International Journal of Water Resources Development* 24 (1): 1–14.
- Jones, Tom. 1998. "Recent Developments in the Pricing of Water Services in OECD Countries." *Water Policy* 1: 637–651.
- Jouve, Bernard. 2005. "From Government to Urban Governance in Western Europe: A Critical Analysis." *Public Administration and Development* 25 (4): 285–294.
- Kaika, Maria. 2003. "The Water Framework Directive: A New Directive for a Changing Social, Political and Economic European Framework." *European Planning Studies* 11 (3): 299–316.
- _____. 2005. *City of Flows: Modernity, Nature, and the City*. New York and London: Routledge.

- Kaika, Maria, and Erik Swyngedouw. 2000. "Fetishizing the Modern City: The Phantasmagoria of Urban Technological Networks." *International Journal of Urban and Regional Research* 24 (1): 120–139.
- Kallis, Giorgos, and Harry Coccossis. 2003. "Managing Water for Athens: From the Hydraulic to the Rational Growth Paradigm." *European Planning Studies* 11 (3): 245–261.
- _____. 2004. *Greece Country Strategic Report*. Oxford: University of Oxford.
- Kallis, Giorgos, and Henri L. F. de Groot. 2003a. "Shifting Perspectives on Urban Water Policy in Europe." *European Planning Studies* 11 (3): 223–228.
- _____, eds. 2003b. "Special Issue: Urban Water Policy in Europe." *European Planning Studies* 11 (3): 223–299.
- Kallis, Giorgos, Isha Ray, Julian Fulton, and James E. McMahon. 2010. "Public versus Private: Does It Matter for Water Conservation? Insights from California." *Environmental Management* 45 (1): 177–191.
- Kessides, Christine. 1993. "Institutional Options for the Provision of Infrastructure." World Bank Discussion Paper No. 212. World Bank, Washington, DC.
- Kjellén, Marianne. 2006. *From Public Pipes to Private Hands: Water Access and Distribution in Dar es Salaam, Tanzania*. Vol. 15 of Stockholm Studies in Human Geography. Stockholm: Stockholm University Press.
- Koerberle, Stefan, Harold Bedoya, Peter Silarsky, and Gero Verheyen, eds. 2005. *Conditionality Revisited: Concepts, Experiences, and Lessons Learned*. Washington, DC: World Bank.
- Kolko, Joyce. 1988. *Restructuring the World Economy*. New York: Pantheon.
- Komives, Kristin. 2001. "Designing Pro-Poor Water and Sewer Concessions: Early Lessons from Bolivia." *Water Policy* 3: 61–79.
- _____. 2002. "Water Concession Design and the Poor." Pp. 149–162 in *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management*, ed. P. Seidenstat, D. Haarmeyer, and S. Hakim. New York: John Wiley and Sons.
- Komives, Kristin, Vivien Foster, and Jonathan Halpern. 2005. *Water, Electricity, and the Poor: Who Benefits from Utility Subsidies?* Washington, DC: World Bank.
- Kooy, Michelle, and Karen Bakker. 2008. "Splintered Networks: The Colonial and Contemporary Waters of Jakarta." *Geoforum* 39 (6): 1843–1858.
- Larner, Wendy. 2000. "Theorizing Neoliberalism: Policy, Ideology, and Governmentality." *Studies in Political Economy* 63: 5–26.
- _____. 2003. "Neoliberalism?" *Environment and Planning D: Society and Space* 21: 509–512.
- Larner, Wendy, and Maria Butler. 2005. "Governmentalities of Local Partnerships: The Rise of a 'Partnering State' in New Zealand." *Studies in Political Economy* 75 (Spring): 85–108.
- Laurie, Nina, and Carlos Crespo. 2007. "Deconstructing the Best Case Scenario: Lessons from Water Politics in La Paz–El Alto, Bolivia." *Geoforum* 38 (5): 841–854.
- Lavigne, Jean-Claude. 1995. "Deux expériences africaines: Côte d'Ivoire et Guinée." Pp. 135–158 in *Gestions urbaines de l'eau*, ed. D. Lorrain. Paris: Economica.
- Lee, Terence R. 1999. *Water Management in the 21st Century: The Allocation Imperative*. Cheltenham: Edward Elgar.
- Lee, Terence R., and Andrei Jouravlev. 1997. *Private Participation in the Provision of Water Services: Alternative Means for Private Participation in the Provision of Water Services*. Santiago: Economic Commission for Latin America and the Caribbean (ECLAC).
- Lemke, Thomas. 2001. "'The Birth of Biopolitics': Michel Foucault's Lecture at the Collège de France on Neo-Liberal Governmentality." *Economy and Society* 30 (2): 190–207.
- Lobina, Emanuele, and David Hall. 2006. "Public-Public Partnerships as a Catalyst for Capacity Building and Institutional Development: Lessons from Stockholm Vatten's Experience in the Baltic Region." Paper presented at IRC and UNESCO-IHE Symposium on "Sustainable Water Supply and Sanitation: Strengthening Capacity for Local Governance," Delft, the Netherlands. Public Services International Research Unit (PSIRU), University of Greenwich, London.
- _____. 2008. "The Comparative Advantage of the Public Sector in the Development of Urban Water Supply." *Progress in Development Studies* 8 (1): 85–101.
- Loftus, Alex. 2006. "Reification and the Dictatorship of the Water Meter." *Antipode* 38 (5): 1023–1045.

- Lorrain, Dominique, ed. 1995. *Gestions urbaines de leau*. Paris: Economica.
- Marin, Philippe. 2009. "Public-Private Partnerships for Urban Water Utilities: A Review of Experiences in Developing Countries." Trends and Policy Options No. 8. The International Bank for Reconstruction and Development and the World Bank, Washington, DC.
- Marvin, Simon, and Nina Laurie. 1999. "An Emerging Logic of Urban Water Management, Cochabamba, Bolivia." *Urban Studies* 36 (2): 341–357.
- McCarthy, James. 2004. "Privatizing Conditions of Production: Trade Agreements as Neoliberal Environmental Governance." *Geoforum* 35 (3): 327–341.
- McCarthy, James, and Scott Prudham. 2004. "Neoliberal Nature and the Nature of Neoliberalism." *Geoforum* 35 (3): 275–283.
- McDonald, David A., and Greg Ruiters, eds. 2005. *The Age of Commodity: Water Privatization in Southern Africa*. London and Sterling, VA: Earthscan.
- McFarlane, Colin. 2008. "Governing the Contaminated City: Infrastructure and Sanitation in Colonial and Post-Colonial Bombay." *International Journal of Urban and Regional Research* 32 (2): 415–435.
- McGranahan, Gordon, Pedro Joacobi, Jacob Songsore, Charles Surjadi, and Marianne Kjellén. 2001. *The Citizens at Risk: From Urban Sanitation to Sustainable Cities*. London: Earthscan.
- McGranahan, Gordon, and Martin Mulenga. 2009. "Community Organization and Alternative Paradigms for Improving Water and Sanitation in Deprived Settlements." Pp. 173–187 in *Water and Sanitation Services: Public Policy and Management*, ed. J. E. Castro and L. Heller. London: Earthscan.
- McInnes, Peter. 2005. "Entrenching Inequalities: The Impact of Corporatization on Water Injustices in Pretoria." Pp. 111–132 in *The Age of Commodity: Water Privatization in Southern Africa*, ed. D. A. McDonald and G. Ruiters. London: Earthscan.
- Melosi, Martin. 2000. *The Sanitary City: Urban Infrastructure in America from Colonial Times*. Baltimore: Johns Hopkins University Press.
- Meyers, Patrick J. 2002. "Creating Liquidity in an Illiquid Market: How the Internet Can Facilitate the Development of Efficient Water Markets." Pp. 409–426 in *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management*, ed. P. Seidenstat, D. Haarmeyer, and S. Hakim. New York: John Wiley and Sons.
- Miralles, Antonio. 2008. "The Link between Service Privatization and Price Distribution among Consumer Types: Municipal Water Services in the Spanish Region of Catalonia." *Environment and Planning C: Government and Policy* 26 (1): 159–172.
- Mohan, Giles, Ed Brown, Bob Milward, and Alfred B. Zack-Williams. 2000. *Structural Adjustment: Theory, Practice and Impacts*. London: Routledge.
- Moss, Jack, Gary Wolff, Graham Gladden, and Eric Guttierrez. 2003. "Valuing Water for Better Governance: How to Promote Dialogue to Balance Social, Environmental, and Economic Values?" White paper, CEO Panel for Business and Industry, Pacific Institute, Paris.
- Moss, Timothy. 2009. "Intermediaries and the Governance of Sociotechnical Networks in Transition." *Environment and Planning A* 41 (6): 1480–1495.
- Moss, Timothy, Will Medd, Simon Guy, and Simon Marvin. 2009. "Organising Water: The Hidden Role of Intermediary Work." *Water Alternatives* 2 (1): 16–33.
- Mumssen, Yogita U., and Brian Williamson. 2002. "Comparative Analysis of Regulation: Water and Other Network Utilities." Pp. 31–62 in *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management*, ed. P. Seidenstat, D. Haarmeyer, and S. Hakim. New York: John Wiley and Sons.
- Murillo, Antonio Estrada and Enrique Giraldo Nieto. 1997. *El Agua en la Historia de una Ciudad*. Vol. 2. Bogotá: Empresa de Acueducto e Alcantarillado de Bogotá (EAAB-ESP).
- NCAP (National Coalition against Privatization of Water). 2009. "For Water Services You Deserve ... AVR! Must Go Now! Support GWCL Workers!" National Coalition against Privatization, Accra, Ghana.
- Nickson, Andrew. 2001a. "The Cordoba Water Concession in Argentina." Building Municipality Capacity for Private Sector Participation Series, Working Paper No. 442 05, GHK International, London.
- _____. 2001b. "Establishing and Implementing a Joint Venture: Water and Sanitation Services in Cartagena, Colombia." Building Municipality Capacity for Private Sector Participation Series, Working Paper No. 442 03, GHK International, London.

- O'Connor, James. 1973. *The Fiscal Crisis of the State*. New York: St. Martin's Press.
- OECD (Organisation for Economic Co-operation and Development). 2009. *Managing Water for All: An OECD Perspective on Pricing and Financing*. Paris: OECD.
- Osborn, Suzie, and Simon Marvin. 2001. "Restabilizing a Heterogeneous Network: The Yorkshire Drought 1995–96." Pp. 68–77 in *Urban Infrastructure in Transition: Networks, Buildings, Plans*, ed. S. Guy, S. Marvin, and T. Moss. London: Earthscan.
- Osborne, David E., and Ted Gaebler. 1992. *Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector*. Reading, MA: Addison-Wesley.
- Page, Ben. 2003. "Communities as Agents of Commodification: The Kumbo Water Authority in North-west Cameroon." *Geoforum* 34 (4): 483–498.
- _____. 2005. "Paying for Water and the Geography of Commodities." *Transactions of the Institute of British Geographers* 30 (3): 293–306.
- Page, Ben, and Karen Bakker. 2005. "Water Governance and Water Users in a Privatised Water Industry: Participation in Policy-Making and in Water Services Provision: A Case Study of England and Wales." *International Journal of Water* 3 (1): 38–60.
- Page, Ben, and Maria Kaïka. 2003. "The EU Water Framework Directive: Part 2. Policy Innovation and the Shifting Choreography of Governance." *European Environment* 13 (6): 328–343.
- Parker, David, and Colin Kirkpatrick. 2005. "Privatisation in Developing Countries: A Review of the Evidence and the Policy Lessons." *Journal of Development Studies* 41 (4): 513–541.
- Patrick, Robert J. 2009. "Source Water Protection in a Landscape of 'New Era' Deregulation." *Canadian Geographer/Le Géographe canadien* 53 (2): 208–221.
- Peck, Jamie. 2001a. "Neoliberalizing States: Thin Policies/Hard Outcomes." *Progress in Human Geography* 25 (3): 445–455.
- _____. 2001b. *Workfare States*. New York and London: Guilford Press.
- _____. 2007. "Remaking Laissez-Faire." *Progress in Human Geography* 32 (1): 3–43.
- Peck, Jamie, and Adam Tickell. 2002. "Neoliberalizing Space." *Antipode* 34 (3): 380–404.
- Peet, Richard. 2003. *Unholy Trinity: The IMF, World Bank and WTO*. London: Zed Books.
- Perreault, Thomas. 2006. "From the *Guerra del Agua* to the *Guerra del Gas*: Resource Governance, Neoliberalism and Popular Protest in Bolivia." *Antipode* 38 (1): 150–172.
- Plane, Patrick. 1998. "Les services publics africains à l'heure du désengagement de l'État." *Problèmes économiques* 2587: 21–27.
- Polanyi, Karl. 1944. *The Great Transformation*. New York: Octagon Books.
- Prasad, Naren. 2006. "Privatisation Results: Private Sector Participation in Water Services after 15 Years." *Development Policy Review* 24 (6): 669–692.
- Prudham, Scott. 2004. "Poisoning the Well: Neoliberalism and the Contamination of Municipal Water in Walkerton, Ontario." *Geoforum* 35 (3): 343–359.
- Rhodes, R. A. W. 1997. *Understanding Governance: Policy Networks, Governance, Reflexivity and Accountability*. Berkshire: Open University Press.
- Rivera, Daniel. 1996. *Private Sector Participation in the Water Supply and Wastewater Sector*. Washington, DC: World Bank.
- Rogers, Peter, Radhika de Silva, and Ramesh Bhatia. 2002. "Water Is an Economic Good: How to Use Prices to Promote Equity, Efficiency, and Sustainability." *Water Policy* 4: 1–17.
- Rosegrant, Mark W., and Hans P. Binswanger. 1994. "Markets in Tradable Water Rights: Potential for Efficiency Gains in Developing Country Water Resource Allocation." *World Development* 22 (11): 1613–1625.
- Rouse, Michael. 2009. "The Market-Centred Paradigm." Pp. 139–152 in *Water and Sanitation Services: Public Policy and Management*, ed. J. E. Castro and L. Heller. London: Earthscan.
- Ruckert, Arne. 2006. "Towards an Inclusive-Neoliberal Regime of Development: From the Washington to the Post-Washington Consensus." *Labour, Capital and Society* 39 (1): 34–67.
- _____. 2007. "Producing Neoliberal Hegemony? A Neo-Gramscian Analysis of the Poverty Reduction Strategy Paper (PRSP) in Nicaragua." *Studies in Political Economy* 79 (Spring): 91–118.
- Ruiters, Greg. 2007. "Contradictions in Municipal Services in Contemporary South Africa: Disciplinary Commodification and Self-Disconnections." *Critical Social Policy* 27 (4): 487–508.

- Sabatier, Paul A., Will Focht, Mark Lubell, Zev Trachtenberg, Arnold Vedlitz, and Marty Matlock, eds. 2005. *Swimming Upstream: Collaborative Approaches to Watershed Management*. Cambridge, MA: MIT Press.
- Salamon, Lester M. 2002. "The New Governance and the Tools of Public Action: An Introduction." Pp. 1–47 in *The Tools of Government: A Guide to the New Governance*, ed. L. M. Salamon and O. V. Elliott. Oxford: Oxford University Press.
- Saleth, R. Maria, and Ariel Dinar. 2000. "Institutional Change in Global Water Sector: Trends, Patterns, and Implications." *Water Policy* 2: 175–199.
- Sauri, David, and Leandro del Moral. 2001. "Recent Developments in Spanish Water Policy: Alternatives and Conflicts at the End of the Hydraulic Age." *Geoforum* 32 (3): 351–362.
- Schwartz, Klass. 2008. "Mimicking the Private Sector: New Public Management in the Water Supply and Sanitation Sector." *International Journal of Water* 4 (3/4): 159–179.
- Schwartz, Klass, and Maarten Blokland. 2002. "Government-Owned Public Limited Companies in the Dutch Water Sector." Pp. 221–246 in *Reinventing Water and Wastewater Systems: Global Lessons for Improving Water Management*, ed. P. Seidenstat, D. Haarmeyer, and S. Hakim. New York: John Wiley and Sons.
- Shirley, Mary M., ed. 2002. *Thirsting for Efficiency: The Economics and Politics of Urban Water System Reform*. Washington and Amsterdam: World Bank and Pergamon.
- Shiva, Vandana. 2002. *Water Wars: Privatization, Pollution, and Profit*. Cambridge, MA: South End Press.
- Smith, Laila. 2004. "The Murky Waters of the Second Wave of Neoliberalism: Corporatization as a Service Delivery Model in Cape Town." *Geoforum* 35 (3): 375–393.
- Smith, Laila, and Susan Hanson. 2003. "Access to Water for the Urban Poor in Cape Town: Where Equity Meets Cost Recovery." *Urban Studies* 40 (8): 1517–1548.
- Snider, Laureen. 2004. "Resisting Neo-Liberalism: The Poisoned Water Disaster in Walkerton, Ontario." *Social and Legal Studies* 13 (2): 265–289.
- Stiglitz, Joseph. 2002. *Globalization and Its Discontents*. New York: Norton.
- Subramanian, Ashok, N. Vijay Jagannathan, and Ruth Meinzen-Dick, eds. 1997. "User Organizations for Sustainable Water Services." World Bank Technical Paper No. 354. World Bank, Washington, DC.
- Swyngedouw, Erik. 2004. *Social Power and the Urbanization of Water*. Oxford: Oxford University Press.
- Talbot, Jean-François. 2002. "Is the Water Business Really a Business?" World Bank Water and Sanitation Lecture Series. World Bank, Washington, DC.
- Trémolet, Sophie. 2002. "Rural Water Service: Is a Private National Operator a Viable Business Model?" Public Policy for the Private Sector, Viewpoint Note 249. World Bank, Washington, DC.
- Trémolet, Sophie, and Catherine Hunt. 2006. "Taking Account of the Poor in Water Sector Regulation." Water Supply and Sanitation Working Notes, Note No. 11 World Bank, Washington, DC.
- UNSGAB (United Nations Secretary-General's Advisory Board on Water and Sanitation). 2007. "Water Operators Partnerships (WOPs)." <http://www.unsgab.org/hapi/wops/index.htm> (accessed 1 July 2010).
- VEI (Vitens-Evides International). 2009. "Annual Report 2008." <http://www.vitens.nl/English/pressand-media/Documents/VitensJaarverslag2008ENG.pdf>.
- Warner, Mildred, and Jennifer Gerbasi. 2004. "Rescaling and Reforming the State under NAFTA: Implications for Subnational Authority." *International Journal of Urban and Regional Research* 28 (4): 858–873.
- Weidner, Helmut. 2002. "Capacity Building for Ecological Modernization: Lessons from Cross-National Research." *American Behavioral Scientist* 45 (9): 1340–1368.
- WHO (World Health Organization) and UNICEF (United Nations Children's Fund). 2006. *Meeting the MDG Drinking Water and Sanitation Target: The Urban and Rural Challenge of the Decade*. Geneva: World Health Organization and United Nations Children's Fund.
- _____. 2008. *Progress on Drinking Water and Sanitation: Special Focus on Sanitation*. New York: WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.
- Winpenny, James. 1994. *Water as an Economic Resource*. London: Routledge.
- Wolff, Gary, and Eric Hallstein. 2005. *Beyond Privatization: Restructuring Water Systems to Improve Performance*. Oakland, CA: Pacific Institute.

- Wolff, Gary H., and Meena Palaniappan. 2004. "Public or Private Water Management? Cutting the Gordian Knot." *Journal of Water Resources Planning and Management* 130 (1): 1–3.
- Workman, Thom. 1996. *Banking on Deception: The Discourse of Fiscal Crisis*. Halifax: Fernwood.
- World Bank. 1981. *Accelerated Development in Sub-Saharan Africa: An Agenda for Action*. Washington, DC: World Bank.
- _____. 1993. *Water Resources Management: A World Bank Policy Paper*. Washington, DC: World Bank.
- _____. 1994. *World Development Report 1994: Investing in Infrastructure*. New York: Oxford University Press.
- _____. 2000. *Reforming Public Institutions and Strengthening Governance*. Washington, DC: World Bank.
- _____. 2004. *Water Resources Sector Strategy: Strategic Directions for World Bank Engagement*. Washington, DC: World Bank.
- _____. 2005a. *Economic Growth in the 1990s: Learning from a Decade of Reform*. Washington, DC: Oxford University Press for the World Bank.
- _____. 2005b. *World Development Report 2006: Equity and Development*. New York: Oxford University Press for the World Bank.
- Worster, Donald. 1985. *Rivers of Empire: Water, Aridity, and the Growth of the American West*. New York: Pantheon Books.