

# Water, Health, and the Commodification Debate

Review of Radical Political Economics  
42(4) 445–464  
© 2010 Union for Radical  
Political Economics  
Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>  
DOI: 10.1177/0486613410375056  
<http://rrpe.sagepub.com>



Patrick Bond<sup>1</sup>

## Abstract

Conflicts in the water sector are now well-known, and also increasingly researched by economists, particularly in relation to major ideological differences over state-run versus privatized municipal systems. A major dividing line is over how to access and sustain the financing required to expand and maintain municipal grids. In the context especially of third world urban processes, a crucial determinant is whether market-based pricing of water can generate health benefits to justify new capital investments. Such benefits have typically required strong public systems that offer adequate water supply (with sufficient proximity to source) at an affordable price. A variety of financial and fiscal pressures emerged since the 1980s, leaving full cost recovery as the core practice required by international aid agencies, multilateral financiers, and multinational corporations. Those firms were attracted by high potential profits which, ultimately, could not be realized (in part because of currency deterioration and profit repatriation problems), and hence systems were not maintained or expanded, and health benefits not realized. As commodification of water spread during the era of globalization, so too did an international civil society network demanding—and often winning—decommodification of water and deglobalization of water-capital, returning service delivery to local public institutions, often on grounds of improved public health.

**JEL classification:** D63, H44, L95, Q25

## Keywords

commodification, conditionalities, water, health

## 1. Introduction

What we see in the future is a fight over natural resources, and the people that can control them will be bigger than governments or states. Our particular man here is someone who is controlling the water in various countries and if you remember in *Chinatown*, if you control the water you control the whole development of the country. . . . [The villain Dominic Greene] found a way to inhibit the delivery of the water system without people knowing about it. What he wants to do is get control of the distribution system so then he'll provide the water. (Daniel Wilson, producer of *Quantum of Solace*, <http://movies.ign.com/articles/864/864542p1.html>)

---

<sup>1</sup>University of KwaZulu-Natal School of Development Studies, Durban, South Africa

Date received: September 8, 2008

Date accepted: February 2, 2009

### Corresponding Author:

Patrick Bond, University of KwaZulu-Natal School of Development Studies, Durban, South Africa

Email: [pbond@mail.ngo.za](mailto:pbond@mail.ngo.za)

The bad guys are stealing water and viewers are treated to the occasional shot of villagers in some undisclosed location gathered around a dripping faucet that of course is somehow tied into an international cabal of dastardly water thieves. I don't know why I never thought of extorting the obviously rich governments of the third world by controlling their water supply, but then again, I only have a fifth grade education. Part of me was extremely disappointed that something as inane as water became the focal point of a Bond movie. (Mr. Cranky's review of *Quantum of Solace*, <http://www.mrcranky.com/movies/quantum-solace>)

This article provides an overview of the way pressures on the water sector increased as a result of financial and fiscal stress that catalyzed privatization and commercialization processes, with a corresponding backlash by civil society. In part this has occurred because of genuine threats to public health, and one outcome is a discordant intellectual debate over what is ultimately at stake in the pricing of water.

To diminish the third world's mortality and morbidity rates, it is often assumed that increased provision of water to poor people is an appropriate public expenditure. But this assumption came under fire during the period of neoliberal economic policy hegemony, with even the World Health Organization (WHO) citing degenerating water systems as a rationale for water privatization. Economists have also expressed pro-privatization bias, without a full accounting of health benefits of water and of the microeconomic pricing conditions that warrant public supplies of free "lifeline" water allocations. With a great deal of attention now focused on Millennium Development Goal targets, and with much of the third world failing to meet water and sanitation objectives, a renewed concern for potential health improvements from water provision is vital in both political and policy terms. But to do so requires confronting the argument for commodification of water, and its implications for health status, head on.

## 2. Health-Water Vectors

At present, an estimated 1.2 billion people lack access to improved water supplies, and the "some 2.6 billion people—half of the developing world and 2 billion of whom live in rural areas—live without improved sanitation" (UNESCO 2006: 221). The WHO reports that a child dies every 15 seconds from water-related diseases. This amounts to nearly 6,000 deaths, or the equivalent of 20 jumbo jets crashing, every day. In 2000, the estimated mortality rate due to water sanitation hygiene-associated diarrheas and other water/sanitation-associated diseases was 2,213,000. Ingestion of contaminated water can lead to a variety of illnesses including cholera, typhoid, and dysentery. Up to 2.1 million deaths due to diarrhoeal diseases are attributable to the "water, sanitation and hygiene" risk factor, 90 percent of which occur in children under five. Malnutrition that accompanies diarrhoeal disease places millions more at greater susceptibility to death from other diseases. Water-borne parasites also cause illness. For example, more than 200 million people worldwide are infected by schistosomiasis, causing 20,000 deaths a year. An estimated 88 million are children under fifteen years (Global Health Watch 2005: 207-224).

Peter Gleick (2002: 2-8) disaggregates four types of water-related health concerns:

Waterborne diseases: caused by the ingestion of water contaminated by human or animal faeces or urine containing pathogenic bacteria or viruses; include cholera, typhoid, amoebic and bacillary dysentery, and other diarrhoeal diseases.

Water-washed diseases: caused by poor personal hygiene and skin or eye contact with contaminated water; include scabies, trachoma, and flea-, lice-, and tick-borne diseases.

Water-based diseases: caused by parasites found in intermediate organisms living in water; include dracunculiasis, schistosomiasis, and other helminths.

Water-related insect vector diseases: caused by insects that breed in water; include dengue, filariasis, malaria, onchocerciasis, trypanosomiasis, and yellow fever.

According to the United Nations' 2006 *World Water Development Report 2: Water a Shared Responsibility*, globally water-related diarrhoeal diseases accounted for 4 percent of total loss of disability-adjusted life years (DALYs) and 1.3 million deaths, concentrated among children under five, the group for whom the best and most accurate statistics are available. Notably, these figures do not account for other immediately related health burdens and life years lost, such as those born by pregnant and nursing women whose children die before the age of five. As UNESCO (2006: 210) remarks, "Diarrhoea and many other water-related diseases could eventually be controlled in a sustainable way by universal access to safe water and adequate sanitation, improved hygiene and optimal water management practices."

What are the main barriers to providing water that would mitigate disease? This article focuses on several sites of intense contestation between advocates of water as an economic good on the one hand, and on the other hand those—this author included—who consider it a human right and source of inspiration in the struggle for a less commodified society and environment. In between is an uneasy terrain in which economists like Jeffrey Sachs and Ravi Kanbur attempt to bridge the differing perspectives. We begin with the least controversial of water-health relationships, namely the cost-benefit measures that bring disease estimates into public goods discourse, and that in turn should lead to improved health outcomes. However, we then consider commercialization pressures that arose from the early 1990s in most of the world. Such pressures prevent "public goods" and "merit goods" from being incorporated in decisions to extend water systems. That takes us to the conflict between international aid agencies and multinational corporations on the one hand, and citizens' movements demanding access to water and healthcare on the other, in sites as diverse as Argentina, Ghana, and South Africa.

### 3. Debating Health Benefits of Public and Private Water Systems

Central to any consideration of water and health is the benefit for the latter derived from increased investment in the former, as occurs when water is either a public good or a merit good. Extremely serious debates have broken out over measuring costs and benefits, especially of water supplied by private versus public institutions. First, recall that underlying the idea of public goods are two conditions: "nonrival consumption" and "nonexclusion" from consumption. Nonrival consumption occurs when consumption of a public good/service by one person need not diminish the quantity consumed by anyone else (such as in a national defense system, which is "consumed" by all citizens in a quantity that is not affected by the consumption of defense benefits by fellow citizens). The benefits of a clean environment and hygienic public water system are enjoyed by all consumers, regardless of how much water is consumed by a particular individual, although a minimum consumption level is required for all citizens to prevent the spread of infectious diseases. The principle of nonexclusion means it is impossible to prevent other citizens from enjoying benefits from public goods, regardless of whether they are paid for. Even short of the status of public good, where nonrival consumption and nonexclusion may not both apply, however, increased supplies of water to poor people can result in benefits to society that outweigh the costs of supply, hence the result is a "merit good."

The role of water as a public or merit good in relation to health is often taken for granted because of the water-borne disease vectors noted above. Even the World Bank has found that if

states can integrate health issues into water planning, a more holistic conception of costs and benefits can have a dramatic impact on the economic viability of an infrastructure project. According to bank staff (Ruitenbeek 1994),

In the Nepalese capital of Kathmandu, officials assessed the effects of improving the water service using an extension of traditional cost-benefit analysis—the “service level” approach to valuation. This approach recognises that environmental services are valued differently by different users and also attempts to assess indirect effects of water provision. Kathmandu has 1.1 million inhabitants. Based on estimates using narrowly defined project appraisal techniques, [net] benefits from the city’s new \$150 million water distribution system . . . [equalled] \$5.2 million. Using the more detailed service-level approach to project appraisal, however, it was determined that in some cases health benefits from a reduction in coliform contamination of the water approached \$1,000 per unit serviced. An education program that improved water use led to further reductions in health and transport costs. After these indirect benefits were factored in, the project showed a positive net benefit of about \$275 million.

The gender dimension of water and sanitation—in relation to both economic activity and caregiving—must also be factored in. According to the World Bank’s 1994 *World Development Report* on infrastructure (1994: 20, 49),

The poor—women in particular—must commit large shares of their income or time to obtaining water and fuel wood, as well as to carrying crops to market. This time could otherwise be devoted to high-priority domestic duties, such as childcare, or to income-earning activities. Such gender-specific effects need to be considered in the evaluation of proposed projects. . . . For the poor, easier access to water can free up time that can be used to pursue income-earning activities. In rural Pakistan, women with access to improved water supply spend nearly 1.5 fewer hours a day fetching water than do women without this access.

Yet a background staff report to the WHO (2001: 26) Macroeconomics and Health Commission coordinated by Jeffrey Sachs found that earlier state investments in third world water systems were actually ineffective: “Between 1981 and 1990, more than US\$134 billion was invested in efforts to expand water supply and sanitation services, approximately 34% of the sum coming from donors. Although some regions were able to make progress in improving access, few attained any of the goals set.” Hence, concluded the WHO researchers (2001: 26), “Not only is improved water and sanitation not particularly cost effective as a health measure, it is also high in total costs.” This is a coherent statement of the “neoliberal” (market-oriented) perspective, whose starting point is that water must be consumed at the marginal cost of production, and if consumption does not occur at that price (as was the case for many beneficiaries of the \$134 billion in water-related capital), the system’s breakdown due to inadequate maintenance is simple collateral damage associated with a rational economic process. And in turn, the argument proceeds, it does not make economic sense to continue to supply poor people with water infrastructure; development aid can better be directed at treating the symptoms of water-borne diseases rather than the causes.

In arriving at this quite coherent neoliberal conclusion, however, the WHO report failed to address some central problems that had arisen as a result of World Bank and International Monetary Fund (and also donor) lending: cost-recovery mandates for low-income populations who were unable to pay for system repair; foreign exchange shocks (affecting accessibility to supplies for operation and maintenance); and other ill-designed conditionalities which intensified the global underinvestment

in maintenance and capital investments. These problems were ignored by the WHO, and hence the vast capital investment that was lost to excessively high water prices (i.e., the price was unaffordable to beneficiaries) and excessively low subsidies to maintain water systems proves to the neoliberal analyst that investing further funds in water infrastructure is wasteful.

Moreover, having concluded that public-sector water investment was “not particularly cost effective as a health measure,” the WHO researchers (2001: 26) endorsed private sector participation as “an important tool to ensure the delivery of expanded services to the poor” because “in many places it is the poor themselves, rather than their governments, who are acting to improve their lives by investing in water and sanitation.” Sachs himself later argued that water privatization is acceptable if a “private company [is] allowed to charge high prices, but only under the condition that it allocates a minimum amount of water for everyone, either for free or at a much lower price. Basic water needs would be met, and the company still might make a profit” (cited in Cohen 2008; see also Sachs 2004).

But even without such a mandate for supply of an ongoing flow of lifeline water, Galiani et al. (2002: 1)—who are cited more on this issue than any other writers—found that Argentine water privatization during the 1990s was beneficial to child health as the water grid expanded thanks to increased capital investment in low-income areas (which in any case was mandated by the state):

Using the variation in ownership of water provision across time and space generated by the privatization process, we find that child mortality fell by 8 percent in the areas that privatized their water services; and that the effect was largest (26 percent) in the poorest areas. We check the robustness of these estimates using cause specific mortality. While privatization is associated with significant reductions in deaths from infectious and parasitic diseases, it is uncorrelated with deaths from causes unrelated to water conditions.

However, according to a rebuttal by Mulreany et al. (2006: 26, 29), Galiani et al. did not make the case that, relative to public suppliers, increased private supply will have a more powerful positive impact on health. In Galiani et al.’s study areas,

the nonprivatized locations started from a higher proportion of coverage (86.6%) than did the privatized locations (64.0%). It may be more difficult to gain incremental improvements starting from a higher baseline of coverage, making it understandable that the gains in the nonprivatized areas would not be as great as in the privatized areas. In addition, the percentage of users with water coverage at the end of the period examined was still greater in the nonprivatized localities (89.9%) than in the privatized localities (71.4%). . . . If non-private systems can operate as well as private systems, the solution to poorly performing nonprivatized systems is not necessarily privatization, but rather better managed and better financed nonprivate systems.

In these interventions we find several of the main faultlines in the debate over water commodification, especially with respect to financing and to self-help initiatives often lauded as a solution when states fail (see Bond and Dor 2003 for more critical discussion). Kanbur (2007: 6-7) has suggested a way of bridging the faultline between what he terms the civil society (CS) and finance ministry (FM) world views about costs and benefits, including in the health sector. The typical FM advocate, says Kanbur,

has a world view that is more aggregated, with a longer time horizon, and a tendency to ascribe competitive structure to markets. On aggregation, the CS world view is more “worm’s eye” than “bird’s eye.” Thus, for example, national level poverty statistics will be

deployed by FM, and these will naturally aggregate gainers and losers. On the other hand, CS will focus on the losers, especially the poorest losers. It is cold comfort for a poor person who has been made poorer because of a policy, to be told that other people, even other poor people, have been made worse off.

On time horizon, the CS view worries more about the immediate negative impacts of a policy on the poor as opposed to the FM perspective that often emphasizes the medium term benefits, for poverty, of the same policy. Trade liberalization is a classic case, where the short term costs on those displaced have to be set against the longer term benefits from greater openness. [The World Bank has] eventually conceded the importance of the former in the poverty debate, and the discussion has shifted much more to compensation and safety net mechanisms, as compared to the trade liberalization mantras of the 1980s and 1990s.

Finally, on market structure, the CS perspective sees market (and political) power everywhere it turns, whereas the basic economic models that underpin the FM analysis are competitive in nature . . . This is another dimension explaining the benign (or supportive) and cautious (or opposing) stances taken by the two sides on major issues of economic policy reform. With a non-competitive market structure, the argument that benefits of policy reform are likely to be appropriated by a powerful elite hold greater sway. I believe that the above framework for understanding disagreements in the consequentialist mode is a useful one to apply to the water privatization debate.

Political economists might immediately dispute an analysis whose narrow choice of categories reduces socio-political inequality built up over centuries—in diverse places in diverse ways—to merely a “non-competitive market structure,” or in which it is implied that water-rights activists cannot think in aggregate terms (seeing only the poorest within their eyesight) or that they discount longer-term socio-economic goals. Moreover, the strong role of state and social pressure on for-profit water firms is not factored in, yet the huge protest wave against water privatization since the early 2000s (sometimes termed “political risk,” e.g. in Camdessus Commission/Wilpenny 2003) had a fundamental impact on supply and pricing decisions by firms.

If Kanbur’s analysis therefore attempts to bridge an unbridgeable divide, consider other dimensions of the problem. David Zetland (2008), guest contributor to the *New York Times’s* “Freakonomics” blogsite, recently noted that in any expansion of water piping, “bureaucrats who deliver 100 percent pipe coverage will be lauded for helping the poor, and outsiders are likely to confuse 100 percent pipe coverage with 100 percent access to ‘safe and sustainable’ drinking water.” For example, improving access to water—through, for example, communal taps—may simply result in the spread of communicable diseases that would otherwise have remained confined to a given household. As Sanders and Groenewald (1997) report:

Improvements in water access do not result in health impacts if sanitation is not improved. Improvements in water and sanitation produced larger impacts than either alone, particularly in rural areas. In addition, incremental improvements in sanitation services resulted in incremental improvements in health (reduction in diarrhoea and taller and heavier children), but this was not true for water. Benefits from improved water supplies were less pronounced than for sanitation, only appeared with optimal water service, and only when improved sanitation was present. Marginal improvements in water (central hand pump, tap, or well) had no health impact, and in some cases the situation was worse than if no improved water was available.



What also requires investigation is whether the international fiscal pressure that on the one hand compels third world states to welcome internationally-funded water projects, on the other hand denies the availability of ongoing subsidies required for operating and maintaining the systems, hence leaving the systems to fall apart, as the WHO remarked upon.

#### 4. Financial and Fiscal Stress

Although more nuance is required in fiscal, financial, and pricing matters, the first overarching point is that insufficient resources are going to the water sector, and health-related benefits are thus not being realized. To illustrate, the 2002-03 World Panel on Financing Infrastructure that reported to the World Water Forum in Kyoto called for \$180 billion in capital expenditure, mainly on traditional technologies and well-established industries, augmented with an insurance scheme to prevent losses for private sector investors. Chaired by former International Monetary Fund (IMF) managing director Michel Camdessus, the panel brought together the Global Water Partnership, presidents of major multilateral development banks (IADB, ADB, EBRD, WB), representatives of the International Finance Corporation, Citibank, Lazard Freres, the US Ex-Im Bank, private water companies (Suez, Thames Water), state elites (from Egypt, France, Ivory Coast, Mexico, and Pakistan), and two NGOs (Transparency International and WaterAid—itsself an NGO deeply influenced by a board that overlaps considerably with the largest for-profit water firms).

Although the for-profit water lobby was ready to concede the need for vast donor capital subsidies plus insurance to privatizers and dam builders, the actual expenses for keeping water running through the pipes was still a matter of contestation. Most neoliberal water-sector reform proposals during the 2000s emphasized full-cost pricing even for those least able to pay, as part of stripping the state of its primary role in the construction, management, and cross-subsidization of water services (Barlow 2007; Barlow and Clarke 2002; Bond 2002; Friends of the Earth International 2003; Grusky and Fiil-Flynn 2004; People's World Water Forum 2004; Petrella 2001; Public Citizen 2003a; Public Citizen 2003b; Shiva 2002; Transnational Institute 2005).

Full cost recovery ideology had emerged during the 1990s as a reflection of fiscal stress consequent to the structural adjustment programs common to most third world countries. No one would disagree that earlier, inappropriate water use and waste water disposal practices could be attributed to pricing and subsidization practices that under-valued water for luxury consumption, industry, and agro-business. For neoliberals, such histories allowed *all* public sector water pricing to be given a bad name, because the state by definition never “got the prices right.” According to the UNDP's *Human Development Report* (2006: 49), “Until fairly recently, water has been seen as an infinitely available resource to be diverted, drained or polluted in generating wealth. Scarcity is a policy-induced outcome flowing from this deeply flawed approach, the predictable consequence of inexhaustible demand chasing an underpriced resource.”

The challenge of addressing resource allocation and externalities (such as health benefits) through pricing water more appropriately soon led to a debate between tendencies towards or against “commodification.” “Commodifying” water entails:

- highlighting its role mainly as an “economic good”;
- attempting to reduce cross-subsidization that distorts the end-user price of water (tariff);
- insisting upon 100 percent cost recovery on operating and maintenance costs (even if capital investments are subsidized);
- promoting a severely limited form of means-tested subsidization;
- establishing shadow prices for water as an environmental good;

- solving problems associated with state control of water (inefficiencies, excessive administrative centralization, lack of competition, unaccounted-for-water, weak billing, and political interference); and in the process
- fostering the conditions for water privatization.

“Decommodifying” water entails:

- assuring that there is a universal free lifeline tariff that allows all consumers to have a decent supply available every day;
- valorizing the public goods and merit goods associated with water (e.g. public health benefits, gender equity, economic multipliers, environmental factors, and geographical desegregation), which are typically ignored in the private commodity model of water consumption;
- imposing a luxury consumption charge on wealthy and overconsumptive households, so as to disincentive high volume use (for conservation purposes and to cross-subsidize universal free lifeline water);
- providing legislative and even constitutional protection for consumers so as to realize their “right” to water in a manner that empowers citizens and workers, not bureaucrats.

The policy lineage behind these debates is diverse. The 1992 International Conference on Water and the Environment in Dublin formally declared water an “economic good.” Four years later, the formation of the Global Water Partnership and World Water Council advanced the position that better pricing would lead to both private sector investments and more efficient utilization. The following year witnessed the first World Water Forum in Marrakesh, the founding of the World Commission for Water in the 21st Century, and an emblematic statement by the Swedish International Development Agency (1997: 11-13):

At least four conditions need to be fulfilled to carry through efficient water allocation: (1) well defined user rights, (2) pricing at its marginal cost, (3) information related to availability, value, quality, delivery times, and (4) flexibility in allocation responding to technological, economic and institutional changes.

From a pro-market position, *The Economist’s* (2003) survey on water declared, “Throughout history, and especially over the past century, it has been ill-governed and, above all, colossally underpriced,” and as for the puzzle of getting water to poor people, “The best way of solving it is to treat water pretty much as a business like any other.” In the same spirit, the World Bank (2000: Annex 2) has been one of the primary advocates of a new pricing model, directing its staff in a *Sourcebook on Community Driven Development in the Africa Region* that “work is still needed with political leaders in some national governments to move away from the concept of free water for all.” This would include the promotion “of increased capital cost recovery from users. An upfront cash contribution based on their willingness-to-pay is required from users to demonstrate demand and develop community capacity to administer funds and tariffs. Ensure 100% recovery of operation and maintenance costs.” Similarly, according to the 2001 Kampala Statement co-authored by the World Bank and the African Utility Partnership (2001: 4), “The poor performance of a number of public utilities is rooted in a policy of repressed tariffs.” More recently, the World Bank (2005: 55) reconfirmed:

First, it is important to strike an adequate balance in government budgets between capital and recurrent spending. Politicians tend to find more satisfaction in opening



new facilities—but throughout the developing world, a maintenance deficit tends to significantly shorten the lifespan of expensive equipment. Second, it is essential to ensure the financial viability of infrastructure projects, with a focus on full cost recovery.

This is not just a matter of squeezing third world states so as to lower their recurrent budget costs. In the United States, Levin et al. (2002: 17-18) argue, “institutional factors determining the management behaviours of local water providers have not produced adequate expenditure levels to maintain public infrastructure, appropriate investments to develop new drinking water technologies, or successful strategies to protect watersheds and aquifers.”

Where state resources and political will are absent, some have turned to self-help strategies such as microcredit. The UNDP’s (2006: 120) *Human Development Report* notes that, “In Kibera, Nairobi, constructing a pit latrine costs about \$45, or two months of income for someone earning the minimum wage. To help poor households meet the financing requirements of improved sanitation, arrangements are needed that provide subsidies or allow payments to be spread over time through microcredit.” The report also points to progress in rural sanitation in Lesotho, where state involvement has shrunk: “The full cost-recovery and zero-subsidy policy has created incentives for innovation. But even basic latrines are still beyond the means of the very poor. Only recently have measures been put in place to reduce the costs of latrines through microcredit programmes offering extended loan repayment periods” (UNDP 2006: 125).

With the 2006 Nobel Prize award to Muhammad Yunus, founder of Bangladesh-based Grameen Bank, awareness was raised even further about water system funding through microfinance. Important health questions were generated in the Dominican Republic:

Home purification methods are unlikely to produce the same degree of safety across a community as provided by commercially purified water. Commercially purified bottled water is widely available for purchase in the Dominican Republic. There may have been a direct health advantage for families with the financial resources [microcredit] to purchase purified water when compared to families using home purification methods. While the motivation may have been identical, the financial freedom to utilise the more expensive (and probably more effective) option of commercially purified water could have produced the larger decrease in diarrhoea prevalence in Las Filipinas 2, where both the health promotion and microcredit programs were operating. (Dohn et al. 2004: 190)

However, water provision through private sector sources—whether a commercialized municipal operation or micro-supply of water through purified (or nonpurified) retail outlets—is often so prohibitively expensive (compared to state-supplied water) that consumers who cannot afford comparatively low water and sanitation rates might also fail to repay loans for higher priced services, as the UNDP (2003: 106) conceded:

How difficult is it for poor people to cover the costs of water and sanitation infrastructure? Consider an example from Bolivia and some cost estimates for water and sanitation from a project in El Alto:

- Average monthly income: \$122 (\$0.80 a day per capita).
- Connection costs: \$229 for traditional water, \$276 for sanitation (excluding trunk infrastructure).
- Connection costs for condominium technology with community participation: \$139 for water, \$172 for sanitation.

An important additional cost for poor households is the construction of a bathroom or similar in-house facility, including a toilet. In El Alto these costs averaged \$400, plus 16 days of labour. These costs are typically not factored into costing exercises for water and sanitation. Even with microfinance available the costs were too high for most poor people. But with hygiene education, the demand for toilets more than doubled. Where poor people struggle to cover charges, they should be helped through credit schemes. Bangladesh's Grameen Bank has been extending credit for water and sanitation, on a group basis, for years.

Indeed, there is growing evidence that the financial limits to borrower access have left poorly-designed microcredit programs across the world in tatters either because of internal effective demand constraints, or exogenous shocks such as increased national interest rates (Bond 2007). As a result of these financial and fiscal pressures, it is crucial to turn to the matter of pricing to assess whether internal subsidies can generate the surpluses required to extend water infrastructure to low-income people.

## 5. Water Pricing

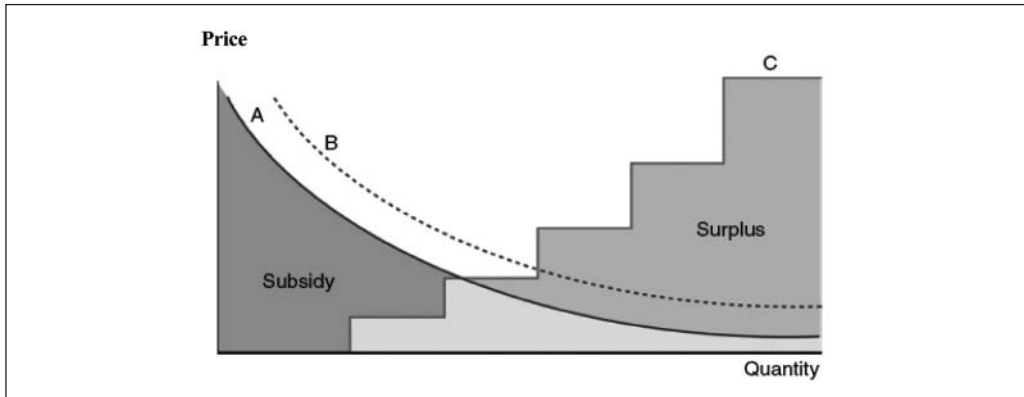
Given that municipalities have tended to undercapitalize upgrades and economize on infrastructure maintenance, the policy approach advanced by international financial agencies is to secure investment in a way that does not exacerbate over-consumption pressures. They thus argue for full-cost pricing, even if that entails some limited subsidization measures (of capital, not operations or maintenance) from within the sector.

In contrast, a move towards *cross*-subsidization—in which large-volume users pay more so that low-volume users can have cheaper water—might solve the dilemma, but remains subject to dispute, especially when applied to financing grid extensions into peri-urban and rural areas. Jennifer Davis (2005: 167), for example, notes: “a majority of large water and sanitation leases and concessions have been thrown into renegotiation within a few years from the date of the contract signing, usually regarding disagreements over tariffs.”

Sachs (2004) is correct that a municipal or national tariff can be imposed on even a for-profit water supplier, so as to assure low-income people get access. But beyond such a lifeline support, municipalities also must pay attention to the tariff curve, so as to ensure there is a favorable slope and shape. This nuance is typically missed in discussions of cross-subsidization (e.g. UNDP 2006). Charging high-volume users more, with benefits accruing to low-volume users, can be accompanied by other subsidies (usually based on the value of the property). But as the Johannesburg case suggests, the pro-poor effect of South Africa's “free basic water” policy has been partially negated by very high prices charged for the next bloc of consumption, beyond the first lifeline amount of six kiloliters per household per month.

As noted in Figure 1, in most urban systems the cost of supplying an additional drop of water—the “short-run marginal cost curve” (Line A below)—tends to fall as users increase their consumption, because it is cheaper to provide the next unit to a large consumer than the first unit to a small consumer. Reasons for this include the large-volume consumers' economies of scale (i.e., bulk sales), their smaller per unit costs of maintenance, the lower administrative costs of billing one large-volume consumer instead of many small ones, and the ability of the larger consumers to buy water at a time when it is not in demand—i.e. during the middle of the night, and store it for use during peak demand periods. The premise here is that the pricing of water should correspond directly to the cost of the service all the way along the supply curve. Such a system might then include a profit mark-up across the board (Line B), which assures the proper functioning of the market and an incentive for contracting-out or even full privatization by private suppliers.

The progressive principle of cross-subsidization, in contrast, violates the logic of the market. By imposing a block tariff that rises for larger consumers (Line C), the pricing model consciously



**Figure 1.** Tariff options: To commodify (A, B) or decommodify (C)?

Source: Author

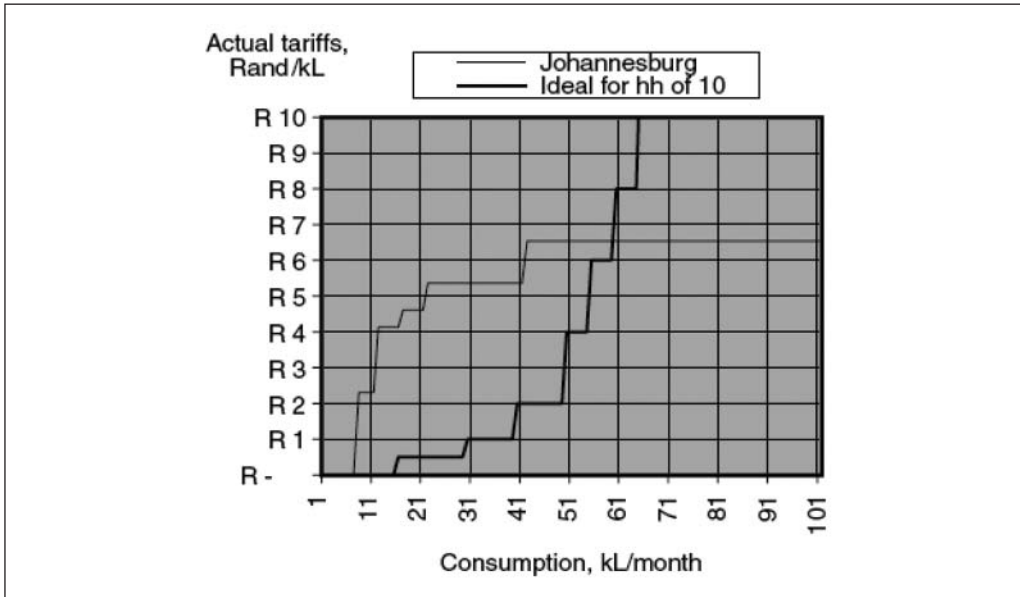
distorts the relationship of cost to price and hence sends economically “inefficient” pricing signals to consumers. In turn, argue critics (cf: Roome 1995) of progressive block tariffs, such distortions of the market logic introduce a disincentive for water corporations to supply low-volume users (something Sachs does not factor in when he allows for both water privatization and cross-subsidization).

There are two additional benefits of providing free water services to some and extremely expensive services to those with hedonistic consumption habits:

- higher prices for high-volume consumption should encourage conservation which would keep the longer-run costs of supply down (i.e., by delaying the construction of new dams or supply-side enhancements); and
- benefits accrue to society from the public goods and merit goods associated with free provision of services, such as improved public health, gender equity, environmental protection, economic spin-offs, and the possibility of desegregating residential areas by class (Bond 2002).

To illustrate the health implications of pricing, in August 2000, when a cholera crisis emerged in poverty-stricken KwaZulu-Natal province and social protest rose to new heights, water minister Ronnie Kasrils lobbied that free basic water should be included in the African National Congress ruling party’s 2000 municipal campaign promises (Bond 2002): “ANC-led local government will provide all residents with a free basic amount of water, electricity and other municipal services, so as to help the poor. Those who use more than the basic amounts will pay for the extra they use.” Two points are important: first, the promise is based on a “universal entitlement,” that basic needs should be met (regardless of income), consistent with the South African Constitution’s Bill of Rights; and second, the ANC promise also means that those who consume more should pay more per unit after the free basic supply, which promotes “cross-subsidies” (i.e., redistribution).

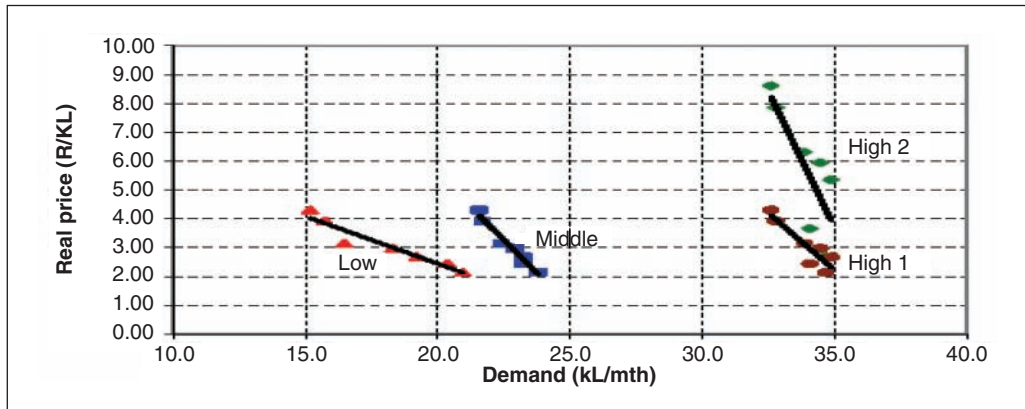
However, in July 2001, the free water policy became official, but faced noncompliance by municipal and national bureaucrats responsible for administering the policy. The Johannesburg Water Company, managed by Suez, revised water tariffs in July 2001 to provide the free lifeline, 6,000 liters per household per month, followed by a steep, convex curve, as shown in Figure 2. As a result, the next consumption block became unaffordable for many, leading to even higher



**Figure 2.** Johannesburg Water pricing: existing convex tariff curve (2001), and ideal-type concave curve  
Source: Johannesburg Water tariffs (2001), and author estimates

rates of water disconnections in Soweto. The same impact was felt in Durban, where as many as 800 households per day were facing disconnections in 2002-03 (Loftus 2005: 15). Activists in the Anti-Privatization Forum advocate a different strategy based upon decommodification, insisting upon a larger free lifeline tariff, ideally on a per-person, not per-household basis, with a price curve that then rises in a *concave* manner to penalize luxury consumption (Bond 2006). They took this case, along with a challenge to pre-paid water meters, into the courts, and in April 2008 won a landmark judgment which doubled free basic water from 25 to 50 liters per person per day, and also banned pre-payment meters (Bond and Dugard 2008).

The case of Durban, South Africa, is illustrative because price elasticity associated with implementation of free basic water has been carefully measured. As noted in Figure 3, the 1997 consumption of water by the one-third of the city's residents who have the lowest income and pay their bills regularly was 22 kl/household/month. Shortly afterwards, a free basic water strategy was adopted (for just the first 6 kl/hh/month), but steep increases in price for the next blocks of water were imposed. By 2003, the real price of an average liter of water consumed by the lowest-income third of billed residents had doubled from R2 in 1997 (about US\$0.30) to more than R4. According to city official Reg Bailey, that price increase resulted in average consumption by low-income bill-paying consumers diminishing from 22 to 15 kl/household/month during the same period. The price elasticity for water (i.e. the impact of price on demand) was, hence,  $-0.55$ , a significant impact for a basic need that should normally be relatively impervious to price change. In contrast, for middle- and high-income consumers, the price rise was higher, but the corresponding decline in average consumption far less, with price elasticities measured at  $-0.15$  and  $-0.11$ , respectively (Bailey and Buckley 2005). Indeed, the UNDP's 2006 *Human Development Report* indicates that Durban has a convex-shaped tariff curve, compared to several other third world cities, with by far the highest prices in the 6-20 kl/month range, the block in which many of the lowest-income people consume. What then does this tell us about privatization and commodification of water?



**Figure 3.** The impact of price on Durban water consumption by different income groups: 1997 (lower price, higher volumes) to 2003 (higher price, lower volumes)  
Source: Bailey and Buckley 2005

## 6. Pressure to Privatize Water

During the worsening financial situation across much of the third world in the wake of 1980s-'90s debt crises, many fiscally-constrained states were encouraged by multilateral institutions to look to the private sector for capital injections, technical solutions, and management expertise. According to the Globalization Challenge Initiative (2001): "A review of IMF loan policies in 40 random countries reveals that, during 2000, IMF loan agreements in 12 countries included conditions imposing water privatization or full cost recovery. In general, it is African countries, and the smallest, poorest and most debt-ridden countries that are being subjected to IMF conditions on water privatization and full cost recovery." More recently, Bull, Jerve, and Sigvaldsen (2006: 3, 5) found that in forty Poverty Reduction Growth Facility loans, "privatization is a condition in over half . . . . In addition, 10 of the programs described in detail the privatization plans of the government, but these were not included in the policy conditionalities. That means that in only 7 of the 40 cases did privatization not figure as an important element of the PRGF." The same point is made by former World Bank chief economist Joseph Stiglitz (2002).

What was the basis for this trend? Under pressure to rapidly modernize infrastructure and eliminate backlogs, and with fewer central state resources available, larger municipalities across the world experimented with various private sector relationships. Transnational water industry lobbies successfully promoted the private sector option and attempted to establish long-term lucrative markets for conventional infrastructure inputs. The largest firms soon became household names in many third world countries, including Suez (France), Thames (UK), Saur, and Veolia (France).

Since then, however, many pilot projects fell into crisis. The private sector's high expectations fuelled an overambitious strategy that will have consequences for the water sector in the longer term. For example, the Public Services International Research Unit (2006: 49) observes that even the World Bank agrees now that, "Ultimately, many of the adjustments in public financing and Overseas Development Aid largely reflect the fact that the expectations of private sector participation in the financing of infrastructure needs were overoptimistic." The result is an overall decline in financing availability for water projects. Some of the more contentious private sector interventions have demonstrated that for private sector management to be effective

and accepted requires an appropriate institutional, legal, and regulatory environment. In her comprehensive review of private sector participation, Davis (2005: 175) concludes:

Where the need for investment in urban water and sanitation infrastructure coexists with a relatively affluent customer base, as well as a stable political and economic environment—namely Europe, North America, and a handful of middle-income countries of the developing world—privatization is likely to continue its gradual spread.

The situation is different in the developing world due to currency fluctuations that adversely affect profit repatriation, ill-designed contracts, higher levels of corruption, and more intractable conflicts, as the Camdessus Commission reported. These relate to structural oppositions between public and private sector constraints and objectives, including profit motive, customer poverty, access needs, grid weaknesses, and the relative power of public service labor unions. In China, however, private participation has advanced especially rapidly.

If full privatization is not possible, then commercialization of water utilities—so they act as if they were private—is recommended by major international players. The Kampala Statement, drafted at the World Bank (2001) in the wake of a conference with “270 participants drawn from government, the utilities, the private water sector, financial institutions, external support agencies, and civil society,” argued: “Reforms should not be considered synonymous with privatization, but as a co-ordinated series of structural changes to provide better water and sanitation services to more and more people. However an increased role of the private sector in Water and Sanitation Services delivery has been a dominant feature of the reform processes of African countries as it has been recognised as a viable alternative to public service delivery and financial autonomy.” The statement concluded, “The objectives of addressing the needs of the poor and ensuring cost recovery for utility companies are not in contradiction; well thought-out mechanisms for cross-subsidies, alternative service provision, and easing the cash flow demands upon the poor can allow the utility to survive whilst attending to their needs” (see discussion in Bond 2002).

Yet in country settings this openness to relax the commercialization constraint is sometimes missing. The World Bank’s John Roome (1995: 50) cautioned the South African government—in the 1995-99 period of full cost recovery—that cross-subsidization (rising block tariffs) “may limit options with respect to tertiary providers—in particular making private concessions much harder to establish.” In other words, to attract private investors to municipal water projects, it was crucial to “get the prices right” and avoid distortions in the tariff framework such as a rising block system (see Bond 2002 for details).

While subsidization debates continued unresolved, other intractable challenges to large-scale water multinational involvement in the South have surfaced. Starting around 2000, water conflicts emerged over the controversial roles of specific corporations, such as Bechtel in Cochabamba and Suez in Buenos Aires and Johannesburg. All are cases in which regional and global-scale campaigning elevated household-scale issues to international solidarity. In early 2006, for example, Bechtel finally dropped a \$25 million compensation lawsuit against the Bolivian people in the World Bank’s International Centre for Settlement of Investment Disputes (ICSID), in the wake of the firm’s April 2000 expulsion from the city of Cochabamba after mass uprisings. As Jim Shultz (2006) of the Democracy Center reported,

What Bechtel did not count on was the firestorm of public protest that it would face. Cochabamba water revolt leaders, The Democracy Center, and a host of allies all over the world launched a global campaign to force Bechtel to drop the case. Thousands sent e-mails to corporate executives. Protesters in San Francisco blocked the entrance to Bechtel’s headquarters, occupied its lobby, and draped a banner across its front. Dutch activists mounted a ladder and posted a sign renaming Bechtel’s Amsterdam office after Victor Hugo Daza,



the 17-year-old killed in Cochabamba. The San Francisco Board of Supervisors approved a resolution calling on Bechtel to drop its case. More than 300 organizations from 43 countries joined in a citizens' petition to the World Bank demanding that the case be opened to public scrutiny and participation. Activists in Washington, DC protested at the home of the head of Bechtel's water company. Hundreds of articles and dozens of documentaries were published and produced worldwide, making Bechtel and its Bolivian water takeover a poster child of corporate greed and abuse.

Likewise, the Buenos Aires concession contract with French company Suez was terminated in 2005 due to the company's increased water tariffs. Argentine president Nestor Kirchner accused the "shameful" firm of taking \$5 billion away without making investments, following the breakdown of negotiations over a new tariff agreement (AFX News Limited 2005). By early in 2006 Suez had dropped out of all its other Argentine contracts, although it filed compensation claims with the ICSID for nearly \$1.9 billion. Argentine Planning Minister Julio De Vido assured citizens that a state-run company "would take over the water system, would not change water rates, and would announce a new five-year plan that continues with current investment projects" with the proceeds of a \$47 million bond (Associated Press 2006). In 2006 Suez's Johannesburg affiliate was sued by South Africa's Campaign Against Water Privatization for violating constitutional water rights, although in that year, Suez's contract was not renewed. In 2008-09 the case was decided in South Africa's courts as the first Constitutional case specifically about water. In April 2008 the High Court found in favor of Soweto residents' demand for at least 50 liters per person per day (not 25) and the banning of pre-payment meters, but the judgement was reversed in September 2009. This left South Africa's township residents with only the option of physical reconnection (through illegal plumbing tampering) so as to ensure the larger supply of water. Johannesburg includes the township of Orange Farm, the subject of a front-page *New York Times* report (Thomson 2003).

As a result, by the early 2000s, it had become clear to the large firms that earning profits by selling water was in many cases excessively difficult. Private sector investments in third world utilities dropped in 2001 to half the \$120 billion level of 1997. Water proved the least rewarding utility sector, compared to telecommunications, electricity, and transport. Part of the problem is financial, but that is not the only obstacle to private investment. As expressed by Mike Curtin of Bechtel Group, "We have agreed to take the commercial risk, but it is the political risks that kill you. My fear is that the private sector is being driven out of the water sector" (Bloomberg 2003). By early 2003, Suez was recording serious commercial and political problems across the world and dramatically reduced its exposure (Mathiason 2003; Hall 2003). In March 2006, *The Guardian* reported:

Suez said that it was now impossible for it to work in Latin America. In an interview with *The Guardian*, Jean-Louis Chaussade, the chief executive of Suez Environment, which has major contracts in Argentina, Bolivia and Haiti, said: "We are not a political organization, but how can we do our job if the political system in countries changes its mind so often?" (Vidal 2006)

Thus, where the majority of people are poor, where institutional and regulatory environments are weak, and where short to medium economic prospects are uncertain, it is unlikely that privatization will "fix" the water sector, with few clear incentives for continued engagement emerging on either side from a decade of experience and experimentation. Cashmore et al. (2006: 23) argue, for example: "The track record for privatization is decidedly mixed, from both a financial and public policy perspective. And operational efficiencies typically expected to be achieved through consolidation and greater economies of scale are not always a sure thing in this sector." Sporadic but sometimes decisive resistance has emerged, and conflicting values and ideals are now regularly asserted and reasserted in what have been described by Vandana Shiva (2002) as veritable "water wars."

## 7. Globalization From Below in Response to Multinational Corporate Power

In a water war of her own in 2008, Shiva debated “The Value of H<sub>2</sub>O” on *The Economist’s* Online Debate site, opposing the proposition that “water, as a scarce resource, should be priced according to its market value.” Surprisingly, *The Economist* (2008) conceded, Shiva won by 59-41 percent:

The no vote had been ascendant from the beginning, although the final margin was narrower than in some previous debates. Judging by the number of comments along the lines of “What next, pricing the air we breathe?,” the weight of participants who were simply appalled by the notion of free-market water was just too great for Steve Hoffmann, of the proposition, to overturn.

We owe a great debt of thanks both to him and to Ms Shiva for the vigorous but courteous cut-and-thrust of the past ten days. I am also very grateful to all our guest participants and commentators. *The Economist* is sympathetic to water pricing, although it also believes that governments round the world need to do much more to advance rural development and to help people out of poverty.

Social justice and rights-based advocacy networks have argued, in reaction to the commodification pressures on water systems discussed above, that water and health improvements require strengthened state capacity to roll out infrastructure at scale (Barlow and Clarke 2002; Petrella 2001; Transnational Institute 2005). The strategy adopted by “water warriors”—a mix of grassroots, NGO, labor, environmental, and policy-advocacy organizations allied to the broader global justice movements—in anti-privatization campaigns is typically to defend elected municipal government as the key institution for delivering water. They argue that in most societies the state remains the main agent which can redistribute resources and organize purified, high-pressure water in sufficient quantities to serve public health, gender equity, and other broader eco-social goals (Barlow and Clarke 2002; Petrella 2001; Shiva 2002; Transnational Institute 2005).

These activists insist that privatized water suppliers have no interest in such public/merit goods, and that the cost of the imported capital includes high profit outflows in often very scarce foreign currency. They posit that the trend towards private outsourcing—including some examples of NGO delivery—has been destructive because standards are lower, prices are higher, disconnections are more common, maintenance is worse, and accountability is harder to establish (Friends of the Earth International 2003; Grusky and Fiil-Flynn 2004; People’s World Water Forum 2004; Polaris Institute 2003; Public Citizen 2003a; Public Citizen 2003b; Transnational Institute 2005).

In early 2006, the European Union’s attempt to have water included within the World Trade Organization’s General Agreement on Trade in Services (GATS) as a tradeable service—in the process subjecting water to further competition/privatization pressures—appeared to falter, based largely on strong alliances between third world movements and Scandinavian activists. According to Shiney Varghese (2006) of the Institute for Agriculture and Trade Policy,

Prior to 2000, the provision of water supply and sanitation services, which are publicly provided in most countries, was not included in the GATS schedule of commitments. However, in 2000, the EC proposed that these services be included in GATS under Environmental Services. Even though this was not officially agreed to, the EC followed this up by including water and sanitation services in 72 of their 109 bilateral requests. If granted, these requests would enable the European water multinational companies to not only invest

in water supply systems around the world, but to have their investments protected. As the experience of Bolivia and other countries indicates, once established as the provider, these multinationals usually raise water rates, making drinking water unaffordable for large sections of the urban poor. Cross subsidization to ensure adequate supply in poorer neighborhoods is also more unlikely in a privatized market. A strong and concerted public reaction against the inclusion of drinking water in the GATS led the EC to exclude water for human use (i.e. the collection, purification and distribution of natural water) in its most recent plurilateral requests on Environmental Services.

In the wake of the retreat from third world water privatization by global corporations and multilateral financial agencies, the “water warriors” are also fighting against commodification more generally, even when a foreign business or the World Bank is not the main antagonist. Activists in South Africa, for example, have identified this as a key site of struggle because, as noted above, commodifying water entails highlighting its role mainly as an economic good, attempting to reduce cross-subsidization that distorts the end-user price of water, promoting a limited form of means-tested subsidization, establishing shadow prices for water as an environmental good, solving problems associated with state control of water (inefficiencies, excessive administrative centralization, lack of competition, unaccounted-for-water, weak billing, and political interference), and in the process, fostering the conditions for water privatization.

Networked transnational civil society forces opposed to the commercialized model of water delivery, and generally in favor of reasserted state provision of water, include citizens’ organizations (Council of Canadians in Ottawa, Public Citizen in Washington, and the World Development Movement and War on Want in London); trade unions (Public Services International and their affiliates); indigenous people’s movements; environmental groups (especially the International Rivers Network and Friends of the Earth); think-tanks (e.g., the PSI Research Unit at Greenwich University, Polaris in Ottawa, the Transnational Institute in Amsterdam, the Agriculture and Trade Policy Center in Minneapolis, the Municipal Services Project involving three universities in South Africa and Canada, Parivartan and the Centre for Science and the Environment in New Delhi, Food and Water Watch in Washington, and the International Forum on Globalization in San Francisco); and high-profile community leaders, intellectuals, and politicians. Many of these water warriors emerged from urban community revolts against privatization, in sites ranging from Detroit, Atlanta, and several French cities; to Accra, Dar es Salaam, and Soweto in Africa; to Cochabamba and El Alto in Bolivia and Buenos Aires; and Asian cities including Manila and Jakarta; as well as Auckland, New Zealand. In Vancouver, a 2001 “Blue Planet” conference gathered activists; in Delhi, the 2004 “People’s World Water Forum” brought the movements into alignment on analysis and common targets; in 2006 these forces—numbering at least 10,000 activists—marched against the World Water Forum in Mexico City; and similar plans are in place for Istanbul in March 2009. The World Social Forum (in Porto Alegre, Mumbai, and Nairobi), as well as related regional social fora, provide spaces for water activist assemblies. E-mail listserves such as “water warriors,” “water justice,” “reclaiming public water,” and “right to water” facilitate information exchange and analytical/strategic coordination.

There are still some crucial challenges facing the water warriors in determining their own positions in these contentious settings. Should universal—or means-tested—“free basic water” be the way that “water as a human right” is expressed? Should this occur on the basis of per household or per capita measures? Should activists insist on 50 liters per person per day, or 100, or more? How should this be financed? Should there be additional amounts for those who are HIV-positive? How would a municipality draw in positive externalities—not just public health but also gender equity, economic multipliers, residential desegregation, etc.—so as to optimize consumption? Water warriors are hard at work on these problems, creating a *praxis*-based

knowledge production through which challenges from below ultimately require the kinds of technical, pro-decommodification arguments rehearsed above.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

### Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: This paper was originally delivered at the Gyeongsang University Institute for Social Studies (supported by Korea Research Foundation Grant KRF-2007-411-J04602).

### References

- AFX News Limited. 2005. Kirchner says Suez unit took 5 billion USD from Argentina without investing. October 12.
- Associated Press. 2006. Argentina rescinds 30-year contract of French water company Suez. March 21.
- Bailey, R., and C. Buckley. 2005. Modelling domestic water tariffs. Powerpoint presentation to the University of KwaZulu-Natal Centre for Civil Society, Durban, November 7.
- Barlow, M. 2007. *Blue covenant: The global water crisis and the fight for the right to water*. Toronto: McClelland & Stewart.
- Barlow M., and T. Clarke. 2002. *Blue gold: The fight to stop the corporate theft of the world's water*. New York: The New Press.
- Bond, P. 2002. *Unsustainable South Africa: Environment, development and social protest*. Pietermaritzburg: University of KwaZulu-Natal Press; London: Merlin Press; Trenton: Africa World Press.
- Bond, P. 2006. *Talk left walk right: South Africa's frustrated global reforms*. Pietermaritzburg: University of KwaZulu-Natal Press.
- Bond, P. 2007. Microcredit evangelism, health and social policy. *International Journal of Health Services* 37 (2): 229-249.
- Bond, P., and G. Dor. 2003. Uneven health outcomes and political resistance under residual neoliberalism in Africa. *International Journal of Health Services* 33 (4): 607-30.
- Bond, P., and J. Dugard. 2008. The case of Johannesburg Water: What really happened at the pre-paid "parish pump." *Law, Democracy and Development* 12 (1): 1-28.
- Bull, B., A. Jerve, and E. Sigvaldsen. 2006. The World Bank's and the IMF's use of conditionality to encourage privatization and liberalization: Current issues and practices. Report prepared for the Norwegian Ministry of Foreign Affairs as a background for the Oslo Conditionality Conference, November, <http://www.cmi.no/publications/publication/?2545=the-world-banks-and-the-imfs-use-of-conditionality>.
- Camdessus Commission, J. Winpenny. 2003. *Financing water for all: Report of the World Panel on Financing Water Infrastructure*. World Water Council, Global Water Partnership, Third World Water Forum, [worldwatercouncil.org/fileadmin/www/Library/Publications\\_and\\_reports/CamdessusReport.pdf](http://worldwatercouncil.org/fileadmin/www/Library/Publications_and_reports/CamdessusReport.pdf).
- Cashmore, N., P. Gleick, J. Newcomb, J. Morrison, and T. Harrington. 2006. *Remaining drops: Fresh water resources a global issue*. Oakland, CA: CLSAU Blue Books, [www.pacinst.org/reports/remaining\\_drops/CLSA\\_U\\_remaining\\_drops.pdf](http://www.pacinst.org/reports/remaining_drops/CLSA_U_remaining_drops.pdf).
- Cohen, T. 2008. Pay for it. *Forbes*, 19 June. [http://www.forbes.com/technology/2008/06/19/deregulate-water-thirdworld-tech-water08-cx\\_tc\\_0619monopoly.html](http://www.forbes.com/technology/2008/06/19/deregulate-water-thirdworld-tech-water08-cx_tc_0619monopoly.html)
- Davis, J. 2005. Private-sector participation in the water and sanitation sector. *Annual Review of Environmental Resources* 30: 145-183.
- Dohn, A. L., A. Chavez, M. N. Dohn, L. Saturria, and C. Pimentel. 2004. Changes in health indicators related to health promotion and microcredit programs in the Dominican Republic. *Rev Panam Salud Publica* 15 (3): 185-93.

- The Economist*. 2003. Survey of water. July 19.
- The Economist*. 2008. The value of H<sub>2</sub>O: Decision. October 10, [goliveinternet.economist.com/debate/days/view/217/print](http://goliveinternet.economist.com/debate/days/view/217/print)
- Friends of the Earth International. 2003. *Water justice for all: Global and local resistance to the control and commodification of water*. Amsterdam: Friends of the Earth International, [www.ghwatch.org/english/casestudies/water\\_justice.pdf](http://www.ghwatch.org/english/casestudies/water_justice.pdf).
- Galiani, S., P. Gertler, and E. Schargrodsky. 2005. Water for life: The impact of the privatization of water services on child mortality. *Journal of Political Economy* 113: 83-120.
- Gleick, P. 2002. *Dirty water: Estimated deaths from water-related diseases 2000-2020*. Oakland, CA: Pacific Institute Research Report, [www.pacinst.org/reports/water\\_related\\_deaths/water\\_related\\_deaths\\_report.pdf](http://www.pacinst.org/reports/water_related_deaths/water_related_deaths_report.pdf).
- Global Health Watch. 2005. *Global Health Watch*. London: Zed Books.
- Globalization Challenge Initiative. 2001. The World Bank, the IMF and the right to water. <http://www.isodec.org.gh/Papers/saragruskyMay2001.pdf>
- Grusky S., and M. Fiil-Flynn. 2004. *Will the World Bank back down? Water privatization in a climate of global protest*. Washington, DC: Public Citizen, [www.foodandwaterwatch.org/water/pubs/reports/worldbank](http://www.foodandwaterwatch.org/water/pubs/reports/worldbank).
- Hall, D. 2003. *Water multinationals in retreat*. London: Public Services International Research Unit, University of Greenwich. <http://www.psiro.org>.
- Kanbur, R. 2007. Development disagreements and water privatization: Bridging the divide. Cornell University Department of Economics Working paper, <http://www.people.cornell.edu/pages/sk145>
- Levin, R., P. Epstein, T. Ford, W. Harrington, E. Olson, and E. Reichard. 2002. U.S. drinking water challenges in the 21st century. *Environmental Health Perspectives* 110, Supplement 1: Reviews in Environmental Health: 43-52.
- Loftus, A. 2005. A political ecology of water struggles in Durban, South Africa. Doctoral thesis submitted to the University of Oxford School of Geography and the Environment, Oxford.
- Mathiason, N. 2003. Left high and dry by the water companies. *The Observer*, March 16.
- Mulreany, J., S. Calikoglu, S. Ruiz, and J. W. Sapsin. 2006. Water privatization and public health in Latin America. *PanAmerican Journal of Public Health* 19 (1): 23-32, [www.popline.org/docs/1697/304183.html](http://www.popline.org/docs/1697/304183.html).
- People's World Water Forum. 2004. Declaration of the People's World Water Movement, [www.citizen.org/cmep/Water/conferences/articles.cfm?ID=11053](http://www.citizen.org/cmep/Water/conferences/articles.cfm?ID=11053).
- Petrella, R. 2001. *The water manifesto: Arguments for a world water contract*. London: Zed Books.
- Polaris Institute. 2003. *Global water grab: How corporations are planning to take control of local water services*. Ottawa, [http://www.polarisinstitute.org/pubs/pubs\\_pdfs/gwg\\_english.pdf](http://www.polarisinstitute.org/pubs/pubs_pdfs/gwg_english.pdf) (accessed February 22 2009).
- Public Citizen. 2003a. *The Evian challenge: A civil society call for the EU to withdraw its GATS water requests*. Washington, DC, [www.citizen.org/documents/evianchallenge.pdf](http://www.citizen.org/documents/evianchallenge.pdf).
- Public Citizen. 2003b. *Water privatization fiascos: Broken promises and social turmoil*, Washington, DC, [www.citizen.org/cmep/Water/cmep\\_Water/fiascos](http://www.citizen.org/cmep/Water/cmep_Water/fiascos).
- Public Services International Research Unit. 2006. *Pipe dreams: The failure of the private sector to invest in developing countries*. University of Greenwich and World Development Movement, [www.psiro.org/reports/2006-03-W-investment.pdf](http://www.psiro.org/reports/2006-03-W-investment.pdf).
- Roome, J. 1995. Water pricing and management: World Bank presentation to the SA Water Conservation Conference, Johannesburg.
- Ruitenbeek, H. J. 1994. Infrastructure and the environment: Lessons and directions. World Bank background document to the 1994 *World Development Report*, Washington.
- Sachs, J. 2004. Interview. Canadian Broadcasting Corporation Fifth Estate "Dead in the Water," <http://www.cbc.ca/fifth/deadinthewater/sachs.pdf>.
- Sanders, D., and P. Groenewald. 1997. Water and health. Unpublished report for the Development Bank of Southern Africa, Midrand.



- Segerfeldt, F. 2005. *Water for sale: How business and the market can resolve the world's water crisis*. Washington, DC: Cato Institute.
- Shiva, V. 2002. *Water wars*. Boston: South End Press.
- Shultz, J. 2006. Bechtel vs. Bolivia: The people win! The Democracy Center On-Line 69 (January 19), <http://democracyctr.org/bechtel/>.
- Stiglitz, J. 2002. *Globalization and its discontents*. New York: Norton.
- Swedish International Development Agency. 1997. *Environmental security and water management in Southern Africa*. Stockholm.
- Thomson, G. 2003. Water tap often shut to South Africa poor, *New York Times*, May 29.
- Transnational Institute. 2005. *Reclaiming public water*. Amsterdam.
- United Nations Development Programme. 2003. *Human development report 2003, Millennium development goals: A compact among nations to end human poverty*. New York: Oxford University Press, <http://hdr.undp.org/en/reports/global/hdr2003/>.
- United Nations Development Programme. 2006. *Human development report 2006, Beyond scarcity: Power, poverty and the global water crisis*. New York: Oxford University Press, <http://hdr.undp.org/en/reports/global/hdr2006/>.
- United Nations Educational, Social, and Cultural Organization. 2006. *World water development report 2: Water a shared responsibility*. New York and Oxford: Berghahn Books, [www.unesco.org/water/wwap/wwdr/wwdr2/](http://www.unesco.org/water/wwap/wwdr/wwdr2/).
- Varghese, S. 2006. General agreement on trade in services. GATS and water. Institute for Agriculture and Trade Policy, March, [www.tradeobservatory.org](http://www.tradeobservatory.org) (accessed Feb 12, 2006).
- Vidal, J. 2006. Big water companies quit poor countries. *The Guardian*, March 22.
- World Bank. 1994. *World development report: Infrastructure for development*. Washington, DC.
- World Bank. 2000. *Sourcebook on community driven development in the Africa region*. Washington, DC, Annex 2.
- World Bank. 2005. *Global monitoring report: From consensus to momentum*. Washington, DC: The International Bank for Reconstruction and Development / The World Bank.
- World Bank and African Utilities Partnership. 2001. *The Kampala statement*. Washington, DC, March 14.
- World Health Organization. 2001. *Improving health outcomes of the poor: The report of Working Group 5 of the Commission on Macroeconomics and Health*. Geneva.
- Zetland, D. 2008. Potability, politics and pipes. Freakonomics blogsite, 9 September, <http://freakonomics.blogs.nytimes.com/2008/09/09/the-economics-of-clean-water-a-guest-post/#more-3060>

## Bio

**Patrick Bond** is a senior professor at the University of KwaZulu-Natal School of Development Studies where he directs the Centre for Civil Society and works with radical social and environmental movements. His books include *Climate Change, Carbon Trading and Civil Society* (2009), *Looting Africa* (2006), and several on South African and Zimbabwean political economy. He received his PhD in economic geography at Johns Hopkins University under the supervision of David Harvey.