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Srini Sitaraman
Clark University

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Abstract

A review of:

Earth Democracy: Justice, Sustainability, and Peace by Vandana Shiva. Boston, MA: South End Press, 2005.

and

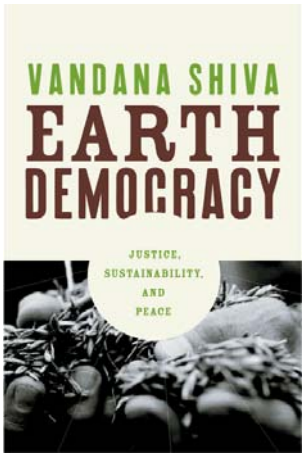
Gender, Water, and Development edited by Anne Coles and Tina Wallace. New York: Berg, 2005.

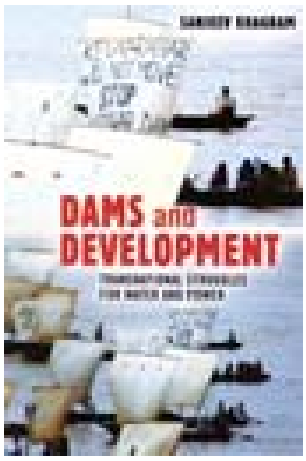
and

Dams and Development: Transnational Struggles for Water and Power by Sanjeev Khagram. Ithaca, NY: Cornell University Press, 2004.

Keywords

Human rights, Water rights, Access to water, Sanitation, Development, Privatization, Dams





Privatization, Efficiency, Gender, Development, and Inequality—Transnational Conflicts Over Access to Water and Sanitation

By Srini Sitaraman[1]

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The global supply of freshwater is finite and current estimates put freshwater availability at less than one-half of one percent of the total water stock. Intensive agriculture practices, rapid industrialization, and expanding population and urbanization are reducing freshwater supplies that are further stressed by climate change, placing enormous pressures on the already fragile environmental landscape. The World Wildlife Federation's (WWF) Dam Initiative report identifies twenty-one river basins around the world at severe risk of ecological degradation: topping the list is the Yangtze in China, La Plata in South America, Tigris and Euphrates in Turkey, and the Ganges and Brahmaputra in India (WWF 2004). Although dams have proved to be a boon for irrigation and generating hydroelectric power, they have also severely disrupted ecosystems by interrupting the flow of major rivers, destroying freshwater habitats and leading to the disappearance of unique species, such as the freshwater river dolphins; dams have uprooted the livelihood of millions of

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people who rely on the unaltered flow of river water, and they have also disrupted the structure of floodplain agriculture. India and China are two of the starkest examples of human dislocation, conflict, and environmental denudation caused by dams (Economy 2004). According to the World Bank, India's growing water crisis is resulting in "little civil wars": (a) between states, (b) between different users in a river basin, (c) between communities and the state, (d) between farmers and the environment, and (e) between farmers and the city consumers (World Bank 2005). India's former Minister of Water Resources, Priyaranjan Das Munshi was quoted as saying, "I am not the Minister of Water Resources, but the Minister of Water Conflicts" (UNESCO 2006). The World Bank (2005: 5) report on India's Water Economy describes India's water situation, which is heavily dependent on unpredictable and seasonal monsoons, as turbulent and unsustainable in the long run. Environmental pollution is so extreme in China that analysts argue that it is likely to produce severe domestic and international challenges to the ruling Communist Party (Kahn and Yardley 2007). It is estimated that about one-half of China's population (six hundred million) live in areas experiencing severe water stress (Kahn and Yardley 2007). China's damming of the Mekong River is producing tensions with its downstream users in Laos, Vietnam, and Cambodia. Water conflicts and environmental problems are not limited to the developing world; bitter intrastate water wars are also brewing among the seven states that share the Colorado River Basin—Colorado, Wyoming, Utah, New Mexico, California, Arizona, and Nevada—because of the fragmentation of the Colorado River caused by damming, diversion, and a persistent drought produced by systemic climate change (Archibold and Johnson 2007).

Scholars of international relations have expressed growing concerns about the possibility of militarized intrastate and interstate conflicts over environmental resources, particularly over shared water resources (Homer-Dixon 1999; Kahl 2006). Climate scientists predict that alteration in weather patterns will further disrupt dependable supplies of water for drinking and irrigation thereby dislocating the lives of millions of people (Struck 2007: A08). Undoubtedly, the escalating water crisis has emerged as a major global public policy issue (Gleick and Cain 2004). One of the ambitious objectives of the United Nations Millennium Development Goals is to reduce by half "the proportion of people without sustainable access to safe drinking water and basic sanitation" by 2015 (United Nations 2006). Although household water requirements represent a very small fraction—less than five percent—of the total water use, great inequality persists in accessing clean water and proper sanitation. In the developing world, 1.1 billion people lack adequate access to clean water, which means they use less than five liters per day, and 2.6 billion have no access to basic sanitation, while individuals in Europe and the United States utilize two hundred and four hundred liters per day respectively (UNDP 2006: 34). Inequality in access to water and sanitation is particularly acute in Latin America, South Asia, South-East Asia, and Sub-Saharan Africa where urban residents have access to piped water connections, and also possess the ability to pay for additional supplies as needed, but slum-dwellers and rural residents have little or no access or do not have the ability to pay for such services. According to the United Nations, at the very minimum everyone needs at least twenty liters of clean water per day to lead a healthy and productive life (UNDP 2006: 6). Lack of clean water availability and poor sanitation results in diseases such as cholera, shigellosis, diarrhea, and amebic dysentery, which causes 1.8 million childhood deaths and 443 million school days are lost each year (UNDP 2006: 45). Sub-Saharan African states loose more than five percent of their gross domestic product (GDP) because of health costs and lost productivity caused by lack of access to clean water and good sanitation. Provision of segregated

toilets in schools has become an absolute necessity to increase the frequency of school attendance by girls because gender inequalities in accessing water and sanitation fall disproportionately on women (Burrows, Acton, and Maunder 2004).

The growing water and sanitation crisis clearly reflects the intensifying inequality underpinning global economic structures. In many ways, the global water crisis is a crisis of poverty and environmental degradation. More than 660 million people live on less than two dollars a day and cannot afford clean water. Only four percent of the population in Sub-Saharan Africa, twelve percent in South Asia, and eight percent in South-East Asia have access to piped water (UNDP 2006: 7). Among the developing nations, 85 percent of the wealthiest segment of the population receive regular and continuous access to clean water, whereas the poorest quintile get only twenty percent of the supply, which unambiguously reflects the global inequalities in wealth and stark disparities in water distribution (UNDP 2006: 7). The poorest twenty percent spend more than ten percent of their average household income on water. Utilities in the developing world refuse to connect to homes without proper paperwork or extend piped water supply to poor neighborhoods, hence excluding the impoverished from gaining access to clean water. Women are primarily disadvantaged because they bear the bulk of poor water connections as managers and carriers of water in most domestic settings. Children, principally girls, are affected because they are chiefly involved in fetching water from distant locations, which prevents them from attending school regularly and successfully completing even primary school, which directly negates one of the eight basic goals of the U.N. Millennium Development Goals (MDG).

The effectiveness and consequences of two solutions proffered by international financial institutions, such as the International Monetary Fund (IMF), the World Bank (IBRD), and the Asian Development Bank (ADB), are the common themes covered in the three books under review: privatization of water as a means to improve the efficiency in supply and distribution and the construction of large dams to regulate and manage river basins to harness the economic potential of water resources.[2] With the exception of Shiva in Earth Democracy, the authors of Dams and Development and Gender, Water, and Development are not explicitly concerned about privatization, cost recovery, and distribution of water, but these ideas strongly undergird the arguments made by Coles & Wallace and Khagram. The overarching theme of all three books under review is the focus on transnational and local politics surrounding the control, management, and access to water. The principal objective of this review essay will not be to critique each book; instead, the focus will be on extracting common themes and evaluating the effectiveness of development policies related to dams, water, environment, gender, development, and privatization of water assets as advanced by the multilateral lending agencies, private banks, and certain national governments.

[2] Privatization is generally understood as the transfer of ownership of some or all water assets and operations to private corporations.

Effectiveness of International Water and Development Policies

In Earth Democracy, Vandana Shiva, a trained physicist and a highly regarded environmental activist based in New Delhi, India, stridently argues against corporate globalization, the politics of exclusion and privatization of essential services, and biopiracy directed against the developing world's agriculture. As the title of her book suggests, Shiva is simultaneously concerned with human welfare and protecting the environment from the ravages of human activity. She passionately articulates a vision of economic development that is locally rooted and built on sustainable ecological foundations that guarantees democratic control over food and water supplies. In other words, Shiva argues that transnational corporations should not be allowed to control public goods, such as water, in different parts of the world and exclude the local population from accessing locally available water resources. She is highly critical of privatization and commodification of public goods, such as water and basic foods, through international patents because it excludes the poor, creates new enclosures, and further deprives the marginalized.

Shiva, among others, including the United Nations, has espoused the perspective that the right to water is a basic and inalienable human right and access to water cannot be established on the basis of ability to pay determined by for-profit multinational firms. In Earth Democracy, Shiva's target is not just privatization of water, but global capitalism and the new imperialism of corporate globalization, which she characterizes as an unbridled force lacking any compassion, ethics, or ideas of long-term sustenance (31). She is particularly critical of the growing alliance among multinational corporations, international financial institutions, and national governments in pushing the market model in establishing new private enclosures over public property, rolling back social welfare programs, and disempowering the poor. Although Earth Democracy is filled with polemical attacks on capitalism and rhetorical flourishes against globalization and privatization, Shiva's passion for protecting the sanctity of the environment and her concerns over the negative consequences of unrestrained economic globalization, especially the creation of new private property rights over water is unquestionable. However, one cannot help but wonder whether the strident opposition to water privatization and the stubborn push by market ideologues towards privatization and cost recovery has made the debate so divisive that the middle ground policy positions have been considerably eroded.

Privatization of water management and distribution has been pushed as a policy solution by the IMF and World Bank in an effort aimed at full cost recovery and improving efficiency in the distribution of public utilities such as water and electricity. Supporters of privatization also believe that allowing water to be priced according to market forces will compel water users to adjust their consumption patterns based on their ability to pay and constrain wastefulness. Anne Coles and Tina Wallace, United Kingdom-based development researchers and contributing co-editors to Gender, Water, and Development, share Vandana Shiva's perspectives in their critique of international water policies promoted by the World Bank, IMF, and other multilateral bodies such as the Asian Development Bank. Coles and Wallace are particularly concerned with the inability of multilateral lending agencies and the private sector to understand the gendered nature of water, and the central role women play in accessing, safeguarding, and managing water supplies. They are equally critical of the market-driven model of water pricing and delivery in the developing world for its failure to understand and accommodate women's social and cultural roles in determining access to water and the ability to pay.

Coles and Wallace echo Shiva's argument in demonstrating that in the developing world, the concept of private ownership of water clashes with deeply held community values that regard water as a "gift from god, a public good, and as a human right" (9). Chiefly, they argue that privatization of water, which determines access on the basis of ability to pay and not on the basis of basic needs or rights, has a deep negative impact on the lives of women. Privatization and user-fee based models of water delivery increase the price of water, exacerbating inequalities, reducing local control, and negating years of positive developments—initiated by non-governmental organizations (NGOs)—in putting women at the center of water management policies in the developing world.

The Coles and Wallace edited volume is the outcome of collaborative work undertaken by the International Gender Studies Institute (IGS) of Oxford University and the Institute for Irrigation and Development (IIDS) located in Southampton University. Contributors to the Coles and Wallace volume bring their eclectic backgrounds in policy making, field work with NGOs in South Asia and Sub-Saharan Africa, and their scholarly analysis to bear upon the issue of understanding the importance of complex connections among gender, water, and development. Twelve chapters in the volume draw upon cross-cultural research conducted in India, Nepal, Cameroon, Sudan, South Africa and other parts of South Asia and Africa to establish how access and distribution of water is highly gendered.

The book opens with an introductory chapter by Coles and Wallace in which they summarize the importance of understanding social arrangements and gender inequality at the community level and how they affect access to water. Importantly, they argue that development planners and macroeconomic policymakers have failed to understand that women are the primary actors and agents of change concerning water management and delivery at the local level. Deepa Joshi's chapters on water relations in Nepal and India describe how stringent relations of hierarchy and patriarchal power relations determine access to adequate water and involvement in decisions regarding water management (Joshi in Coles and Wallace: 140-143). In Sub-Saharan Africa, women spend on average 15-17 hours per week collecting water, and it is not unusual for women to walk more than ten kilometers to fetch water for their families.

Ben Page's chapter on the role of women in the social production of water indicates that historically women in Cameroon have been involved in the construction of physical pathways to access common supplies of water from springs and wells, women are the principal carriers of water, and they are also involved in establishing codes of behavior and social norms on the just distribution of water from common pool resources (Page in Coles and Wallace: 60). Page also shows that women, unlike men, have used direct action campaigns to protest the closure of public taps and thwarted numerous attempts to charge for water at public taps in Cameroon (64). Anne Coles' chapter on Sudan documents how the combination of distance, local cultural attitudes, and ethnicity affect the woman's role as the primary fetcher of water among Muslim and non-Muslim Sudanese (Coles in Coles and Wallace: 80). Because of social prohibitions associated with allowing married women and young women outside the home without a male family escort among the Arab Sudanese, the burden of water collection falls heavily on young girls and older women relative to the non-Muslim Sudanese. Ben Page and Anne Coles's research supports Joshi's argument that gender inequalities in access and allocation of water cannot be tackled without addressing the fundamental inequalities in the socially defined roles for men and women. In the case of Nepal, hierarchy of the

Hindu caste system constrains the ability of local women to overcome the dual restrictions of social mobility and power of the external actors in their daily struggles to improve access to water and sanitation.

Several chapters in the Coles and Wallace volume describe how women and the socially disadvantaged are routinely excluded from the decision-making process involving access to and management of water at the community level despite repeated assurances offered by the international development agencies that they are pursuing efforts at mainstreaming gender and class—a new approach that seeks to make gender and class central components of social science research and policy prescriptions, instead of relegating them to obscure or specialized margins. Even though women play a central role in procuring water, they are excluded from discussions regarding control and allocation of water in villages. Women are also silenced and they are not able to contribute to policy debates affecting their daily lives because of cultural taboos associated with questioning or contradicting the views of men in public settings (Chancellor in Coles and Wallace: 160). In the last chapter, Sarah House recounts a story to demonstrate cultural resistance to women's public participation in decision-making regarding access and distribution of water. Women in certain parts of rural East Africa are not allowed to express their legitimate grievances regarding water supply and access because they believe that if a woman stood in front of men in a public gathering and addressed them, all the men present at the meeting would die (House in Coles and Wallace: 218). Similarly, in Regmi's chapter on Nepal, he points out that because of the lower social status of women, they are forced to share heavier workloads, and they are provided less food, less education, and "fewer opportunities for self-development" (Regmi in Coles and Wallace: 96). To overcome gender prejudices, the authors in the Coles and Wallace volume issue a call for a systematic approach to incorporating gender as an explicit component of development—gender mainstreaming—and including women in leadership positions within the local community and planning organizations to improve access and distribution of water. Even though the different chapters in the Coles and Wallace book do not cohere smoothly, a common characteristic among edited volumes, the authors are successful in showing how the male-dominated policy making sector fails to appreciate the deeply-embedded gender, caste, and ethnic considerations shaped by local cultural values are influencing distribution and utilization of water resources.

Shiva and authors in the Coles and Wallace volume argue primarily from a practitioner's perspective about the merits of water privatization policies and criticize international lending agencies for their failure to accommodate gender as a critical factor in lending and development policies. Although Gender, Water, and Development is not explicitly about privatization or cost recovery, these two themes preoccupy most chapters in which the authors show how the male-dominated water industry and macro development planning have "failed to appreciate the relevance of social issues involved in accessing water in much of the world" (10). They locate economic development and water distribution within the larger context of social roles and gender inequalities that reduce the effectiveness of externally crafted development policies. Similarly, in Dams and Development, Sanjeev Khagram's (2004) focus is on examining the complex policy linkages between dams and development and why transnational coalitions have emerged in opposition to the development policies inspired by international lending agencies. Khagram, an academic and a former Senior Policy Advisor for the World Commission on Dams (WCD), follows a political science approach that seeks to empirically test the proposition: why the enthusiasm for the construction of big dams, which were variously promoted as temples of modern development by the World Bank

and other donor agencies, has markedly declined or at least slowed down during the last decade. Khagram (2004: 3), drawing heavily from the expanding international relations literature on the influence of global norms on decision-making, argues that the "unpredicted and unexpected strength of transnationally coordinated action—constituted primarily by nongovernmental organizations and social movements," has dramatically changed the enthusiasm for building big dams.

Principally, Khagram's argument emphasizes the emergence of global norms against construction of dams motivated by collective concerns for the environment, human rights, and the rights of indigenous people that are disseminated through transnationally-linked activist networks. According to Khagram (2004: 178-179), the foundation for the anti-dam movement was laid by environmentalists and academics in the United States and Western Europe from the mid-1950s onwards, and this movement gradually gained momentum and became a transnational force in the 1970s. Construction of large dams galvanized significant opposition because of its enormous social, political, economic, and environmental costs. According to the World Commission on Dams (2000: 16), large dams are responsible for the displacement of forty to eighty million people worldwide. One of the central arguments of Dams and Development is that transnational advocacy networks and social mobilization are more likely to succeed in democracies than in authoritarian countries because democracies are more vulnerable to external norm-penetration and internal grassroots social-mobilization. Relying on six case studies, which include four countries with high degrees of social mobilization—South Africa, Lesotho, India, and Brazil—and two countries—China and Indonesia—with relatively low degrees of social mobilization, Khagram argues that democracy and grassroots activism is decidedly correlated with the slowing down of dam building worldwide.

Data on dam construction and planning is highly fragmented; in addition, significant methodological and data collection differences persist (Schelle, Collier and Pittock 2003). Nevertheless, the estimates on dam building made available up to the end of the twentieth century by the World Commission on Dams (WCD), International Commission on Large Dams (ICOLD), International Rivers Network (IRN), and the World Wildlife Fund (WWF) converge in identifying board patterns. Available data from WCD, ICOLD, IRN, and WWF suggest that dam construction has decreased since the 1970s, when nearly eight thousand dams came into operation. Publicly available data indicate that dam building has steadily declined since it hit the peak in the seventies; a point also asserted by Khagram. However, fascination with large development projects has not subsided in the global south where dam construction continues despite various hurdles including enduring citizen protests and legal challenges. According to Khagram, who draws his data from WCD and ICOLD, in the early 1900s there were only six hundred dams worldwide. By 1950 the number had increased to 5,000, and by the turn of century 45,000 big dams higher than fifteen meters, including 300 major dams had been built all around the world to facilitate hydroelectricity generation, water delivery, flood control and irrigation costing an estimated two trillion U.S. dollars (Khagram: 5; IRN 2003a: 3). Measured using the river basin data, the highest number of dams are concentrated on the Yangtze in China, La Plata basin in South America, Tigris and Euphrates in the Middle East, Salween in South-East Asia, Kizilirmak in Turkey, and the Ganges basin in India (WWF 2004: 4). Many of these river basins traverse national boundaries and contested territorial lines. Ninety percent of the dams constructed during the twentieth century were built during the last forty years. China, United States, India, Japan, and Spain are the top five dam-building countries that

account for eighty percent of the dams built worldwide (WCD 2000: 9). More than 7,500 dams became operational between 1970-1979, but the figure tapered-off to 3,354 in the 1990s (ICOLD 2007: 28). Although dam building declined significantly during the 1990s, more than 1500 dams are presently in various stages of construction and they are expected to become functional in the next fifteen years. Since the gestation period for the construction of new dams is extensive, plans for the construction of dams that are currently underway in parts of Asia were laid in the 1950s and 1960s. For example, the building plans for the Narmada Dam project were conceived by Jawaharlal Nehru, India's first Prime Minister, in the 1950s and they have yet to be completed.

Enthusiasm for dam building is at its zenith in China. Just on the Yangtze River basin, forty-six large dams are being built, along with ten on the Pearl River, and eight on the Yellow river (WWF 2004: 16). The number one dam-building nation in the world is China; it has built 22,000 large dams that are more than fifteen meters high, which is nearly one-half of the total number of dams in operation around the world (WCD 2000: 8). China's growing appetite for dams is symbolized by the Three Gorges Dam, which is heralded as the "biggest dam in the world, biggest power plant, and biggest consumer of dirt, stone, concrete and steel" (Yardley 2007b). Official estimates suggest that Three Gorges Dam has displaced more than 1.13 million people and created widespread environmental problems such as landslides, sedimentation, and water pollution. Dams and over-extraction of water are leading to rapid decline of underground water aquifers by an average of four feet every year in places such as Shijiazhuang city in North Central China, which has more than two million people (Yardley 2007a).[3] Presently, 280 new dams are in various stages of construction in China and they are expected to become functional within the decade (WCD 2000: 9-10). Growing energy demands are fueling the drive to construct dams in China. The absence of functioning democratic institutions and the lack of "sustained domestic opposition" prevented global environmental norms from seeping into the Chinese policy discourse, and the inability of transnational lobbying groups to connect with activists within China emboldened the technocrats within the Chinese government to develop grandiose water infrastructure projects without any restraints (Khagram: 171). Importantly, mechanisms such as "independent courts, competing political parties," organized protests, free press, and access to information was not available to anti-dam activists to oppose dam-building efforts within China (Khagram: 171-172).

Environmental activists are viciously silenced by the authoritarian Communist Party, which "treats environmental advocates as bigger threats than the degradation of air, water and soil" (Kahn 2007). For instance, Wu Lihong, a local environmentalist protesting rampant pollution of Lake Tai quickly lost his job and was eventually arrested and jailed on trumped up charges. Grass-roots environmentalists encounter enormous challenges in exposing abuses and the Chinese Communist Party (CCP) views them as a bigger threat than the damage to the environment that the grassroots

[3] The 1.13 million figure cited as an "official tally" was offered by Chinese officials in 2006. This 1.13 million number offered by the government officials was based on original estimates made when plans were charted in the 1990s. In October 2007, the Three Gorges Project Committee of China's State Council announced that by 2007 September 1.2 million people had been displaced because of the Three Gorges Dam, and that the total number of displaced would reach 1.4 million by summer 2008 (see: http://www.chinadaily.com.cn/china/2006-10/03/content_701229.htm; Khagram: 175). Official estimates also do not include more than one million people "relocated" to higher ground near their original place of residence. By the year 2020 another 4 million people would be "relocated," including more than a million from areas near the reservoir created by the dam.

activists seek to expose. However, although more than twice the number of dams is scheduled for construction in India, many projects are bogged down in complex litigation, citizen protests, and sustained local resistance to dam construction because of population displacement that overwhelmingly affects landless peasants and tribal settlements. Dam building has been politicized by rival political parties and grassroots activism as anti-poor, which has slowed down the rate at which dams are commissioned in India. The Narmada Bachao Andolan ("save the Narmada movement," also known as the NBA), a coalition of tribal leaders, farmers, environmentalists, and human rights activists have consistently thwarted the speedy construction of Sardar Sarvor Dam on the river Narmada in India (Khagram: 40-54).

Khagram contends that the fervor for dam construction has not subsided in China largely because of the absence of a well-organized domestic social network and a highly mobilized civil society capable of confronting the authoritarian-developmentalist state. However, in democratic India, which is more vulnerable to the penetration of transnational norms because of its transparent political and judicial system, collective political action has managed to slow down major dam projects by mobilizing environmental awareness through large-scale public protests and grassroots direct action campaigns; this is highlighted by the sustained direct action campaign and legal battle to shut down the Narmada Dam Project in Gujarat, India (Khagram: 45, 63).

The Indian Supreme Court has intervened at various times in the Narmada Dam Project to redress human and environmental violations. Analogously, in Japan, eighty dam projects have been cancelled due to the sustained campaign launched by the anti-dam movement because of the increasing realization that dams are not absolutely necessary (IRN 2003b). In the United States, enthusiasm for the construction of large dams, which was at its peak in the 1970s and 1980s, has been replaced by the growing trend towards the decommissioning of dams to protect river water ecosystems and aquatic life. Nearly five hundred small dam projects have been decommissioned, and the rate of decommissioning has overtaken the rate of new dam construction in the United States (WCD 2000: 10). Khagram's argument in Dams and Development is aimed at demonstrating how the diffusion of global environmental norms and development of transnational activist alliances led to the decline in the rate of dam construction worldwide. Despite the decrease in dam building in the 1990s, the fact that dams are still being built and becoming operational, especially in the global south, suggests that the decline in dam building cannot be entirely attributed to the role of transnational activism. Khagram points out that the decreasing availability of new sites for dam construction has also contributed to this decline (8).

Big dams symbolized the progress of humanity and demonstrated human control over unpredictable forces of nature. Harnessing the power and resources of river basins were promoted as pivotal for national economic development by international lending agencies, such as the World Bank, Food and Agriculture Organization (FAO), and Inter-American and Asian Development Banks, and much of the dam construction was completed by large multinational corporations such as Asea Brown Boveri, Siemens, Bechtel, and General Electric Corporation. The World Bank tendered 527 loans totaling $58 billion (measured in 1993 dollars) to support the construction, expansion or rehabilitation of 604 dams in 93 countries (McCully 1994). Invariably, construction of these dams produced massive displacement of indigenous populations, destruction of pre-existing river basin economies, loss of forests, agricultural land, and floodplains causing tremendous negative

impacts on a variety of fish species and aquatic life. Dam building was also accompanied by gross violation of human rights produced by beatings, shootings, and arbitrary arrests of peaceful demonstrators; this is exemplified by the Narmada and Tehri Dam Projects in India during which forceful land acquisition and displacement produced fragmentation and diversion of river basins and the attempt to crush the resulting protests lead to human rights violations (Coles and Bavadam 2000).

Organized opposition to dam building began in India with "progressive domestic institutionalization of global norms on the environment, indigenous peoples, and human rights denaturalizing big dams," and it was simultaneously accompanied by the mobilization of grassroots social groups in the early 1970s (Khagram: 43). However, interestingly, the anti-dam movement in India became significantly animated with the adoption of neoliberal economic reforms related to the privatization of various public utilities in India. Protests against big dam construction morphed into larger environmental campaigns becoming particularly intensified when foreign corporations became actively involved in the dam construction process (Khagram: 63). According to Shiva (2005: 46-47), environmental activists viewed privatization as the creation of new enclosures that denied local communities access to previously available common-pool resources. This form of "deliberate taking," where a public good is sacrificed for private gain, and the government is perceived as acting against sovereign community rights, it became a rallying point for the mobilization and merging of pro-environment, anti-dam, anti-privatization, and anti-globalization forces (Shiva 2005: 46).

Veronica Strang, in a chapter entitled "Taking the Waters: Cosmology, Gender, and Material Culture in the Appropriation of Water Resources," points out that historically water has "always been a highly contested resource," and as development and population pressures have increased, "issues of ownership and control are increasingly becoming controversial" (Strang in Coles and Wallace: 21). Using ethnographic data and oral histories, Strang's historical account of the Stour River Valley in Dorset, located in South England, shows that local involvement in water resource management disappeared with the gradual centralization and de-localization of governance, which reduced individual contact with water resources and abstracted access and distribution from the local environment. Over-abstraction, in combination with a growing material culture and technological development, detached consumers from ecological processes that have allowed private corporations to create new enclosures over collective goods, and appropriate and convert them into marketable commodities. Strang argues that the construction of water as a material commodity, which could be privatized, enclosed, controlled, and managed by non-stake holding locals have undermined the "ideas about social responsibility and equality in access" (Strang in Coles and Wallace: 35). Strang, interestingly, also points out that the roots of the anti-privatization movement has its genesis in the feminist movement of the 1960s and both movements emerged in tandem, and that they are "symbolically linked" because of common concerns over "gender equality" (Strang in Coles and Wallace: 35).

The Case against Privatization of Water

The intensely debated question of the day with large moral and policy implications is: who owns water, especially freshwater? Could water be owned by anyone or any corporation? Or, is water similar to any other commodity, such as forests and timber, mines that produce precious metals,

distinctive wild flowers, roots, and barks that offer medicinal remedies, and deep earth and sea exploration that produce oil and natural gas, which are largely owned and controlled by large global conglomerates? Or is water such a *sui generis* public good over which no one individual or private institution can claim any property right or profit from its management and distribution? More importantly, this begs the question; can water be sold and purchased in open markets where access to water is granted on the basis of demand and ability to pay? Should the management and distribution of freshwater be handed over to profit-making global corporations that are accountable only to their shareholders? Or should the management and distribution of water resources be in the hands of the state and local governments, which are expected to operate on the basis of universal access to every citizen, irrespective of demand considerations and the ability to pay? Policies for and against privatization are being vigorously debated without any conclusive evidence to demonstrate which sector, private or public, is more efficient and effective in delivering water and sanitation services (Budds and McGranahan 2003: 87-114).

Arguments in favor of privatization are largely based on the logic that transnational corporations are ideally suited and capable of managing and distributing water because of the ability to readily tap into large amounts of private equity, efficient management structure, access to cutting-edge technology, ability to recover the full cost of distribution, and the capacity to eliminate market-distorting subsidies. Moreover, it is expected that the sale and purchase of water in free and open markets will determine the opportunity to fix the "true price" of water based on the forces of supply and demand, and rationalize water consumption, i.e., users will automatically adjust their demand and modulate their utilization based on their ability to pay thereby conserving water. Proposed arguments are consistent with the neoliberal economic model that privileges market-based approaches, which increasingly dominate the global economy and it is governed by a set of universal rules generated and agreed upon by states, international financial organizations, and transnational corporations.

The market model assumes that water distributed by the public sector is heavily subsidized and in many instances, provided at near zero cost or at negative cost to the distributor, which encourages consumers to free-ride and engage in excessive and wasteful consumption of a finite commodity. This in turn compels governments to expend significant budgetary resources towards water management and distribution and divert resources from other necessary expenditures. Even a United Nations report suggests that water scarcity is largely the byproduct of institutional and political causes—subsidies and underpricing—and that it is not entirely caused by the physical shortage of water (UNDP 2006: 2-3). Opponents of public ownership of water networks also point out that governments are inefficient because they suffer from contradictory policy objectives, such as being the regulator and regulated, which leads to the misallocation of budgets, produces corruption, and cronyism (Wallsten and Kosec 2005). Governments are more vulnerable to political pressure and lobbying from constituents, which compels them to introduce populist policies without any regard for the long-term budgetary consequences. Transnational corporations, however, are expected, since they are interested in sustaining and widening their consumer base and increasing their profit margins, to provide superior service by efficiently maintaining the water delivery infrastructure, introducing appropriate new technological innovations, and ensuring strict environmental quality control.

Advocates of privatization contend that the technology, effort, and cost involved in the treatment and distribution of water from its raw and unpurified state to potable standards makes water just like any other industrial product. Hence, it is the prerogative of the private corporations to treat water as an industrial commodity that would enable them to fix a price that is market dependent. After all, private firms operate on the principle of profit-maximization and not on any altruistic objectives, and neither are they motivated by larger public policy goals such as enabling universal access or reducing water-related public health crises. Besides, the principal motivation of profits, private sector involvement in water treatment and distribution is encouraged due to the presumed ancillary advantages, such as full-cost recovery, efficient management and distribution, technology improvement, and alleviating government budgetary pressures. After all, many public utilities, such as electricity and gas, telecommunications, roads, railways, garbage collection and disposal, and urban sanitation are fully privatized and function rather effectively in advanced industrialized states. Privatization of water would be a mere extension of the policy successes in these other areas to the domain of water resources. More than three-quarters of the water distribution system in many parts of the developed world, such as France and United Kingdom, are already privatized. The growing move towards privatization of public utilities has largely resulted from the combination of external market and international institutional pressure (Drezner 2007).

Multilateral organizations have used debt leverage against developing countries to push water privatization polices by attaching lending criteria, establishing conditions, and requiring the formal involvement of transnational corporations in water management projects through credit extensions and insisting that private expertise be incorporated in water development projects (Jubilee South-Asia Pacific Movement on Debt and Development 2005). Support for privatization and rolling-back of the state resulted from a policy-shift in the World Bank in the late 1980s and early 1990s when it increasingly moved away from a state-centric development policy that supported large infrastructure projects such as dams, river diversions, and river-linking, towards market-centered neoliberal economic policies driven by what is commonly referred to as the "Washington Consensus" (Williamson 2004). Interestingly, as Khagram (2004: 27) points out in Dams and Development, the push towards privatization occurred at the same time as large dams and multi-purpose irrigation projects began encountering opposition from transnational NGOs and grassroots social groups because of the evolving environmental norms and human rights considerations for indigenous peoples dislocated by large dam projects. Transnational campaigns have forced the World Bank to reluctantly alter some of its policies and reduce involvement in big dam projects (Khagram: 190).[4] Similarly, now privatization of water is generating howls of protest, particularly in the developing world. Privatization and the model of distribution based on user-fee charges has been described as the greatest theft of a common resource and as a hostile corporate takeover of the world's water (Barlow 2001).

Vandana Shiva has been a persistent opponent of privatization of water and other agricultural resources. She has crusaded against privatization because, as she rightly points out, "recategorizing

[4] Although international donor agency involvement in supporting dam construction has relatively declined because of transnational activism, it has not produced a complete policy transformation. The Nam Theun 2 Dam on the Mekong River in Laos is being funded by the World Bank and the ADB in the hopes that Laos can generate much needed cash by selling hydropower to neighboring Thailand.

water as private property creates the possibility of excluding others from access" to a life-sustaining element (Shiva 2005: 43). According to Shiva and many others, access to water is a basic entitlement that humans and animals automatically gain by being a part of the earth's ecosystem. Therefore, private corporations cannot create new enclosures and deny or restrict access on the basis of ability to pay. Simultaneously, the private sector also does not possess the right to pollute and profit by turning common-pool resources, such as water, into exclusive goods. Shiva (2002; 2005) forcefully argues in Earth Democracy and in many other volumes that multinational corporations cannot take ownership of a freely accessible public resource, create enclosures and transform water into a private commodity, and control access to water and profit from such activities. Environmental activists are particularly concerned about the creation of private property rights over a life-sustaining common-pool resource.

Privatization of water creates new barriers to the access of common-pool resources, which allows only a small group of capital owners to exploit a public good without any regard for the environmental consequences or concerns and profit at the expense of the already impoverished. This perspective is increasingly shared by transnational NGOs and anti-privatization activists such as Maude Barlow of the Council of Canadians, one of the largest citizen advocacy groups; Public Citizen, a non-profit group based in the United States; Polaris Institute of Canada; San Francisco-based Democracy Center, which led the campaign against water privatization in Bolivia; and Water Aid and Oxfam based in the United Kingdom. Ben Page's article on water policy in Cameroon clearly indicates that the ideology of privatization and cost-recovery could only be beaten back through bitter and protracted struggles to keep the public taps open and access to water free (Page in Coles and Wallace: 66-67). In their introductory chapter, Coles and Wallace (9) contend that transnational corporations do not share the same responsibility as local stakeholders towards the maintenance and ecological sustenance of freshwater resources; a point also strongly asserted by Vandana Shiva in Earth Democracy. Moreover, these authors contend that none of the transnational agencies have demonstrated sustained interest in abiding by the global commitments expressed in the United Nations Millennium Development Goals, which seeks to engender greater gender equality, promote women's empowerment, and increase water accessibility for the poor. The lucrativeness of the water sector has attracted large transnational corporations to the water business in the developing world, but this has only exacerbated the pre-existing economic and social inequalities and worsened availability to the impoverished (Polaris Institute 2003).

Experiments in Water Privatization

Highly visible water development projects have failed spectacularly in Bolivia, Argentina, South Africa, Indonesia, and the Philippines. Various partial attempts at privatization have similarly not proceeded as planned in India. Even in the market-friendly United States, water privatization efforts initiated by the city of Atlanta, Georgia failed when the city rescinded its contract under contentious circumstances in 2003 with United Water (UW), a subsidiary of the giant French water and environmental conglomerate Suez. In 1998, Atlanta entered into a twenty-year contract, worth $428 million with United Water in order to overhaul Atlanta's aging water and sewage system, which was costing the city's public water utility approximately $50 million a year (Public Citizen 2003: 3; Freund

2005: 29-32). With privatization, Atlanta's former Mayor Bill Campbell had hoped to offset the costs of modernization, improve service, and upgrade the quality of water supplied. Atlanta's privatization efforts were also held up as an ideal water "privatization model" for other American cities to follow (Public Citizen 2003: 3; Freund 2005: 29). However, multifarious problems between the city administrators and United Water started surfacing within few months after UW assumed control of Atlanta's water system.

The dispute reached a crisis point when UW billed the city of Atlanta for $80 million for services rendered outside the bounds of the contract. Letters authorizing the payment signed by the outgoing Mayor Bill Campbell began circulating in the press. However, the Mayor vehemently denied that he had signed such documents, while the UW insisted that the Mayor had indeed signed the letters.[5] Furthermore, UW also billed the city an additional $37.6 million for capital repair and maintenance costs, of which Atlanta paid only $16 million, and the other half was never paid because of unfinished work and improper billing for routine maintenance work. Simultaneously, in a related move to cut-costs, UW laid-off 400 workers or more than one-half of the staff, which further worsened the situation (Public Citizen 2003: 3; Freund 2005: 29-32). Atlanta's newly elected Mayor, Shirley Franklin, established a taskforce at the cost of one million dollars to investigate complaints regarding poor maintenance, irregularities in bill collection, tardy meter installation, poor quality of water, and concerns about the safety of water (Segal 2003). As the acrimony between UW and the city of Atlanta deteriorated, an audit conducted between 1999 and 2001 revealed that United Water had not delivered on the promised savings. In early 2003, Atlanta terminated its twenty-year contract with UW in a retaliatory move UW accused the Mayor's office of misinformation and gross underestimation of the extent of modernization required to efficiently operate Atlanta's aging water and sewage system, while the city of Atlanta accused UW of price-gouging and failing to deliver on its contractual obligations (Segal 2003).

Around the same time, another water privatization program launched at the behest of the international lending agencies in Bolivia was rapidly unraveling. Cochabamba, a failing tin-mining town in central Bolivia located on the edges of Andes mountains, became a flash point for a clash between the forces of globalization and anti-globalization. In 1996, the World Bank made a conditional loan offer of $14 million to the Mayor of Cochabamba, which required the privatization of its water and sewage services. In addition, long-time Bolivian President Hugo Banzer was also informed that relief of Bolivia's $600 million external debt was closely tied to the success of Cochabamba's water privatization efforts (Schultz 2003).[6] In 1999, the Bolivian Congress approved the transfer of Cochabamba's water system to Aguas del Tunari, a subsidiary of Bechtel, which promised to invest millions to improve and expand the water infrastructure. This particular privatization policy was meant to serve as a test case for the expansion of water privatization efforts in the developing world, especially in South America. However, unbeknownst to the Cochabambinos, several sweetheart clauses were introduced into the contract with the Bechtel

[5] Eventually, UW decided not to pursue the additional claim of $80 million against the city. For details of the story, see Center for Public Integrity, *Water Privatization Becomes a Signature Issue in Atlanta*, 12 February 2003 (Available online at: http://www.publicintegrity.org/water/report.aspx?aid=55#).

[6] Jim Schultz, Bolivia's War over Water, *The Democracy Center* (Available online at: http://www.democracyctr.org/bolivia/investigations/water/).

subsidiary. In an egregious move, Aguas del Tunari was allowed to link Cochabamba's water tariffs with changes in the United States consumer price index (CPI) and it was guaranteed a sixteen percent annual rate of return on its investments.[7] Furthermore, the Bolivian government also secretly transferred control of the rural irrigation tanks and other local community water assets to Bechtel.

Within weeks of assuming control of Cochabamba's water supply, Bechtel increased the water rates. Consumers experienced very rapid rate hikes in the range of 100-200 percent. Households earning sixty dollars a month, or less than two dollars a day, had to pay nearly $15-20 a month, one-third of the household income, to ensure continued water supply. Unable to afford these increases and deeply disenchanted with privatization, resistance to water price hikes became strong and relentless. A loosely-organized coalition of farmers, irrigators, miners, students, and shop-owners began a series of anti-privatization demonstrations under the banner *La Coordinadora*—Coordinator for the Defense of Water and Life (Rothfeder 2004: 104-117). Oscar Olivera, a machine operator emerged as the unlikely leader of *La Coordinadora*. This group escalated its protests from asking for water tariff reductions to demanding the cancellation of the water contract with Bechtel. The government of Hugo Banzer was inflexible and attempted to resist citizen demands, siding instead with the management of Aguas del Tunari. As the protests grew boisterous and large, riot police were dispatched to pacify the protestors, which further aggravated the riots that resulted in a melee that killed a young boy, Victor Hugo Daza, and caused a complete shut-down of Cochabamba for more than a week in early April 2000. Later that month, the Bolivian government, facing intense political pressure, annulled its contract with Bechtel and turned the management of Cochabamba's water system to a citizen-led public group comprised of members of *La Coordinadora*. Bechtel, however, sued the Bolivian government for lost profits and damages to the tune of $50 million in the World Bank's arbitration board—the International Center for Settlement of Investment Disputes (ICSID)—even though Bechtel's investment in the Cochabamba water infrastructure was only a few million dollars.[8] Eventually, Bechtel and Aguas del Tunari decided to drop their claim against Bolivia in January 2006 largely because of the negative publicity generated as a result of sustained international campaigns launched by transnational NGOs such as the Democracy Center.

Ails of Water Privatization

Cochabamba, Bolivia and Atlanta, USA are not isolated incidents of water privatization setbacks; Maynilad Water (co-owned by Suez) in Manila, Philippines, Aguas Argentinas (also co-owned by Suez) in Santa Fe and Buenos Aires, Argentina are a few other cases of high profile water privatization fiascos. Why have water privatization schemes unraveled across the globe and why is

[7] Jim Schultz, Economic, Social and Cultural Rights in Latin America: From Theory to Practice "The Right to Water Fulfilling the Promise", *The Democracy Center* (Available online at: http://www.democracyctr.org/bolivia/investigations/water/righttowater.htm).

[8] The Democracy Center, *Bechtel vs. Bolivia* (Available online at: http://www.democracyctr.org/bolivia/investigations/water/).

privatization of water assets encountering sustained and unrelenting opposition? Even dam building did not encounter such persistent and fierce opposition until the mid-1980s and early 1990s, when dam construction reached a peak and began to decline. Khagram's explanation that emphasizes the institutionalization and seepage of global norms against dam construction actively promoted by transnationally allied NGOs and grassroots social groups might be equally applicable to the case of privatization of water and sanitation systems. Resistance to dam construction became an accepted "global norm" not just due to the thickening and deepening of global communication, transportation and economic exchange, but, more importantly because transnational activist groups were able to penetrate international organizations, such as the United Nations and even the World Bank, and occupy legitimate policy spaces to influence the development objectives of these large and relevant international bodies. These transnational advocacy groups were also able to establish successful partnerships with grassroots networks in countries such as India and Brazil, where local anti-dam opposition was strong.

The ability of transnational groups to simultaneously build alliances both at the global and local levels enabled them to influence the policy perspectives of international lenders and national governments against dam building. The story regarding water privatization is a little bit more complicated; it cannot be explained entirely by relying on the lobbying and moral suasion activities of the transnational advocacy networks and grassroots organizations. Besides, the transnational anti-privatization advocates have not been entirely successful in halting or slowing the global trends towards privatization and roll back of the state. Although the activities of transnational anti-globalization confederacy cannot be underestimated, water privatization seems to be fizzling under the weight of unrealistic expectations. Further, the World Bank's role in aggressively pushing privatization and user-fee models on low- and middle-income countries by using outstanding external debt as leverage has only antagonized transnational anti-privatization activists further.

The central motivation for the privatization of water assets is based on the belief that the private sector has the ability to introduce new technology, thus simultaneously improving the ailing and aging water and sewage infrastructure, and enhancing and extending water distribution networks to far-flung areas, thereby increasing accessibility and widening the customer base. Primarily, multinationals were encouraged to assume control of public water utilities because of their presumed ability to make large-scale investments through private equity markets, reduce the cost of maintenance and water distribution, and introduce management and operational efficiency by streamlining public water and sewage utilities. In other words, the private sector was identified as being capable of all those things that public water and sewage boards have failed to achieve so far, i.e., efficiency, investment, cost reduction, and the ability to function smoothly without political interference and corruption. Private sector involvement, however, has not had the desired efficiency impact. There is no evidence of increased access to water and sanitation or the introduction of major technological or management innovation, perhaps with the exception of aggressive layoffs.

Water multinationals have not shown any eagerness to make major investments in order to strengthen water infrastructure (Budds and McGranahan 2003: 100; Lobina and Hall 2003). Evidence suggests that multinational water corporations have eagerly assumed control of liberal water concessions both in the developed and developing world, and they have attempted to immediately maximize profits by increasing water tariffs and aggressively pursued bill collection. Continual increases in the cost of water services have limited accessibility to water, especially for

households lacking the ability to pay. In addition, the increase in water rates has not produced any discernable qualitative improvements to the water quality or enhanced the infrastructure standards; this may be seen in the cases of Atlanta, Santa Fe, Buenos Aires, Manila, and Cochabamba, where consumers bitterly complained about sharp and sudden rate hikes and deteriorating water quality (Hacher 2004). Concession-granting low- and middle-income countries, water multinationals, and the international lending agencies have failed to answer a very basic question: how will people pay for steep increases in water tariffs if they are only making less than two dollars a day?

Government failure was one of the primary reasons for private sector involvement in water utilities; it was assumed that the private sector had the incentive, technology, and the capacity to provide a highly needed public good. But, in reality most of the water and sanitation services in low- and middle-income states have been financed through supplementary public sector outlays, international developmental assistance provided by major lending agencies such as the World Bank and the Asian Development Bank, and through increased user charges. Water multinationals have not demonstrated any enthusiasm to invest large sums of money in risky public utilities without sufficient backing and support from international lending institutions and the local government (CBC News 2002). Invariably, water multinationals establish consortiums, as in the cases of Manila and Buenos Aires, and involve local partners to reduce the risk of entering high-investment and low-return business ventures such as water and sanitation. Furthermore, they also engage in the practice of underbidding or dive-bidding—promising below-market water tariffs during bid submission—in an effort to win major water concessions. However, once the contract is awarded they attempt to re-negotiate tariff rates, as Manila Water did after winning the contract for East Manila by underbidding its rival, Maynilad Water, by more than one-half. Similarly, in Atlanta, United Water attempted to increase water rates by citing the need for additional maintenance work (Budds and McGranahan 2003: 99; Segal 2003).

Global water business is dominated by three large conglomerates—Suez, Vivendi, and Thames Water—and a few smaller firms, such as Bechtel, SAUR, United Utilities, and Kelda. All of these multinationals are based in Europe with the exception of Bechtel, which is based in the United States, and they account for almost all of the private water concessions in the world that generated combined revenues of $30 billion in 2001 (Polaris Institute 2003: 4). However, even these large utility conglomerates with immense global reach are increasingly demonstrating great reluctance to invest in water, and particularly in sanitation, and they are abruptly pulling away from assuming control of water and sewage contracts in Vietnam, Tanzania, Philippines, Puerto Rico, and Argentina (Balch 2005). The chief executive of SAUR, J.F. Talbot punched a huge hole into the generally-accepted notion that the private sector would be willing and eager investing partner in water and sanitation, when he was quoted as saying that it is simply unrealistic to assume that "any business must be good business and that the private sector has unlimited funds" (Hall 2002: 1-15). He suggested that the private sector simply did not have unlimited financial capacity, and if it did, there is growing unwillingness to invest because the scale of water and sanitation needs in the low- and middle-income countries "far out-reaches the financial and risk taking capacities of the private sector" (Hall 2002: 8). Talbot further added that strict regulation and tight contracts have placed unreasonable constraints and expectations on the private sector, which has reduced its ability to operate effectively and independently. Importantly, the chief executive of the water giant SAUR declared that the private sector could not be expected to exclusively bear all of the investment and

technological burdens in running and maintaining water utilities without sustained support through soft loans, financial guarantees, and subsidies both from international lending agencies and from the contracting national governments.

Provision of water and sewage services raises innumerable economic and governance issues that cannot be simply addressed by bringing in private operators, any more than they were resolved in the past by bringing in public operators. The assumption that multinational water corporations would be more efficient because they are driven by profit incentives, which would encourage them to realize superior efficiency gains, has not generally borne out in practice (Budds and McGranahan 2003: 100-101). If a public utility is poorly run and dysfunctional due to weak infrastructure and accessibility issues, water multinationals cannot be expected to make them more effective or efficient. Water and sewage services unlike other public utilities are fraught with extraordinary complexity in terms of infrastructure, investment, and development, and they are not as profitable as previously anticipated. Besides, as Coles and Wallace (2005: 10-12) point out, water and sewage services are also intimately connected with complex local governance politics, ownership conflicts, and access issues associated with class, caste, ethnicity, and gender that are highly vulnerable to a multitude of political pressures, which reduces the possibility of quick returns on investments or painless increases in tariff charges. Hence, there is growing realization among international lending agencies and national governments that simply transferring control and operation of public utilities to water multinationals may not be an automatic panacea for fixing water and sanitation woes of low- and middle-income countries.

Solutions to Global Water Crisis—The Way Forward

The World Water Council, 3rd World Water Forum, Global Water Partnership, the Dublin Statement on Water and Sustainable Development, and the United Nations have endorsed the view that the "human right to water is indispensable for leading a life in human dignity," and access to water and sanitation is a "prerequisite for the realization of other human rights" (Camdessus and Winpenny 2003: vii). However, there is undoubtedly a growing global crisis over access, availability, and distribution of water both within and among nation-states (de Villiers 2001). The looming water crisis is not entirely a function of scarcity; water shortages are also produced by poor management, technological deficiencies, aging infrastructure, perverse incentives for overuse and overexploitation, and complex local cultural factors. External factors such as drought and climate change in combination with poor management and weak infrastructure have produced a massive water crisis in Atlanta (Goodman 2007). Both public utilities and private water multinationals operating independently have proven to be equally ineffective in meeting the expanding need for water and sanitation services. Water indeed might be a *sui generis* public good with special physical, social, and economic characteristics that would inevitably require a very high degree of government involvement (FAO 1995).

The relative value of water depends on the variety of user needs, location, availability, quality, and demand. Aside from its relative value, water also holds innumerable religious, moral, and aesthetic significance in different cultures as indicated by the various chapters in the Coles and Wallace edited volume. Additionally, because of water's rather unique physical characteristics such as, extensive regional variation in quality, saline content, and usability, geographical

interdependence—where underground aquifers are dependent on river basins for replenishment—bulkiness and mobility problems present transportation challenges, and its evaporability and vulnerability to weather and seasonal fluctuations make water particularly difficult to regulate, store and manage, or price consistently.[9] Agriculture and industrial activity are deeply reliant on their ability to access freshwater resources. More than ninety percent of freshwater utilization is targeted for agricultural and industrial purposes (UNDP 2006: 172-177). For humans, animals, and flora and fauna water is a life-sustainer and enabler; such special characteristics make water assets and water management unsuitable to exclusive private ownership and control. Nonetheless, public utilities have not necessarily proven to be efficient managers of water resources or demonstrated the capacity to increase water access for the poor and marginalized. Failures of the public sector are well documented and governments around the world cannot easily choose to exclude the private sector given the urgency and complexity of water and sanitation needs.

Effective methods of harnessing private sector capacity have to be identified through public-private partnership (PPP) ventures. Government-run public utilities cannot continue to underprice water and introduce perverse subsidies that encourage overuse and overexploitation of a highly scarce resource (UNDP 2006: 145). Pricing structures should reflect the scarcity value of water and generate incentives for conservation and sustainable use. One of the guiding principles issued by the Dublin Group on Water and Sustainable Development is that freshwater is a finite and vulnerable resource, which "has an economic value in all its competing uses and should be recognized as an economic good" (International Conference on Water and the Environment 1992). Concurrently, state and local governments cannot simply transfer ownership and operation of water networks entirely to the private sector and assume that it will increase access, and ensure efficiency in conservation and sustainable use by effectively manipulating water tariffs. According to the World Panel on Water Infrastructure, effective water resource development would require simultaneous and sustained involvement of all stakeholders—international lending agencies, private sector, non-profits, local communities, and governments—through multi-level public-private partnerships (Candessus and Winpenny 2003: 6).

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Srini Sitaraman is an Assistant Professor in the Department of Government and International Relations at Clark University and a Research Associate at the Fairbank Center for East Asian Research at Harvard University. Sitaraman teaches courses on United Nations, International Law, Asian Political Economy, and International Relations. He has published articles and monographs on multilateral regimes. Presently, he is working on a book-length manuscript focusing on state participation and resistance towards international treaty regimes.