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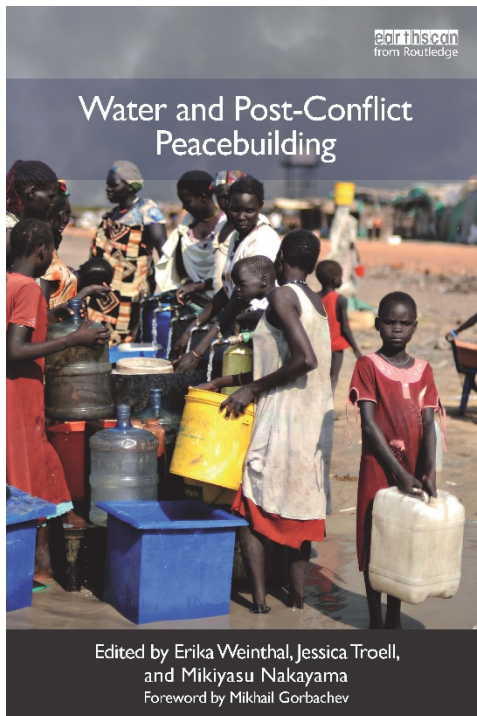
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A tale of two cities: Restoring water services in Kabul and Monrovia

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A tale of two cities: Restoring water services in Kabul and Monrovia

Jean-François Pinera and Robert A. Reed

Kabul and Monrovia are two very different cities with little in common apart from being the capitals of their respective countries, Afghanistan and Liberia. Yet they share a tragic similarity: both have suffered, almost simultaneously, from years of conflict. The parallels are remarkable:

- In 1992, mujahideen fighters entered Kabul after the withdrawal of the Soviet army. Almost immediately, a four-year power struggle between rival factions began that left 20,000 people dead and large portions of the city destroyed (Johnson 2004). In the same year, Monrovia came under attack by rebel forces led by Charles Taylor, causing destruction and generating mayhem among the thousands of displaced people who had fled conflict in the provinces.
- In 1996, the Taliban (a Sunni Islamist, predominately Pashtun movement)¹ took Kabul, and Taylor's forces again attacked Monrovia. In the following months, peace returned to both countries, at least to the capitals. In Liberia, a presidential election resulted in a landslide victory for Taylor.
- In 2001, Kabul was bombed again, this time by the United States. The city fell in only a few days, and the Taliban regime collapsed. In 2003, Taylor's opponents took over Monrovia, forcing the president into exile.

Since then, Afghanistan and Liberia have each experienced a transition toward democracy under the guidance of the United Nations. However, while Liberia seems to be on the pathway to stability, Afghanistan remains in conflict.

Prolonged conflicts such as those in Afghanistan and Liberia affect cities in many ways. The damage to urban infrastructure is the most apparent result, but communities and institutions also suffer. A common consequence is disruption

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¹ The Pashtun word *talib* means student.

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to urban services such as the water supply. Armed rebellion may result from a wide range of factors, including miserable living conditions. Alleviating the consequences of conflict by restoring access to basic services, including water supply, can give people hope and thus diminish support for the insurgency and promote peace.

In Kabul and Monrovia, a number of humanitarian organizations contributed to the partial restoration of water supplies, and then worked to more fully rehabilitate the water networks in both cities. This chapter draws a parallel between those two efforts. Its aim is to show that, in addition to aid agencies and water utilities, communities of consumers have important roles to play in the delivery of water in an environment transformed by conflict. Access to basic services by the poorest portion of the population is particularly critical. This is a fundamental target in terms of peacebuilding, because this is where armed insurgents are the most likely to find followers. Low-income populations, whether rural or urban, often have little confidence in political settlements and may see violence as the only way forward. This chapter explores how interaction between aid agencies, water utilities, and local communities influence project outcomes. Restoration of tolerable living conditions can help facilitate community involvement and strengthen trust in institutions. The chapter concludes by suggesting ways to improve aid agency strategies to maximize the benefits of their intervention.



RESEARCH METHODOLOGY

Kabul and Monrovia were part of a wider case-study research project that also looked at interventions in cities and towns in Chechnya, the Democratic Republic of the Congo, Haiti, and Sri Lanka (Pinera 2006). The project offered an opportunity to explore numerous aspects of emergency situations, including type and intensity of armed conflict, geography, types of aid agencies involved, and types of assistance. The interventions that were studied had various levels of involvement by water utilities and communities of consumers. Their outcomes were evaluated in terms of service sustainability and coverage, in particular for areas sheltering the most vulnerable. The data were taken primarily from unpublished reports and from field visits carried out in 2005. During the field visits, water utility officials, community leaders, and members of aid agencies were interviewed. Interview questions concentrated on the consequences of the conflict

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for the water supply; interactions among aid agencies, water utilities, and communities; and the quality of assistance provided.

WATER SUPPLY IN KABUL AND MONROVIA

Reginald Herbold Green described rehabilitation as restoring “the same level of functionality as before the crisis” (Green 2000, 343). In Kabul and Monrovia, this task seems virtually impossible, because conflict has transformed these cities’ appearance, infrastructure, institutions, population, and size. A more appropriate goal for rehabilitation in these cases would be a level of functionality that is appropriate to the new situation.

This section describes the transformation of Kabul and Monrovia, concentrating on the water supply and on how aid agencies responded to the emergency.

Kabul

Although Afghanistan has been at war since 1978, Kabul was spared until the withdrawal of Soviet troops on February 15, 1989. At that time, its population numbered approximately 1.3 million (CSO 2005). A water network, fed mainly by boreholes (water wells of reduced diameter) and surface water, supplied about 60 percent of Kabul residents. The boreholes were either located in one of three main well fields on the southern fringe of the city or were individual wells. Certain neighborhoods, inside the city and on its periphery, were not connected to the main water network and had independent water systems. Total water production in 1988 was estimated at 86,000 cubic meters per day (m^3/day) (Banks and Hamid 2002). The network had 30,000 individual connections, half of them metered. Water was available for between six and eight hours a day, on a regular schedule. Households not supplied with piped water relied on public and private shallow wells. The development of the water network was guided by a master plan designed in 1974 for a population of less than 1 million people (Brinkhoff 2010).² Figure 1 shows the urban area supplied by the central water network, according to this master plan; it also shows the nearby water resources.

The Central Authority for Water Supply and Sewerage (CAWSS) was responsible for developing the Kabul water network, according to the master plan. CAWSS was almost self-financing, with only 10 percent of its budget coming from the central government.

When fighting erupted around Kabul soon after the Soviet withdrawal in 1989, the Afshar and Logar well fields were looted almost immediately. Water production fell sharply to 25,000–30,000 m^3/day (Banks and Hamid 2002). The situation worsened after April 1992, when the mujahideen took the city. The power supply was then halted totally and the pumping stations plundered. People could only obtain water from shallow wells and from the Qargha Karez, an underground

² Kabul’s population was given as 913,000 by the 1979 census (Brinkhoff 2010).

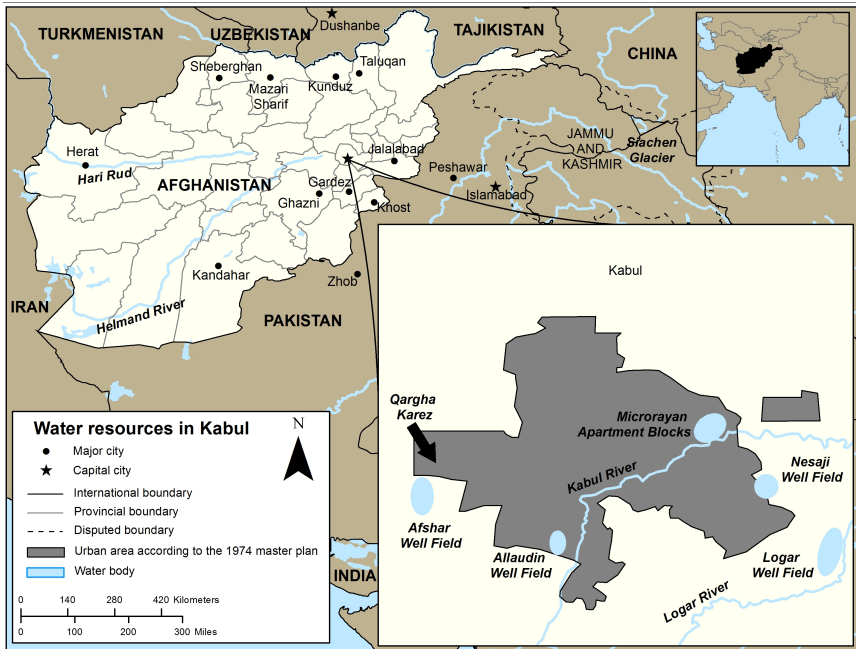


Figure 1. Water resources in Kabul, Afghanistan

Source: Based on a map by the Afghanistan Information Management Service (AIMS 2005).

canal, which was producing less than 5,000 m³/day. Heavy fighting continued intermittently until 1994, and some 500,000 people abandoned the city.

From 1994, a reduction in the intensity of hostilities allowed aid organizations including CARE, Solidarités International, and the United Nations Human Settlements Programme to intervene (Solidarités International 1995). Their operations initially consisted of trucking in water and constructing more than 2,000 shallow public wells, most of which were boreholes equipped with hand pumps (Pinera 1999). Essential repairs to the Afshar and Allaudin well fields and to some individual wells supplying the network were later carried out, allowing water production to reach approximately 15,000 m³/day. This level of production was maintained until the fall of the Taliban at the end of 2001. The CAWSS, which used to employ 400 staff in Kabul, including thirty-four engineers before 1992, lost most of its qualified personnel and all of its equipment and vehicles.

Kabul's infrastructure suffered heavy damage during the conflict; its southwest quarter was literally flattened. When a large number of people returned home from abroad after the removal of the Taliban, many found their homes damaged or destroyed and began to rebuild. Some settled in abandoned buildings or in improvised camps. The construction of new houses on the outskirts of the capital

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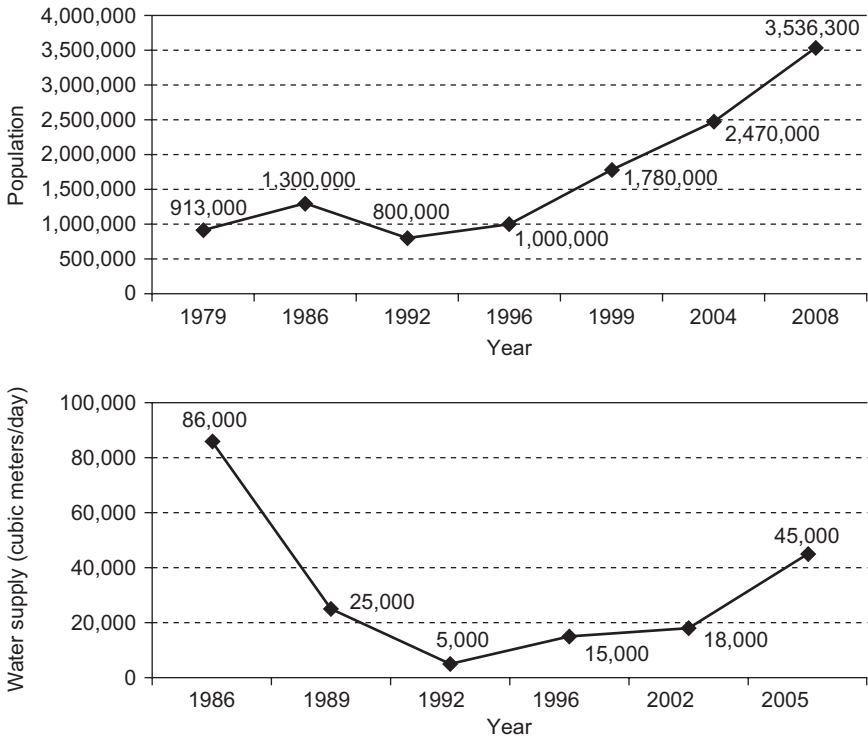


Figure 2. Population and water supply in Kabul, Afghanistan

Sources: Population data drawn from CSO (2000, 2005); Grinnell and Troc (2004); Brinkhoff (2010). Water supply data drawn from Bank and Hamid (2002); Salim Karimi, former manager at Central Authority for Water Supply and Sewerage and employee of Kreditanstalt für Wiederaufbau, personal communication, April 2005.

contributed to the city's expansion, while the hills in the center were covered with more houses. Most of these areas were not included in Kabul's master plan. New and densely populated neighborhoods were created where some of the poorest people lived. In less than two years, the city's population grew from almost 1.8 million under the Taliban (CSO 2000) to approximately 2.8 million in 2004 (Grinnell and Troc 2004) and an estimate of more than 3.5 million in 2008 (Brinkhoff 2010). (Figure 2 shows changes to Kabul's population and water supply.)

Monrovia

Liberia became politically unstable in the mid-1970s, when it was affected by a severe recession, and suffered a bloody coup in April 1980. Even under these difficult conditions, the Liberia Water and Sewer Corporation (LWSC) managed

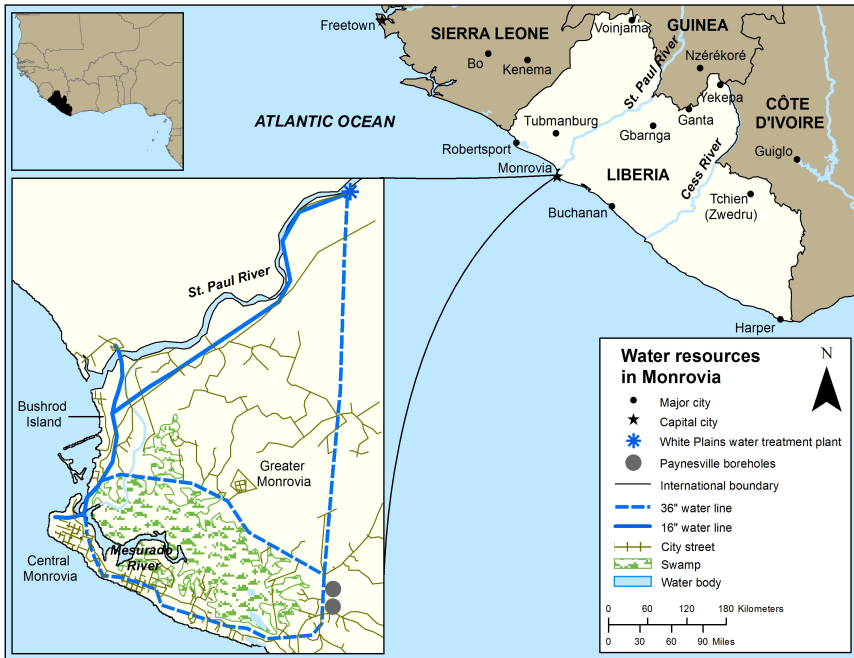


Figure 3. Water resources in Monrovia, Liberia

Source: Smith and Kpakolo (2004).

to serve 75 percent of the Monrovia area, using 17,900 individual connections, of which 45 percent were metered (Willson 2003). Households not connected to the water network relied on a few public taps and a large number of shallow private wells. The average daily production of the White Plains treatment plant, fifteen kilometers northeast of the capital on the Saint Paul River, was 61,000 m³/day (Willson 2003). (Figure 3 shows Monrovia's main water resources.)

When a rebellion against the government reached the surrounding areas of Monrovia in April 1990, the water supply from White Plains was among the first services to shut down. Organizations including the International Committee of the Red Cross (ICRC), Médecins Sans Frontières–Belgium (MSF–Belgium), and the United Nations Children's Fund (UNICEF) intervened to support LWSC and managed the resumption of water production, which reached 22,500–37,500 m³/day (Ockleford 1993; Smith et al. 2001). Along with other organizations, they constructed a large number of public wells equipped with hand pumps.

A new interruption to the water supply occurred during the October 1992 attack by Charles Taylor's troops and was not restored until the end of 1993, when the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) installed power generators at White Plains. The same year, MSF–Belgium, supported by GTZ, drilled two boreholes in Paynesville, east of the city (Smith and Kpakolo

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2004). Damage to the transmission line did not allow the water supply from White Plains to be restored beyond Bushrod Island, a densely populated area located north of central Monrovia, to which 7,100–7,500 m³ of water was delivered daily (Smith et al. 2001; Geoscience 1998). Since then, water trucks and wheelbarrow vendors have distributed a large portion of the drinking-water supply to areas not served with piped water. They obtained water either from the network through Bushrod Island outlets or from Paynesville boreholes.

In 2003, production at White Plains dropped further, to slightly more than 3,500 m³/day, due to a lack of fuel (Smith and Kpakolo 2004). The LWSC, like the CAWSS, lost most of its qualified personnel and assets during the troubled years between 1992 and 1996. The situation changed in mid-2006 when the newly elected government carried out major repairs to the transmission line, resulting in a substantial increase in water production and allowing water to reach central Monrovia again after almost fifteen years of interruption (Alegre 2006). Since then, daily volume of water production has varied between approximately 9,800 and 18,000 m³/day (Alegre 2006; AWF 2007). In 2010, average production was 14,000 m³/day.³

Conflict caused far less destruction in Monrovia than in Kabul, because rockets were used only for a short time in 2003. But Monrovia, like Kabul, experienced a sudden population rise, from 500,000 in 1988 (Perry 1988) to approximately 1 million in 2003 (Smith and Kpakolo 2004), as Liberians fled conflict and devastation in the countryside and settled in the capital and the camps surrounding it. These camps received 200,000 people between 1992 and 1995 (Atkinson and Mulbah 2000). A large proportion of newcomers to Monrovia went to the shantytowns located next to a swamp along the Mesurado River. They also built houses in the peripheral area, contributing to the extension of the city beyond its original limits. These new settlements are part of what is known as Greater Monrovia. The city's population did not vary significantly between 2003 and 2008, the year of the last census (Brinkhoff 2010). (Figure 4 shows changes in Monrovia's population and water supply.)

WATER SUPPLY REHABILITATION

Once the situations in Kabul and Monrovia became somewhat more stabilized, a number of organizations began work to rehabilitate the cities' water supply systems. Strategies in both cities were primarily of two types:

1. Large-scale rehabilitation projects, supported by bilateral or multilateral donor organizations, were initiated as soon as the political environment was considered suitable. Sponsors of these projects adopted a global approach, aiming to sustainably improve the whole system of water production, distribution, and management. They also supported institutional reforms.

³ John Kpakolo, manager at LWSC, personal communication, August 2010.

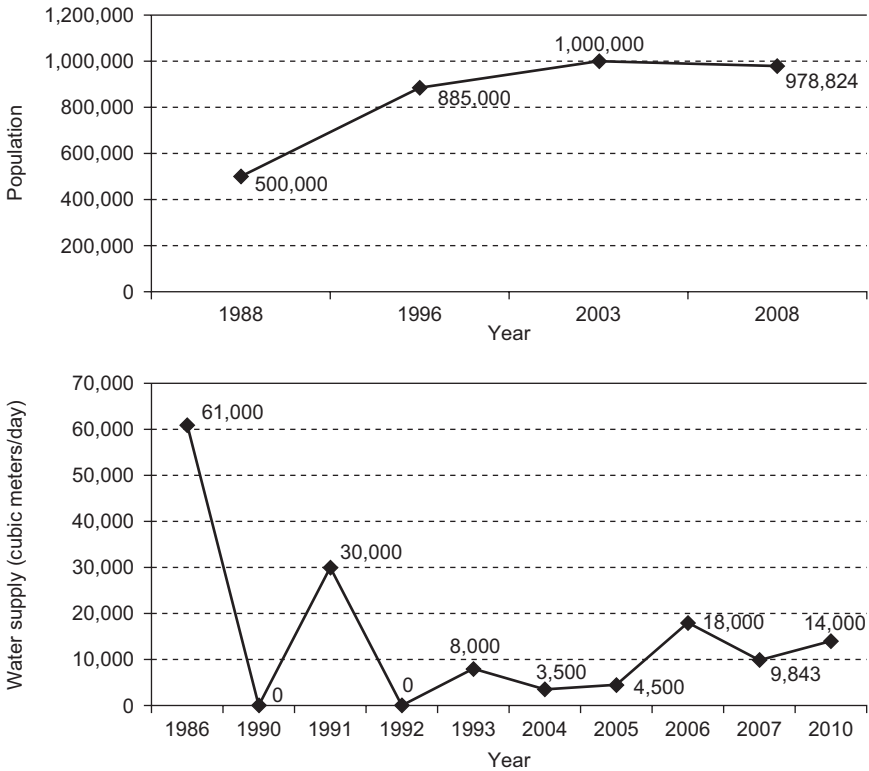


Figure 4. Population and water supply in Monrovia, Liberia

Sources: Population data drawn from Perry (1988); Atkinson and Mulbah (2000); Smith and Kpakolo (2004); Brinkhoff (2010). Water supply data drawn from Smith Kpakolo (2004); Alegre (2006); AWF (2007); John Kpakolo, manager at Liberia Water and Sewer Corporation, personal communication, August 2010.

2. More modest rehabilitation projects, mostly carried out by international nongovernmental organizations (NGOs), had as their main objective to avoid outbreaks of communicable disease caused by reduced access to water, sanitation, and health services, especially in the most congested areas.

Kabul

Essential repairs to the water network started in Kabul in 1995 when CARE, Oxfam, and Solidarités International repaired pumping stations, part of the main water network, and some of the independent water systems. Starting in 2002, the ICRC and the German government-owned development bank Kreditanstalt für Wiederaufbau (KfW), working through the German consulting firm RRI Beller/Kocks, became involved. By 2005, water production had been restored to 45,000 m³/day, and the number of house connections had returned

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to the pre-conflict level of 43,000. (Table 1 provides more details on these operations.)

Beginning in 2003, planning began on the large-scale rehabilitation of the Kabul water network. This started with a feasibility study funded by KfW and carried out by RRI Beller/Kocks. Based on its conclusions, KfW, together with the World Bank, funded a €100 million rehabilitation of the water network, which included drilling and equipping twenty-six new deep wells with the objective of producing a daily average of 121,000 m³ of water once completed (Fischaess 2003). The project also planned to turn CAWSS into a state corporation, accountable to a board of directors instead of to the Ministry of Urban Development and Housing. Its branches, in thirteen cities and towns, were meant to acquire greater autonomy, and it was envisaged that independent service providers that were publicly, privately, or cooperatively owned would take part in the service (MUDH 2005).

In parallel with these large-scale rehabilitation and institutional development plans, a number of organizations, primarily NGOs, carried out community-based projects expected to have a swift impact on living conditions in the poorest areas. They targeted neighborhoods outside the master plan since, in the short and medium term, it was not expected that the main water network would supply them (Pinera and Rudge 2005). Some of these neighborhoods were served by

Table 1. Major water network rehabilitation projects in Kabul, Afghanistan

<i>Organization</i>	<i>Operation</i>	<i>Period</i>	<i>Results</i>
CARE	Rehabilitation of pumping stations in Afshar well field	1995 (six months)	Handed over to Solidarités
CARE	Rehabilitation of two well fields	1996–2006	Handed over to CAWSS
ICRC, British Red Cross Society	Logar well field electrification	2002–2003	Completed
ICRC, Spanish Red Cross Society	Projects in five areas of the Kabul network	2002–2003	Completed
KfW, RRI Beller/Kocks	Urgent repairs to the Kabul network	2002–2005	Completed
Oxfam	Logar well field rehabilitation	1997–1999	Not completed
Solidarités	Operation, repair, and maintenance of pumping stations and independent networks in Kabul and along its periphery	1995–1998	Not completed

Sources: Cosgrave (1999); Diago and Arnalich (2004); Elliott (2002); KfW (2003); Solidarités International (1995).

Notes: CAWSS: Central Authority for Water Supply and Sewerage; ICRC: International Committee of the Red Cross; KfW: Kreditanstalt für Wiederaufbau; Solidarités: Solidarités International.

independent water systems, usually consisting of a borehole and a number of tap stands. While theoretically the responsibility of CAWSS, these water systems were in practice left to the communities to manage. Only a small proportion of the population living in unplanned areas benefited from water systems, with the majority relying on shallow public or private wells, sometimes equipped with hand pumps.

Organizations such as ICRC and the French NGOs Action Contre la Faim and Solidarités International ran the following projects:

- Constructing water-access points and water systems, usually boreholes equipped with hand pumps, and rehabilitating existing water systems.
- Training mechanics to repair water systems.
- Building or rehabilitating private latrines.
- Organizing hygiene promotion through house-to-house visits, sessions in schools and mosques, and focus-group sessions.
- Encouraging the establishment of water committees to manage the operation and maintenance of hand pumps and small-scale water systems.

Kabul municipal government and CAWSS had little or no interest in these projects.

Monrovia

GTZ, ICRC, MSF–Belgium, and UNICEF were involved initially in making essential repairs to the water supply system in Monrovia. This task was continued beginning in 1996 by the Florence-based consulting firm Geoscience, funded by the European Development Fund. (Table 2 provides more details.)

Table 2. Major water network rehabilitation projects in Monrovia, Liberia

<i>Organization</i>	<i>Operation</i>	<i>Period</i>	<i>Results</i>
European Development Fund, Geoscience	Essential repairs on water network and support for the LWSC	1996–2003	Completed
European Development Fund, GTZ, MSF–Belgium	Drilling of Paynesville boreholes, repairs and installation of generators at White Plains water treatment plant	1993	Completed
ICRC	Support to the water utility, repairs to the power supply, support for water production	1991 (six months)	Completed
MSF–Belgium, UNICEF	Support to the water utility, repairs to the power supply	1990–1991	Handed over to the ICRC

Sources: Geoscience (1998); Ockelford (1993); Smith (2001, 2004); Smith et al. (2001).

Notes: GTZ: Deutsche Gesellschaft für Technische Zusammenarbeit; ICRC: International Committee of the Red Cross; MSF–Belgium: Médecins Sans Frontières–Belgium; UNICEF: United Nations Children’s Fund.

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While these repairs and the support provided to LWSC helped slow the deterioration of Monrovia's water production capacity, they failed to reverse the trend.

After the fall of Taylor's regime in August 2003, a large-scale rehabilitation of the water supply was envisaged. A number of studies, among them a water demand and market study (Browne and Tsikisayi 2004), were carried out and led to the launch of a €3 million rehabilitation project, funded by the European Union (EU) and awarded to the German consulting firm Hydroplan. One of the main objectives of this project was a complete overhaul of the water treatment plant and of the transmission lines carrying water to the city. The project also foresaw the drilling of new boreholes in the Paynesville area.

The EU's project recommended that LWSC delegate the management of the city's water supply to the private sector through concessions. This option would involve making private companies responsible for the operation and maintenance of the utility's assets as well as for necessary investments in the infrastructure (World Bank 2006). LWSC would, however, remain responsible for water production, quality control, and primary distribution through the transmission line. It would also distribute water in areas of Monrovia where the concession would not be viable because of low income levels or insufficient population density. The process was initiated in March 2005, but the new government that came to power in February 2006 opted to halt it. It questioned the process of privatization and decided to test the project in the richest areas. Community-based management of public stand-posts was preferred in low-income neighborhoods. In 2010, a number of stand-posts were running and the process of assigning concessions was ongoing—with other actors involved, including the African Development Bank and Japan International Cooperation Agency.⁴

Community-based projects aimed at preventing outbreaks of cholera were also carried out in Monrovia by organizations such as Action Contre la Faim, Concern, ICRC, Oxfam, and UNICEF. In the peri-urban areas of Monrovia, their activities were similar to those implemented in Kabul, with the difference that in Monrovia, community-based organizations played a prominent role in community mobilization. The relief agencies active in central areas of Monrovia tended to focus on ensuring fair access to the water sold by trucks and small vendors. For this purpose, Oxfam and UNICEF distributed water reservoirs, ranging in volume from about 1,000 to 11,000 liters, to be managed by communities that purchased water from bulk suppliers and agreed on a selling price.

Oxfam's project in Clara Town, a densely populated low-income area of Bushrod Island, deserves special attention since it dealt with illegal water vendors. In 2004, it was estimated that up to 60 percent of White Plains' water was unaccounted for (Smith and Kpakolo 2004). Leaks were part of the problem, but the main cause was water sellers illegally connecting to the network. Low pressure

⁴ John Kpakolo, manager of LWSC, personal communication, August 2010.

in the network obliged them to fill water vessels from the bottom of holes they dug to pierce the pipes. The conditions in which they sold water were very unhygienic. Since the network was not constantly under pressure, it could be contaminated through seepage from surface water accumulating in the holes.

Criminal gangs often controlled these vendors, and, for an international NGO, it was difficult to work in such an environment. Oxfam, though, had been able to intervene in Clara Town since mid-2005, in partnership with a community-based organization. The agency selected thirty of these illegal vendors and signed an agreement with LWSC under which they were recognized and equipped with water meters. Water sellers received plastic water tanks from Oxfam, allowing them to sell water throughout the day. The connections to the network were also improved to avoid contamination (Oxfam 2005). The project was designed to run in collaboration with LWSC. This choice was surprising, because it was in contradiction with the strategies adopted in NGOs' other community-based projects in Monrovia, which, like those in Kabul, tended to promote autonomous water sources such as community wells that were independent of the municipal water supply. These projects were beneficial in terms of social cohesion, which is particularly important in post-conflict societies, but they did not increase the coverage or the quality of municipal services.

ACHIEVING SUSTAINABLE SERVICE FOR ALL CONSUMERS

The concept of quality applied to the delivery of humanitarian assistance has gained momentum in the past fifteen years, along with the related notion of accountability. This is mostly due to the increase in the number of emergency operations and relief agencies and in the amount of funds spent during this period (Macrae 2002). As mentioned earlier, the interventions in this study were measured in terms of their sustainability and coverage. Sustainability refers to the capacity of the activity to continue producing outputs when external assistance is withdrawn. Coverage refers to the portion of the targeted population that actually receives assistance. Analyzing these parameters is particularly relevant for the rehabilitation of water systems in urban areas affected by armed conflict, because they are reflected in the two types of intervention mentioned above. Large-scale interventions often prioritize sustainability, while community-based projects prioritize coverage.

Sustainable services and privatization

Strengthening the capacity of water utilities weakened in conflict is essential for obtaining sustainable results. Through institutional development initiatives, they may acquire the financial, managerial, and technical capacity to run the service and to make appropriate strategic choices.

M. Sohail, Sue Cavill, and Andrew P. Cotton divide the sustainability of an urban service into three components:

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1. Technical sustainability is linked to the capacity to operate and maintain its assets.
2. Financial sustainability depends on a water utility's capacity to recover costs.
3. Institutional sustainability depends on a water utility's credibility as a service provider to both consumers and local administrations (Sohail, Cavill, and Cotton 2005).

Institutional development requires close collaboration with governmental agencies, which is only possible when aid agencies and donors accept them as partners. It can be a difficult task, and corruption often adds to the problem. In spite of these challenges, institutional reforms of water services were launched in Kabul and Monrovia. In Kabul, where they are most advanced, it took three years to conceptualize a vision for the institutional development of the water utility (MUDH 2005). The strategy chosen for improving the efficiency of water services was to rely on service providers to carry out certain functions, thereby restricting the tasks to be conducted by a water utility with limited capacity. Policy makers considered involving different types of service providers, but according to the manager of the KfW-funded project, the likely option considered at the time was a management contract granted to a private company.⁵

In Monrovia, the choice of operating through concessions is even more daring, and was largely objected to by the new management of LWSC that took over after February 2006. In the short term, it is hard to imagine a Liberian company capable of running the service at acceptable standards, let alone investing in the infrastructure. International water companies are hardly an option, since they are unlikely to be inclined to invest in a country beginning to emerge from civil war. Assuming that companies are found to run concessions in Monrovia, there is a risk that they will neglect less profitable low-income areas, which will remain the territory of vendors who sell water at prices up to twenty times higher than those paid by LWSC's private customers.

Private-sector participation in urban water supply is a common practice in the developed world. It has been tested in Africa with mixed results (Hall, Bayliss, and Lobina 2002; Stren 2001; Batley 2001). In countries affected by conflict or long-lasting political instability, obstacles seem even greater. With increased urban poverty, shattered infrastructure, and weak institutions, achieving profitability is certainly a greater challenge for a private company than it is in countries that may have weak economic prospects but are not recovering from violent conflict.

Opponents of privatization argue that it would result in a substantial rise in water tariffs and, as in the case of Monrovia, only well-off families in a limited number of areas would be covered and could afford the service (Balanyá et al. 2005). Others, however, contend that well-designed privatization can also benefit the poor (Alexander, Rosenthal, and Brocklehurst 2002). The debate is unresolved,

⁵ Bernt Fischeass, RRI Beller/Kocks, personal communication, Kabul, April 2005.

and Kabul is a perfect illustration of what is at stake. A majority of its inhabitants live in areas not covered by the master plan and consequently not supplied by the central network. So far, the public water utility has mostly ignored them, and no global solution is envisaged to address the problem. It seems unlikely that the residents of these areas would be able or willing to meet the costs of connecting to the network. An increase in water tariffs in 2005 by the public utility—even before any privatization was officially envisaged—was received with complaints, in a country where water is considered by most as a gift of God.

Reaching those with the greatest need

Community-based projects carried out by aid agencies in low-income areas aim to respond to those with the greatest need. However, most projects are not adapted to the urban environment and may have limited benefits in the long term. The organizations running these projects are usually experienced in emergency operations or rural water supply, but most of them lack experience in dealing with local institutions. Instead, they tend to prefer locally maintained individual systems. These systems have the advantage of being quick to install, and they sometimes offer much-needed instant relief. But there is no guarantee of quality and continuity of service beyond what communities are able to ensure. Furthermore, a community-based approach that works in rural areas or in a displaced persons camp is not necessarily applicable in urban neighborhoods that have been traumatized by violence. Monrovia and Kabul each have diverse populations with different ethnic, religious, and political backgrounds in which confrontation, violence, and gang culture have sometimes replaced solidarity and mutual trust.

Agencies willing to work in such contexts cannot always expect community participation, but they may help extend municipal water services to low-income communities. This may involve helping to establish a working relationship between informal vendors and the water utility, as Oxfam did in Clara Town, Monrovia. Another possibility is helping communities to set up and manage their own neighborhood water distribution systems.

This model has been applied in another city affected by armed conflict: Port-au-Prince, the capital of Haiti (Colin and Lockwood 2002). Its water utility, Centrale Autonome Métropolitaine d'Eau Potable, never considered supplying the 800,000 people living in the city's shantytowns, until the intervention of the French NGO Groupe de Recherche et d'Echanges Technologiques (GRET). Between 1995 and 2005, the organization extended the city water network to these areas, building a number of kiosks from which water was sold to residents. Water management committees were elected in each neighborhood and were put in charge of running these kiosks, paying the sellers and buying water in bulk quantities from the Port-au-Prince water utility, thereby maintaining affordable tariffs (Matthieussent and Carlier 2004). This operation helped not only to

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improve water access but also to restore a sense of citizenship among shantytown residents as they gained access to this municipal service.

Achieving universal access to basic services entails selecting the most appropriate mode of management according to the environment of the targeted area. In the case of water supply, the main options to consider are the following:

- Mode of delivery—private or collective connections.
- Involvement of the private sector, ranging from water vendors to international water companies.
- Role of the community, which may be directly involved in management or only represented on regulatory boards.

The choice may depend on the following variables:

- Income levels in the community.
- Social capital—links within the community, across social cleavages, and between communities and formal institutions.
- Relative strength of the water utility and of the informal sector.
- Level of violence, which is related to social capital and, in certain cases, to the efficiency of a disarmament process.
- Physical constraints such as the geography of the neighborhood, underground conditions, and level of sanitation.

In a city, water systems tend to be complex and therefore expensive to build, operate, and maintain. The strength of water sector institutions is therefore one of the main parameters affecting the efficiency of water services. Large rehabilitation projects usually entail large funds and a number of private companies. Where corruption is an issue, institutional development may become extremely difficult for the agencies involved.

There is no obvious solution to this problem. In such contexts, all stakeholders should take part in decisions about how the service should be managed, for instance through the creation of a management board in which consumers would have a voice. This is especially important when it comes to allocating markets and deciding on a mode of management.

CONCLUSION

This tale of two cities reveals comparable approaches to the rehabilitation of water supply despite very different cultures, natural environments, and historical backgrounds. The two cases have many elements in common: a run-down water utility, a new government, bilateral and multilateral donors, commercial consulting firms, emergency aid agencies—NGOs, the ICRC, or UN bodies—and divided communities. Both have adopted similar strategies: large-scale rehabilitation

projects, funded by KfW and the World Bank in Kabul and by the EU in Monrovia, alongside community-based projects run by NGOs, ICRC, and UNICEF. Similar accounts could be given of many other cities emerging from conflict.

In both Kabul and Monrovia, the sustainability and coverage of interventions are important issues. Large-scale rehabilitation projects may contribute to the institutional development of the water utility, which should ensure sustainability, but their coverage is limited; they are unlikely to cover disenfranchised neighborhoods in the foreseeable future. In this respect, the prospects are even worse under privatization. Community-based projects, on the other hand, target disenfranchised areas but usually rely on locally maintained systems, with no guarantee of quality or long-term sustainability.

How agencies channel their support appears to be linked more to whether they are skilled and capable of action than to the actual needs of the community. Private consulting firms such as RRI Beller/Kocks in Kabul and Hydroplan in Monrovia are more at ease with conventional water distribution with individual connections than with custom-made solutions for areas forgotten or neglected by large-scale reconstruction projects. Water utilities tend to think along the same lines, since individual connections are, in principle, more likely to generate income. In contrast, humanitarian agencies prefer to deal with communities, as they do in rural areas or in camps, rather than with governmental institutions. They also rely on funding schemes designed to support short-term, quick-impact interventions with a limited long-term perspective.

In these conditions, little can be done to reduce the gap in access to water services that has been widened by conflict. A more holistic approach requires a much-needed paradigm shift.

It is essential that interventions simultaneously target hardware, institutional development, and social issues. Working efficiently at the neighborhood level requires dealing with all stakeholders. This means not only rehabilitating infrastructure and ensuring that the water utility has the capacity to run it—or even to manage a delegated service—but also taking care of social aspects such as community consultation and hygiene promotion.

There is no single solution. Certain neighborhoods may benefit from a particular level of private-sector participation, while in others, a different model, such as community management, may be the answer.

Finally, an appropriate leadership that coordinates the inputs of all organizations, whether involved in large-scale or community-based projects, is necessary. Ideally, this is a task for governments and public utilities. Unfortunately, they are often too weak to play this role unless genuine efforts are made to strengthen them. Donors, which often fund both large-scale and community-based water supply rehabilitation projects, are in the best position to encourage this cooperation, provided that they are aware of the problem.

This paradigm shift was partly achieved in Port-au-Prince, where the city water utility, with the intermediation of GRET, has managed to provide a water supply to many of its shantytowns. Could this occur in Kabul and Monrovia? It

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is hard to answer this question with certainty. Long years of poor service and weak institutional capacity have made the task difficult, but success was just as improbable in Port-au-Prince before GRET started its program.

It may be time for aid agencies, consulting firms, and major donors to establish a dialogue, under the auspices of the water utility, on how to extend the benefits of municipal water services, whether through community-based initiatives or private management. In addition to benefiting the health and well-being of the population, universal access to water services could help consolidate peace by building trust between local government and low-income communities, within which armed insurgencies often find followers. Aid agencies would then be addressing a situation described in Port-au-Prince as one in which needs that would be typical of an emergency situation remain over the long term (Braïlowsky, Boisgallais, and Paquot 2000), a characteristic that could apply to almost any city emerging from armed conflict.

REFERENCES

- AIMS (Afghanistan Information Management Service). 2005. Kabul city map. Kabul. www.aims.org.af/maps/urban/kabul.pdf.
- Alegre, S. 2006. Community-based management of urban water supply services in post-conflict environments: Case-study of Monrovia, Liberia. Master's thesis, Loughborough University, Loughborough, UK.
- Alexander, I., S. Rosenthal, and C. Brocklehurst. 2002. Making the contract work for the poor. In *New designs for water and sanitation transactions: Making private sector participation work for the poor*, ed. C. Brocklehurst. Washington, D.C.: Water and Sanitation Program / Public-Private Infrastructure Advisory Facility.
- Atkinson, P., and E. Mulbah. 2000. NGOs and peace building in complex political emergencies: Agency survey from Liberia. Working Paper No. 10. Manchester, UK: Institute for Development Policy and Management, University of Manchester.
- AWF (African Water Facility). 2007. Project appraisal report: Liberia: Monrovia expansion and rehabilitation of three county capitals water supply and sanitation project: Appraisal report. www.africanwaterfacility.org/fileadmin/uploads/awf/projects-activities/24-Liberia%20WSS%20Study%20Final%20%20Appraisal%20and%20TOR-%2013dec2007.pdf.
- Balanyá, B., B. Brennan, O. Hoederman, S. Kishimoto, and P. Terhorst, eds. 2005. *Reclaiming public water: Achievements, struggles and visions from around the world*. Amsterdam, Netherlands: Transnational Institute, Corporate Europe Observatory.
- Banks, D., and M. H. Hamid. 2002. *Water assessment mission to Afghanistan, January–February 2002. Part F: Urban water supply systems in Afghanistan*. Oslo: Norwegian Church Aid.
- Batley, R. 2001. Public-private partnerships for urban services. In *The challenge of urban government: Policies and practices*, ed. M. Freire and R. E. Stren. WBI Development Studies. Washington, D.C.: World Bank; Toronto, Canada: Centre for Urban and Community Studies, University of Toronto. www-wds.worldbank.org/servlet/WDSContentServer?WDSID=IB/2001/02/02/000094946_01011905315240/Rendered/PDF/multi_page.pdf.
- Braïlowsky, A., A. Boisgallais, and E. Paquot. 2000. Intermédiation sociale et construction institutionnelle: Démarche du programme d'approvisionnement en eau des quartiers

- populaires de Port-au-Prince en Haïti. Coopérer Aujourd'hui Report No. 15. Paris: Groupe de Recherche et d'Echanges Technologiques. www.gret.org/wp-content/uploads/cooperer15.pdf.
- Brinkhoff, T. 2010. City population. www.citypopulation.de.
- Browne, D., and S. Tsikisayi. 2004. *Water demand and market study in Monrovia, Liberia, draft final report*. Wamel, Netherlands: Quest Consult for Project Management Unit, European Commission Office–Liberia.
- Colin, J., and H. Lockwood. 2002. *Making innovation work through partnerships in water and sanitation projects*. London: Business Partnerships for Development. www.aguaconsult.co.uk/uploads/pdfs/agua_bpinnovation.pdf.
- Cosgrave, J. 1999. *Watering thorns, version 0.90*. Oxford, UK: Oxfam.
- CSO (Central Statistics Office of Afghanistan). 2000. Population 1999, Kabul City. In *Population survey project: AX/ZTQ/6/017/ACC – CSO*. Kabul: United Nations Regional Coordination Office.
- . 2005. Kabul city census by districts and age groups 1986. In *1382 (2003) Afghanistan statistical yearbook*. Kabul.
- Diago, J. L., and S. Arnalich. 2004. *Intervención para la rehabilitación y mejora de las instalaciones de agua del cuadrante noroeste de Kabul, Afghanistan*. Madrid: Spanish Red Cross.
- Elliott, M. J. 2002. *Feasibility study for the re-electrification of the Logar water supply scheme in Kabul, Afghanistan*. London: British Red Cross; Geneva, Switzerland: International Committee of the Red Cross.
- Fischaess, B. 2003. *Summary of the feasibility study for the extension of the Kabul water supply system*. Entlingen, Germany: RRI Beller/Kocks.
- Geoscience. 1998. *Water supply for Monrovia and rural areas, Liberia*. Report LBR/6ACP/29-20. Florence, Italy.
- Green, R. H. 2000. Rehabilitation: Strategic, proactive, flexible, risky? *Disasters* 24 (4): 343–362.
- Grinnell, E., and H. Troc. 2004. *Kabul vulnerability mapping*. Paris: Action Contre la Faim. [www.internal-displacement.org/8025708F004CE90B/\(httpDocuments\)/34F66E27EE6CA19C802570B700587B57/\\$file/ACF_Kabul_vulnerability_mapping_jan04.pdf](http://www.internal-displacement.org/8025708F004CE90B/(httpDocuments)/34F66E27EE6CA19C802570B700587B57/$file/ACF_Kabul_vulnerability_mapping_jan04.pdf).
- Hall, D., K. Bayliss, and E. Lobina. 2002. Water privatization in Africa. Paper presented at the Municipal Services Project Conference, Witswatersrand University, Johannesburg, South Africa.
- Johnson, C. 2004. *An Oxfam country profile: Afghanistan*. 2nd ed. Oxford, UK: Oxfam.
- KfW (Kreditanstalt für Wiederaufbau). 2003. *Afghanistan: Challenges after 23 years of civil war*. Frankfurt, Germany.
- Macrae, J. 2002. The political dimension. In *Forum: War and accountability*. Geneva, Switzerland: International Committee of the Red Cross.
- Matthieussent, S., and R. Carlier. 2004. Le cas de l'approvisionnement en eau potable des quartiers défavorisés de Port-au-Prince. Document de travail. In *Séminaires sur les politiques publiques de lutte contre la pauvreté et les inégalités*, ed. Groupe de Recherche et d'Echanges Technologiques. Paris: Réseau Impact-Politique Africaine. <http://reseauimpact.org/spip.php?article82>.
- MUDH (Ministry of Urban Development and Housing, Islamic Republic of Afghanistan). 2005. *Urban water supply and sewerage sector institutional development plan*. Kabul.
- Ockelford, J. 1993. How do we work with host government and other NGOs for the good of the refugees (workshop 3). Discussion paper: Coordination of emergency relief in

62 Water and post-conflict peacebuilding

- Liberia. In *Technical support for refugees: Proceedings of the 1991 international conference*, ed. B. Reed. Loughborough, UK: Water Engineering and Development Centre, Loughborough University.
- Oxfam. 2005. *Public health rapid needs assessment report urban programme, January and May 2005*. Monrovia, Liberia.
- Perry, J. A. 1988. Networking urban water supplies in West Africa. *Journal of the American Water Works Association* 80 (6): 34–42.
- Pinera, J. 1999. *Kabul 99 public health survey: Water and sanitation situation in Kabul, final report*. Report No. Kab 99/2182. Kabul, Afghanistan: International Committee of the Red Cross.
- . 2006. Partnerships between water sector institutions and aid agencies in urban areas affected by armed conflicts. Ph.D. dissertation, Loughborough University, Leicestershire, United Kingdom.
- Pinera, J.-F., and R. Reed. 2009. A tale of two cities: Restoring water services in Kabul and Monrovia, Liberia. *Disasters: The Journal of Disaster Studies, Policy and Management* 33 (4): 574–590.
- Pinera, J., and L. Rudge. 2005. Water and sanitation assistance for Kabul: A lot for the happy few? WEDC International 31st Conference, “Maximizing the Benefits from Water and Environmental Sanitation,” Kampala, Uganda. <http://susana.org/lang-en/library?view=ccbktpeitem&type=2&id=821>.
- Smith, C. 2001. *1st and 2nd rehabilitation programmes, water supply and sanitation, inputs/achievements (April 1998 to June 2001—39 months)*. Florence, Italy: Geoscience.
- . 2004. *Reintegration programme for returnees and displaced people in Liberia: Water supply for Monrovia and rural areas, Liberia*. Report No. LBR/8ACP/02/2-3. Florence, Italy: Geoscience.
- Smith, C., and J. Kpakolo. 2004. *Water supply in Monrovia, Liberia*. Florence, Italy: Geoscience.
- Smith, C., A. Petters, R. Conti, and P. Smets. 2001. Cities in war: Thirsty cities. Monrovia (Liberia): Water supply for Monrovia during and after the civil war. Occasional Paper No. 4. Geneva, Switzerland: Geneva Foundation.
- Sohail, M., S. Cavill, and A. P. Cotton. 2005. Sustainable operation and maintenance of urban infrastructure: Myth or reality? *Journal of Urban Planning and Development* 131 (1): 39–49.
- Solidarités International. 1995. *Strategies for water supply and sanitation in Kabul city*. Paris.
- Stren, R. E. 2001. Private involvement in the provision of public services: Editor’s introduction. In *The challenge of urban government: Policies and practices*, ed. M. Freire and R. E. Stren. WBI Development Studies. Washington, D.C.: World Bank; Toronto, Canada: Centre for Urban and Community Studies, University of Toronto. www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2001/02/02/000094946_01011905315240/Rendered/PDF/multi_page.pdf.
- Willson, N. 2003. Water and sanitation priority sector (community and infrastructure), December 2003. Monrovia, Liberia: United Nations / World Bank.
- World Bank. 2006. *Approaches to private participation in water services: A toolkit*. Washington, D.C.: International Bank for Reconstruction and Development / World Bank. http://rru.worldbank.org/Documents/Toolkits/Water/Water_Full.pdf.