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sustaining urban networks

the social diffusion of large technical systems

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CHAPTER NINE

Conflicts and the Rise of Users' Participation in the Buenos Aires Water Supply Concession, 1993–2003

Graciela Schneier-Madanes

Introduction

The water concession of Buenos Aires,[1] Argentina's capital region, is currently the largest private water and sewerage concession in the world. Among the major cities that underwent privatization of their water services during the 1990s (these include Manila, Sydney, Jakarta, Mexico City, Santiago, Casablanca and Johannesburg), Buenos Aires' concession is a case reference on the subject because of the size of its population, the extent of the territory covered and the specific features of the privatization process.

This concession was part of a radical program of state reform and massive privatization encompassing virtually all public services and federally owned enterprises such as electricity, natural gas, telephone services, airlines, railways, subways, roads, ports and postal services initiated in 1989 in Argentina (Aspiazu 2003).[2] It took place within the context of a water supply crisis in Argentina and the internationalization of major European urban service providers. The reform was technically and financially supported by several international institutions (International Monetary Fund, World Bank). A regulatory agency, the *Ente Tripartito de Obras y Servicios Sanitarios* (ETOSS), was established for the regulation and control of water supply.[3] Its primary functions are to monitor the quality of service and to follow up contractual agreements. In principle, ETOSS is also responsible for determining rates. However, since the beginning of the contract, rates have been negotiated directly between the state and the company. In the central part of the urban region of Buenos Aires, a 30-year concession contract was granted by the national government to an international consortium called Aguas Argentinas (AASA) led by *Lyonnaise des Eaux*, now *Suez Environnement* (see Table 9.1). It started operating the Buenos Aires water system in

Table 9.1 *Capital Stock Breakdown, Aguas Argentinas 1993–2000*

Investor	*Capital Origin*	*1993 (%)*	*2000 (%)*
Suez Lyonnaise des Eaux-Dumez	France	25.4	34.70
Sociedad Comercial del Plata	Argentina	20.7	–
Sociedad General de Aguas de Barcelona	Spain	12.6	25.00
Meller	Argentina	10.8	–
Banco Galicia y Buenos Aires	Argentina	8.1	8.30
Compagnie Générale des Eaux (then Vivendi)	France	7.9	7.6
Anglian Water Plc	United Kingdom	4.5	4.30
Programa de Propiedad Participada	Workers	10.0	10.00
Corporacion Financiera Internacional	World Bank	–	5.00
Aguas Inversora*	Argentina	–	5.20

Source: Adapted from Aspiazu *et al.* (2002).
Note: *Meller economic groups.

1993. The concession's territory (2,000 km^2 with a current population of 9.6 million) consists of the city of Buenos Aires – the federal capital – and 13 municipalities (17 since 1998) adjacent to the capital and belonging to the province of Buenos Aires (see Figure 9.1 and Box 9.1), which are connected to the same water and sanitation system (or which are expected to be interconnected in the future).

For approximately 70 years after 1912, water and sewage management for the entire country was the responsibility of a state-owned company, *Obras Sanitarias de la Nación* (OSN). Following a decentralization reform in the early 1980s, the service area of OSN was reduced to the area that would subsequently become the concession's service area. Although OSN had achieved adequate service and coverage for a time, especially in the 1940s, the water supply and sanitation services were in a state of deep crisis by about 1980. As in most Latin American cities, the metropolitan area was expanding faster than the capacity of the waterworks, and networks in the city of Buenos Aires were in an especially bad state (Dupuy 1987; Rey 2001).

A short note on the origins of this crisis is useful here. Water was historically assigned a social function in Argentine society as one of the fundamental factors of hygiene and health. At the same time, there was a lack of awareness of its economic value and industrial dimension. Thus, one major principle in water politics was non-metered access to water, the so-called principle of *canilla libre* or the "free-tap" policy. OSN regarded water as an inexhaustible resource, available from the Rio de la Plata and underground water tables, and it had the final word on most water-related matters. Users and local figures (mayors or local administrators) simply had no say in this system.

By the end of the 1980s, the OSN was experiencing a series of problems, most of which are familiar to many water companies in Latin America (BID

Box 9.1 The Water and Sanitation Concession of Buenos Aires (2001)

City of Buenos Aires (CBA) and 17 municipalities of Gran Buenos Aires (GBA):

Area: 2,000 km^2

Population: 9,600,000 (2.9 million CBA + 6.6 M GBA)

Households below poverty line: 23.5 percent (Oct. 2001)

Households below indigence line: 7.4 percent (Oct. 2001)

Total clients: 2,625,000 clients

Billing: $554 millions (2001) (until December 2001 $1 = 1 *peso*)

Average water consumption: 600 liters per capita per day

Production: 4,155,000 m^3/day

Coverage:

Water: 81 percent

Sewerage: 63 percent

Sewerage treatment: 7 percent

Network data:

Water mains: 13,700 km

Sewerage: 8,600 km

Losses: 33 percent

55 percent of the infrastructure is over 60 years old

1997; Artana *et al.* 1999): in particular, only 73 percent of the population in the metropolitan area were connected to the water supply and 56 percent to the sewerage system (see Figures 9.1 and 9.2 for coverage rates in 1996–7). In suburban *barrios* not connected to networks (see Figure 9.3), residents obtain water from individual wells (with electrical or manual pumps) and sewage is disposed of through septic tanks or discarded directly into the ground, a system similar to those described in American cities in the early twentieth century (Tarr 1996).

When a connection to the wider network is possible but local infrastructure is missing, riparians or local communities frequently use the OPCT system

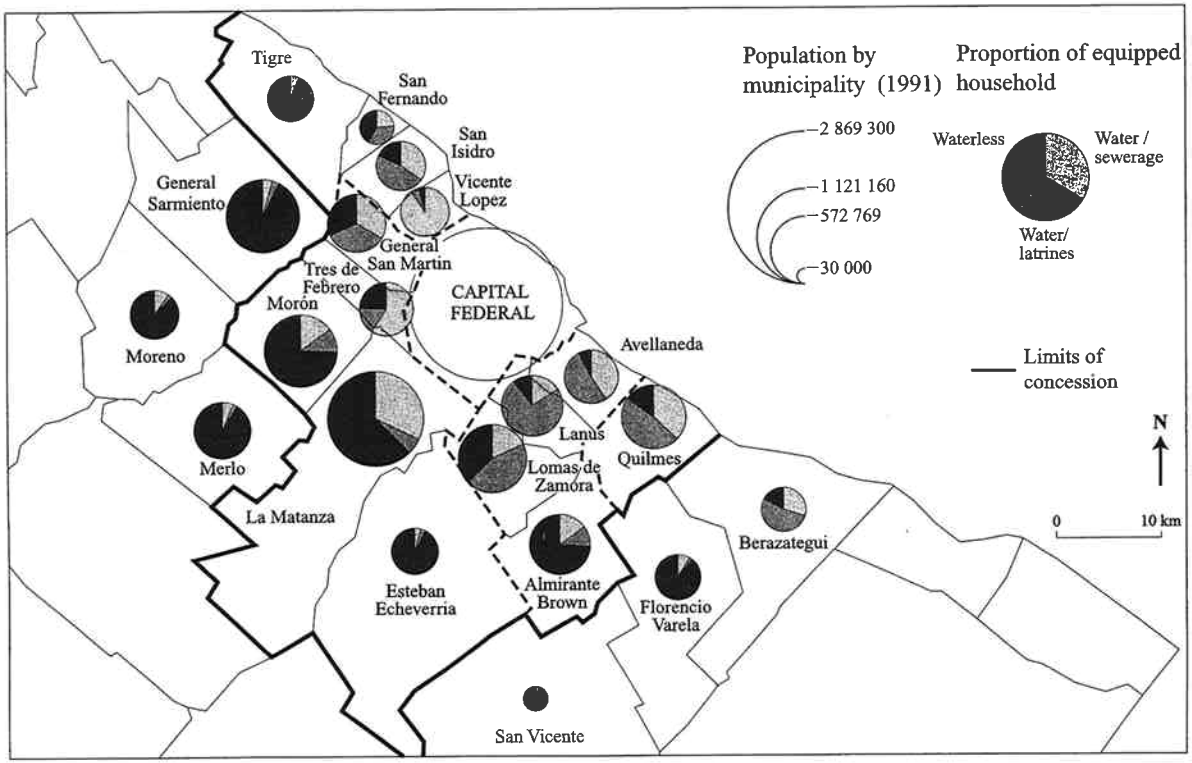

Figure 9.2 *The Equipment of Households in Water and Sewerage Services, by Municipality (1997)*
Source: Taken from Credal-CNRS (original source: INDEC Centro de Estudios de Pobreza).

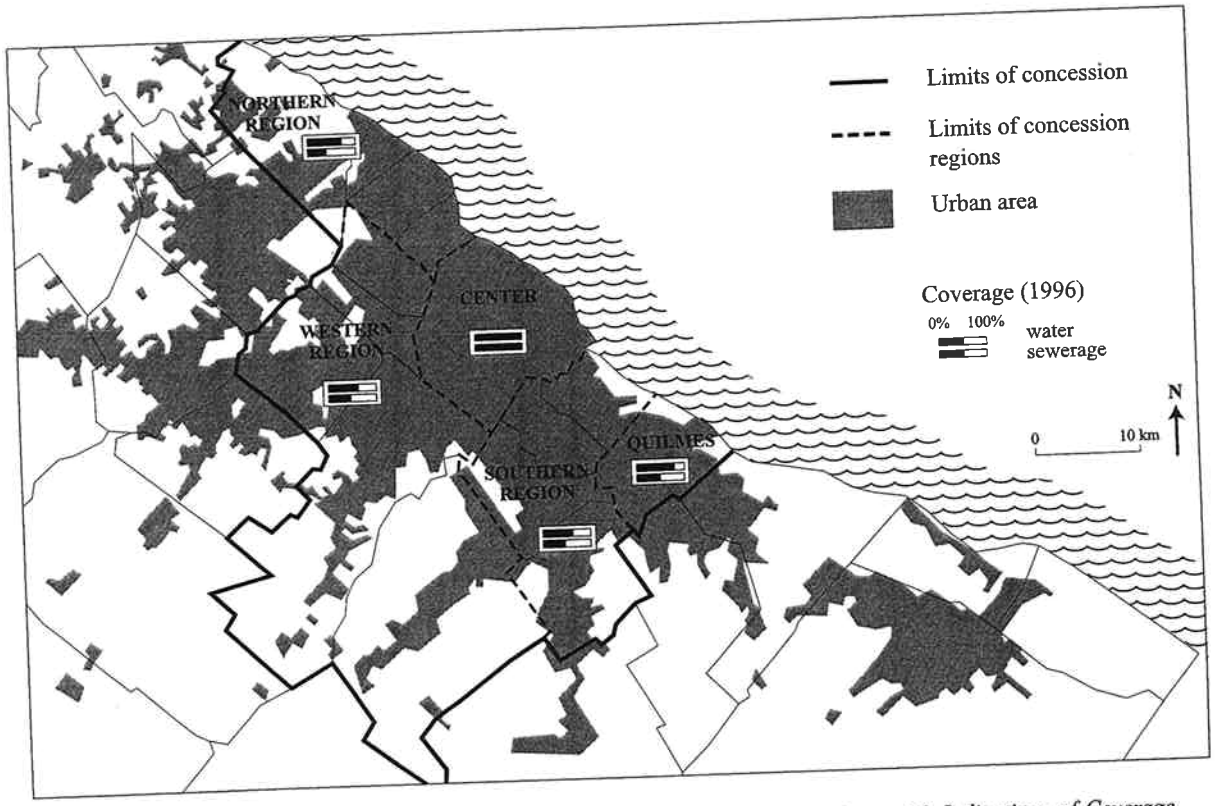

Figure 9.1 *The Aguas Argentinas Water Concession in the Buenos Metropolitan Area, with Indications of Coverage Rates by Water and Sewerage Networks (1996)*

Source: Data taken from Credal/CNRS (original data: Aguas Argentinas SA and ETOSS).
Note: Quilmes was integrated in the concession in 1998.

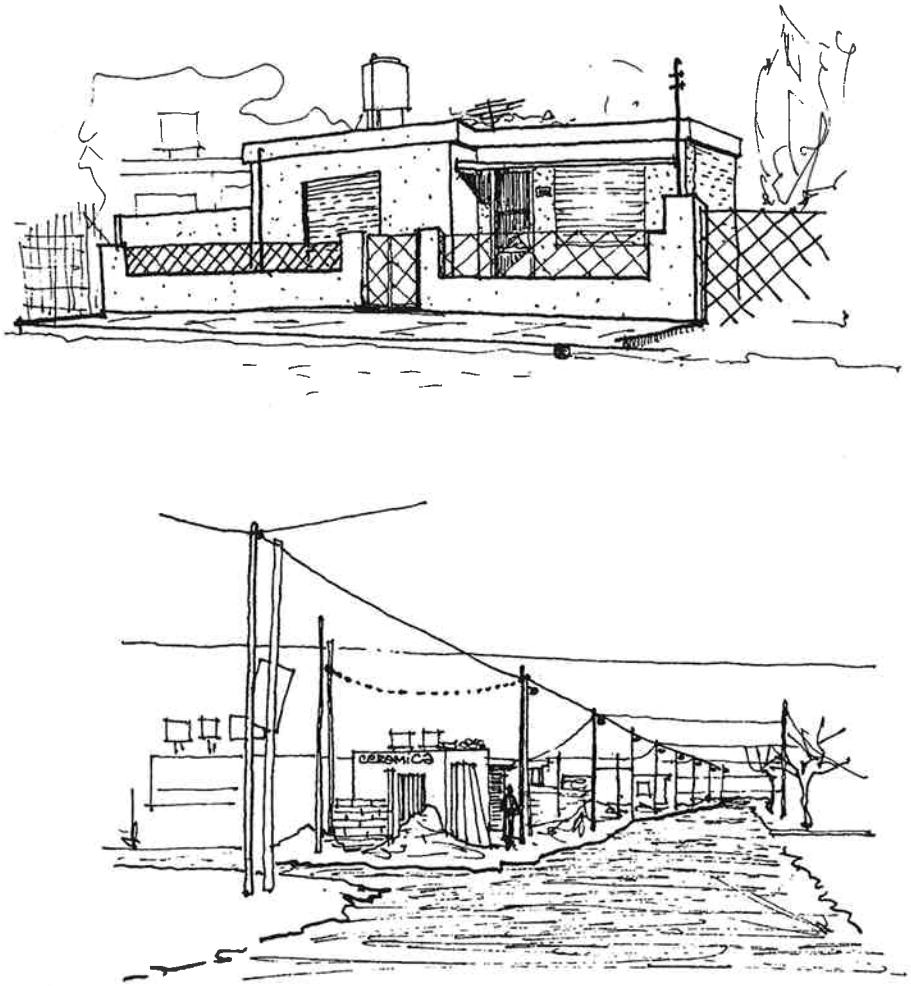

Figure 9.3 *A View of a Barrio.*
Source: Original drawings by author.

(*obras por cuenta de terceros*, i.e. work for third parties), in which they contract directly with public works companies to get infrastructures built. The OPCT system has existed since the 1950s for many services (street paving and lighting, electricity and gas supply, etc.). Although Aguas Argentinas was initially opposed to this system, it has been increasingly used in the water sector recently in reaction to delays in the implementation of the expansion plan. In many areas, cooperatives were created to develop local networks. In shanty towns people frequently had to obtain water from public access faucets, tank trucks or other legal or illegal sources (illegal connections were common).

The service concession was also designed in response to this failure of public supply (Dupré *et al.* 1998). The objectives of the concession were threefold: expansion of networks into previously unconnected zones, renovation of the existing infrastructure, and construction of sewage treatment plants. These objectives were part of a 30-year plan, broken down into five-year increments. At the end of the plan, water was expected to reach the entire population in the concession area and 90 percent of the population was to be connected to the sewerage system (see Figure 9.4).

This chapter examines the social and urban conflicts caused by the implementation of this plan. It is based on the assumption that major changes affecting water supply (construction, management, rates) have a social impact and transform not only the daily life of consumers, but also their relations with public institutions, how they perceive public utilities and, more broadly, their perception of water and the city in general. Conversely, these changes in perception also affect the development of public utilities. Conflict situations are particularly revealing in relation to such material, institutional and psychological changes.

Conflicts

The granting of the utility contract was a long process involving different commercial interests, including those of multinational corporations and international agencies. The contract was eventually awarded to Aguas Argentinas *SA* (AASA), which met all the relevant criteria and offered a rate 26.9 percent lower than that existing at the time of the bidding process.

Soon after the beginning of the contract, Aguas Argentinas requested, and ETOSS approved, a water rate increase of 13.5 percent and the contract was subsequently renegotiated on a regular basis. Mainly due to the introduction of new charges in addition to the basic water rate, the average water bill rose from $19.40 in 1993 to $27.40 in January 2002 (see Figure 9.5), i.e. from 8 percent to 11 percent of average household revenue (ETOSS 2001a). The minimum rate, which was $5 in 1997, rose by 60 percent in two years, to $8 in 1999, hitting low-income households particularly hard.[4] Following the first renegotiation of the contract in 1998, basic water rates were indexed automatically to the US consumer price index (Lentini 2003).

Within the "water arena" in Buenos Aires, increases in water bills created two successive conflicts: the first due to the introduction of a new charge, the infrastructure and connection charge (*cargo de infraestructura y conexión*, CIC) to be paid by all newly connected customers, and the second in response to the changeover from the CIC to a universal service and environmental charge (*cargo de servicio universal y medio ambiente*, SUMA) payable by all customers. These two conflicts are discussed in more detail below.

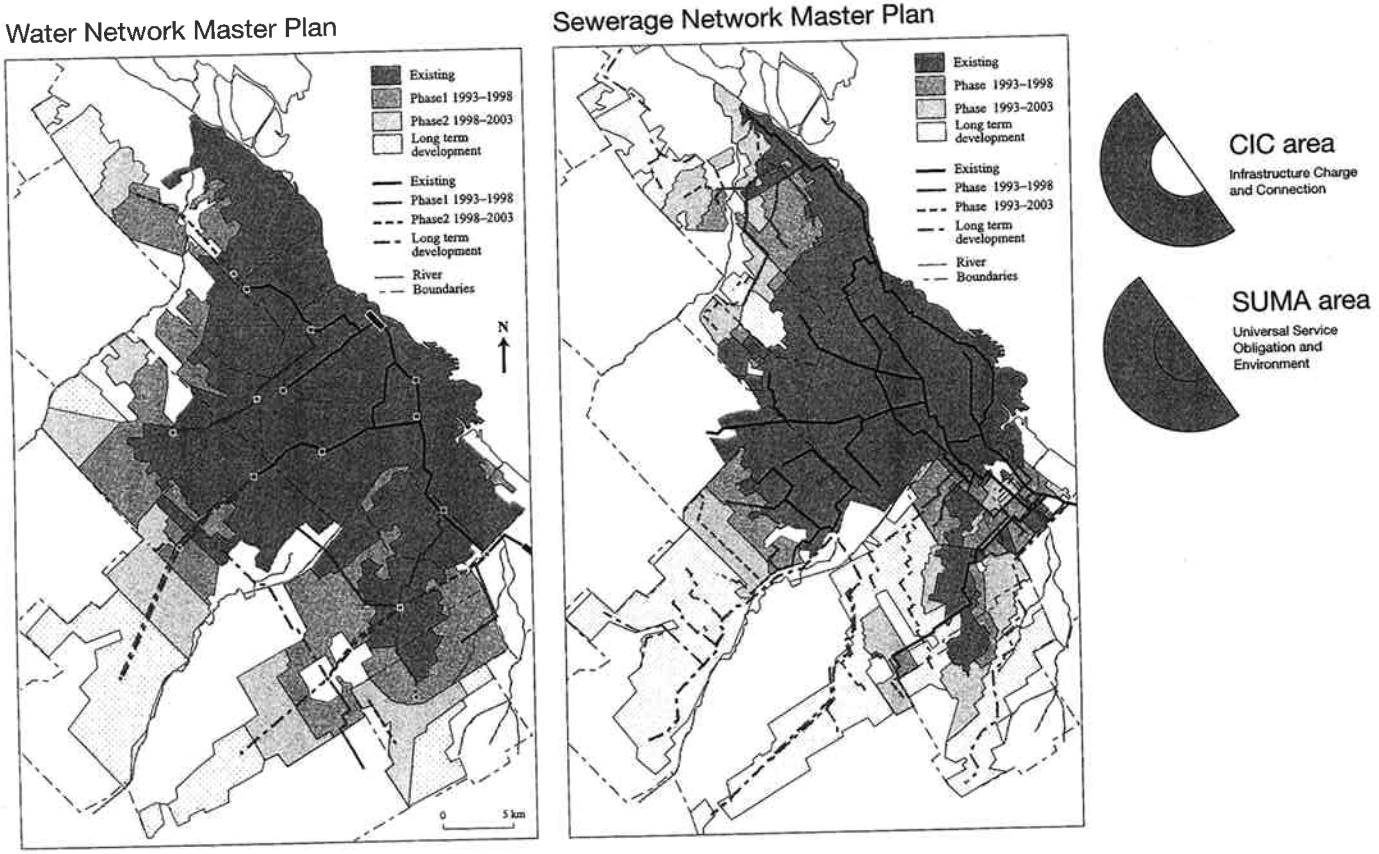

Figure 9.4 *Plans for the Improvement and Expansion of Water and Sewerage Networks (Plan de mejora y expansion del servicio, PMES)*

Source: Taken from Credal-CNRS (original sources: Aguas Argentinas SA; Conamba, Ministerio del Interior; ETOSS).

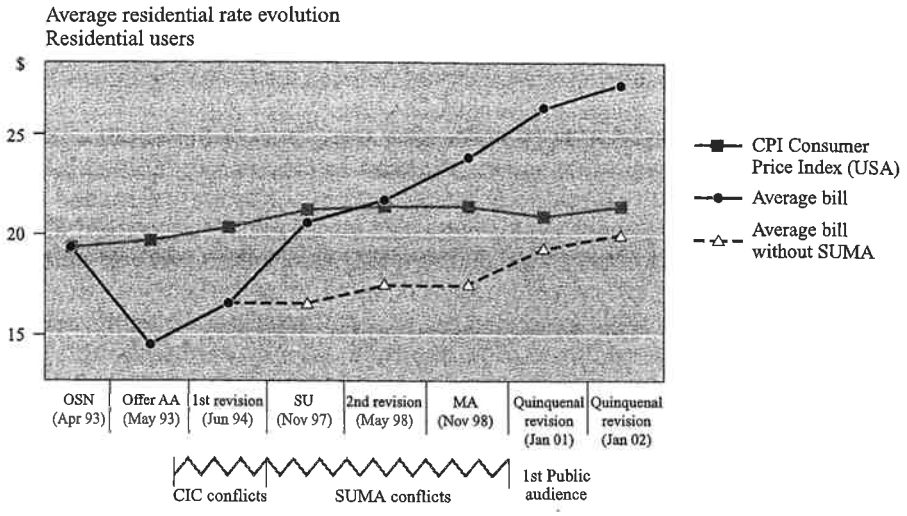

Figure 9.5 *Changes in Average Residential Rates and Conflicts over Water Services (1993–2002)*

Source: Data source for rates ETOSS.

Invoicing and Bill Collection

The pricing scheme partially inherited from OSN was a flat-rate scheme: the bill did not depend on the volume of water consumed but on characteristics of the property (size, location, building type, age, etc.). At the beginning of the 1990s only 5 percent of customers had a water meter, a proportion which subsequently rose to 13 percent.

Once they were granted the concession, Aguas Argentinas immediately set about updating the land survey and redefining its relationship with its two million residential, commercial and industrial customers. Customers received bills every two months and in the event of unpaid bills, the company would cut off the water supply after six months. However, from the beginning of the concession, the number of unpaid bills increased rapidly, due to regular increases in water rates and the gradual deterioration in the economic situation (Schneier-Madanes 1999). The impoverishment of a substantial part of the population of the metropolitan region became an obstacle to the implementation of the contract; in particular, plans to expand the network without public subsidies became unrealistic (Chisari and Estache 1999). Most full-income households can afford water and sewerage services. However, for the lowest income households, the cost of connection to these services was often too high due to the extra charges and, particularly, to the cost of home connection equipment which usually amounted to $1,500 (Villadeamigo 2003). Indeed, the proportion of low-income households increased dramatically as the national economy collapsed between 1998 and 2002.

Bill collection is a major problem for the company.[5] Over the first ten years of the concession, the company has continuously sought to sort "good" from "bad" payers and has developed a variety of policies for collecting bills. These policies include competitions and prizes offered to "good" payers, and advertising to show users the work being done on their water system. For example, bills may include ads relating to the contract or the environment; the format of the bill itself was changed to project a modern image of water and widespread use was made of advertising on TV, on the radio or in newspapers (Sinizergues 2003). Note that in the current renegotiations regarding the contract, ETOSS' users' commission questions this "excess use of communication."

In the early years of the water contract, the company also resorted to "social marking." Red crosses were painted on the front doors of customers with bad debt records. It was expected that exposing "disreputable" customers would result in pressure from those who paid for their water bills on those who did not. In fact, red crosses at times had the opposite effect; in some areas, neighbors continued to supply water to "bad payers" and prevented company staff from visiting the neighborhood. Other stigmatized customers reconnected their home illegally. As the economic crisis developed, these methods became very sensitive issues and were frequently debated in meetings and public hearings. Over time, the company abandoned some of these social engineering methods, replacing them with less aggressive ones, for example dispatching social workers to obtain community feedback information on the service or hiring former political activists to work with the residents and help to prevent such conflicts.

At the same time, the company developed tools to thwart illegal connections. An example is the "deep cut" (*corte profundo*) of the water and sewerage connections. When customers do not pay their water bills and the company decides to cut off their supply, it first resorts to a stopper, a simple device that can be removed easily and cheaply by the company – or by users wishing to cheat the company. For users regarded as particularly difficult bad payers, the company may resort to another form of disconnection, the "deep cut," which consists in dismantling the physical connection to the network. In contrast with the installation or removal of stoppers, deep cuts (and the restoration of the connection, if subsequently decided) are difficult and costly operations.

As a result of this combination of measures, the rate of bill recovery reached 95 percent in 2003 (according to ETOSS and AA staff), which the company regards as an acceptable rate.

Financing the Expansion of the Network: The Infrastructure and Connection Charge

Within such a context, rate increases could be expected to provoke opposition. The first conflict between the water company and users followed the introduction of the infrastructure and connection charge.

The contract specified that an infrastructure and connection charge (CIC) should be applied immediately to owners of newly connected properties. The charge ranged from $400 to $600 for water and $1,000 for sewerage, plus

a connection fee, and it had to be paid in anticipation of future labor costs (Aspiazu and Forcinito 2003). Once the service was provided, the company would fill in all existing wells and septic tanks. Infrastructure charges could be paid over a period of two years in bi-monthly installments. Note that, since 1943, connection to the water and sewerage networks is compulsory for all residents living in connected areas.

Most low-income customers found it difficult to afford this new charge and a large proportion of them simply stopped paying their bills. Besides, many residents in the outskirts saw little benefit in connecting to the network as they already had ready access to ground water and had often spent money on drilling for water for their personal use.

Neighborhood protests began in 1995 in the western and southern low-income industrial municipalities (La Matanza, Lomas de Zamora) where local residents were able to compare the AASA rates with OPCT rates. Neighborhood associations, of which Villa Constructora (La Matanza municipality) is a symbolic example, prevented the continuation of projects and prevented the service provider from entering their neighborhoods. Thus, on one occasion, a human barrier of some 300 people stopped the engineering work on a project. In another instance, a tedious process of negotiation, mediated by ETOSS, complete with lawyers on both sides, was necessary, and led to changes in the project and its financing before it could be completed (Lacoste 1998; Schneier-Madanes 1999).

Resistance to the infrastructure charge was considerable and took various forms: formal complaints to the regulatory agency, street demonstrations, sit-ins in front of the company's regional headquarters, denunciations and presentations on television. Complaints to ETOSS and sometimes violent mobilizations provoked the closure of building sites and, on several occasions, compelled the company to stop working. Residents also frequently withheld bill payments in an effort to voice their discontent: the number of unpaid bills reached 80,000 in 1996 (according to various sources: ETOSS, AA).

Commenting on this conflict, Lorrain (this volume) rightly points to the fact that public utility companies do not enjoy a permanent position as suppliers: it is therefore risky for them to be involved in conflicts, either with their staff or with their customers. These companies also know they cannot operate a service in a city where a large part of the population remains excluded from this service for a considerable period. This can create an explosive situation.

Reforming the Infrastructure Charge: The Universal Service and Environmental Charge

In response to opposition to the infrastructure charge from those unconnected to the system, the government decided to change this charge to a "new universal service and environmental charge" (SUMA) to be paid by all customers (Lentini 2003). SUMA, in fact, consists of two separate charges: the universal service charge (SU) is aimed at covering the cost of network expansion, while the environmental change (MA) seeks to cover environmental investment (such as investment in sanitation facilities).

The billing formula for all non-metered clients thus became:

$$MF = TBB + (SUMA + CMC) \times FS$$

where: MF is the bi-monthly invoice amount (a lump sum, independent of the volume of water consumed); TBB is the basic rate, based mainly on the characteristics of dwellings; SUMA is the universal service and environmental charge (US$6 plus tax); CMC is the maintenance and renewal charge ($0.43); FS: service coefficient (water only: 1; sewerage only: 1; water + sewerage: 2).

SUMA is conceived as a mechanism for solidarity in that an additional charge on connected customers is expected to cover the cost of connecting new customers. In this manner, the burden of financing the expansion of the water supply and sewerage systems does not fall only on newly connected customers who usually belong to lower-income groups. The introduction of this charge meant a 13 percent increase in the previous residential invoice.

The conflicts generated by the introduction of SUMA (first the SU part, then the MA one) brought the water network into the political arena. As soon as the SU was introduced in November 1998, legal proceedings were instituted against ETOSS and the relevant ministerial department. The ombudsman acted, in particular, against the enforcement of the SU, emphasizing that the decision had ultimately been made by government officials and arguing that "if the SU is applied to all users of the utility contract, it should therefore be interpreted as a water poll tax." All year long, initiatives involving intimidation and conciliation alternated, while the controversy over the regulator intensified. Ministers, secretaries of state, political parties, members of parliament and associations all strove to influence the outcome of the process. "Water divides the country," one of the prominent national newspapers rightly pointed out (*La Nación*, 17 August 1998). SUMA also divided the metropolitan region (upstream and downstream) by opposing the city, which was demanding the renovation of its infrastructures and equipment for its urban projects, and the suburbs, to which the expansion of the network had become crucial.

The introduction of the SUMA charge had important consequences, especially with respect to solidarity among citizens in the concession area. First, it brought to light the existing inequalities in access to water and the contradictions surrounding the generalization of water and sewerage services. Second, it confirmed in the eyes of users the economic vulnerability of a concession that depended on their contributions. The conflict lasted until November 1998 when, following an agreement with the service provider, a presidential decree imposed the enforcement of the SUMA charge. Thus, the state did not assume responsibility for helping impoverished groups, but instead transferred this responsibility to the rest of the users. A year later the SUMA charge was integrated into the fixed part of the basic water rate and thus became "invisible" to users (Lentini 2003).

Social and Political Implications

The conflicts over rates and charges had a significant impact in terms of user and resident involvement in the regulation, organization and even the provision of water services. The constitution of 1994 had introduced obligatory user representation, but regulatory agencies, including ETOSS, ignored this requirement or resisted its implementation (Lopez and Felder 1997). The First Hearing on Water in December 1998 marks an important change in the administration of the water concession and that of privatized utility services in general.

Within the context created by the conflicts over utility services, two converging processes developed: the increasing importance of civil society organizations, NGOs and local governments, and a gradual recognition of the viewpoint of users by the government and regulators. Let us examine these processes in more detail.

The Institutionalization of Users

In the aftermath of the CIC conflict, new types of user organizations emerged. They had a strong link to local communities and can therefore be termed "locally based organizations." An example is the Users and Consumers Federation (*Comisión de enlace de usuarios y consumidores del conurbano*, CECUC), which was formed during the conflict in La Matanza. This neighborhood association, which initially grouped together around 50 residents, comprised both men and women from diverse political backgrounds, however, all of these people were concerned with water issues and, more generally, with urban life. As regards bill payment, CECUC and other locally based associations agreed on the necessity of paying bills, however, they asserted that the amount "must be fair" and they aimed at ensuring that this was so.

Local associations continued to develop in 2003 under various forms but they were not officially recognized. Their activities extended to other issues with a strong local dimension, e.g. rising water tables (3 million people are affected in Lanus, Lomas de Zamora, and other municipalities) and increasing water pollution (in Avellaneda or Quilmes). After the upheaval (*cacerolazo*: the term refers to the pans, or *cacerolas*, that people beat upon during demonstrations) in December 2001, which contributed to the fall of the Alianza government, a growing number of community groups sprung up and participated in intense social and political activity: regular and scheduled meetings, newspapers such as *Interacción Urbana* (which appeared in 1996 and defines itself as a "community-based local paper") or demonstrations like the "groundwater marches" (*marchas por las napas freáticas*) held against municipal and national authorities, and in front of ETOSS' offices in 2002 and 2003. Neighborhood-based actions multiplied across the political spectrum. During 2002, in a very uncertain political and social context, the most radical movements called for a *cabildo abierto* (a form of neighborhood committee that dates back to colonial times used in the fight for independence) in Morón, in

the west of the concession area in order to terminate the contract; the movement of "self-summoned neighbors" (*vecinos autoconvocados* – i.e., a group which waited in vain to be consulted and which ultimately decided to "summon itself" and to take action) examines the issues relating to the privatization of the water supply; a large protest movement developed in the south of the area, especially in Quilmes, to protest against the rise in the water tables, for which local people blame the company.

These resident organizations are in keeping with a long social and urban tradition. Since the beginning of the twentieth century, urban growth in Buenos Aires has relied on community organizations (committees, cooperatives) involved in the development of local infrastructure (street paving and lighting, etc.). During the 1960s and 1970s, social movements in the periphery, organized on a local basis (neighborhood committees, shanty town associations), held protests in order to gain access to housing and land. Following persecution by the military dictatorship (1976–82), these organizations subsequently returned to the political arena. With the economic and social crisis of the 1990s, a weakening, or rather a fragmentation of these social networks occurred, and movements demanding basic subsistence rights appeared (Isla *et al.* 1999; Puex 2003), such as the *piqueteros* (from the French *piquet*, which means strike-picket), consisting of groups of jobless people who demonstrated regularly by blocking roads. The recent emergence of movements that refer to the "essential need" for water must thus be placed in the Argentinean political and social context.

Consumer associations gained official recognition under the constitutional reform of 1994 and the Consumer Protection Law (1998). These associations are traditionally made up of middle-class people and include a large proportion of professionals (lawyers, engineers, etc.). Their scope of activity has developed since the beginning of the privatization reforms. They seek to gain influence over service providers and, in particular, water companies. They did not get involved in the CIC conflict (which did not affect them), but actively opposed the SUMA charge. They advise users and consumers and act as a link with service providers. As regards the distinction between users (of public utility services) and consumers (of goods and services in general), it is worth noting that user associations consider themselves different from, and somehow more radical than, traditional consumer associations, in particular in terms of the former's claim that access to safe water and sewerage is a universal right. Moreover, the word consumer refers to goods while "user" relates to public utilities. Traditionally, there have not been any real differences between the two, however, recent conflicts have gradually made these differences more pronounced.

In 2001, 13 such associations were registered and are legally entitled to receive subsidies. With the exception of the experienced Consumer Action Group (*Acción del Consumidor*, ADELCO), they have all appeared fairly recently (less than five years ago). Several among them are linked to political parties (the Peronist, Radical or Socialist party) or to labor unions; they often emanate from cooperative movements (*Consumidores Libres*) or from certain

areas of the city (Palermo Viejo, Belgrano "R"). One of the largest associations, the Users and Consumers Union (*Unión de Usuarios y Consumidores*, UUC), is a national organization. The power of these associations lies in their capacity to lobby Parliament or ETOSS. New consumer and user groups have emerged progressively, consolidating this new water rights movement.

The Participation of Users

The conflict concerning SUMA and the mobilization of consumer and user organizations forced ETOSS to convene, for the first time, a public water hearing. The hearing, which took place in December 1998, included representatives from professional and technical organizations, the company, consultants, workers trade unions, the media and, of course, officially registered consumer and user associations. (ETOSS 1998; Schneier-Madanes 1999). This list does not include a great number of unregistered associations (neighborhood committees, user federations), which also attended the hearing. A "users' commission" (*comisión de ususarios*) was created by ETOSS a few months later to serve as a kind of consultation group. In June 2000, a second hearing was organized to debate the "expansion plan" for the water network. On this occasion, the users' commission positioned itself as a defender of users' rights (ETOSS 2000).

The hearings appear to have been designed as a formal arena for participation – a kind of forum for holding discussions on the conflicts related to the water concession – rather than as arenas for problem-solving. They did not directly affect the decision-making processes. However, they provided considerable visibility on the issues involved in water supply, while arousing the interest of the public, elected officials and, of course, the media (Schneier-Madanes 2001).

The company and the regulatory agency agreed on one thing at least, namely the expertise of user associations: "the knowledge they have of the contract is startling. They are up to date on everything that is under legal consideration (contractual deadlines, rate increases, construction techniques . . .)" (Presidencia de la Nación 1998).

Simultaneously, the firm promoted a fundamental change in the perception of water by introducing the concept of "client/customer." In particular, it developed a sophisticated communications policy dealing with the new principles of water supply, the value of water and the need for avoiding waste, etc. (Sinizergues 2003). However, reactions to these initiatives were mixed. In general, residents question the notion of "client/customer" in a context where a single firm, Aguas Argentinas, holds a monopoly on water supply. In their view, a water user is best described as a "captive user" (*usuario cautivo*). This obviously constituted a limit to user participation.

NGOs and "Alternative" Solutions

Non-governmental organizations (NGOs) are becoming increasingly influential in water supply. This is in keeping with the tradition of social work in Latin America and Argentina since the 1960s, based on self-help movements, Catholic

church groups and human rights associations, some of which are specialized in the question of water supply. NGOs seek acceptable paths for reforms, similar to those discussed by Barraqué (this volume).

Aguas Argentinas for its part, has contributed to social programs that emphasize local "alternatives" to the water network and which consist in the building of secondary water-only networks (no sewerage) by residents, or in setting-up collective organizations for mutual support. In some cases, municipalities supported these initiatives as part of the fight against unemployment. According to AA's department of sustainable development, ongoing programs in the southern part of the concession area mainly concern Santisima Trinidad (Quilmes municipality), Villa Besada, (Lanús municipality), Lealtad y Justicia (Avellaneda municipality) and, in the northern region, San Martín, La Paz, Perón, Evita, Antártida Argentina, Esperanza, San Cayetano (San Fernando municipality), Bajo Boulogne, Virrey Vértiz, Delfino, Cina-cina (Tigre municipality), La Cava chica, El Congo, Covicom (San Isidro municipality) (Aguas Argentinas 2003). Another example is the Riachuelo foundation. Since 1992 it has been conducting a pilot experiment in the shanty town of Villa Jardín (1,800 inhabitants) in the industrial municipality of Lanús (Lyonnaise des Eaux 1999; Schneier-Madanes and de Gouvello 2003). Generally speaking, the company has supported the emergence of a "grass roots level" in the organization of water supply. It should be noted though, that these experiments only concern a small part of the population within the concession area (around 10,000 people connected in 2003 with 200,000 more planned for 2003–5).

The Emergence of Local Communities

Local communities in the periphery were traditionally not in a position to assume direct responsibility for water and sewerage supply and they were not able to promote the integration of local demands into decisions because of their lack of representation in the regulatory agency. However, things have been changing recently due to the plan for improving and expanding the water and sewerage network (*Plan de Mejora y Expansión del Servicio,* PMES).

This plan lays down the guidelines for rate revisions and investment, as well as the corresponding technical and financial implications.[6] It is divided into five-year phases with intermediary expansion objectives. In line with the previous OSN approach, the expansion plan is based on technical and economic criteria, without taking into consideration the characteristics of the areas to be served, e.g. the administrative boundaries of the municipalities or the local demographic, social and economic differences between areas. For example, it does not take into consideration the fact that the areas most exposed to health risks are poor and densely populated, mostly located in the south of the metropolitan region, and it favors the extension of the network into the high-income north (Catenazzi 2003). It also ignores the "political climate" of the metropolitan region: national, provincial and municipal elections take place every four years.

The implementation of the plan was confronted with a diversity of local situations. First, mayors realized that there was an explicit water policy and

wondered about the plan's local implications: when would the network arrive in their municipalities? What territories would be served first and how? For "managerial" mayors in the rich northern area, water supply was an uncomplicated policy area and their relationship with the service provider was based on mutual agreement. As for the "political" mayors in the western and southern areas, i.e., union-based mayors with strong, personalized relationships with their populations, they regarded public health and the social right to water as basic principles of their administration. This made them unconditional advocates of universal access to water and sewerage services. Communities in these places then began negotiating locally with the company over the numerous "adaptations" as to the timing and location of network extensions.

Second, starting in its regional centers in the different areas of the concession (north, west, south, city center), the company progressively gained a foothold at local level to become an important player in the municipal arena. Over and above its technical and commercial activities (network expansion and maintenance operations, billing, provision of client services, etc.), it became involved in local activities through social or cultural activities.

The ten-year period of local negotiations on water supply and sewerage services was a significant learning process and water expertise became a powerful political tool in these communities. Take the example of ETOSS' new social rate schemes (*programa de tarifa social*), which are aimed at poor families (ETOSS 2001b). These schemes are financed on AA's budget, with local mayors playing a key role by designating the beneficiaries of the scheme. The schemes were designed based on an innovative participatory process involving user associations, NGOs, the company and ETOSS.

The New Water Arena

The water concession of Buenos Aires reveals several aspects of the interaction between technical and social change.

The privatization reforms that affected public utility services in Buenos Aires took place in a social context hostile to publicly owned, public utility companies, due, in particular, to the combination of poor service and a financial crisis in many urban services, an unfortunate legacy of previous administrations. However, the population's initial support for privatization reforms was progressively undermined by rate increases in the majority of the services, the lack of subsidies to low-income families and the new commercial nature of the services. Such a situation was exacerbated by the impoverishment of large sections of the population within the broader context of an economic crisis.

Several conflicts and crises have tended to underscore major changes in users' perception of companies and regulatory agencies: the infrastructure charge (1996), the telephone rate adjustments (1997), the blackout in the summer of 1999 during which 200,000 people in Buenos Aires were without electricity for a period of up to ten days, the collapse of the electricity system

in the winter of 2003 and, in September 2003, the (unannounced and thus doubly disruptive) one-day shut-off of the water supply in the city. There were common features in all these conflicts: the lack of a political authority to oversee them and the lack of independence of regulatory agencies. These factors fueled the severe criticism of privatization reforms. Several conflicts were subject to public hearings held following pressure from user associations.

Technical and economic changes (rate reforms, generalization of invoicing, introduction of new charges) gave rise to new social and public initiatives: the role of municipalities changed with the implementation of the water and sewerage network expansion plans. Municipalities became players in the regulatory process and arbitrators between utility companies and consumers. The two water conflicts (1996 and 1998) eventually led to the introduction and institutionalization of "water hearings" and the recognition of user committees as the official partners of regulatory agencies.

City-dwellers realized that a new bond connected them with the firm. This bond allowed them to be provided with water in their homes but, in exchange, they had to pay their bills and acknowledge that they had entered into a long-term relationship. The water bill symbolizes simultaneously the authority of the firm and the rights of the user. However, these new social relationships are hampered by the risk of disconnection and the increasing risk of marginalization faced by a significant part of the city's population. As in other Latin American cities (Fournier 2001), the current situation is radically different from the previous, now longed-for "golden age," where access to faucet water was regarded as a fundamental right that should be provided free of charge. In this sense a major change has occurred as regards access to water.

In addition, it can be argued that the company did not attain the objectives agreed upon in the contract. The long-term consequences of this situation (insufficient expansion, poor service, inadequate maintenance, etc.) may be serious in terms of the sustainability of the service. In this long-term perspective, a new scenario seems to be looming on the horizon. This encompasses the fight against poverty through the connection to networks, viewed as a fundamental objective which requires a change in how players perceive their way of life and which presupposes the transformation of such players into activists in modern urban society.

It should also be noted that privately owned utility companies, mostly controlled by foreign capital, have come to form a powerful lobby. As a result, the metropolitan arena has changed as these new powerful players increasingly intervene in the administration of essential services such as water provision. As their actions to some extent elude the control of urban decision makers, the organization of water supply in Buenos Aires, a key political issue, has thus taken on an international aspect (Schneier-Madanes 2003).

In the aftermath of the recent economic crisis, Argentina today finds itself in a very difficult situation. More than 20 percent of the working population is unemployed and more than half of the population now lives below the poverty line (Seoane 2003). The economic and social policies of the new government

(April 2003) have provided a basis for the discussion and renegotiation of privatized services and particularly the water concession of Buenos Aires. What will be the role of users and of civil society in general in the negotiations concerning public services? What lessons can be learned from the ten years of the Buenos Aires concession?

Obviously this new context gives rise to different and somewhat conflicting views of water facilities and of public utilities in general. Through the water crises, people became aware of underlying issues which eventually changed their perception of the city and its suburbs as the development of new settlements – poor as well as affluent – altered the urban fabric and living conditions in the entire city. The traditional opposition between the "center" and the "periphery" has become blurred; the increasing pollution and contamination of the water tables create new interdependencies and, possibly, new forms of solidarity; the functions and importance of old networks change, etc. These transformations entail new forms of management, and new expertise and innovative solutions, essentially because crises have network effects, and because, more often than not, their causes and consequences are not only local but also national and international. At stake are the issues and perspectives addressed at the Habitat Conferences (Vancouver, 1976; Istanbul, 1996; New York, 2001), and at the world summits from Rio (1992) to Johannesburg (2002), which dealt with the participation of populations in the production and management of their dwellings and living conditions, and sustainable development and environmental preoccupations in urban matters. Grass-roots organizations, NGOs and civil society, as well as international institutions are becoming increasingly important. In brief, water conflicts are clearly indicative of the state of the "urban and social question" in these times of increasing globalization.

Notes

1 The expression Buenos Aires refers here to the metropolitan region of Buenos Aires (12 million people in 1990), comprising the city of Buenos Aires (2.9 million), a self-governing entity and the capital of the Republic of Argentina, and a varying number of municipalities within the province of Buenos Aires (originally 19; 25 in 2003). The Buenos Aires water system has huge water distribution and sewage collection networks (some 11,000 km and 7,000 km of water and sewage mains, respectively), as well as an enormous water production capacity – 4 million cubic meters per day, of which more than 70 percent is produced by one treatment plant in Buenos Aires city. The main source of water supply is the River Plate and some 8 percent of water is supplied by deep wells located in peripheral municipalities. Most of the sewage collected (2.2 million cubic meters per day) is returned to the River Plate or flows directly into it without any treatment. Untreated domestic and industrial sewage flows into several rivers and creeks which flow through the metropolitan areas, and is discharged into the river.

2 Because of the need for large investments, especially for the expansion of the water supply and sewerage infrastructures, the concept adopted was the French concession model, whereby a private company (or a company with shared public and private ownership) assumes responsibility for operating, maintaining and investing in the system

over a long period (10 to 30 years, sometimes more), while the assets remain in public ownership.

3 The Board, which consists of six directors, represents the three jurisdictions forming the concession: the State, the Province of Buenos Aires and the city of Buenos Aires.

4 According to the definition of the Instituto nacional de estadisticas y censos (INDEC), low-income people are those barely able to afford basic foodstuffs. In 2003, the monthly income threshold was estimated at 710 pesos for a family of four. Indigent people are those who cannot even afford basic foodstuffs; as a reference, in 2003, 150 pesos were allocated to all jobless heads of households to help them cover vital expenses. (Furthermore, note that until January 2002 there was a fixed exchange rate 1 peso = US$1.)

5 This is revealed by the analysis of complaints received by ETOSS (i.e., complaints that were not satisfactorily resolved by the firm from a customer standpoint). More than 60 percent of the complaints received by ETOSS in 1996 concerned billing and the infrastructure charge, while more than half were concentrated in the six low-income municipalities in the southwestern area of the metropolitan region.

6 In 2000, water supply coverage was 80 percent (against a projected figure of 86 percent) and coverage for sewerage was 60.2 percent (against a projected figure of 78.6 percent).

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Telecommunications, transportation, energy, and water supply networks have gained crucial importance in the functioning of modern social systems over the past 100 to 150 years. Sustaining Urban Networks studies the development of these networks and the economic, social, and environmental issues associated with it.

Previous research on industrialized countries has shown that, although many infrastructure networks have become quasi-universal, their development did not spontaneously emerge as a result of technical and economic superiority. Rather the development of networks is the result of complex and often contested dynamics involving systems, uses and users, institutions, and territories. The authors analyze challenges to the expansion of access to and use of network-supplied services, as well as challenges associated with such expansion. Far from arguing that expansion is always positive, some of the authors argue that universal development of some networks may prove to be unsustainable.

Analyzing the relations between cities and networks is crucial to discussions of the sustainability of networks and of cities. On the one hand, cities have been, and are increasingly dependent upon the smooth functioning of a host of technological networks; on the other hand, cities are where technological, economic, and social innovations originate that support the initial development of networks. The functional dependence of cities on infrastructure systems, the social dynamics associated with the initial expansion of a new network in a city, and issues of social/spatial access to basic utility services are analyzed in the chapters of this book.

Sustaining Urban Networks will be of interest to the growing interdisciplinary academic community interested in technological networks, their historical development, their social significance, their role in the functioning of cities, their economic regulation, and their expansion in developing countries. It will also be useful reading for strategists in utility companies and governmental agencies.

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