**Introduction**

Urban water supply systems and their management have undergone a considerable change in developing countries as a result of the neo-liberal policies adopted during the last 20 years. Among the changes taking place, diverse models that delegate the management of water supply systems to large international companies have drawn considerable attention. However, these models are not very widespread and have given rise to a differentiated mode of development and upgrading of urban spaces in a competitive environment. On the one hand, the big companies representing this model continue to be very selective about their geographical locations. And on the other hand, despite the strong influence of the neo-liberal paradigm existing urban realities can only be understood more clearly by taking into account the comprehensive set of local reforms that go much beyond simple sectoral reforms.

Several other processes are at work in transforming urban services at the city scale and under the influence of a variety of actors. Most often they are driven or promoted by reforms whose scope extends well beyond service networks. These include politico-administrative decentralization, liberalization and its consequences, decline of state monopoly in several fields of urban management, political democratization, and the uneven participation of city-dwellers—both individuals and organized groups—in decision-making processes. Although the effects of these shifts are somewhat overshadowed by the debate on ‘privatization’, they still contribute to the transformation of the relationship between networks and urbanized spaces.

This chapter raises questions about three main aspects that call for reflection: (i) What are the reasons for the persistent shortcomings of urban water supply services? (ii) What direction should efforts towards the modernization of public services follow? (iii) How can the proliferation and the robustness of both formal and informal alternatives be explained? It mainly argues that in most developing and emerging countries, water supply is characterized by a diversity of service delivery mechanisms. This diversity, rather than being understood as a failure, needs to be reconceptualized and integrated in a broader definition of water supply services, which raises issues in terms of regulation and governance of these systems. Based on a review of international literature, including the Indian case, this chapter aims at opening up the debate on future avenues for water services. It does not aim at providing policy recommendations (or disseminate best practices) and it also does not cover all geographical areas, in particular the Chinese case,1 where rapid improvement of services took place in the last decades. Finally, it tries to reflect

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1 The case of China is dealt in chapter 12 of this Report.
on the potential lessons for the situation in India in times of reform.

**Urban Water Supply Services**

The improvement of services for drinking water and sanitation necessarily calls for a compromise between objectives that are a priori conflicting: (i) a service that is efficient at the operational and economic level (which raises the question of its funding), and (ii) social and territorial equity (which raises questions of redistribution). Because of their key role in the urban fabric, these services figure among the Millennium Development Goals framed in 2000 to reduce by half the number of people deprived of access to drinking water and sanitation. However, achieved results are very uneven (Dagdeviren and Robertson 2009; UNDP 2006) and have not provided any solution to the failure of universalization and the weakening of the developmentalist model for the expansion of services. Due to long periods of chronic underinvestment, the development of water supply systems, built during the colonial period or soon after independence, is still lagging in many cities in the South, with the exclusion of fairly large but uneven sections of urban society, either because of the lack of infrastructure or because the quality and quantity of water provided is inadequate. The ideal model of public services capable of satisfying the needs of the entire population, based on a Weberian type of government, with mechanisms for spatial and social cross-subsidies, centralized planning processes, and technical as well as financial capacities for ensuring an adequate supply (to follow planned urban expansion according to normative average needs), has reached its limits. Inefficient public management (technical, organizational, and financial), absence of supply to poor neighbourhoods for objective reasons (such as a rapidly expanding population and unauthorized settlements) as well as discriminatory treatment on the part of the post-colonial administration and the resultant socio-spatial inequality in accessing water and sanitation services, have together undermined the legitimacy of public monopolies. In the 1980s, the shortcomings of public management were widely criticized and measured against supposedly more efficient and better managed private companies (The World Bank 1994). The result of this international ‘consensus’ led to the proliferation of public-private partnerships (PPPs) involving big private international companies which were awarded different types of delegated management contracts (Goldman 2007) and led to numerous studies (for a recent summary, see Bakker 2009). This debate has, however, ignored many of the issues related to water supply systems (such as the importance of legal machinery, peculiarities of local socio-technical and political cultures, geographical features of territories and water resources systems, and new policies for mobilizing sources of supply). A scrutiny of PPPs has understood the sector through a simplistic institutionalist approach, which needs to be questioned and calls for an examination of the ‘blind spots’ in reforms as well so as to better qualify the numerous changes that have occurred outside the areas covered by privatization.

**Big PPPs: A Less and Less Commendable Model**

PPPs in urban water supply are more controversial (Estache and Fay 2007) than those in other sectors because of the specific values attached to water. The partial and ideological nature of numerous existing studies, combined with the lack of homogeneous and comparable data, makes it more difficult to reliably assess their results. Seven per cent of the urban population of developing countries is now supplied by private operators (Marin 2009; Gassner et al. 2009). However, none of the existing empirical assessments provide an accurate and undisputable estimate of the capacity of the private sector to invest and to improve management while expanding the service, particularly in poorer neighbourhoods (Kirkpatrick et al. 2006; Prasad 2006; Trémolet 2006).

Nowhere have PPPs been able to fulfil the exaggerated promises made by their advocates. The recent study by Marin analyses the performance of more than 65 major PPP contracts in the developing world on the basis of four indicators (coverage expansion, quality of service, operational efficiency, and tariff changes). It shows that very few of these contracts are satisfactory in more than one or two of these criteria (Marin 2009). In terms of access, even though 24 million people have been provided access to water since 1990, the results are mixed and inconclusive. Private operators, even when they are able to raise the level of access, have not invested as much as planned and have fallen short of
reaching their contractual targets. According to Marin (2009: 45–68), expansion of service was more successful when private investment was supported by public funding and lease contract performed better than the larger concession contracts. On quality of service and operational efficiency, the outcomes are more positive. PPPs have improved operational efficiency. In particular they have been able to reduce non-revenue water, improve bill collection as well as enhancing labour productivity. Regarding the last criteria of tariff levels, this large study remarks that the impact of PPPs on tariff levels is inconclusive: tariffs have often been raised but this increase, as demonstrated by more ethnographic work, can be related to a number of other factors. This supports the results of other less exhaustive studies. First, contractual flaws, well analysed in the North, are often amplified in the South: contractual frameworks have proven inadequate for the effective sharing of risks (either because the public sector attempted to transfer all risks to private partners or because of the private sector anticipating renegotiation), leading to delays in securing investments in time and foreseeing adequate responses for macroeconomic risks. In addition, the regulation of these contracts, most often implemented by specialized and centralized regulatory agencies, has not been very effective (information asymmetry, pliant regulators, lack of competence, primacy of economic regulation over consumer protection, and environmental issues). Second, the economic equilibrium of contracts has been difficult to achieve. Tariff policies recommending higher rates have met with political and public opposition while investment and expansion programmes have to deal with the difficulty of mobilizing ‘cheap’ capital. Third, contrary to the claim that private operators are better placed to innovate to serve the poor, and despite several localized successful experiments (Botton 2007), private operators have not been very successful. They had to contend with a number of constraints: obligatory high standards agreed upon in the contracts limited their options for innovation and they faced the problem of rapidly expanding settlements in poor neighbourhoods with issues of illegal land tenure. Further, commercial and social policies (for example, lower charges for new connections, and staggering of payments, etc.) were unsatisfactory in addressing equity and poverty issues (Boccanfuso et al. 2005; Kayaga and Franceys 2007).

All these factors (technical, economic, and legal), taken together point to the importance of the macroeconomic and social environment (poverty and growth) in which these projects are inscribed, as well as their fragility in times of monetary (as the crisis of the Buenos Aires and Manila contracts following the devaluation of the currency demonstrate) and social crises (one well-known example being the termination of the La Paz-El Alto concession following the repercussion of major social movements in Cochabamba).

It is necessary to look at these persistent failures together with obstacles created by the apparent inability of sectoral reforms to reconcile formal institutions with informal ones, such as perceptions and beliefs, and customs and values. While formal institutions are often subjected to relatively rapid changes, informal institutions, which influence the behaviour and decisions of a majority of the actors in the water sector, change more slowly and imperceptibly. Conflicts, which have led to the termination of some management contracts, disagreements on tariffs, differences in estimating the actual demand, and diverging stances on the usage value of drinking water, testify to the importance of local political ethos in the successful execution of contracts. These failures have revealed the limits of a minimalist institutionalist approach recommended by the advocates of reforms who are guided by a narrow and sectoral understanding of institutions. These reformers are essentially interested in ‘organizations’ within the sector with little or no concern for other institutions, such as belief systems and social structures (Hibou and Vallée 2007).

Some important and disturbing political factors are responsible for the disappointing performance of major PPPs. In many countries, the government’s financial and political involvement in the water sector, and more particularly in the sanitation sector, is negligible and people without access to water have no means of making themselves heard. Local circumstances can exert a considerable influence on the terms and conditions of reforms as well as their implementation schedule (Alcazar et al. 2002; Verdeil 2010). It can occasionally lead to a paradoxical success, as in Havana, where the political management of PPPs by the communist state legitimized the change of model. In 2000, the Government of Cuba entered an agreement with Aguas de Barcelona to create a mixed
capital joint venture\(^2\) whose objective is a constant improvement of services. The government owns the infrastructure and part of the investment is public while the operation (and some of the investment) is the company’s responsibility. Though the contract does not have specific targets, it is close to a lease contract with a sharing of responsibilities. To some extent, it increased inequalities since eight of the 15 municipalities of La Havana are managed by the mixed company while three public companies provide services to the remaining seven neighbourhoods. Nevertheless, this reconfiguration also restored some elements of social justice by ensuring strong regulation of the contract (Pinceau 2010). International organizations now agree that access to essential services is essentially a political issue (Estache and Fay 2007) and that the provision of connections to basic infrastructure is often used as a means of legitimizing power (Bennasr and Verdeil 2009) as well as a tool for social regulation. For instance, it enables the de facto recognition of illegal settlements (since bills are used as a ‘proof’ of identity), their eventual inclusion in a citizen’s community, and access to the water supply network (Benjamin 2005; Zaki 2009).

However, operational performance has often been improved, which prompts the advocates of the PPP model to claim that it remains a viable option for developing countries, provided it pays more attention to local contexts (Marin and Izaguirre 2006) and to better defining the terms of contract (Breuil 2004). Others stress the advantages of ‘hybrid’ contracts, shorter and less risky than the concession agreement (Marin 2009), or of smaller and less ambitious projects (Gómez-Ibáñez 2008). First, lease and management contracts have performed better than concession contracts. Second, contracts that experimented with innovative solutions, such as mixed ownership, partial government grants, and a stepwise approach so that direct revenues raised from users finance investment, rather than following textbook lease and management contracts clauses were the most successful. These are interesting developments, especially in the case of emerging countries, with the entrance and resilience of local large-scale private operators in Brazil and in India. In Brazil, for instance, the water sector remained unchanged since the 1970s and was dominated by public water management. However, two recent laws—in 2007 concerning water service management and in 2005 concerning the regulation between different types of operators—led to a restructuring of the water sector. On the one hand, it supported a process of modernization and competition among city utilities that can compete for contracts in other cities in response to calls for procurement contracts. On the other hand, it led to the emergence of local private players, more familiar with the local context than private international companies (Britto 2010). These private players are mostly public works companies, at times entering into joint ventures with companies more specifically specialized in the construction of urban networks. Though the types of contracts differ, the assets remain in the public domain. Nevertheless, the pace of granting major new contracts for urban water supply has slowed down considerably and these are limited to a very small geographical area.\(^3\) There is no doubt that the PPP model can still be a credible alternative in some big cities in emerging countries. PPPs can improve quality and operational efficiency and can enhance public financing. They serve as a useful reference for benchmarking services and provide incentives for improving public utilities ‘threatened’ by privatization. We endorse the conclusions of Marin (2009) that PPPs are not suited to all situations, nor can they be envisaged in all situations. Consequently, a call to innovate and invent varied new ‘arrangements’ is necessary.

\(^2\) The structure of the capital of the joint company is shared between the Cuban government (50 per cent), Aguas de Barcelona (45 per cent), and a single Spanish investor (5 per cent).

\(^3\) The latter data obtained from the World Bank’s databank on private investments in the realm of infrastructure (http://ppi.worldbank.org/features/July2011/2010-Water-note-final.pdf last accessed on 20 September 2011) draw attention to this phenomenon during 1990–2009. The geographical distribution of contracts has changed due to a considerable decline in investments in Latin America in favour of Asia (essentially China) with marginal changes in North Africa and the Middle East. Nevertheless, a majority of these investments focuses on the creation of production and treatment facilities and no longer, as in the case of major PPPs earlier, on the management of water supply and sanitation services.
Examining Links between City Governance and Water Supply Systems

The debate on the respective merits of public and private management of public utilities has missed the point that the real problem is not ownership but the difficulty faced by utility managers to find sustainable solutions for achieving universal water provision (Budds and McGranahan 2003). In view of the ‘ideological’ vacuum and the lack of innovative ideas following the Washington Consensus, the widespread use of PPPs is unlikely and so is unconditional return to public utilities without any significant change in the policy framework. Nevertheless the temptation for an adequate ‘model’ persists. While the return to municipal management in countries (France and emblematically Paris, Atlanta in the US, Hamilton in Canada, Bolivia, and Argentina) where private participation took pace is celebrated, the process of ‘remunicipalization’ is arduous. A remarkable example is the case of La Paz where the cancellation of the concession contract with a large international private operator was central to the reform programme of Evo Morales. The La Paz-El Alto concession was terminated in December 2006 after the success of a very strong social movement that became instrumental in the larger national anti-privatization wave. The main conflicts concerned the level of investment of the private operator, its ability to expand services, and the increase in connection fees. Further, in the city of Cochabamba, another contract was cancelled after a strong opposition movement and this had considerable repercussions (or consequences) on the social climate in the La Paz-El Alto concession. The private company became a public and social enterprise and its central objective was to reduce inequalities. However, first, management norms and practices of the private operator were maintained; second, the public utility faced similar challenges with regard to conflicts between municipalities in the metropolitan region as well as conflicts with the surrounding rural communities; and, third the issue of financial shortage remained (Poupeau 2010). The return to public management raises questions about the legal framework, service obligations, governance structure (government controlled body, public limited company, mixed company), and relationship with users. These issues need to be debated for risk of an overhyped enthusiasm for public-public partnerships (PUPs). Boag and McDonald (2010) reviewed existing PUPs and they also raise words of caution since PUPs have very heterogeneous management methods and at times, they are closer to private models. Finally, the development of ‘community-based’ solutions, such as partnerships between NGOs and citizens’ action groups, heralded by some as the solution, raise similar problems of equitable service improvement when they are accompanied by a naïve belief in the existence of ‘good’ institutional arrangements (Bakker 2008).

The attention given to ‘governance failures’ (Bakker et al. 2008) reaffirms the importance of politics since it addresses the relationship between unequal access to water services and inequitable urban governance. However, the present state of research does not unbundle this articulation sufficiently to provide an adequate view of the ongoing changes. On the one hand, the simplified view of a dual city (citizens and squatters, those with water connections and those without, the well-off and the poor) does not capture the urban diversity, made of multiple in-between (Flux 2004) and multilayered communities. These communities have diverse and unequal skills to influence (or not) service provision. They harness political and social networks more or less effectively. These complex and shifting relationships between individuals, groups, and networks are often analysed as the resilience of a patronage structure but they reflect the inability of poorer sections to access formal state procedures. On the other hand, very few studies have shown an interest in the long-term social construction of water supply institutions and the legacy of historically constructed inequalities (Swyngedouw’s...
1995 analysis of Guayaquil is an exception). Often the common reasons for explaining the failure of ‘governance’ include institutional shortcomings, the absence of inclusive mechanisms, and the problems of coordination and overlapping institutions. In our view, these are insufficient explanations that depoliticize the issue of very complex power equations in urban societies. They also rely on an oversimplified binary vision of the actors by opposing those engaged in institutional changes against those contesting them.

In essence, the problem is political in nature: it refers to the social construction of water supply services, collective responsibility, and the definition and legitimacy of rules and governance frameworks (Coing 2010). The compromise reached between the diversity of demands and social justice, which can be deduced from investment plans and projects, is an indication of the ability (or its absence) to address general interest, social cohesion, and inclusion in fragmented and pluralistic societies, which are sometimes characterized by competing interest groups to gain access to urban resources (Jaglin 2005a). The misalignment between water supply services and cities is due mainly to the unsuitability of water networks in terms of technical infrastructure, organizational mechanisms, and management and funding methods, as well as the type of actors and skills they mobilize, including their political goals and values.

In addition, besides the conventional piped system, other modes of supply exist, and even expand. They are governed by different rules and norms, accepted by many people as part of accessing basic services. Therefore, we argue that the existing explanatory framework that leads to a set of institutional recommendations on improving the governance of water supply systems is too narrow. On the contrary, a closer look at the linkages between cities and their water services could provide varied solutions better suited to local conditions and rooted in urban social structures. To rethink water services, two main directions can be followed, namely the ‘in situ’ modernization of public services and the proliferation of unorthodox solutions. These two different, but complementary trajectories could bring about sustainable changes in services. The challenges they pose in terms of coordination, control, and regulation need to be analysed seriously since we assume that problems of water supply in cities will not be solved in the near future only through piped water.

**Modernization of Public Services**

Despite the apparent unchanging nature of water services, a more or less coherent process of modernization of public services has taken place. It is therefore necessary to understand the limits as well as the potential of this process for progressing towards a more equitable access to essential services.

An important development in the modernization of public utilities is the introduction of reforms in accounting (adoption of new procedures, computerization, and use of software packages for integrated management) and financial (ring-fencing) systems, changes in the management of human resources and skills (including salary scales), revamping of tariff policies and cross-subsidies mechanisms, and revision of user service norms and ‘customer’ relations (Caseley 2003; Davis 2004). Inspired by the ‘new public management’, these reforms are widely shared and accepted, especially in emerging metropolises, by various scales of governments, and the new local economic elites, such as local industries’ associations or resident welfare associations that welcome such change of facilitated consumer services (Dubresson and Jaglin 2011; Lorrain 2011; Zérah 2011). These reforms are responsible for the increased commodification of public services and have changed the conditions for public decision-making. The results of such reforms, though, in terms of efficiency are not always favourable, if accompanied by disinvestment (Dagdeviren 2008). A second dimension of this modernization process is the impetus given to ‘participation and transparency’. The growing importance of consumer rights and the desire to involve users in the regulation and even the management of services led to the creation of new tools (citizen charters, hot lines, benchmarking, and complaint centres). The

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6 Coing points out that the principal approaches to governance are based on an ‘idealized view of social relationships where everything is settled by consensus and where, by learning to cooperate, it is possible to reconcile divergent interests’ (Coing 2010: 17).
obligation to publicize consumer rights has also altered the relationship between operators, the organizing authority, and users (Jaglin 2005b). On the flip side, these changes can strengthen some groups, especially the middle class, and contribute to elite capture at the cost of the poor (Zérah 2009).

Overall, the scope and sustainability of these changes owe as much to their political use by public authorities as to the efficiency of these new institutional mechanisms.

One example concerns the relationships between users and governments in a context of increased difficulty. A relationship of trust can be rebuilt if a number of conditions are met. The works of Barrau and Frenoux (2010) for Haïti, Connors (2005) for Bengaluru, and Botton (2007) in the case of Buenos Aires all point to common factors for participatory mechanisms to be successful. They need to be developed over a long period of time through building of trust and understanding the subtleties of existing social relationships. Thus, in the long run, it might be more efficient to rely on existing local leaders with knowledge and some form of legitimacy in their neighbourhood than on creating new institutions. The reliance on committees and community leaders rather than on setting up ad hoc committees with less legitimacy proved successful in Bengaluru and despite the larger set of problems faced by the Buenos Aires concession, the utility managed to expand services in lower income areas by engaging in a sustained and reciprocal dialogue with local mayors. This requires long-term commitment as well as a trial and error approach, which entails the nurturing of new competence within public utilities.

One more example concerns another sensitive aspect of reforms—tariff policies. The Tunisian example clearly shows both the limitations of territorial and social cross-subsidies devised in the late 1950s and the difficulty in their ‘restructuring’ (Touzi et al. 2010). The authors point out that political compromises made at various junctures were instrumental in the conduct of public policies (regional and development policies, poverty reduction, and growth promotion through tourism, etc.). The compromises reached have become out-dated in the face of present problems (mobilization of new water resources at a high cost, transformation of demand, distortions created by the tariff structure, and emergence of environmental issues, etc.). Therefore, it is up to political decision-makers to openly discuss the ways and means of implementing new forms of equity and political compromises.

These two different examples briefly illustrate the great diversity of methods that can be used to reach new compromises related to service management and to urban social cohesion. The importance of political choice urges us to look beyond the narrow water domain for factors responsible for the numerous changes that have de facto contributed to the remodelling of water supply systems. Decentralization and legislative changes have transformed the relationship between governments and municipalities. In the Brazilian case, they have empowered local governments and encouraged cooperation between local councils (Britto 2010). In India, despite the limits of the 74th Constitutional amendment on decentralization and the limited role of city policymakers, conflicts around the implementation of the Ganga Action Plan in Varanasi (where local political leaders and a vocal NGO were able to partly alter the project), point towards an ongoing reorganization of roles and powers (Vincent and Forest 2010). Some democratization instruments have altered the rules of the socio-political game. These include the Right to Information Act, introduced in India to create greater transparency. This has brought about a significant change in the relations between users and water utilities. It has also been used by anti-privatization forces (for the case of Delhi, see Bhaduri and Kejriwal 2005). Similarly, the inclusion of the right to water in South Africa’s Constitution has strengthened the movements opposed to the installation of pre-paid water meters in Johannesburg (Aubriot 2009). As a result, power equations in urban societies have been subtly altered, even though the consequences are not always immediately felt nor are they always palpable. In Brazil, for instance, decentralization efforts were slowed down by customary political manoeuvring and in India, the deepening of decentralization remains a central objective of urban reforms. All these changes contribute to making urban governance even more complex and contested: most reforms and projects require engaging in prolonged negotiations, facing protests, and accepting second opinions, as new tensions and conflicts emerge around the notion of rights of a growing number of stakeholders.
Proliferation of Unorthodox Water Supply Systems

In nearly all cities, unfulfilled needs imply that conventional water supply systems coexist alongside other commercial modes of water supply systems, which are mostly uncontrolled and often illegal. Users most often combine non-conventional and conventional systems on the basis of criteria, such as use, price, taste, and accessibility. These alternative small-scale providers mainly fill the gaps in service provision. Their services can overlap and compete with the water utility and often their expansion is inversely proportional to that of the conventional system. Small-scale providers do not receive any government subsidies and are financially autonomous. They embody all the features of the informal economy (unregistered, untaxed, weakly capitalistic, and legally vulnerable). They mostly operate in the distribution sector but are sometimes water producers if they rely on groundwater extraction. Although they have become standardized as a result of imitative behaviour, these commercial supply systems are very diverse, close to cottage-type enterprises, and more costly, since the unit price charged to consumers is higher than that in conventional systems.

These characteristics do not preclude the non-conventional system from being part of the water supply system. Specifically, the proliferation of these decentralized modes of supply provide access norms that are compatible with the absence of adequate supply and users become part of social and commercial systems that offer a range of customized usages (potable and non-potable water, paid and free of cost) and services (doorstep delivery, supplied through public taps or private connections, with or without a guarantee of quality and regularity, with or without subscription). However, this integration should not prompt us to ignore the fact that consumers are seldom in a position to weigh various offers. Being utterly dependent on unregulated suppliers, they are obliged to pay 10 to 20 times more per unit of water than households having a regular water connection, and given the catastrophic inadequacy in the provision of sanitation, they have only partial access to sanitary facilities usually associated with the use of potable water.

These commercial services can include small local private operators (Conan 2004; Kariuki and Schwartz 2005; Kjellén and McGranahan 2006; van Dijk 2008), forms of ‘community-based privatization’ in poor neighbourhoods (De Bercegol and Desfeux 2011; Jaglin and Bousquet 2011), and sophisticated alternative sources of supply by local urban entrepreneurs in well-to-do neighbourhoods (Maria and Levasseur 2004). For long, small private operators were criticized for being non-competitive, costly, and unregulated. However, their ‘entrepreneurial’ skills, flexibility, and responsiveness have led to a renewed interest in their ability to complement deficient conventional system (Botton and Blanc 2010; Valfrey-Visser et al. 2006). Locally managed arrangements in middle-class colonies and in newer localities may turn into a reality the much-heralded emergence of a ‘post-network’ society (Coutard and Rutherford 2009; Giraud et al. 2004; Maria 2007) based on integrated and environment-friendly resource management and adapted to the diversity of demand and the peculiarities of urban expansion. Similarly, individual (quasi-wholesale domestic users) and collective arrangements (users’ committees and associations) have shifted the boundary line between public and private, legal and illegal, and commercial and non-commercial suppliers. All these approaches open up new avenues for collective action in the domain of water supply services.

As they provide part of the solution to water access, these unorthodox systems contribute to redefining the role and the competence of actors who constitute the city. As such, they are not a substitute for formal reforms and improvements of the conventional system, but they need to be seen as a means of supplementing conventional water supply sources. This gives rise to two important questions.

The first question, related to the organization of water services, concerns their institutionalization and the specific problems raised by their coordination within ‘composite’ supply systems (Jaglin 2010). This calls for a review of all the rules governing water supply systems in order to define their perimeter, service norms, actors, as well as regulatory tools. It is also necessary to anticipate the effects of the spatial expansion of cities on the basis of these new equilibriums that involve conventional and non-conventional systems while taking care not to rigidify the system that would recreate de facto an informal sector on its fringes. Such changes in the organization of water services disrupt corporate and
professional interests (for example, engineers in conventional water supply systems), perceptions (regarding norms that can be considered ‘acceptable’ in a city), and power equations (between the conventional operator and small-scale operators). They should be subjected to viable long-term agreements as they face the risk of being weakened very rapidly, and also demand new methods of governance.

The second question pertains to the links between these non-conventional systems and the urban government. Undoubtedly, small-scale providers indicate the agility and ability of urban societies in the South to innovate, which is reflected in the diversity and multiplicity of the urban entrepreneurs involved, but they may also lead to the flagging of public interest. On the one hand, the high-priced solutions devised in middle class and affluent neighbourhoods may lead, in some circumstances, to the complete or partial exit from the conventional system. The resultant fall in revenue for utilities would undermine the capacity of the public system to cross-subsidize poorer groups. This can disrupt the urban social compact. On the other hand, small private operators can also be part of power networks (and even mafia networks) that have a negative impact on access to services. This is the case in the periphery of Mumbai where some local elected representatives also own water tankers. Consequently, they are in a position to control (or at least influence) both the formal and informal conditions of water supply (Angueletou 2008). Unorthodox solutions might also create disincentives to invest in the expansion of the networked water supply system. This note of caution calls upon the remaining importance of a functioning multi-level governance framework, where different levels of government carry out their respective responsibilities, and in particular the task of investing in the system’s expansion or ensuring that urban local bodies are able to carry out investments in decentralized contexts.

**Lessons for India**

Within this context, two questions arise for the Indian case. First, is India distinctly different from the situation that the review presents? Second, can lessons be drawn from reform efforts that have been made, in particular the Jawaharlal Nehru National Renewal Mission (JNNURM)? In an attempt to answer these, we discuss three main points.

**What are the Reasons for Shortcomings in Water Supply Services?**

In the case of India, along with rapid and constant economic growth, one should expect a concomitant rise in investment and fast improvement of urban infrastructure. However, this does not seem to be the case. Despite an aggregate figure that indicates that urban India will achieve the MDG, the story is less rosy if one looks at the percentage of households with a house connection. As argued by Mehta and Mehta (2010) in their assessment of the JNNURM programme, the decline in the percentage of in-house connections from 52 to 48 per cent in the last 20 years demonstrates the weak link between higher investment in infrastructure and better services for all. India’s case is exemplary of the mutual persistence of inadequate and unreliable water supply by public utilities along with more informal and private means of accessing water. First, water supply is unreliable: supply is restricted at best to a few hours per day, at worst on selected number of days even for households with in-house connections; quality is inadequate and this problem is further aggravated by unreliable supply that leads to sewage infiltration in water supply system. The consequences of highly unreliable water supply systems are considerable: households have to wait for water, reschedule their activities, and spend time to fetch water; they also invest in costly coping strategies, such as overhead tanks, pumping systems, and tube wells (Zérah 2000). Moreover, unorthodox systems, often the result of a collective action process, also tend to expand. They take various forms. On the one hand, sophisticated water supply systems in posh areas, which potentially lead to the creation of a ‘club good’ and the exit of wealthier consumers from the public system expand (Maria and Levasseur 2004). On the other hand, poor users diversify their strategies by accessing the state through mediators (local councillors, slum leaders, community workers), by relying on private...
small-scale operators and water tankers (Conan 2004), and by devising collective systems of water services with the support of NGOs, local, and state politicians (De Bercegol and Desfeux 2011). Similar to other countries, an array of reasons explain this low level of service: chronic underinvestment, legal and administrative barriers, and in particular the link between land tenure and service provision that often prevent expansion of water to slums and squatter settlements, high cost of connections (as well as the numerous procedures to obtain a connection), and the inefficiency of existing cross-subsidies to reach out to all sections of the population. Overall, the ‘urban network’ model has mostly benefitted middle class households that are the main recipients of existing subsidies for the sector and the piece-meal reforms of the last two decades have made no dent in the dual system of service provisioning.

In the last few years and mostly since the launch of JNNURM, new thinking on reforms has emerged, which calls for renewed interest in PPPs to provide round the clock services, innovative mechanisms to serve the poor, and larger urban reforms.

**What Direction should Efforts Towards the Modernization of Public Services Follow?**

This then brings us to a second point related to the ongoing reform process. Public utilities have been under pressure to reform and they have engaged in a significant modernization process through better interface with users, better accounting systems, and experiments with service contracts for metering and bill collection. JNNURM has also put a large emphasis on enhancing urban water supply systems and on encouraging PPPs. Investment figures confirm the importance of water supply: up to September 2010, 38 per cent of JNNURM funding had been directed towards water supply. The renewed interest in PPPs, following the failures of introducing large concession contracts in the end of the 1990s, is based upon a better understanding of local specificities, such as the vicious circle of low tariff, low maintenance, and low investment. This led to a focus on shorter management contracts based on pilot zones, such as the experience with 24-hours supply in Hubli-Dharwad. Though this experiment has been criticized because it isolates one area of the city from the rest, it has highlighted the potential for modernization and seems to have led to a growing interest among firms (both international and domestic) in investing in urban water supply systems. However, questions remain in terms of the replicability of such projects, especially in terms of costs. In pilot projects, part of the funding is often borne either by international organizations or exceptional state funding. Another important concern is that JNNURM funded projects are traditional ones aimed at enhancing water resources through the construction of new dams and large water transport systems. As such, it perpetuates the classical approach of large hydraulic systems for increasing water resources instead of focusing on the failures of the distribution networks. In this regard, the ongoing (and at times successful) modernization process has not led to a paradigm shift. This is clearly seen in the inability of Indian cities to engage with small-scale providers, despite their importance and the role that they play in deprived neighbourhoods. This most probably pertains to the remaining importance of public monopolies and the apparent commitment to enhance water services. Nevertheless, contrary to Latin America and Africa, where many cities have given some thoughts to how to integrate these operators, it also reflects a distressing lack of understanding and knowledge on a significant part of Indian cities.

The third and final remark brings us back to the linkages between city governance, urban spaces, and water services and the importance of the political nature of water supply networks. First of all, despite the claimed importance of cities in India’s economic transformation, urban local bodies remain weak financially and politically. With the exception of a few metropolitan cities, urban local bodies’ finances are anaemic and the hope placed in the decentralization process as a tool for empowering local political leaders has dwindled. Cities seem to be unable to act as a

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8 Local and state politicians can fund small private water supply systems through the MC/MPLAD fund (Municipal Councillor/Member of Parliament Local Area Development).

9 If one includes wastewater projects, such as the construction of new sewage treatment plants, the figure is even higher.

10 This pilot project is discussed in Chapter 16.
collective actor able to debate major local issues as well as to devise innovative solutions based upon the reality of their urban fabric despite the present day emphasis on urban reforms pushed by JNNURM. Reforms are either adopted without any adaptation to local situations or they are rejected outright. Second, along with the rise of a more vocal middle-class which is able to rely on tools, such as PILs and RTI, and the emergence of a project-based form of urbanism, the overall macro perception towards the poor has worsened with large scale evictions of slums that has in some cities (in particular in Delhi but also in Mumbai) impacted access to basic services. With this background, attempts to evolve new delivery service mechanisms (such as the Bengaluru experience to delink service provision from the status of land tenure) are bound to be marginal. Finally, reforms are widely contested and the anti- privatization movement is gaining ground. In Delhi, a large coalition of resident welfare associations and NGOs managed to derail a project of delegated management contract and similar coalitions have emerged in Mumbai and Bengaluru. This is clear evidence that water supply reforms have to be debated in the political arena and are not simply sectoral reforms that should be guided by economic efficiency. They raise a number of critical issues about the sharing of resources, the affordability of a basic urban service, and the collective choices made by all urban dwellers.

**Conclusion**

This chapter shows that the actual policies guiding the transformation of water supply systems cannot be dissociated from the conditions affecting decision-making processes controlled by collective action in cities. It is therefore necessary to redefine their position in the context of the wider changes in the areas of urban management and governance following decentralization and liberalization, the redistribution of roles, and the blurring of boundaries between public and private services, democratization, and reallocation of powers among technical and political elites.

In addition to analysing injunctions and reforms obtained from the same sources, this chapter drew attention to the diversity of methods of production (ranging from public monopoly to fragmented competition) and management (public, private, partly, or totally controlled by the community, etc.) of water supply systems. This patchwork reality is neither the outcome of ‘flawed’ implementation of models nor is it a simple compensation for the shortcomings of the public service. It is part and parcel of the water supply systems in developing cities and provides a partial solution to the problem of universalization. It is therefore necessary to question ourselves about the issues raised by this diversity: How does one take account of it? Should it be regulated? If so, in what way? What powers, what urban institutions, both formal and informal, are required to perform the difficult task of regulation?

Finally, the question of investments and ‘sustainable’ funding of services is of crucial importance as these are essential services and, for the most part, the answers have to be thought out afresh or rethought out without normative a prioris.

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