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# Managing Water Services in Small Towns: Challenges and Reform Issues for Low-Income Countries

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## Introduction

Water services provision in low-income countries has become an important area of concern and research within the global sustainable-development agenda. The global interest in potable water-supply issues in the developing world is captured in the Millennium Development Goals of the United Nations member states (United Nations 2000). A key target of these goals is to halve the number of people without sustainable access to safe drinking water and basic sanitation by the year 2015. To achieve this target, the World Health Organization and the United Nations Children's Fund (WHO and UNICEF 2000) estimate that more than one billion people in the developing world will need to gain access to improved water services within the next 10 years. This estimate is based on the assumption that services for those who are already served will be sustained. However, recent studies have revealed that huge constraints still affect the sustainability of water supply services. These constraints include funding limitations, insufficient cost recovery, and inadequate operation and maintenance (WHO and UNICEF 2000). These challenges are greater in the fast-growing small urban areas of low-income countries where the highest population growth rates today are reported (United Nations 2002; Satterthwaite and Tacoli 2003).

This article focuses on the problems and issues regarding water services management in small towns of low-income and developing countries. The article has three primary objectives. First, the authors show that whereas management systems for water service delivery in both rural and large urban areas are fast becoming accepted as norms, service provision in small-town settlements faces special challenges that may require rethinking conventional approaches. Second, the authors critically evaluate recent practices and efforts aimed at addressing the special challenges that water service providers face in small-town settlements. Third, drawing on the rapidly growing body of applied research and policy analysis directed specifically at small-town water supply, the authors identify an integrated set of reform considerations to guide policymakers and urban-planning professionals involved in water supply issues in developing countries.

## Small Towns: Definition, Characteristics, and Significance

In many low-income and some middle-income countries, between one-quarter and one-half of the total population live in settlements with between 2,000 and 20,000 inhabitants (International Institute for Environment and Development 2003). In some countries, most or all these settlements may be classified as urban; in others, most or all may be classified as rural. This is rather explicable because most such settlements indeed have a mix of rural and urban characteristics. Within the water sector, the term *small town* is increasingly being used to refer to such settlements in developing countries (Wood 2000; Njiru and Sansom 2002; Satterthwaite and Tacoli 2003).

Small towns lie somewhere on the continuum between rural and urban. Although the criteria for defining rural and urban vary from country to country, population size threshold is the most commonly used. Table 1 shows a disaggregated "rural-urban" spectrum for selected countries following an analysis of their censuses. In Botswana for example, 50.2% of the country's population is classified as urban, but only 19.2% live in urban areas of more than 50,000 people. This sample data indicates that most of the urban population in developing countries do not live in big cities but instead live in smaller centers (mostly market towns and administrative centers). Small towns seem to be found predominantly at the lower end of the urban spectrum. However, because of country variations in population thresholds used, a universal *population-based* definition of small towns is difficult to resolve. In terms of water service delivery, a definition is required that identifies the niche for small-town water services in comparison with rural and urban services. Participants in the March 2000 small-town water and sanitation electronic conference proposed a definition that distinguishes small towns from villages on the basis of the economies of scale offered by piped water systems and that distinguishes urban centers from small towns on the basis of the financial viability of being managed by conventional urban utilities:

*Small towns are settlements that are sufficiently large and dense to benefit from the economies of scale offered by piped systems, but too small and dispersed to be efficiently managed by a conventional urban water utility. They require formal management arrangements, a legal basis for ownership and management, and the ability to expand to meet growing demand for water. Small towns usually have populations between 5,000 and 50,000 but can be larger or smaller. (Water and Sanitation Program 2000, p. 3)*

The preceding definition clearly follows an integrated approach, encompassing population size, technology, and management issues. It generally suffices as a working definition for enhancing discussion on management options. However, no

**Table 1.** Sample Data on the Proportion of People Living in the Rural–Urban Spectrum of Selected Countries

Country (date of census)	% Rural areas	Proportion (%) of population in urban areas of different sizes <sup>a</sup>							% urban areas
		Under 20,000	20,000 to 49,999	50,000 to 199,999	200,000 to 499,999	500,000 to 1.99 million	2 to 4.99 million	5m+	
Bangladesh (1990)	80.2	2.9	3.3	2.7	1.0	1.3	1.9	5.9	19.8
Sri Lanka (2000)	84.4	2.2	2.9	4.8	1.1	3.4	0.0	0.0	15.6
Botswana (2000)	49.8	8.8	22.8	19.2	0.0	0.0	0.0	0.0	50.2
Cameroon (2000)	51.0	0.9	4.2	12.9	7.5	4.3	0.0	0.0	49.0
Guinea (1996)	71.2	1.7	4.8	6.3	0.0	15.3	0.0	0.0	28.8
Kenya (1999)	64.1	1.6	3.0	5.2	2.5	3.1	10.0	0.0	35.9
Malawi (1999)	86.7	1.4	1.0	1.5	9.5	0.0	0.0	0.0	13.3
Uganda (2002)	88.0	1.6	2.8	2.6	0.0	4.9	0.0	0.0	12.0
Zambia (2000)	64.9	1.4	3.3	9.2	7.5	11.0	0.0	0.0	35.1
Mauritania (2000)	42.3	8.1	16.2	2.9	0.0	22.3	0.0	0.0	57.7

<sup>a</sup>Country comparisons may not be valid because of differences in how urban populations are defined.

Data sources: (United Nations 2003; Brinkhoff 2005).

agreement yet exists on what constitutes a “conventional” urban water utility, since different management models currently exist in developing countries and are being used with varying levels of performance (Njiru and Sansom 2002). No evidence therefore supports the premise that a “conventional urban water utility” cannot efficiently manage water services in small towns. In view of this premise, a legitimate question arises: What is the niche for small-town water services provision in comparison with rural and urban services? What is so special about these settlements?

Rather than attempt to offer another absolute definition of small towns, the authors provide an understanding of small towns of developing countries by looking at their common characteristics and determining how they affect water-services delivery. Typically, small-town settlements in low-income countries are characterized by a core trading center and relatively scattered settlements around the commercial zone or core, which tends to be densely populated. The core is a center of commercial establishments and generally exhibits urban characteristics. The fringe, on the other hand, tends to be more rural in nature, with mainly residential houses that are widely spaced from one another compared with the core. The main sources of income for populations in these areas are small-scale trade, followed by peasant farming and a few agro-based industries. Small towns attract people from rural areas and are diverse, dynamic, and constantly evolving environments (Moriarty et al. 2002). The presence of institutions—such as schools, health centers and administrative centers—is a significant phenomenon that adds to their prominence in boosting overall population and water demand.

Several authors have identified the role of small towns in regional and rural development (e.g., Adalemo 1984; Kammeier and Swan 1984; Rondinelli 1984; Wong and Saigol 1984; Hardoy and Satterthwaite 1986; Satterthwaite and Tacoli 2003). Although available empirical evidence varies greatly, small urban centers in many developing countries have been found to: (1) act as centers of demand and as markets for agricultural produce from surrounding rural areas; (2) act as centers for the production and distribution of goods and services to their rural areas; (3) act as centers for growth and consolidation of nonfarm activities and employment through the development of small and medium-size enterprises; and (4) attract rural migrants from surrounding regions through demand for nonfarm labor and decreasing migration pressure on some larger urban centers (Satterthwaite and Tacoli 2003). As they fulfill the above roles, small towns in developing

countries are believed to host an estimated one billion people (Bank Netherlands Water Partnership 2002), but the level of access to such basic services as safe water remains unacceptably low.

### Challenges of Water-Service Delivery in Small Towns

Small towns face special challenges in providing water services. First, their transient nature requires a flexible approach to planning, implementing, and operation. This approach does not rely on a single technical or management model but makes use of a dynamic and flexible mix in which different supply options are provided for different consumer groups and stages of town development. Second, small towns suffer from such structural disadvantages as diseconomies of scale, a lower qualified human resources base, lower per capita incomes, lower population densities, and little organizational capacity. Another structural disadvantage is the mix of rural and urban characteristics, which makes it difficult to exclusively use rural or urban approaches to service delivery. The financial and professional resources of small towns are too limited to match urban systems and technologies, and they cannot employ rural solutions because they cannot adequately serve the population. They usually do not have many big commercial and industrial consumers that generate financial resources to supplement revenues from residential consumers. For instance, evidence from Uganda shows that even the small to medium enterprises that are usually assumed to be capable of subsidizing households actually prefer such lower service options as standpipes, which offer limited scope for cross-subsidization (Davis et al. 2001). From a cost-benefit perspective, the problem of small-town water supply is one of large capital requirements against limited scale of economies and low ability of consumers to pay for services.

Third, small towns face the problem of falling somewhere between the two dominant management paradigms of the water sector. They are too small to attract the large private utilities that are increasingly taking over running large towns and city services, but they are too large and lack the cohesion for community management approaches (as practiced in rural areas) to be appropriate. Indeed, some studies challenge the suitability of community management models in small towns (Doe 2003; Doe and Sohail

2004). The larger community size (as compared with rural areas) is often pointed out as being a limiting factor for community participation and the mobilization process, and the bottom-up approach that has worked for rural villages fails as systems become larger and more complex (Doe 2003; Pilgrim et al. 2004). Other case studies in developing countries suggest that beyond 10,000 inhabitants, community management needs to evolve toward more institutionalized models with a legal basis and capacity to enter into formal contracts (Bank Netherlands Water Partnership 2002).

## Responding to the Challenge—The Policy of Decentralization

The traditional approach to water-service delivery in small towns was through centralized regional or national providers. This approach was primarily intended to counter the structural disadvantages of small-town settlements. Because most small towns have neither major industrial and commercial clients nor a sufficiently large consumer group that can generate enough income to maintain a viable financial and human resource base, centralized management provided an opportunity for sharing service delivery functions and possible economies of scale. However, national or regional service providers in developing countries have rarely been able to provide efficient and sustainable services, largely because they lacked local accountability, had few incentives to serve dispersed small towns across the country or region, and were constrained in their operations by bureaucracy and politics (Pilgrim et al. 2004).

Over the previous few decades, the concept of *decentralization* has become an increasingly familiar premise in public services provision and has been embraced by governments of many developing countries. The principal driver for decentralizing responsibility for water-service provision is the belief that lower levels of government (or community groups) are better placed to respond to local conditions and consumer preferences and that consumers are more willing to pay for and sustain services that respond to their demands (Briscoe and Garn 1995; Litvack and Seddon 1999). Other drivers relate to increased participation and accountability on the part of local governments. These arguments are based on the following assumptions:

- Local decision makers have access to better information on local circumstances than central authorities, and they use this information to tailor services to local needs and preferences;
- Consumers provide input to local decision-making processes and hold local decision makers accountable for their actions.
- Administrative autonomy creates space for learning, innovation, community participation, and adaptation of services to local circumstances.

Each of the preceding assumptions appears to lead us to a specific benefit of decentralization: the potential to address the challenge posed by the transient nature of small towns. This challenge requires flexibility and adaptability in planning, implementing, and operating water services. However, most of the preceding assumptions are open to question, especially in the context of developing countries. Although local authorities have the advantage of access to information on local needs, they may be disadvantaged by a lack of professional capacity to interpret it. Mechanisms for enabling consumers to express their wants and preferences may be ineffective—and the institutional capacity and incentives for local decision makers to respond may be weak. A 2001 study of decentralization and public service delivery in

Uganda and the Philippines (Azfar et al. 2001) highlights some of the reasons that the expected benefits of decentralization fail to materialize:

- Local governments have limited authority and are unable to adjust services even when they perceive local demands.
- Citizen influence at the local level is hampered by limited information on the responsibilities and performance of local government.
- Local governments are generally weak.

Similarly, Litvack et al. (1998) highlights the institutional determinants of successful decentralization of service provision, pointing out that much of the literature on the subject assumes the existence of institutions that are very weak in developing countries. Other authors (Prud'homme 1995; Asthana 2003) have pointed out the shortcomings of decentralization, including its effects on equity and efficiency.

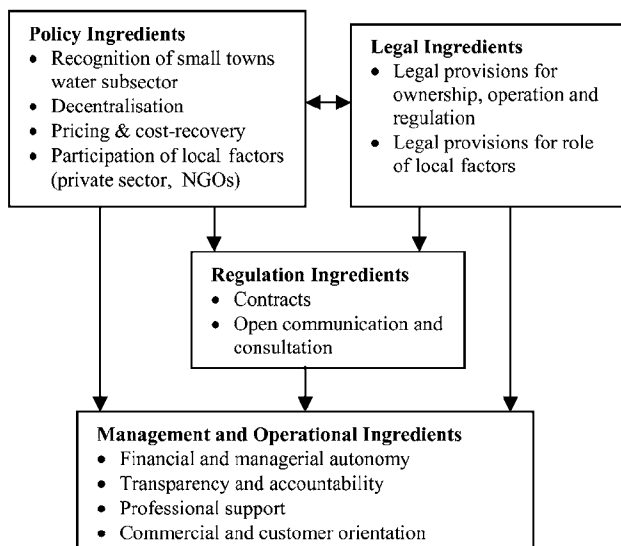
However, none of the preceding arguments constitute a rejection of the value of decentralization. Instead, they highlight the extensive range of institutional preconditions necessary to make decentralized service provision successful. Indeed, as a result of the decentralization policy, different management models for small-town water services have emerged, although in some countries larger utilities still centrally manage groups of small towns. Some of the management options currently in use include the following (Water and Sanitation Program 2000; Moriarty et al. 2002; Njiru and Sansom 2002; Pilgrim et al. 2004):

- Community water user Associations (WUA);
- Ring-fenced municipal water departments (MWD);
- Autonomous water boards (WB);
- Small-scale private water companies; and
- Community water companies.

Field experience has shown that each of the preceding management options has its own niche, and that no universally accepted option exists for managing water services in small towns. For this reason, the authors avoid a classic strength–weakness analysis of each option and instead concentrate on highlighting some institutional issues that are central to promoting the sustainability of water-service delivery in small-town settlements, regardless of the management model that is in place.

## Key Reform Issues for Water Services Management in Small Towns

In this section, the authors identify key reform issues on the basis of the growing body of applied research and policy analysis directed specifically at small-town water supply in developing countries (e.g., Bank Netherlands Water Partnership 2002; Moriarty et al. 2002; Njiru and Sansom 2002; Pilgrim et al. 2004). The consensus emerging from these studies is that a wide variety of local management initiatives have yielded positive results and offer grounds for learning. The main challenge therefore is one of guiding and supporting the evolution of these initiatives and improving the institutional environment in which they operate. On the basis of various case studies (mainly from Sub-Saharan Africa), an initial understanding of the *ingredients of success* in small-town water-services management has emerged, namely, financial and management autonomy, transparency and accountability, professional support, competition, demand responsiveness, and incentives for expansion (Bank Netherlands Water Partnership 2002). Consequently, many developing countries are pursuing management reforms that incorporate these ingredients. However, in the absence of a sound and supportive institutional



**Fig. 1.** Framework for reforms in small-town water services delivery

foundation, management reforms alone are likely to be ineffective in realizing sustained improvements.

To provide guidance regarding the relevant institutional issues, a framework for reform is presented in Fig. 1 and discussed in the following subsections. This framework does not focus on management issues in isolation; it instead looks at the wider institutional environment involving legal and policy issues, as well as regulation aspects. In this discussion, we refer to factors analyzed under this framework as *institutional ingredients of success*, where success, in this context, is indicated by good-quality affordable services that are sustainable and accessible to all inhabitants of a small town. The word *ingredients* is used to emphasize the potential synergistic impact of the mixture of different factors.

### Policy Ingredients

Small towns should be recognized as a distinct subsector within national water-policy frameworks. National policies on small-town water supply should specifically address the following key issues. First, the transition to decentralized water-service delivery should be accompanied by policies that explicitly address the special challenges to be expected. Local-level capacity should be enhanced through a program of capacity building and technical assistance that forms an integral part of the decentralization process. Additionally, decentralization must be accompanied by delegation of authority for small towns to act, including authority to raise revenues to finance operations.

Second, policies should promote broad-based participation in service delivery through partnership building. It is widely held that user participation is a fundamental element of most sustainable rural water programs (Esman and Uphoff 1984; Oakley 1991; Nayaran 1995). However, in small towns with a mix of rural and urban characteristics, participation needs to be more broad-based, involving users, the private sector, nongovernmental organizations (NGOs), and community-based organizations. Policies that recognize the role of broad-based participation through partnerships and that define strategies for actual involvement can be useful ingredients for sustainable delivery of urban services (Sohail et al. 2005).

### Legal Ingredients

Existing legal frameworks (national and local) should create an enabling environment to underpin management, policy, and regulatory functions for sustainable service provision. Explicit definition of ownership status and responsibilities for operation and regulation is necessary. In line with the decentralization policy, local authorities should be allowed to choose from the various approaches to manage their systems. Legal conditions and processes should be clearly defined for the implementation of any chosen management arrangements. In addition, enabling laws are needed to legitimize the role of local factors (small water enterprises, community-based organizations), and NGOs.

### Regulatory Ingredients

The relationship between service providers (public, community, or private) and consumers needs to be regulated. With decentralized service providers, local regulation may make the best use of local knowledge. However, technical and management capacity is often uneven at the lowest levels of government. Regulatory frameworks need to establish an appropriate distribution of roles between national and local authorities, making greater use of contracts and legislation as regulation instruments. Contracts for operations strengthen good management by increasing autonomy, transparency, and accountability (through clearly defined roles and responsibilities). Well-crafted contracts offer incentives for good performance, such as performance-based remuneration, rewards, and bonuses, as well as penalties and sanctions. Contracts therefore can be an effective regulation tool for achieving social objectives established by towns, such as service to all at affordable rates.

Furthermore, regulation frameworks should incorporate mechanisms for open communication and consultations with users and customers. Regular external auditing and benchmarking are examples of such mechanisms, which underpin management through increased transparency. User consultations on issues such as service levels and tariff setting can improve cost-recovery. Open communication and consultation also offer opportunity to users to express demand, hence underpinning demand responsiveness.

### Management Ingredients

In addition to the preceding, participants at the June 2002 Addis Ababa conference on water supply and sanitation for small towns and multivillage schemes identified financial and managerial autonomy, transparency, and accountability, as well as professional support, as key ingredients for the success of the management and operation function of service delivery (Bank Netherlands Water Partnership 2002). Recent research drawing on case studies in Uganda, Ghana, and Tanzania identified commercial and customer orientation as additional ingredients (Njiru and Sansom 2002).

Financial and management autonomy is likely to lead to operational decisions that are based on what is best to provide good quality and affordable water to expanding communities, as well as to ensure that revenues are not diverted to other uses. System managers should be able to hire and fire staff, set attractive salaries, offer performance incentives, disconnect both public and pri-

vate nonpayers, and be able and free to reinvest revenues into system improvement and expansion.

Management transparency and accountability are critical to gain and maintain the trust of users and investors. They are founded on clear roles and responsibilities, independent audit and monitoring, disclosure of information, and consultation with consumers. Since water service provision is a monopoly, transparency and accountability arrangements are particularly important. Contracts between the corporate oversight body (e.g., the water board) and private operators can improve transparency and accountability and eliminate the potential conflict of interest that may exist when a water board supervises its own staff. Contracts also act as a means of introducing incentives for good performance.

Furthermore, it is important that system managers do not underestimate the professional skills required to successfully manage water-supply facilities. Although system managers and their staff can perform routine operations, experienced professionals are needed to formulate and guide efficiency improvement programs and to handle the technical and financial aspects of system expansion. Because of the small revenues, it is difficult for small towns to have these professionals in-house. System managers who recognize the need for professional support and prepare long-term training and capacity building plans are most likely to improve efficiency and effectiveness.

### Ingredient Interlinkages

It is apparent from Fig. 1 that the four *institutional ingredients* for success are interrelated. Legal ingredients empower policy ingredients. For instance, clearly defined legal provisions for broad-based participation are more likely to lead to or empower a policy that defines, legitimizes, and encourages partnerships with local private sector, NGOs, and community-based organizations; Legal provisions defining responsibility and authority to local governments with regard to ownership, operations, and oversight are likely to reinforce the decentralization policy. As far as small towns are concerned, national laws and local government bylaws should aim to establish and enforce rules that foster fair and sustainable relationships among local actors. Taken together, legal, and policy ingredients underpin management and regulation ingredients. It is evident that management ingredients are under direct influence from policy, legal, and regulation ingredients. From a reform perspective, this implies that reform efforts concentrated entirely on system management and operational aspects of water services delivery without addressing the policy, legal, and regulation preconditions are likely to be less effective and hence unsustainable.

### Conclusions

This article has examined the problems and issues regarding water services management in small towns of low-income or developing countries. The article indicates that within the urban spectrum of most low-income countries, small town settlements have fundamental structural differences and unique characteristics that may render conventional approaches to service provision inapplicable. These unique characteristics present special challenges for water infrastructure planning and management. A synthesis of these challenges has been discussed, and the decentralization policy embraced by many developing country govern-

ments as a response to these challenges was critically reviewed. In general, decentralization has potential to address many of the challenges, but it requires an extensive range of institutional preconditions to be successful. The authors contend that reform efforts in small towns should be directed toward improving the institutional framework under which local management initiatives operate. To reinforce this position, a framework for reform is discussed; capturing some of the interrelated institutional issues relevant to small towns in low-income countries. The authors conclude that efficient and effective management of services in small towns is likely to be achieved and sustained under a supportive policy, with a legal and regulatory environment. From a reform perspective, this implies that reform efforts concentrated entirely on system management and operational aspects of water services delivery without addressing the policy, legal, and regulation preconditions are likely to be less effective and hence unsustainable.

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