

Special Feature on the Environmentally Sustainable City

Financing Urban Water Supply and Sanitation

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The international community has agreed to halve the proportion of people without access to safe water and sanitation by 2015. Achieving this task is a major challenge that will require strengthened efforts from all stakeholders, and, according to some estimates, a doubling of financial commitment (see Winpenny 2003). Currently, 1.1 billion people do not have access to safe water supply, and 2.4 billion do not have access to basic sanitation. Many of these people live in rural areas, but the challenge is also large, and increasing, in urban areas. The year 2005 will be crucial for the internationally agreed targets, and for other Millennium Development Goals (see Reisen 2004). On present trends it is unlikely that they will be met. To overcome the obstacles to achieving the goals, it is vital that additional measures be agreed in 2005.

Keywords: Water supply, Sanitation, Environmental infrastructure, Finance, Camdessus Report

1. Introduction

At the Millennium Summit in New York, 2000, the international community agreed a target to halve the proportion of the population without sustainable access to safe drinking water by 2015. Two years later, the World Summit on Sustainable Development in Johannesburg adopted a complementary target to halve the proportion of the population without access to basic sanitation, also by 2015. From a humanitarian perspective, these internationally agreed targets for water might be considered as modest: even if they are achieved, more than half a billion people will still not have access to safe water, and more than 1 billion people would not have access to sanitation. On the other hand, the measures that would need to be implemented to achieve the international targets are far reaching. It has been estimated that several hundred thousand people would need to be connected to water services *every day* in order to achieve the targets (see Winpenny 2003). Whether or not these estimates are entirely accurate, they give some indication of the scale of the challenge.

This paper examines the financial dimension of responding to this challenge in urban areas. It begins by examining some of the key policy issues and challenges in financing urban water infrastructure. Subsequent sections examine: the water sector as an element of public policy and the role of financing strategies in making best use of financial resources; the role of external finance; user charges and the need to mitigate or compensate adverse impacts of tariff increases on the poorest social groups; the roles of central and local government; the role of performance contracts in structuring the relations between local authorities and water utilities; and the possible contribution of the private sector.

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The paper draws extensively on work conducted by the OECD Environmental Action Programme (EAP) Task Force to support reform of the water supply and sanitation sector in the countries of Eastern Europe, the Caucasus, and Central Asia (EECCA). While many features of the water sector in this region are quite different from those in other transition and developing economies, many of the key challenges and approaches for financing the sector are of general relevance.

2. The challenge of financing urban water infrastructure

Financing water supply and sanitation has two main components: (i) *capital investments* in the infrastructure required to abstract water and to deliver it to consumers, and to collect and treat wastewater; and (ii) finance to *operate and maintain* the infrastructure. A large initial capital outlay is required for water infrastructure that is normally paid off during the lifetime of the assets. Recurrent costs (for energy, chemicals, labor, etc.) are often not given sufficient attention in discussions about finance in the urban water sector. However, recurrent costs are substantial and, over the lifetime of the infrastructure may become more onerous than the capital repayments. Moreover, there are many examples where water infrastructure has been built—often with international support—but local financial resources were insufficient to operate or maintain it.

Financing wastewater collection and treatment entails some specific problems that are not present in relation to water supply. Users are much less willing to pay for treatment of their wastewater than they are for provision of fresh water, since the benefits of the former accrue to downstream communities. As a result, it is often more difficult to finance the major outlays involved in wastewater treatment, especially if fresh water has already been supplied. It is usually cheaper to develop and manage water supply and wastewater infrastructure in an integrated way. However, in many countries this has not happened.

From one point of view, financing water infrastructure is not very complicated: it is either users (present or future) or taxpayers (domestic or foreign) who ultimately pay. However, the issue is complicated by a variety of factors, including: the shared public and private character of water services; the difficulties in designing institutional frameworks and providing incentives for the efficient use of resources; the long timeframes involved, and the concomitant risks and complexity of water projects; and the affordability, and social and political acceptability, of alternative financing arrangements.

Policy principles adopted in OECD countries, such as the user-pays and polluter-pays principles, recommend that users should pay for the services that they consume. In a perfect market, consumers would demand water and sanitation services and private companies would emerge to respond to those demands. However, experience shows that markets do not spontaneously provide water services to all parts of the population, particularly the poorer segments. Moreover, water is not an optional consumer item; it is essential for human life. The UN's Committee on Economic, Social and Cultural Rights recently stated: "The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights." Thus, the essential role that water services play in human well-being obliges governments to ensure that all segments of the population have adequate access to them.

Public provision of drinking water, at least up to a minimum amount, also may be justified as a cost-effective public health measure. Water can be considered as a merit good where the social benefits exceed private benefits. If people do not have access to water they will get sick or even die. This will have adverse economic and social consequences. However, beyond a certain level, the “public” character of water becomes “private”. Thus, providing consumers with free water to fill swimming pools or to wash the family fleet of cars does not provide a public good; rather it subsidizes private consumption.

The provision of basic sanitation also has a public goods dimension: it is an effective way to prevent public health epidemics. Government intervention may also be needed to ensure that poor and vulnerable groups who have difficulty paying for water have adequate access, or in situations where water resources are being polluted but where it is difficult to identify and control the polluters.

Box 1. Health and economic impacts of inadequate water services

Globally, it has been estimated that polluted water affects the health of 1.2 billion people and is linked to the death of 15 million children per year. Vector-borne diseases such as malaria kill another 1.5–2.7 million people per year, with inadequate water management a key cause of such diseases. The World Health Organization estimates that the benefits of avoiding water-related diseases would amount to US\$186 billion, more than three times current ODA levels. It is estimated that total welfare losses from water mismanagement in China amount to 1.3 percent of GDP, with health damage being the dominant factor.

Public-sector support and subsidies to the water sector can also impose a significant fiscal burden on developing countries. One estimate puts the total volume of water-sector subsidies in developing countries at US\$20 billion, about 40 percent of total aid flows. The challenge is to ensure that the benefits/cost ratio of the subsidies is as positive as possible.

Source: Hansen and Bhatia 2004.

Thus, there is no question but that governments should be involved in the delivery of water services. The question is rather in what ways they should be involved and, in particular, what their role they should play in financing water infrastructure.

Historically, governments have been the major providers, and financers, of water services. Amongst other things, this has helped to achieve important economies of scale by developing integrated rather than multiple networks for supplying water and treating wastewater. The public utilities that resulted from this process were natural monopolies and their public character was justified in terms of the low costs associated with having one rather than multiple providers, and with the essential, social character of the services provided.

In recent years the role of governments in providing water services has been questioned. Public utilities have been found not necessarily to be either efficient or effective in delivering good-quality services to all segments of the population. In some cases, the institutional set-up has made them obstacles to efficient service delivery. Governments have also faced budget pressures and competing

demands for scarce public funds. In response, many have re-evaluated the role of the public sector, pursued deregulatory policies, and sought to engage the private sector in the provision of many services that had previously been provided by the state, including water. Debates about the relative merits of public and private provision of water services continue, often with much passion. Experience is accumulating of successful and less-successful approaches for managing water utilities. Ultimately, each country, region, or municipality must find its own solution. Disseminating information and drawing lessons learned from experience will hopefully help communities to reach better decisions.

One important conclusion that has emerged from recent debates is that, whatever the arrangement, the government will always have a vital and continuing role in relation to the water sector. However, the role of government is changing, away from direct service provision and toward the facilitation of effective and efficient service delivery. This involves planning, policy, establishing the institutional framework, regulating the monopoly character of utilities, and addressing the social issues related to affordability and access. In most countries, particularly developing and transition economies, governments will continue to play an essential role in financing the water sector.

To make the same point in a different way: *financing* water infrastructure cannot be separated from the *governance* of the water sector—that is, the public institutions that are established to oversee the provision of these services and the legal, policy, and regulatory framework that they operate within. In many developing and transition economies the existing arrangements do not use resources efficiently. Providing additional financial resources to weak or ineffective institutions is unlikely to result in efficient use of resources. In these circumstances, donors and international financial institutions (IFIs) have become more cautious about committing their financial resources—as has the private sector—and they have linked provision of funding to improved water governance.

The adoption of the internationally agreed targets for water was intended to help focus international cooperation more effectively on key challenges that need to be overcome. Many of these challenges were analyzed in the report of the World Panel on Financing Water Infrastructure, *Financing Water for All* (Winpenny 2003), often referred to as the Camdessus Report after the panel's chair, Michel Camdessus. The report has been widely recognized as an authoritative presentation of the state of the art and has become a yardstick against which all parties can measure themselves. Some of the major findings of the Camdessus Report are presented in box 2.

3. Financing options and the role of national and regional financing strategies

The Camdessus Report argued that developing and transition economies did not always assign sufficient priority to the water sector in national economic development strategies. More could be done in most developing and transition economies to assess the economic and social costs associated with inadequate water supply and sanitation services. The health impacts alone are often substantial. Documenting these impacts could help persuade economics and finance ministers to enhance the priority assigned to water issues, not least in budget allocations. Inclusion of water and other internationally agreed targets in national development strategies such as Poverty Reduction Strategy

Papers could facilitate increased flows from donors. Indeed, donors have complained that it is difficult for them to increase allocations for water when this issue is not prioritized by the countries concerned (Bojo and Reddy 2003).

Box 2. The Camdessus Report: Some key findings

- Attainment of the internationally agreed water targets should be the main focus of national and international efforts.
- Financial flows into the water sector from all sources would need to roughly double in order to achieve these targets.
- While mobilizing much larger volumes of finance will be a prerequisite for achieving the targets, fundamental problems in the governance of the sector will also need to be addressed if it is to generate and attract this finance.
- Better cost recovery from users is vital. However, full cost recovery is unlikely to be achieved easily or quickly. The Panel endorsed the concept of “sustainable cost recovery”, consisting of improved efforts to raise revenues from users, with residual subsidies applied in a predictable, transparent, and targeted manner.
- National public funding is, and for the foreseeable future will remain, the main source of investment finance for this sector in many countries. National governments should raise the priority of the water sector in their national investment strategies and make their funding of it more reliable.
- National governments should also establish the policy and institutional framework to enable subnational entities, such as municipalities, regional water boards, and water utilities, to generate and attract finance for investment.
- The choice of organizational model for the water sector (for example, public, private, or the various permutations involving both) is a matter for local decision. The key issue is how to establish the conditions for the effective and efficient delivery of water services.
- More could be done to promote local capital and financial markets as sources of finance for investments in the water sector. This would avoid foreign exchange risk which is one of the main deterrents to the use of external finance.
- Donor governments and external agencies should aim to make substantial increases in the share of their total commitments allotted to the water sector, improve the coordination of their activities, and use their funds as catalysts to mobilize other flows. IFIs could provide more support to mitigate the risks of investment in the water sector and take steps to remove obstacles to their lending to sub-sovereign entities.
- Governments, international institutions, and other key players should be held to account for their commitments and performance against the internationally agreed water targets.

Even if water is prioritized in national development strategies, a detailed sectoral plan needs to be developed. Ideally such a plan should identify clear objectives and the means for achieving them; financial, policy, and institutional reform and capacities. Often, sectoral plans prepared by developing and transition economies are unrealistic and fail to establish an achievable set of objectives. In particular, financial issues are not adequately addressed—the costs of achieving goals; how the costs could be minimized; and the challenge of matching costs with projections of the financial resources that are likely to be available.

To try to help bridge this gap, the Danish government and the OECD have developed a decision-support tool that helps identify possible scenarios for financing the achievement of national or regional water infrastructure goals. This tool, the FEASIBLE model,¹ helps to assess the financial affordability of achieving goals, both for national budgets and for households paying user charges. It supports an iterative process that aims to establish a consensus on realistic goals and how they will be financed. Its application in the former Soviet Union and in China has also helped to identify critical policy and institutional reforms that could de-block increased financial flows. It also helps to focus attention on any measures that might be needed to mitigate the impacts of increased tariffs on low-income households.

Figure 1 summarizes some of the results obtained through the development of financing strategies in the countries of the former Soviet Union and China. It shows that user charges in the former Soviet Union account for between 50 and 90 percent of finance for water and wastewater utilities. In Sichuan Province, China, by contrast, public budgets account for about 80 percent of finance for wastewater utilities. In all cases, the contribution from other sources, including donors and IFIs, is very small.

Ideally, the elaboration of financing strategies should not be a one-off exercise; nor is it a purely an analytical exercise. It should be treated as an iterative process, refined and modified in the light of data and experience, enabling decision makers to make more informed trade-offs. By engaging all the main stakeholders, it can become an important tool in consensus building. The participation of economics and finance ministers together with ministers responsible for the water sector helps to establish a close link between policy development and implementation, which is crucially lacking in many countries.

a. Issues in formulation of finance strategies

At a recent OECD meeting,² participants identified a number of issues relevant to the formulation of finance strategies for water infrastructure:

Firstly, there is no “magic bullet” to solve the problem of financing water. Although reform and innovation is needed in financial instruments and financial engineering, a paradigm shift is unlikely. All sources of finance will need to be combined carefully to enhance synergies, avoid crowding out other sources, and maximize leverage on the total flows.

1. Access to the FEASIBLE model is available free of charge at www.oecd.org/env/finance. A review of experience with the application of this tool can be found in OECD 2003a.

2. Global Forum on Sustainable Development: Financing Water and Environmental Infrastructure for All, Paris, 18 December 2003. See OECD 2004c for a report of the Global Forum. See also OECD 2004b.

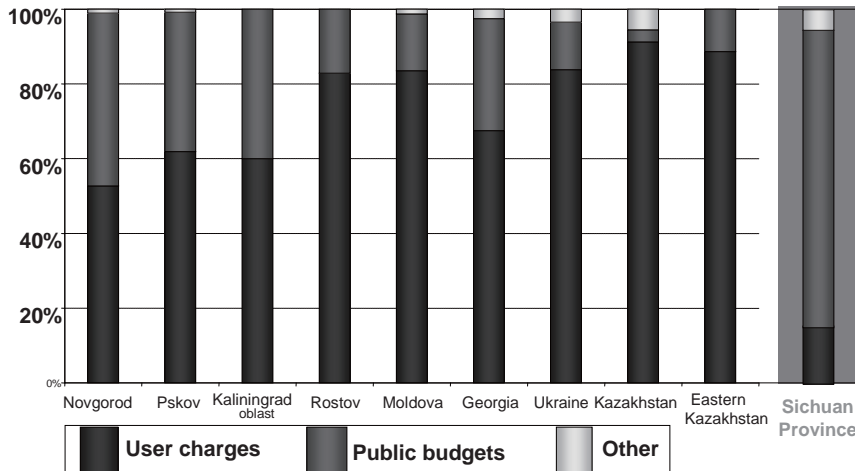


Figure 1. Shares of different sources in financing water and wastewater utilities

Some cities and regions may have to move faster than others. Sequencing of actions is essential, and should start with measures that yield large benefits and/or cash savings with low capital costs. Sophisticated and expensive solutions, especially if they yield small incremental benefits, should be postponed until they are affordable.

Investment targets are often too ambitious and local policymakers should not be pressured by donors or IFIs to accept unrealistic targets for infrastructure development. Even if they can be financed, a high investment rate may place unbearable pressure on weak institutions and outstrip the growth in income necessary to generate revenue for sustainable operation and maintenance.

Capital investments do not always lead to effective provision of services. There are examples in China and Eastern Europe where relatively new facilities, in particular wastewater treatment plants, have not been fully operated, with frequent shutdowns and, in some cases, abandonment. Donors and IFIs sometimes add to the pressures by encouraging and financing capital investments in overly ambitious and expensive technological solutions that local communities are unable to operate and repair.

The gradual increase of user fees to cost-recovery levels is essential for financial sustainability, but the increases should be at a realistic pace. Measures to mitigate the potentially adverse impacts of tariff increases on poor and vulnerable groups, and to ensure their access to water services, should be explicitly identified and costed. Sizeable cash flow can often be generated from users without increasing user fees, for example by increasing collection rates and making billing systems more reliable and user friendly.

Improvements in billing and collection, through metering, for example, should be introduced carefully, especially in utilities that have a high proportion of non-revenue water (for example, in Lesotho 96 percent and in Armenia 80 percent of water entering the system is unaccounted for). In such cases moving from block rates to individual metering of consumption can decrease utility revenues in the short term, although in the longer term it is a necessary incentive to reduce water losses and overall utility costs.

National governments are, and will remain, a major source of finance, particularly for capital investments.

Box 3. Finance strategy for wastewater in Sichuan Province: Implications for water governance

China's rapid urbanization is generating a demand for urban infrastructure that is calling into question existing policy, institutional and financial arrangements. OECD recently concluded a study to develop a strategy to finance wastewater infrastructure in Sichuan Province, including related changes in the governance of the water sector that would need to be implemented. The overall conclusion of the study was that on present trends, wastewater infrastructure development targets would not be met; these targets are broadly comparable to the water-related Millennium Development Goals which aim to halve the proportion of people without access to safe water and sanitation by 2015.

Current financing arrangements in Sichuan Province rely excessively on public budgets, and would be unsustainable in the future. The report analyses various finance options and suggests that both users and taxpayers will need to pay more. At the same time, it identified some regulatory and institutional reforms that would need to accompany efforts to mobilize additional financial resources, including:

- The institutional arrangements for the wastewater sector at the national level do not allow resources to be used in the most efficient manner. They are biased in favor of construction of treatment plants, whereas the greatest need for capital expenditure is for sewage networks.
- The existing tariff system should be reformed. Water tariffs are kept well below cost-recovery levels, ostensibly to protect the poor. However, this is undermining the financial sustainability of the sector and benefiting richer segments of the population as much, if not more than, the poor. Tariff reform, together with more targeted subsidies for the poor would lead to more efficient use of public funds and reduce demand for water resources and related infrastructure.
- The projected financial burdens on taxpayers and users suggest that more will need to be done to spread the increase of user charges over time by greater recourse to debt financing. However, this implies that current legislation prohibiting municipalities from borrowing from commercial banks, issuing bonds or extending guarantees to municipal utilities would have to be reformed. This in turn would involve broad reform of the municipal finance framework to ensure, *inter alia*, that municipalities did not incur excessive debt.
- Relations between municipalities and water utilities should be redefined. Currently, local governments provide implicit, unsanctioned guarantees to utilities to borrow from commercial banks. It is not clear what the level of this "hidden" municipal debt might be. Allowing municipalities to raise debt financing would address this problem.

Box 3—*Continued*

- The status of water utilities should be re-assessed. Property rights to infrastructure should be clarified. Utilities should be given more financial and operational autonomy, and held accountable for it. For wastewater utilities, this would mean granting them authority to collect user charges (they do not have this of present) and to use the revenues to finance their operations. This would also generate more incentives for efficiency. Consideration should also be given to merging water supply and wastewater-utilities, or at least providing for joint billing and collection. This would increase efficiency, better help to address non-payment and help increase the willingness-to-pay of consumers for wastewater services.

Source: OECD 2004a.

Public subsidies from domestic and foreign assistance need to be applied more strategically in order to galvanize more flows from other sources. Public funds would be more effective if they were disbursed on achieved results (output based), used in “smart blending” (that is, in an optimal combination) with other sources, and used in risk-sharing through guarantees and insurance instruments. Care must be taken to avoid potentially adverse effects of soft financing (see box 3).

4. External finance

Except in a few very poor countries, domestic rather than external resources will be the dominant source of finance. Nevertheless, external finance, whether concessional (for example, grants or soft loans) or non-concessional (IFI loans), can play an important catalytic and demonstration role. External finance can support financial and governance reforms in the sector, build capacities, and introduce international disciplines and good practices. On the other hand, care must be taken to avoid crowding out domestic financial sources, inducing subsidy dependence, or removing incentives for essential reforms.

If the internationally agreed water targets are to be achieved, official development assistance (ODA) would need to rise substantially (the Camdessus Report argued that ODA would have to at least double). The need for increased levels of ODA was recognized at the International Conference on Financing for Development held in Monterrey, Mexico, 18–22 March 2002.³ The “Monterrey Consensus” established a new international partnership for achieving internationally agreed development goals, including the Millennium Development Goals. Essentially, developing countries pledged to promote sound policy reform, good governance, and increased domestic financial resource mobilization in return for increased international financial flows.

Examining ODA flows is instructive in this regard. The OECD Secretariat recently issued a report analyzing aid flows for the water sector.⁴ Data were only available until 2002 so it is not yet possible to determine whether the Johannesburg World Summit on Sustainable Development or the Monterrey

3. See the UN Department for Economic and Social Affairs website on Financing for Development: <http://www.un.org/esa/ffd>.

4. Secretariat to the DAC, “Aid for Water Supply and Sanitation” (paper presented at the Stockholm World Water Week, August 2004).

Conference have had an impact on aid flows to the water sector. The following chart (figure 2) shows trends in aid to water supply and sanitation from 1973 to 2002.

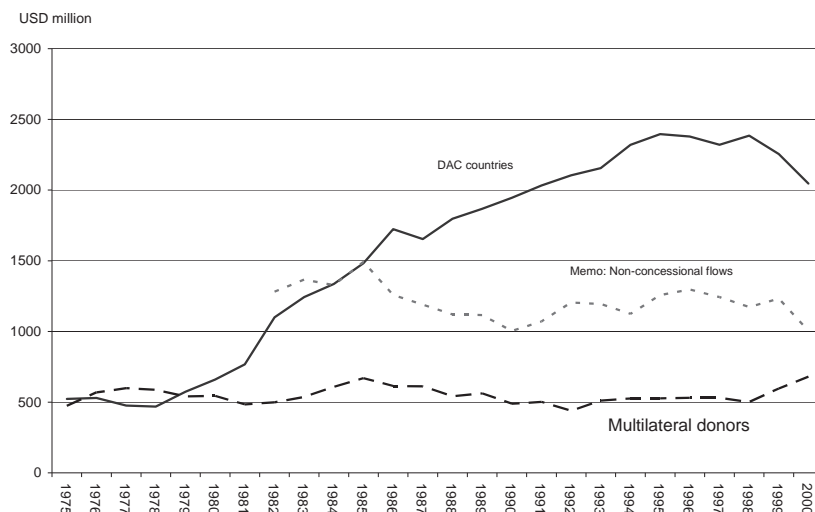


Figure 2. Trends in aid to water supply and sanitation, 1973–2002

Note: Five-year moving averages, constant 2002 prices.

Source: OECD Development Cooperation Directorate (DAC), Creditor Reporting System

Some of the main findings from the OECD Secretariat report can be summarized as follows:

- Concessional aid flows from donors peaked in about 1994, remained roughly constant until 1998, and thereafter declined;
- Non-concessional flows increased during the 1990s, but ended the decade at about the same level as at its start;
- Half of the commitments made to donors were allocated to just 10 countries: China, Palestine, Vietnam, India, Jordan, Egypt, Nepal, Morocco, Bangladesh, and Turkey;
- A very significant proportion of resources was allocated to countries where access to water and sanitation services was already relatively high; however, it is not clear whether or not the resources were used to improve access to services within the country.
- On average, the gap between commitment and disbursement of water-related aid was *eight years*. This suggests that there are important bottlenecks that need to be overcome to implement donor-supported aid projects.

Although some care must be taken in interpreting these data, they do not seem to suggest that, following current trends, ODA will be sufficient to achieve the internationally agreed water targets.

Some more encouraging information was reviewed at a high-level meeting of OECD's Development Assistance Committee, 15–16 April 2004 (OECD 2004d). On the basis of data provided by donors, the committee concluded that the overall level of ODA had increased over the preceding two years by 11

percent. This upward trend reverses a decade of declining budgets. Pledges made by donors following the Monterrey Conference suggest that overall levels of aid could increase by a further 25 percent. While these trends are encouraging, the high-level officials at the meeting recognized that there was no room for complacency and that the additional aid by itself would not be sufficient to meet the internationally agreed water targets. They stressed the need for further policy reform and capacity building in developing countries and reiterated the importance of prioritizing the international targets in the main national development strategies such as Poverty Reduction Strategy Papers. It remains to be seen what these new trends will mean for achieving the international targets.

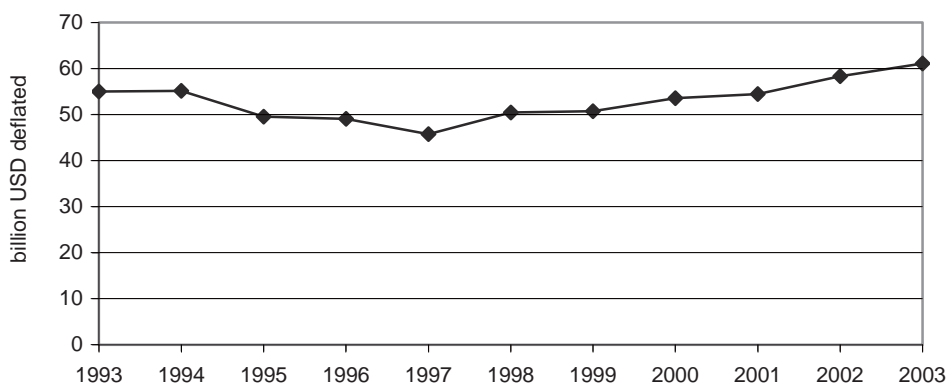


Figure 3. Net ODA from OECD Development Aid Committee countries to developing countries and multilateral organizations, 1993–2003

Note: ODA calculated using 2002 prices and exchange rates. 2003 data are preliminary.

Source: OECD DAC activity databases.

Whatever the level of ODA flow, more could be done to improve its effectiveness and to improve coordination between donors. Some donors are now moving away from financing individual water projects to establishing local, financially sustainable, financing mechanisms. Greater use is also being made of output-based budgeting that focuses on achieving development outcomes, such as a number of increased connections, rather than focusing on inputs such as provision of pipes and pumps. Many donors are also working to strengthen the pro-poor dimension of their activities, amongst other things by finding ways to finance shortfalls in consumers' ability to pay when tariffs are increased.

Non-concessional loans from IFIs are important sources of long-term investment capital for developing countries, and are generally offered on terms that are more favorable than those available on local capital and financial markets; interest rates may be lower and/or the payback period longer. Substantial resources are available from the World Bank and regional development banks for loans to municipalities and water utilities, but there are a number of key bottlenecks that constrain their wider use.

For one thing, there is often a lack of bankable projects—that is projects where the IFI has sufficient confidence that the loan will be repaid. This may be because of a lack of capacity for project preparation or because the risks associated with proposed projects are unacceptably high. Projects may have to be above a threshold as high as US\$10 million to justify the transaction costs for the IFI. This obstacle can sometimes be overcome by bundling projects so that the value of the sum exceeds the threshold.

Governments may be unwilling or unable to borrow. Debts have to be repaid, typically either from public budgets or from user charges, and most IFIs require governments to provide a sovereign guarantee that this will indeed happen. Governments may be unwilling or unable to take on this additional obligation. If countries are heavily indebted and receiving support from the International Monetary Fund, the Fund may prohibit the country from taking on any additional debt. Some IFIs such as the European Bank for Reconstruction and Development are authorized to issue loans on the basis of a sub-sovereign guarantee—from a municipality, for example. While this creates more flexibility, the requirements to justify that the loan will be repaid are no less demanding than in the case of sovereign guarantees.

Loans to IFIs have to be repaid in foreign currency such as US dollars. However, the revenues to repay the loan are generated in local currency. When the local currency devalues against the currency in which the loan must be repaid, this can result in a sudden and substantial increase in the schedule for repayments, placing an unforeseen burden on public resources that may be already stretched. Guarantees can help to offset currency risks, but they are not cost free. Following the advice of the Camdessus Report, IFIs have taken a number of measures to enhance the use of guarantee instruments (see Winpenny 2004).

Donors work with IFIs to make loans more accessible to developing countries. Usually this takes the form of providing grant support to help prepare bankable projects, to soften the terms of the loan, or to build capacities that are needed to implement the loan. One mechanism that was established specifically for this purpose is the Project Preparation Committee (PPC), a network of donors and IFIs who work together to accelerate the development and implementation of IFI loans through the provision of grant support.⁵

5. User charges and their social impacts

The preceding discussion suggests that the internationally agreed water targets will not be achieved without increases in user charges; in some cases, substantial increases. Indeed, failure to move in the direction of charging consumers for the costs of providing water services has a number of perverse effects: it inflates demand for water and sanitation services and hence investment needs; it creates vested interests and dependence on the subsidies that governments provide in place of user charges; it undermines efforts to put the sector on a more financially sustainable basis; it results in chronic underfunding of utilities and deterioration of assets; and more generally it impedes reform of the governance of the water sector.

5. See the PPC website: <http://www.ppcenvironment.org>.

It is sometimes argued that water is a basic right or a “gift of god”—something that people are entitled to and should not have to pay for. However one regards water, it is also true that its provision to urban populations requires pipes, pumps, and other materials as well as labor and institutions to make it all happen. These cost money and someone has to pay, ultimately users and/or taxpayers.

Probably the main obstacle to water pricing has been its perceived social impacts, and their political consequences. In OECD countries, taxpayers rather than consumers have financed the bulk of investments in water infrastructure. Although many OECD countries have achieved full cost recovery there are still some where user charges are below this level. Those countries that have reached full cost recovery have done it over several decades. Hence, full cost recovery is probably a distant objective for most developing countries. Nevertheless, there are opportunities to move progressively in this direction, while ensuring that poor and vulnerable groups have access to water services. Indeed, there is probably no alternative: governments in developing countries may not be able to afford to emulate the policies followed in OECD countries where public finance (taxpayers) was the dominant source of finance.

Box 4. Tariff-setting and affordability in Poznan, Poland

The tariff-setting mechanism in Poland has been established so as to minimize obstacles to raising tariffs for political reasons. Utilities are required to develop rolling, long-term development plans which cover all aspects of their activities. Each year they must submit these plans, together with proposals for tariff adjustments, to the city council via the mayor, at least 70 days before any tariff adjustment is due to take effect. If the council accepts the utility’s development plan, and if the mayor determines that the tariff adjustments have been established in accordance with national law and are necessary to achieve the planned results, then the tariff adjustments must be approved. If the council does not approve the proposed tariff adjustments within 45 days, they are approved automatically. If the council considers that there is an affordability problem, it may decide that the tariffs for all or some consumers should be increased by less than proposed. However, the resources to finance the subsidy to the designated consumers must be drawn from the city budget and transferred to the utility. More generally, support for poor households is provided through social services that are financed by the municipality. Recently the utility in Poznan set up a small fund to alleviate difficulties that poor families may encounter because of increased tariffs, which has helped support the political acceptability of tariff increases.

Source: Kayser 2004.

Water services often fail to reach the poor, who bear the main burden of inadequate access, service deficits, poor water quality, unreliable supplies, and unsanitary disposal of wastewater and solid waste. Subsidies are often justified in terms of keeping services affordable to poor households, but there is mounting evidence that they are often not well targeted and not very effective. Instead of benefiting the poor (who are frequently not connected to water distribution and sanitation networks), such subsidies often benefit richer people who are capable of paying the full costs of water services. The effectiveness

of public spending on water infrastructure could be much increased if subsidies were restructured and better targeted.

Water charges are not a significant burden on most households in OECD countries; typically they account for less than 1 percent of household income (OECD 2003b). However, in developing and transition economies they may represent a more significant portion of income (see, for example, OECD Environmental Action Programme Task Force 2003). International financial institutions often use a benchmark of 4–5 percent of household income for water tariffs when they plan water infrastructure investment projects. However, such estimates need to be complemented by more detailed analyses of how projected tariff levels would impact different income groups. For example, projected tariffs may be less than 4 percent of *average* household income, but for the poorest 25 percent of the population they might represent 5–20 percent of income. It would not be feasible to introduce such a tariff policy unless measures were taken to mitigate the impact of the increased user charges on these groups.

In OECD countries, a variety of approaches have been developed to mitigate or offset the impacts of tariff increases on the poorer sections of the community.

- *Income support.* Measures providing income support aim to compensate poor households for tariff increases that are judged to be unacceptably burdensome. The support may be directly linked to water use. For example, support may be provided if the water bill is above a certain percentage of household income, or may be calculated to maintain an absolute level of income after the utility bill is paid. It can be paid either directly by the government to the utility or through a voucher system. This type of support represents a financial burden on the state and reduces incentives to conserve water. Alternatively, the support may not be linked to water consumption, but to income levels. The people receiving the support can choose themselves how to spend it—on water or on other goods and services. In this way, the costs fall on the state budget rather than the utility. If combined with appropriate water charges, it does not encourage over-consumption of water.
- *Tariff-related measures.* The tariff structure can be designed in such a way as to mitigate the potentially adverse impacts of tariff increases on poor households. The approach used in an increasing number of OECD countries involves a “block-tariff” structure. In this approach, the price paid is linked to the amount of water consumed, and the charge levied for each unit or “block” of water used increases with the total amount used. The initial block may be free or charged at a very low rate, assuring that poor households have access to a basic level of water services for free or at low cost. The system needs to be designed to take account of the number of people in each household in order to avoid penalizing larger families. This system can move in the direction of full cost recovery by providing a cross-subsidy from households that use lots of water to those that use little water. It can be implemented by the utility and does not draw on the central government budget. It also provides a very strong incentive to conserve water, and targets those who use little water for the subsidies rather than all water users. But the drawback is the need for metering of water use—which can involve high upfront costs and, sometimes, social opposition.

- *Facilitating payments:* In many countries, householders are not disconnected from the water supply system even if they are unable to afford their water bills. In part this is because water is essential for life and dignity, but also because of the high reconnection costs. In such cases, utilities in many OECD countries work with consumers to make them aware of how to reduce water consumption, to manage their budgets by paying water bills at short intervals, and to provide other forms of advice and assistance to ensure that consumers have access to water services but pay their bills.

Box 5. Chile's voucher system for subsidizing water costs

The approach to target subsidies for water use on the poorest households that has been developed in Chile is often considered as an intelligent balance between efficiency and equity considerations. Municipalities pay utilities directly a subsidy for poor households based on the bill for water consumed. The subsidy covers a fixed portion of the bill, with the household liable for the charge (water consumed) above this level. However, the subsidy is cancelled if the household does not pay its part of the bill. Thus the system provides incentives to conserve water while ensuring the provision of a basic level of service. It also enables the utility to move in the direction of full cost recovery and financial autonomy. The drawback, particularly for developing and transition countries, is that it requires a strong local administrative capacity, coupled with a high government commitment.

Studies that assess consumers' willingness to pay can also provide important information in relation to user charges. Analyses conducted in the countries of the former Soviet Union and elsewhere suggest that consumers are often willing and able to pay more for water services than is frequently thought. Detailed studies are also important because they can reveal the upper limit of the proportion of their income that people are ready to spend on water, and therefore help policymakers to establish affordable tariff levels. This suggests that studies of this kind can help design policies that can generate the revenues that are needed to finance water infrastructure while ensuring that poor and vulnerable groups have access to water services.

6. The role of central and local governments

In the mid-1990s, it was estimated that the domestic public sector provided 65–70 percent of capital investments in the water and sanitation sectors. No doubt the public sector will continue to play a major role in this regard for some time to come. At the same time, government has the responsibility to establish the policy and institutional framework needed to mobilize financial resources for the sector and to ensure that water services are delivered to the population efficiently and effectively. Establishing clear responsibilities for institutions and making them accountable is fundamental to this task. In the water sector it is particularly important to clarify responsibilities for policymaking, regulation, and service delivery.

One approach to addressing these issues is set out in the Almaty Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the New Independent States, which were adopted by

ministers of economy, finance, and environment from the countries of the former Soviet Union (see OECD 2001). Amongst other things, the Guiding Principles suggest how the roles of central government, local government, and water utilities (*vodokanals*) should be clarified.

One of the key governance issues affecting the financing of water infrastructure is fiscal decentralization (see Shah 2004). This has three main components:

- The ability of local governments to raise revenues to meet their delegated responsibilities,
- The autonomy of local governments to make expenditures, and
- The authority of local governments to incur debt.

Local governments should have the means to raise revenues to carry out the responsibilities that they have been assigned. In principle, revenue raising should be closely linked to expenditure at the local level; this increases the accountability of local officials to the electorate. However, in developing and transition economies, tax and expenditure responsibilities are assigned more to central governments than in OECD countries. This is often because of concerns about the capacity, integrity, and fiscal discipline of local governments. Adequate controls of local government are certainly necessary as a country's fiscal policy and credit rating can be jeopardized by excessive local debt.

The gap between the revenues that local governments are able to raise themselves and what they spend is generally accounted for by inter-governmental transfers. Indeed, intergovernmental transfers are the dominant source of revenues for sub-national governments in most developing and transition economies. The design of these transfer mechanisms can have an important bearing on the efficiency and effectiveness of local service provision. To date there has been little if any analysis of how these transfers might best be structured for the water sector.

Central governments' concerns have also led them to place restrictions on local governments' access to credit. In many developing and transition economies, municipal governments have limited or no access to either domestic or foreign finance. In some cases, this may create a paradox whereby local capital and financial markets are developing but local governments cannot access them to finance water and other municipal infrastructure. In OECD countries, the financing of water infrastructure has been dependent on the possibility that municipalities can incur debt: in Western Europe this was usually through commercial bank lending, and in North America through municipal bonds. The Camdessus Report recommends that more should be done to facilitate access to local capital and financial markets in developing and transition economies to finance water infrastructure (Petersen 2002).

Fiscal decentralization is one of the key governance challenges facing many developing and transition economies. Success in this area could also have an important bearing on the achievement of the internationally agreed water targets. More could be done to help strengthen local governments and to enhance their creditworthiness. This would facilitate their access to local capital and financial markets within a clear, prudent framework established by central government. Support could be provided to improve the quality and transparency of local government budgeting; to develop multiyear (rather than annual) investment plans; to conduct project selection and public procurement fairly and transparently; and to develop the capacity to manage debt.

Box 6. The recommended role of national authorities contained in the Almaty Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the New Independent States of the Former Soviet Union

The Role of the National Authorities should be to set the framework for managing urban water supply and sanitation by:

Decentralization:

decentralising responsibility for water supply and sanitation services to the municipal level, avoiding excessive fragmentation.

establishing the legal, regulatory and institutional framework for sound and sustainable municipal finance, including effective planning, supervision and fiscal control systems for municipalities.

clarifying the legal status of vodokanals, their relations with local governments and property rights for infrastructure.

establishing a framework for treating the inherited debts of vodokanals.

Regulatory Oversight:

depending on the particular circumstances in a country, consider establishing an independent, national regulatory agency to ensure that vodokanals do not exploit a monopoly position and/or to protect them from undue political interference. In such cases, the objectives of the regulation should be clearly identified and appropriate means for achieving them provided.

regulating issues that have national or inter-municipal dimension, such as standards for environmental quality, wastewater discharge and drinking water; and establishing the legal framework to facilitate water and sanitation management initiatives undertaken jointly by groups of municipalities.

establishing the legal and regulatory framework for stakeholder involvement, including private sector participation and consumer protection.

establishing a framework for managing the competitive uses of water at the national and regional levels, including principles and rules for the management of different water resources, and policies for integrating municipal water and sanitation systems into coherent programs for water resources management within river basins.

ensuring that an adequate system for monitoring water quality is in place and that the results are available to the public.

Strategy Formulation and Technical Assistance

defining strategic policies and development objectives, including investment strategies and the means for financing them; such policies and investment strategies should strike an appropriate balance between water supply and sanitation objectives.

providing assistance to utilities and local governments in areas such as capacity building, finance, and international assistance co-ordination.

promoting demonstration projects to reform selected vodokanals; disseminating results; publishing performance indicators for vodokanals.

facilitating market creation and promoting competition in the supply of goods and services to vodokanals.

Source: Almaty Guiding Principles for Reform of the Urban Water Supply and Sanitation Sector in the NIS (<http://www.oecd.org/dataoecd/16/46/2390168.pdf>).

Various efforts have been made to channel credit to local governments through specially established funds. Earlier versions of these effectively monopolized municipal lending, which limited opportunities for other market players. The funds were financed primarily from hard-currency borrowing from international institutions, which introduced currency risk into municipal credit. More recent municipal development funds have sought to correct these problems by raising capital from domestic sources for on-lending and deepening the local credit market. Suitably qualified municipalities are encouraged to borrow directly from banks or to issue municipal bonds, rather than to borrow exclusively from a municipal development fund.

Box 7. Accessing local capital markets in Tamil Nadu

Experience in Tamil Nadu, a state in southern India, illustrates how local capital markets can be accessed to help finance water and sanitation projects in small and medium-sized cities. The pooling of resources helped to overcome the transaction costs and to reduce risks that the cities would have otherwise encountered. Funds were raised through two bond issues and then disbursed to participating municipalities. A trust was established to manage operations, 51 percent owned by private investors, and 49 percent by the state government. The following arrangements were established to service the debt:

- The borrowing municipalities agreed to maintain a sum equivalent to their annual debt service payment in an escrow account 90 days prior the date the debt was due to be paid;
- The state government maintained a separate reserve fund, equivalent to 1.6 times the amount due to bondholders. This mechanism would be triggered if the escrow mechanism failed. The state government is empowered to replenish the reserve fund by intercepting the transfer of state funds to the defaulting municipality;
- If both these mechanisms fail, repayment to bondholders is guaranteed up to 50 percent by a local private sector institution, and up to another 50 percent by the USAID Development Credit Authority.

Establishing this mechanism required extensive negotiations between the stakeholders, but proved to be an attractive investment opportunity for institutional investors. A first bond issue of US\$21.3 million was over-subscribed, and established an interest rate at 11.58 percent over a five-year term. A second bond issue set the interest rate at 9.2 percent over a 15-year term.

Source: Planning and Development Collaborative, Inc. 2003.

There will be no single solution for addressing the challenge of municipal finance. Further analysis to identify successful approaches is needed. One source of such analysis is Central and Eastern Europe, where a number of countries have undergone rapid transitions. The Polish experience indicates that it is possible to decrease central government transfers while increasing local government financing for water infrastructure. Figure 4 illustrates some other factors that were critical in the movement toward greater financial sustainability in the Polish water sector; namely, the opportunity to access loans from commercial banks and the utilities' own resources generated by efficiency gains.

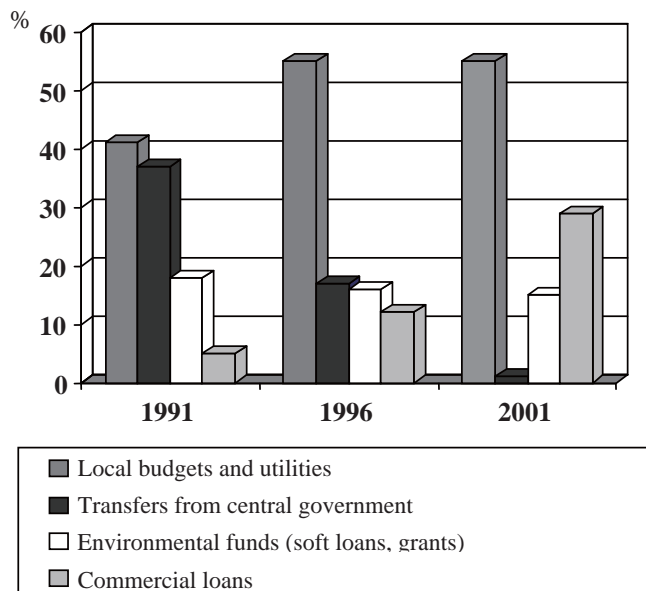


Figure 4. Financial sources for investment in the water sector in Poland

Source: Porawski 2003.

6.1. Defining the roles of local governments and water utilities through performance contracts⁶

The provision of water supply and sanitation are fundamentally local activities and local governments play a critical role in assuring their provision. Compared to central governments, local authorities are, in principle, better attuned to local demand and better placed to identify local solutions and to organize their implementation. As a result, local authorities have generally developed close working relations with utilities. In some countries water utilities are part of local government. However, the close linkages between local authorities and utilities can involve conflicts of interest, blur responsibilities, and impede the effective delivery of water services. For example, local politicians are often reluctant to raise tariffs to levels that would guarantee the financial autonomy of utilities as this might erode their electoral support. Interventions of this type undermine the operational autonomy of utilities and create confusion over the roles that local government and utilities should play.

It is now widely recognized that a fundamental element of a viable water governance system is to clarify the relative roles and responsibilities of central and local governments as well as utilities. More specifically, local governments should be responsible for planning as well as many aspects of policy and regulation, including the involvement of the public. Utilities should have sufficient operational autonomy and resources to deliver agreed services. They should also be held strictly accountable for how they exercise their discretion and for how they have used their resources. In an increasing number

6. This section is based on OECD Environmental Action Programme Task Force 2005.

of countries, the relative roles and responsibilities between local governments and utilities is being clarified through “performance contracts”.

Agreeing a performance contract can be an arduous task, involving a considerable amount of research and negotiation. On the other hand, the benefits in terms of improved service delivery and efficiency gains can be substantial. The content of performance contracts may vary significantly, but for the purpose of this paper, three elements are worth emphasizing: goals, finance, and monitoring performance.

a. Goals

The goals of a performance contract would normally address the level, quality, and scope of service delivery. Once this has been done, responsibilities for achieving the goals can be specified. The clearer the goals, the easier, in principle, it should be to determine responsibilities. The utility will normally assume most of the direct obligations for service delivery. The local authority’s responsibilities will be to assure that the utility has the means (legal, financial, etc.) to achieve the agreed goals. Related to goal definition are issues such as the service area to be covered (often involving considerable uncertainties), the duration of the agreement (from one to potentially many years), and provision for the early termination of the contract.

b. Finance

An essential part of a performance contract concerns the specification of the percentage of utility revenues that should be allocated to cover operation and maintenance and, as appropriate, capital investments. To the extent that tariffs cover operations and maintenance costs, the utility will enjoy a good measure of financial autonomy. Tariff setting is a complicated and politically sensitive issue. Various models exist for tariff regulation, but they tend to be either an independent central regulator or a regulator at the local level, which often is the local authority. Whichever approach is used, tariff setting should be stable and predictable, and flexible, with automatic adjustments for inflation, and provision for adjusting tariffs in light of unforeseen developments. It should also provide incentives for utilities to improve their efficiency.

The final objective presents real challenges for tariff regulators. If tariffs are set too low, they may provide incentives for efficiency but the utility may not be able to earn a reasonable rate of return. If tariffs are set too high, there is less incentive for efficiency and the utility may earn rates of return that are perceived by the public as being excessive. The challenge is exacerbated by the information asymmetry that exists: utilities have much more detailed information about their operations than the regulator, and this tends to strengthen their position in negotiation.

The performance contract should also address issues of tariff collection. Often there are opportunities to increase revenues simply by improving the billing and tariff collection systems. Tariff collection could be carried out by the utility itself or outsourced. In either case, the utility should be empowered to collect tariffs and to impose sanctions in the case of nonpayment.

In many countries, local authorities will have an important if not primary responsibility for capital investments. Accordingly it is important to specify as precisely as possible the local authority’s financial

obligations, including amounts, timeframe, conditions, mechanism of transfer, etc. The financial relationship between the municipality and utility can be quite complex and take various forms. Thus, the municipality may provide financial support in the form of a grant. The resources provided may come from local taxes, fiscal transfers from central governments, or from finance raised from local capital or financial markets. Alternatively, the municipality may act as a guarantor for the utility to raise capital on capital or financial markets.

In a performance contract, it can be important to provide criteria that could help distinguish between operation-and-maintenance and capital-investment costs: it is not always easy to define where maintenance and rehabilitation end and capital investments starts.

c. Monitoring performance

Monitoring the achievement of objectives is an essential element of a performance contract. The purpose is to provide the utility with better incentives, and a better basis, for improving service delivery than existed before the contract came into effect. Progress in achieving objectives can be linked to a set of rewards or sanctions, though care must be taken when using sanctions as these may undermine the utility's ability to meet its objectives. Performance indicators are often established for financial performance, efficiency of operations, operating parameters, and customer service.

A key challenge is to define a suitable number of indicators that are closely linked to the main goals of the performance contract. Care is needed to avoid identifying an excessive number of indicators: this can undermine a sense of priorities, and may be unfeasible and/or highly expensive to monitor.

An important feature of indicators is the opportunity they create for benchmarking performance. If a utility can compare its performance across a range of parameters with utilities in similar situations, it can gain insights into areas where its performance could be achieved and how this could be done. In addition, indicators can be used to reward good performance by water utilities; for example, national programs for allocating financial resources to utilities, or their associated municipalities, can take account of performance indicators. The International Water Association (IWA) has developed a widely recognized set of performance indicators that are now increasingly used by water sector stakeholders (Alegre et al. 2005). These standards have been developed through a process involving all relevant stakeholders, effectively setting a global standard.

7. Private-sector participation in the water sector

Performance contracts can involve either publicly or privately operated utilities. Indeed, one advantage of performance contracts is that they put emphasis on service delivery rather than the frequently sterile debates about public sector vs. private sector. Many performance contracts have been established with private operators. Private-sector participation in the operation of water utilities can take a wide variety of forms. Figure 5 presents some of the options according to the degree of risk involved and the magnitude of the financing involved. The options range from providing advisory services for a fee, through a contract to manage or lease a utility, to the ultimate form of privatization covering both the operations of the utility and its assets.

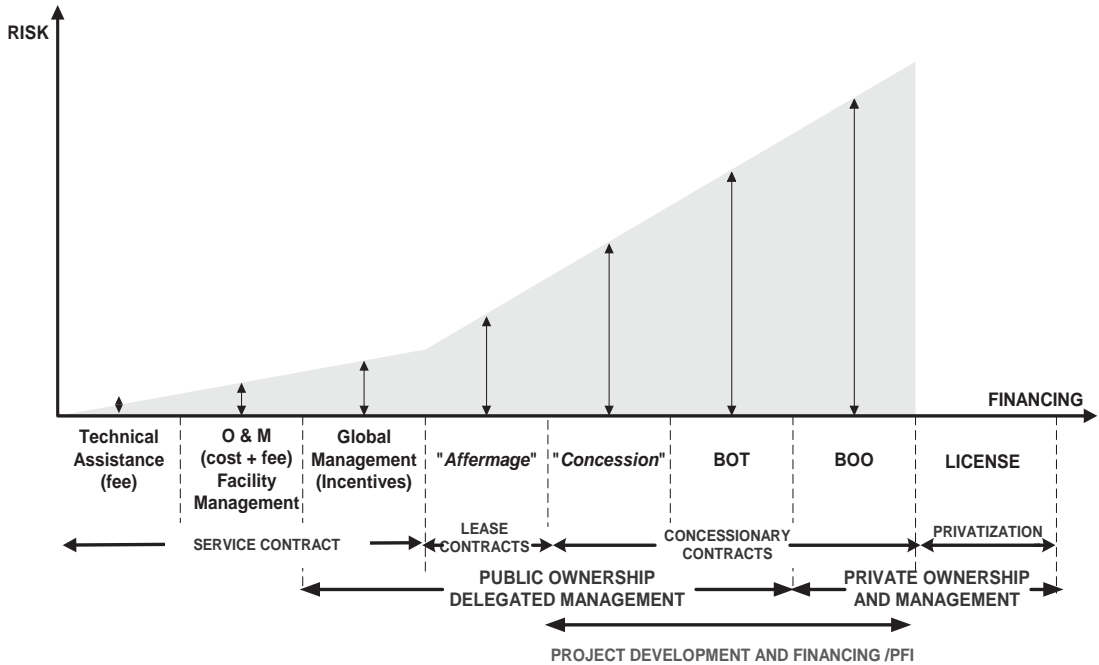


Figure 5. Private-sector participation options (alternative structures)

Source: OECD 2005.

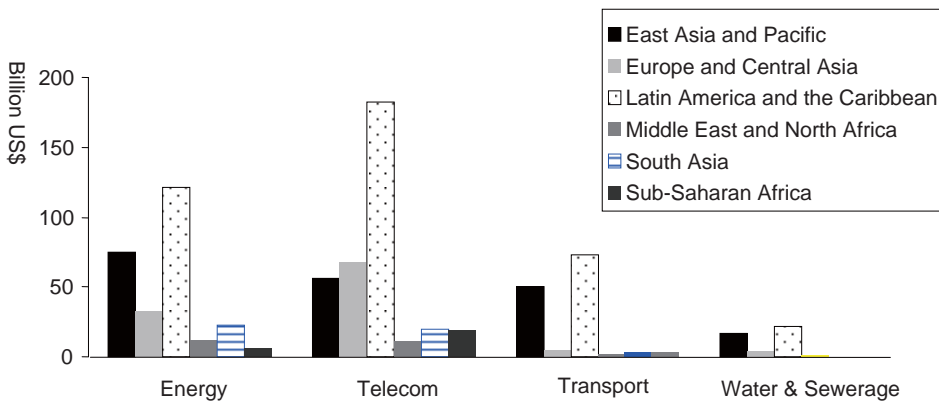


Figure 6. Total (international) private investment in infrastructure in 1990–2002

Source: Saghir 2003.

During the 1990s there was considerable interest in private-sector participation, though such participation has been low in the water sector compared to other forms of infrastructure, as figure 6 illustrates. The private sector promised to bring both managerial and technical know-how to improve the efficiency of utility operations, as well as investment capital. However, the private sector has retrenched,

and its involvement is at a lower level than many commentators had predicted in the 1990s. Some of the main reasons for this identified by the OECD and World Bank (2003) are as set out below.

The private sector has become much more risk averse following some bad experiences. The successive financial crises in Asia and Argentina precipitated the collapse of several public-private partnerships and exerted a powerful chilling effect on international water companies. In some other cases, companies competing for tenders suffered from submitting low-cost bids that proved not to be financially viable.

For the largest international private companies, capitals and major metropolitan cities provide the best opportunities to gain good rates of return. By the beginning of the 2000s, this “low-hanging fruit” had largely been picked. Opportunities in small and medium-sized cities were generally less appealing for these companies.

In some countries where the legal and institutional framework for private-sector participation has been established, and the economic conditions are favorable, grant-based programs have crowded out private-sector involvement. This has happened in some of the countries that recently acceded to the European Union. In other cases, administrative requirements in national or donor-funded programs have been biased against private-sector participation.

Vocal and sometimes physical opposition from anti-globalization and similar social movements has reinforced the risk-averse approach adopted by the private sector.

Often negative perceptions of private-sector participation, fuelled by negative media coverage of cases of PSP failure, and the widespread fears of privatization of a public good in a monopoly situation, have resulted in politicians being skeptical or opposed to this option.

In the current situation, the private sector is generally unwilling to commit its own capital without some form of guarantee or sweetener provided by governments or international financial institutions. Experiences with this type of cooperation have been both positive and negative. In these circumstances it is difficult to see how the positive experiences could be scaled up sufficiently to contribute in a significant way to achieving the water-related international development goals. The strategy adopted by many of the larger private water companies is to enter into arrangements like management contracts that do not involve any commitment of their own capital, but which enable them to gain experience in the market of the particular company or region. Once experience has been gained, the company can assess the opportunities and risks of deepening its engagement in the utility or the country at a later stage.

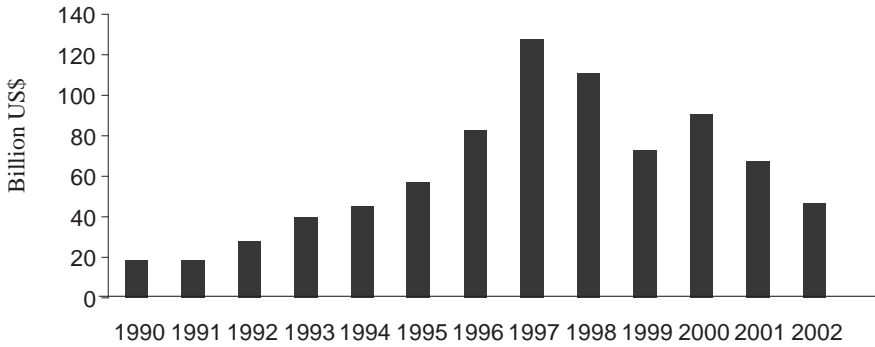


Figure 7. The recent collapse of private investment flows to water infrastructure: Annual private investment in infrastructure, 1990–2002

Source: Saghir 2003

In parallel with this, there has been greater interest shown in the potential role of domestic water companies (see OECD and World Bank 2004). Their local knowledge may mean that they are better placed to deal with the types of risks that can arise in developing and transition economies. A partnership with a large international company can also facilitate the transfer of know-how. Currently in Russia, about 8 percent of urban water is provided by domestic private companies. The figure could rise to 16 percent if the negotiations currently underway are concluded successfully. However, it is not clear at this time whether this development is sustainable.

8. Conclusions

There are a number of paradoxes in financing the water sector. In many respects it is a routine, unglamorous sector, yet it can inflame passionate debate, notably when human health is adversely affected or when the role of the private sector is discussed. The basic requirements for delivering safe water and sanitation are well known, and there is often willingness and ability to pay, yet the problem is far from being solved in many countries throughout the world.

Probably the single most important factor in explaining these paradoxes is failure of water-sector governance, and of governance systems more generally. Some key governance challenges include: low prioritization in government programs; flawed decentralization that does not clarify the roles that central and local governments should play, nor provide local governments with the means they need to carry out their responsibilities; politicized relations between local authorities and utilities; lack of financial autonomy and an appropriate operational framework for utilities; and few opportunities, if any, for the public and consumers to become involved in decision making about the sector.

Addressing these challenges will require vision, political will, determination, and a good base in popular support. Addressing these challenges is necessary in order to mobilize adequate financial resources and to meet the internationally agreed water targets. The primary sources of financing water

infrastructure are relatively clear in general terms. There are no “magic bullets”, and more could be done to leverage the various sources:

- User charges will be essential for ensuring the financial viability of the sector, and in particular to cover operational and maintenance costs. This will be needed to establish water utilities on a sound financial basis and to create the conditions where water systems can be extended to cover the currently non-connected poor.
- Raising user charges to appropriate levels requires the development of appropriate mechanisms for compensating or mitigating the effects of tariff increases on the poorest sections of the population. Managing the potential political and social resistance that such reforms would inevitably generate is going to be key to their success.
- Public budgets will continue to be the major source of finance for capital investments. These resources are scarce and have to compete with other pressing needs. National rather than local budgets are often the main source in transition and developing economies, and appropriate mechanisms are needed to ensure that resources are allocated to top-priority projects, and provide incentives by rewarding good performance by utilities and municipalities
- External finance from donors and IFIs will be a minor source of finance in all but the poorest developing countries. The apparent end of the decline in aid to the water sector, and projections of increases, are welcome, but it seems unlikely that, by themselves, they will make a decisive difference in achieving the internationally agreed water targets. External resources should be used strategically to support demonstration projects; to disseminate and apply the positive lessons learned more widely in the country; to support reform of the governance sector; to introduce international disciplines and good practices into the sector; and, last but not least, to leverage, where this is possible, additional domestic, public, and private funds.
- The private sector is unlikely to be a major source of investment capital for the water sector in the foreseeable future. However, opportunities exist to engage the private sector to help introduce more efficient managerial and technical approaches into the operation of utilities. Donors and IFIs could help in this regard. Over time, such initiatives could lay the basis for the private sector to play a more proactive role in the operation of water utilities than it does at present. However, this would require the development of robust and independent regulatory regimes.
- Finding ways to stretch the large upfront investment costs over time is another key challenge. Accessing local capital and financial markets is probably the most realistic approach for many transition and developing economies. This in turn depends on the emergence of fiscally responsible, creditworthy, and professionally competent local authorities that have clear roles and responsibilities for water service provision vis-à-vis utilities.
- Opportunities exist for developing new financial products and other forms of financial engineering, but they are likely to be limited. Improved mitigation of risks associated with water projects is probably the area with the greatest potential.

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