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**GLOBAL TRENDS IN URBAN WATER SUPPLY AND WASTE WATER
FINANCING AND MANAGEMENT: CHANGING ROLES FOR THE PUBLIC
AND PRIVATE SECTORS**

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FOREWORD

This paper assesses experience, and draws lessons from the involvement of the private sector in the provision of urban water services. It examines some of the main challenges facing developing countries in particular in providing urban water services in the context of increasing need for investments, better management, and the declining availability of public funds. The paper examines historical trends in water financing and management, including a comprehensive overview of the different types of private sector participation in the urban water and waste water sector, ranging from service contracts to full divestiture. Finally, the paper presents the main lessons learned about private sector participation and outlines steps that governments and other actors can take to increase private investment in the urban water sector.

The paper contributes to the analysis of globalisation and environment conducted by OECD's Environment Directorate, Non-Member Countries Branch. This activity forms part of the programme of work of OECD's Centre for Co-operation with Non-Members. The paper was drafted by Bradford S. Gentry and Alethea T. Auyuan, School of Forestry and Environmental Studies, Yale University. It was discussed at a meeting of the OECD Environment Committee's Working Party on Economic and Environmental Policy Integration. A short version of the paper served as a background document to the consultations of NIS Ministers of Economy/Finance and Ministers of Environment that were held on the 16th and 17th of October 2000 in Almaty, Kazakhstan on the topic of "Water management and Investments in the NIS: Overcoming Policy and Institutional Obstacles".

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**GLOBAL TRENDS IN URBAN WATER SUPPLY AND WASTE WATER
FINANCING AND MANAGEMENT:
CHANGING ROLES FOR THE PUBLIC AND PRIVATE SECTORS**

INTRODUCTION

1. Improving the delivery of urban water and waste water services is a critical need for many developing countries and economies in transition. Some governments can make the improvements acting alone. Others are increasingly looking to a range of private sector partners to provide access to two key resources: (1) improved management systems and technical options, and (2) private investment funds.
2. The purpose of this paper is to review global trends in the financing and management of urban water services, particularly the changing roles of public and private actors. Part 1 sets the stage. It describes (i) the global water crisis, including its impact on the urban water sector, (ii) the diminishing public sector resources for responding, as well as the increases in private investment, and (iii) the implications for the roles of public and private water providers.
3. Part 2 describes historical trends in water financing and management. From ancient times to the present, both public and private actors have been actively involved in the urban water sectors. The nature and degree of that involvement has shifted across time and across countries. Historical examples are provided both from ancient civilizations and industrialized countries, particularly France, the UK and the US. The major approaches to involving private providers currently being applied in developing and transitional economies are also described.
4. Part 3 summarizes some of the major lessons learned about increasing private investment in water services – what are the tradeoffs facing governments? what are private investors looking for? Governments can choose to meet customer demand acting alone. If they choose to involve the private sector, their role changes from manager to overseer, an often difficult adjustment. For potential private investors, the water sector offers many contradictions– huge opportunities, equally substantial risks. Understanding how these contradictory characteristics affect investment decision-making is critical for any government considering private involvement.
5. Finally, Part 4 suggests steps that governments and others can take should they decide to seek private investment in urban water and waste water services. There are three major areas of work: (i) adopting frameworks for water markets that encourage private investment while protecting the public interest; (ii) providing better information to users and municipalities on the reasons for and approaches to involving private investors; and (iii) sharing investments in urban water and waste water services among public and private investors.
6. The information contained in this review paper is drawn from the authors' experience, as well as the large body of information already available on private investment in the water sector. Sources for much of that information are included in the extensive references and bibliography provided after Part 4. Complete books can be – and have been – written about many of the topics covered below. This paper is designed to strike a balance between breadth and depth that will make it of use to host country governments and international donors alike.

PART 1: THE GLOBAL WATER PROBLEM AND THE GROWING INTEREST IN PRIVATE INVESTMENT IN URBAN WATER SERVICES

7. An unacceptably large portion of the world's population, one in five, does not have access to safe drinking water, and half the world's population does not have access to sanitation (Cosgrove and Rijsberman 2000). This is despite the gains made during the 1980's, the International Water Supply and Sanitation Decade. During that time, many countries doubled their provision of safe drinking water and sanitation. Eventually, the provision of new water services outpaced population growth. Unfortunately, sanitation has not kept up. Between 1990 and 2000, the number of people without adequate sanitation rose from 2.6 billion to 3.3 billion (Cosgrove and Rijsberman 2000).

8. The lack of clean, affordable, adequate, and accessible water supply, and the inefficient provision of waste water and sanitation services, are not the only water-related problems facing the world today. Although these problems are most pervasive in developing countries and countries in transition, they are but symptoms of a global water crisis. The broader water crisis is composed of numerous inter-related issues, including water source deterioration, population growth, industrialization, economic globalization, social, political and economic conflicts, and the failure of governments and other institutions to address these issues (Gleick 1998).

9. Part I discusses the aspects of this global water crisis that contribute to the problems in urban water supply and sanitation. The overarching problem of water scarcity is discussed as it relates to diminishing supplies, urbanization, industrialization and pollution, mismanagement of water resources, water conflicts, and the threat to global health. Next, the implications of decreasing government resources and official development assistance, decentralization, and the increase in private capital flows are considered. Finally, the implications for water financing and management, as well as the changing roles of the public and private sectors are summarized.

1.1 The overarching problem of water scarcity

10. The most obvious manifestation of the water crisis is scarcity. Countries tend to experience water stress as the amount of renewable freshwater available to each person falls below 1,700 cubic meters (around 450,000 gallons) per year. As freshwater availability falls below 1,000 cubic meters (around 264,000 gallons) per person per year, water scarcity begins to occur, hampering food production and economic development, and causing severe environmental damage (Postel 1992). Currently, 166 million people in 18 countries are suffering from water scarcity, while almost 270 million in 11 additional countries are facing water stress (Population Action International 1998).

11. Water scarcity in some countries can be attributed to an arid climate. Yet, even countries endowed with generous amounts of rainfall can also experience water scarcity due to mismanagement of water resources or the lack of basic water infrastructure. The most pressing causes of water scarcity today relate to population growth, urbanization, deterioration of water sources, and mismanagement by governments and other institutions.

1.1.1 Population growth and water demand

12. Water is a renewable resource, but its amount is fixed and finite, and it is not distributed equally across all regions. The global population boom has taken a serious toll on freshwater resources. In addition, world water demand has been growing faster than population – during the 20th century, global

population increased three-fold while global water consumption for human use has multiplied six-fold (Cosgrove and Rijsberman 2000).

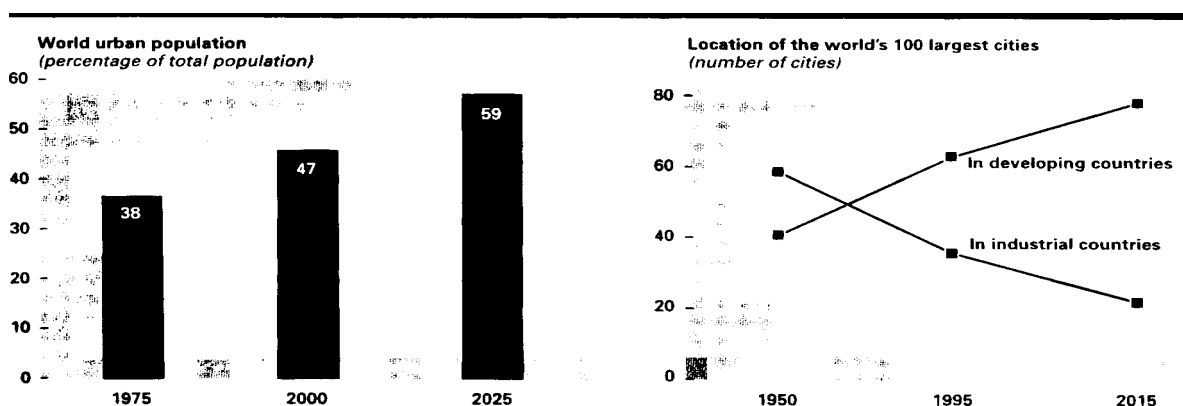
13. However, an unexpected slowing of population growth due to a decline in birth rates throughout the world has been observed. Using 1996 UN data, Population Action International calculated that depending on how rapidly population grows, there will be between 400 million and 1.5 billion fewer people living in water short countries in the year 2050 than previously projected (PAI 1997). Slower population growth offers potentially great benefits to freshwater availability as it may delay the onset of water scarcity, reduce the risk of conflict, protect aquatic ecosystems, and reduce human health risks.

1.1.2 An Urbanizing World

14. For the first time in history, more people live in cities than in rural areas (National Research Council 1999). Cities take up just 2 percent of the world's surface, but consume the bulk of key resources. Some 60 percent of the water that is used by humans goes to cities. Mounting urban thirst heightens tensions over water allocation that threaten to spark major water conflicts (O'Meara 1999).

15. Most of the urban growth is in developing countries (Figures 1 and 2). However, many governments have a difficult time keeping up with the pace of migration, resulting in the inadequate delivery of basic environmental services. The concentration of people in urban areas results in increased pollution levels and stress on water sources and systems, intensifying water scarcity issues still further.

Figures 1 and 2: Urban population is growing, primarily in developing countries



Source: United Nations Department of International Economics and Social Affairs, *World Urbanization Prospects*, 1998.

1.1.3 Pollution and deteriorating water quality

16. In addition to the pollution load from human settlements, particularly large urban areas, industrial pollution also remains a major issue. While the industrialized world has made huge investments in controlling waste water discharges, in the developing world, ninety percent of waste water still goes untreated into local rivers and streams (Barlow 1999). Polluted water sources compound the scarcity problem, as they can either no longer be used or require expensive treatment before use.

17. There are many other forms of water source deterioration, including the depletion of groundwater through over-pumping, aquifer contamination through saltwater intrusion and absorption of toxics, as well as the more general destruction of watersheds through over-logging and other damage to natural systems.

(Easter, et. al. 1991). The failure of governments and other institutions to address this full range of water issues in a cohesive and rational manner is major contributor to the problem of water scarcity.

1.1.4 Mismanagement of urban water resources

18. The urban water sector presents difficult economic and political choices for governments. Traditionally an engineering-dominated area (Hanson 1991), the urban water sector is plagued by a long history of underpricing, a politicized debate about “basic needs” and the moral imperative of subsidies, and high capital intensity, resulting in long payback periods and high associated risks (Briscoe 1998b). All of these factors have contributed to the failure by many governments to acknowledge water as a finite natural resource and an economic good – a commodity that needs a market price reflecting its true value to society.

19. Inefficiencies in the design and operation of publicly provided water infrastructure services often include (Briscoe 1996):

- Non-revenue water: One-half of the drinking water that enters the system is lost or otherwise unaccounted for before reaching its customers in most developing countries.
- Unreliable services, lack of coverage, sporadic maintenance: Due to lack of managerial accountability, hard-budget constraints, and the absence of commercial practices in many public infrastructure agencies.

20. The growing threat of water scarcity has serious implications for the location of industries and global health patterns. Moreover, water scarcity has been a cause of political conflicts over shared water sources on regional and local levels, along with urban-rural conflicts over water usage, allocation, and financing.

1.1.5 The threat to global health

21. Among the most urgent consequences of the scarcity of clean water and sanitation are the impacts on health. Each year, roughly 11 million children in the least developed countries die of environment-related causes (WRI 1998). Many others, children and adults alike, suffer from ill health and disabilities. Many of these environmental health threats result from problems now virtually unknown in industrialized countries.

22. For example, water contaminated by feces remains one of the biggest killers worldwide. Lack of adequate water, sanitation and hygiene is responsible for approximately 7% of all deaths and disease globally (WRI 1998). Each year 3 to 4 million people die of waterborne diseases, including more than 2 million children who perish from diarrhea (World Health Organization 1996). Virtually all of these problems stem from poor water and waste management, such as the absence of mechanisms for distributing clean water or safely conveying wastewater.

Box 1: China: Access to Safe Drinking Water is Key to Protecting Public Health

The health of China's people depends, to a great extent, on the quantity and quality of its drinking water supply. Drinking water quality is largely determined by sources of incoming water, modes of water supply, and the level of water treatment. In only six of China's 27 largest cities does drinking water quality meet state standards, according to one recent study. Groundwater did not meet standards in 23 of these cities. Water bodies near urban areas are generally the most severely polluted, and the situation is deteriorating.

Some of the major threats to water quality stem from inadequate treatment of both municipal and industrial waste water. In 1995, China discharged a total of 37.29 billion cubic tons of waste water, not including waste water from township and village enterprises. Treatment of municipal sewage lags far behind that of industrial waste water. Treatment may improve, however, following the amendment of the Water Pollution Prevention and Control Law which set more restrictive regulations, as well as a recent government decision requiring all cities with a population of more than 500,000 to have at least one sewage treatment plant.

Source: World Resources Institute/UNEP/UNDP/World Bank 1998

1.1.6 Water conflicts

23. Urban areas need water to meet their domestic needs, as well as for industrial purposes. Allocation issues arise when an area is experiencing water stress or scarcity – between households and industries, as well as between urban and rural areas. Related conflicts stem from financing. In many Asian countries, the average per capita unit cost of construction of urban water supply systems is two to ten times more expensive than that of rural water supply facilities (Lee 1994).

24. Disagreements over water use and allocation translate into conflicts over shared water resources. Water wars, whether big or small, are not new to this world, and they will continue to occur if governments do not address management problems and reach agreement over shared water basins. According to Gleick, there are four major reasons behind such water conflicts: (1) water as a military and political goal; (2) water as a weapon of war; (3) water as a target of war; and, (4) inequities in the distribution, use and consequences of water resources management and use (Gleick 1998). This final link is especially crucial since it encompasses all the other possible causes of water conflict, including food insecurity, contamination of downstream water supplies or groundwater aquifers, dislocation of people to make way for dams, and the destruction of fisheries that support local populations.

1.1.7 Tracing the Links to the Provision of Urban Water and Waste Water Services

25. It is not difficult to trace the connection between the global water crisis and the state of urban water supply and waste water. "Water scarcity" can come in two forms: scarcity of water supply, and scarcity of water services. Where supply is scarce – in quantity or quality – existing water infrastructure will have no acceptable product to carry. Where water infrastructure is scarce or absent, available water will not be shared evenly.

26. In urban areas, the challenge lies in addressing water crises as a whole, balancing the two types of scarcity to ensure long-term water supply and long-term provision of water services. But who will pay for and manage this balancing act? A related challenge, then, is to identify the range of roles for all stakeholders affected by water planning and management. In particular, how can governments and private entities best use their strengths – financial and otherwise – to address the problem of water scarcity?

1.2 Diminishing government resources for addressing urban water issues

27. Mechanisms for financing infrastructure, including water-related projects, have changed dramatically in recent times. While public investment in infrastructure has increased moderately since the 1960s, the rate of private involvement has increased much more rapidly. In particular, investment in infrastructure in developing countries, which accounted for approximately 50 percent of all government spending and was mostly financed through Official Development Assistance ("ODA"), is increasingly being provided by the private sector (Briscoe 1998b).

28. These changes are fueled by a number of related developments: declining public sector budgets; decreasing flows of Official Development Assistance ("ODA"); decentralization; and increasing international flows of private capital.

1.2.1 Declining government budgets

29. One reason for the changing regime in infrastructure finance is that many governments are finding the burden of public finance increasingly difficult to bear. In developing countries, infrastructure is usually very costly, the public sector is almost always the provider of financing – and the costs of these investments can be staggering. About \$250 billion a year is spent by developing countries on new and rehabilitated infrastructure (Briscoe 1998a). Ninety-percent of this amount is taken from government tax revenues or intermediated by governments through foreign financing (both concessional and non-concessional funds from multilateral and bilateral sources) (Briscoe 1998a). Of the \$250 billion, about 30% or \$65 billion is spent each year on water sector infrastructure such as: hydropower (\$15 B); water and sanitation (\$25 B); and irrigation and drainage (\$25 B) (Briscoe 1998b).

30. The majority of public expenditures on infrastructure in developing countries have been financed through tax revenues. However, this practice is increasingly difficult as governments find their tax revenues insufficient to meet all other competing needs – such as social welfare programs, health systems, and defense.

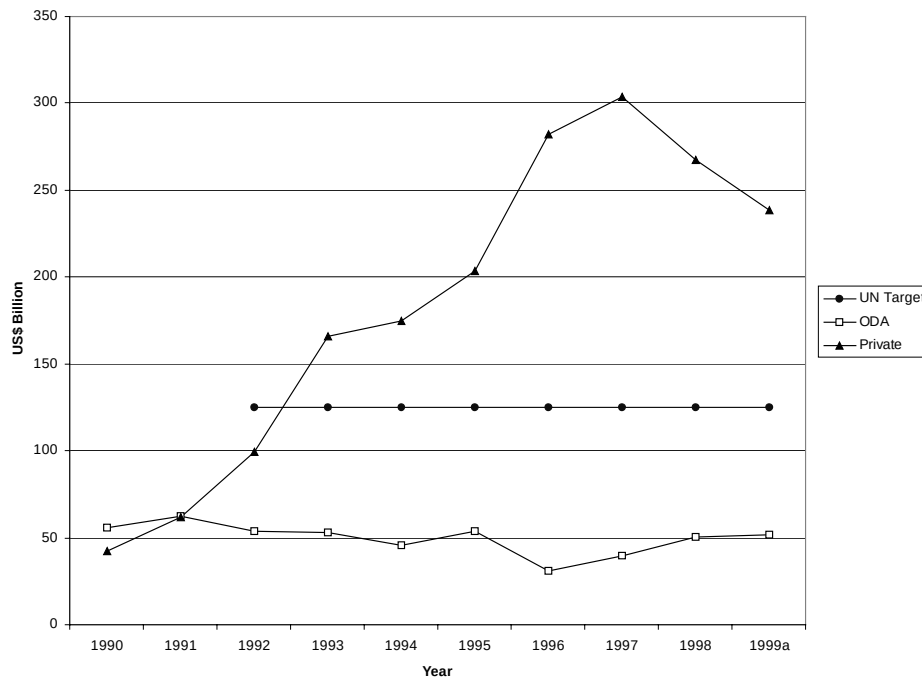
31. The shortage in the availability of government resources for investment, particularly in the water sector, is compounded by issues such as: the competition between expanding populations (especially in developing countries) and growing industrial activities for access to a finite water resource base; the lack of political will to change existing allocation patterns in the face of increasing scarcity; and increasing pollution of water sources. The net effect of such factors has been at least a two-fold increase in the cost to government of raw water supply (Briscoe 1998b). At the same time, much of the raw water is lost or constitutes otherwise unaccounted-for-water ("UfW") in many publicly operated water utilities. For example, it has been estimated that UfW is about 45% in Bogota, Colombia, 45% in Colombo, Sri Lanka, and 58% in Manila, Philippines (Briscoe 1996).

1.2.2 Decreases in ODA

32. At the same time, ODA has been stable or dropped in recent years. According to the World Bank, transfers of ODA to developing countries averaged around \$50 billion per year from 1990 through 1999, well below the \$125 billion target set at the 1992 Earth Summit (see Figure 3). Recently published surveys by the OECD indicate that aid from developed to developing countries as a share of the wealth of the developed countries has also been limited (see Figure 4). Estimates suggest that in 1998, while \$51 billion was provided in aid to developing countries, as a proportion of national income, aid from developed countries rose only slightly from 0.22% to 0.23%. This trend has been attributed to a number of factors including: (i) other demands on the budgets of donor countries, frequently domestic in nature; (ii)

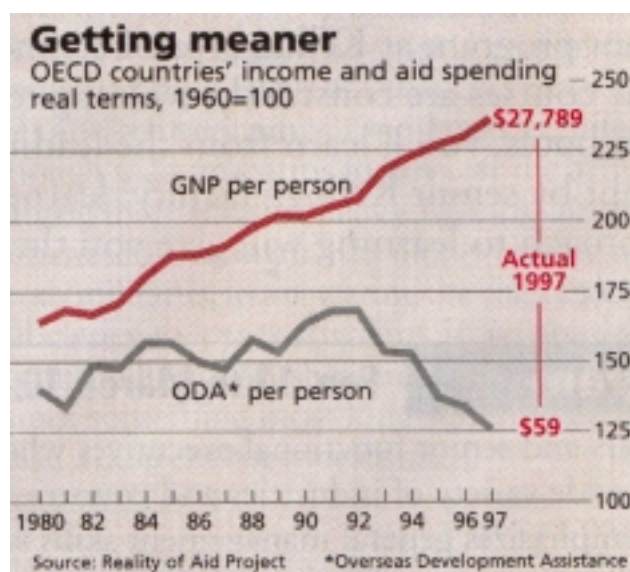
corruption in recipient countries; (iii) lack of effectiveness of previous assistance to reduce poverty; and (iv) poorly targeted aid projects (The Economist 2000).

Figure 3: Flows of ODA and Private Capital versus "Earth Summit" Target



Sources: World Bank 2000, Gentry 1998

Figure 4: Declining ODA percentages



Source: The Economist 2000

Box 2: The Need for New Investment

It is clear that huge investments will be required to address drinking water and sanitation needs worldwide. For example, the Vision 21 report (WSSCC 1999), based on consultations organized by the Water and Sanitation Collaborative Council, estimated that even if more appropriate technologies were used, the costs for water supply and sanitation would be \$225 billion, in addition to the costs borne by households and communities. In the European Union alone, it is estimated that \$150-215 billion is needed to achieve sewerage compliance by 2010. In the US, the American Water Works Association estimates that investments in drinking water infrastructure over the next 20 years will be about \$325 billion, with \$12 billion to protect sources.

Source: Cosgrove and Rijsberman 2000

1.2.3 Decentralization

33. Recent worldwide trends towards decentralization have been dramatic, with over 95% of democracies devolving political, fiscal and administrative powers to sub-national tiers of government. While the experience of these countries with decentralization is still not clear, initial assessments have been mixed. In general, it has not been found to be either good or bad – but regarded more as a means to an end, often imposed by political and economic realities (World Bank 1999).

34. The extent to which decentralization affects access to and quality of public services such as water depends on the way it is designed and implemented. The availability of resources and the distribution of powers among local, provincial and national governments are key factors. As evidence suggests from Latin America and Russia, conceding power to local governments does not necessarily guarantee that all local interest groups will be represented. While decentralization in Central America from national government to provincial and local levels had little impact on the primary education sector, decentralization of management responsibility directly to the schools did improve educational performance (World Bank 1999).

35. At a minimum, decentralization changes the roles of the government actors involved. Local officials find themselves with more responsibilities, sometimes more resources, and certainly more need to build their capacity to perform these new functions. Provincial and national governments need to decide how to respond to their changed, sometimes reduced, roles. The major challenge is to clarify and institutionalize the balance of power between national and local governments. The need for clearly defined rules that “both protect and limit” the rights of sub-national governments is key. Establishing such rules reduces uncertainty and helps build a common base for action by all players in the political process.

1.2.4 Private capital flows and privatization

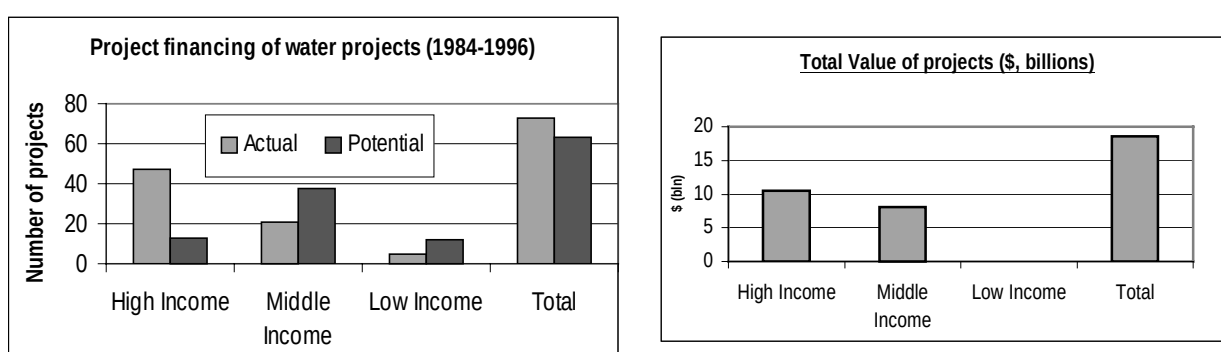
36. As noted above, and in stark contrast to ODA, total global flows of private capital doubled in the first part of the 1990's, and private investment in developing countries increased six-fold – exploding from under \$50 billion in 1990 to over \$300 billion in 1997 (Figure 3). Even with the recent global financial crisis, World Bank data indicates that net private flows to developing countries remained between four and five times larger than official flows in 1998 and 1999 (World Bank 2000).

37. At the same time, fiscal constraints and increasing disenchantment with the performance of state-provided infrastructure has increasingly led governments to turn to private solutions for financing and providing urban services (World Bank 1994; Dailami and Klein 1998). Private markets have responded

with vigor. According to a recent report by the World Bank (1999), cross border flows dominate infrastructure finance, even in countries with high national savings rates. This has been attributed to both the benefits investors gain from diversification, as well as to the underdevelopment of local capital markets in the countries concerned.

38. Total private financing of infrastructure in developing countries rose from less than \$1 billion in 1988 to more than \$27 billion in 1996. Much of this investment has been in telecommunications, power, and other large construction projects (Global Water Partnership 1999). Countries with the highest shares of private investment in infrastructure have managed to widen private investment to include transportation, as well as water and sanitation.

Figures 5 and 6: Private Financing of Water Projects



Sources: Adapted from World Bank 1999 data

1.3 Implications for water financing and management: changing roles

39. All of these pressures – from water scarcity to changes in public finances – are changing the options and roles for public and private actors in the water sector. New risks are present, as are new opportunities.

40. In response, many governments are exploring increased private investment in water and waste water services. By doing so, they are trying to expand their access to new financial resources, as well as to new technical and managerial skills.

41. Many different approaches are being tried. Some grow out of the experience in industrialized countries. Some are newly created to meet the needs of developing and transitional economies. All require involvement by governments and users. The key is to find the right balance of roles to meet priority water needs in the local context.

42. Part 2 describes a range of options. Parts 3 and 4 distill lessons learned for attracting private investors and offer suggestions for steps governments and others can take to increase private involvement in water and waste water services.

PART 2: HISTORICAL TRENDS IN WATER FINANCING AND MANAGEMENT

43. Current structures for water financing have evolved from historical patterns in water management. As such, reviewing how different countries have dealt with their water problems over time provides useful background for understanding today's financing options.

44. Governments have been managing water resources as a public good since ancient times. It was during the Industrial Revolution, however, that many of the foundations were laid for today's efforts to provide urban water supply and waste water services by both public and private actors. The experiences of France, Great Britain, and the US provide examples of the roots of modern water financing and management techniques. Those techniques are now being adapted and new ones created for addressing the critical water issues facing urban areas in developing and transitional countries.

45. Historical patterns in water financing and management make it clear that both public and private actors have key roles to play. The challenge is allocating those responsibilities in ways that best address local needs, in the local context.

2.1 Ancient civilizations

46. As early as the third millennium BC, the Indus, Egyptian and Mesopotamian civilizations had bathrooms in wealthy houses and sewers in the streets. Slave labor was employed for digging wells and cisterns, and laying interior plumbing for temples and palaces. Likewise, the Minoan civilization on the island of Crete enjoyed running water and flushed latrines. Qanats, tunnels, and aqueducts for gravity flow, plumbing for interior drainage, and open drains leading to the edges of citadel areas were built in Iran, Palestine and Greece. In Imperial Rome, revenues from North Africa were used to build monumental aqueducts, house connections, public baths, and latrines (Gunnerson 1991).

47. One important similarity among the large water systems of these early peoples was the fact that they were public works – planned and financed by the king or ruler of the land, for the welfare of his/her subjects. At the same time, private management of water resources was occurring in parallel. The basic principle of water supply seemed to be to use as many different sources of water as possible for the least effort. In a study on water management in ancient Greek cities, Crouch concluded that water management was balanced between elements that people could build, maintain, and use privately, and those that required communal effort and provided communal rewards (Crouch 1993).

2.2 Industrialized Countries -- 18th to the 20th century

48. Among the industrialized countries, France, Great Britain and the US provide a useful range of examples for ways to finance and manage urban water resources. Their approaches are reflected around the world. France has been especially influential, as its business model of “delegated management” has been widely applied by its large, private water companies. Great Britain, also known for its large private water companies, has led the way on full privatization. Meanwhile, the US, which has see-sawed between private and public involvement in its water infrastructure, is opening up again to more private sector participation.

2.2.1 France -- *delegated management*

49. The operation of water systems in France has been considered a private sector activity from its earliest days – perhaps since Generale des Eaux won its first municipal contract in 1853 under the reign of Napoleon III (Financial Times 1999c), or in 1782 when the brothers Perrier founded a company that was granted a license to supply piped water in the Paris area for 15 years (Roth 1987).

50. The French approach to water operations anticipates a range of roles for public and private actors. The public authority, usually a municipality, can choose to build and operate the system with its own financial resources (*regie direct* system). It can be managed either by the public authority's own staff (*regie simple*) or by an autonomous board (*regie autonome*), which is a separate local entity owned by the public authority (Roth 1987).

51. In addition, under the popular private model developed by the French, called *gestion deleguee* or delegated management, municipalities retain ownership of infrastructure and the right to impose tariffs, while private sector companies bid for long-term contracts to provide the services (Financial Times 1999c). The three most common arrangements for private sector participation in the water sector are the management contract (*gerance*); the concession system; and the *affermage* (lease) system (Roth 1987).

52. The vast majority of the water systems in France are managed with private involvement (Dyk and Lynn 1999). However, only 12% of these water systems are both owned and operated by private utilities (Jacobson and Tarr 1993). Up to one-third of the waterworks in the central communes of urban areas in France (populations of 23,000 or more) are both owned and operated by the government (Jacobson and Tarr 1993).

53. France's experience with the private provision of water services clearly demonstrates the importance and difficulty of regulating providers of basic services (World Bank 1999). There have been downsides, as well as successes, to the decentralized public-private system of municipal contracts. Sharp increases in customer fees, reports of contamination of "post-privatization" drinking water, and corruption between company executives and elected officials have been reported (Barlow 1999). Moreover, legislative changes in the 1990s, weak monitoring and regulation, and inexperienced municipal negotiators have contributed to the sometimes shaky relations between the public sector and private concessionaires. Despite these problems, however, French water companies have remained a formidable force in the provision of domestic water supply and sanitation services.

54. Based on this experience in their home market, the large, private French water companies have expanded into markets all over the world. Vivendi SA (whose water division is Generale des Eaux) and Suez Lyonnaise des Eaux own, or have controlling interests in, water projects in approximately 120 countries on five continents. They distribute water to almost 100 million customers worldwide – Suez alone delivered drinking water to 77 million people around the globe last year (Barlow 1999). Between the two, they have won more than half of the big private sector water contracts awarded between 1993 and 1997, totaling \$12.6 billion (Financial Times 1999c). Both companies are well over 100 hundred years old, giving them a depth of experience attractive to many governments seeking private involvement in water supply and waste water treatment. Another French water company, SAUR, which is owned by the construction company Bouygues, is also active in a number of countries.

2.2.2 Great Britain -- *full privatization*

55. By the early part of the 19th century, private water companies had already been serving London for over 200 years (Tynan and Cowen 1998). English private companies were also among the first to be granted concessions in other countries, such as Berlin in 1856 and Cannes in 1866 (Roth 1987).

56. At the same time, nineteenth century England faced massive urban sanitation issues. When revenues from the East India Company reverted to the Crown, government financing for sewers became feasible (Gunnerson 1991). The massive sewer construction programs were also funded by municipal bonds – allowing governments to borrow money from private investors to finance projects that promoted the public welfare. The opportunity to float municipal bonds was created in response to the challenges posed by rapid urbanization in Britain and Europe in the late 19th century (O’Meara 1999). Over time, the provision of water and sewerage services in England came to be dominated by public sector water and sewerage providers.

57. In 1989, Britain privatized its regional water and sewerage authorities (OFWAT 1993). Before the introduction of the Water Act in 1989, which authorized the privatization of the water and sewerage sector in England and Wales, there were 10 government-owned regional water authorities supplying water and sewerage services and 29 statutory water companies supplying water only (OFWAT 1993). The assets and liabilities of the 10 water and sewerage authorities were transferred to 10 private companies in September 1989. In November of the same year, shares in the holding companies were sold in the stock exchange (OFWAT 1994).

58. Instead of the French model of delegated management, England opted for full privatization – placing all of the assets of the water networks into private companies and selling their shares. In order to protect the interests of consumers, an independent water regulatory body was established (the “Office of Water Services” or “OFWAT”) to oversee prices and levels of service. Other regulatory bodies oversee the quality of drinking water (the Drinking Water Inspectorate) and waste water discharges (the National Rivers Authority, now the Environment Agency).

59. To support its private market in water services, new forms of bond issues are being developed in the UK. For instance, in March 1999, the Stirling Water Consortium issued a 79 million pound (US\$130.5 million) bond issue for a waste water project (Project Finance 1999a).

60. According to a 1996-1997 OFWAT report on the performance of the privatized water companies, the companies were more efficient than expected at the start of the privatization, and were able to improve services while reducing expenditure in real terms. Capital investment in 1996-1997 totaled 1.6 billion to 3.2 billion pounds on water and 1.6 billion on sewerage – an increase of 22% in real terms compared with 1995-1996 (OFWAT 1997). With regard to customer service, the Drinking Water Inspectorate concluded that the companies continued to improve drinking water quality through a scheduled completion of improvement programmes. Additionally, the Environment Agency was content with the performance of the companies on controlling waste water discharges. However, it expressed concern that sewerage investments were not increasing as expected even though infrastructure renewals expenditure, which increased by 29% in 1996-1997 (in real terms) compared with 1995-1996, had reached its highest level since privatization. The 1996-1997 increase was focused on water service, unlike in the year before which focused on sewerage service expenditure (OFWAT 1997).

61. While water privatization has improved many aspects of water management in England and Wales, there have been problems. Complaints have been made that the water companies deceived the government by initially understating their ability to achieve efficiency savings, thereby eventually increasing their profits (Financial Times 1999b). Public Services International reports that between 1989 and 1995, there was a 106 percent increase in the rate charged to customers, while the profits of the companies increased by 692 percent (Barlow 1999). The British firms have been attacked by media and politicians alike for these price hikes and for running short on water during drought conditions (The Economist 1996). In addition, in 1998, OFWAT criticized 10 of the water and sewerage companies and 17 water-only companies for failing to promote water efficiency by persuading customers to use less water or by significantly reducing leakages (Evening Standard 1998).

Box 3: UK Household Water Bills Lowered

Household water bills in England and Wales will be lowered by an average of 12.8% (excluding inflation), as a result of the price limits announced by the Office of Water Services (OFWAT) in November 1999. The average annual bill for water and sewerage services will go down from GBP 259 to GBP 226 for unmetered households, and from GBP 211 to GBP 189 for metered households.

Source: OFWAT 2000

62. Similar to those from France, large British water companies have also ventured into the global water market. Firms such as Thames Water, Anglian Water, United Utilities (a joint venture between two English water and electricity companies), and Biwater have interests all over the world. In North America, Thames Water has acquired the Elizabethtown, New Jersey water utility. This move is one of the latest in the British and French strategies of securing a stake in the US, believed to be the largest water market in the world (Project Finance 1999).

2.2.3 United States -- fragmented public and private systems

63. In 1790, Philadelphia was the largest city in the US with a population of 43,000. New York followed closely with 33,000 inhabitants. Neither had a central water supply (Blake 1991). People pumped water from their own wells or from public wells placed at intervals along the street. In order to address the acute risks of disease and fire, 19th century engineers constructed vast water and waste water systems, using private, not public, funds. The decision to work through private companies was influenced by the fact that London, the largest city in the world, was still being supplied by eight private companies, each serving a section of the city (Hanson 1991). Private companies supplied water to Boston from 1796 to 1848, and to Baltimore from 1807 to 1854. As late as 1860, 79 out of 156 water works in the US were privately owned. By 1890, private companies owned only 57 percent of waterworks in the country (World Bank 1999).

64. Eventually, most US cities turned to municipal ownership of water and sewerage utilities. The profit motive of private companies was thought to be ill-suited to the public supply of water. Businesses were reluctant to invest sufficient capital to cover entire cities, preferring to lay pipes through the wealthier sections and to hold back from supplying poorer areas. They also failed to provide water for public fountains and washing the streets, or to supply enough fire hydrants (Hanson 1991). Some private water utilities have remained, however, subject to stringent government regulation of prices and services.

65. With regard to waste water treatment in the US, public funds have traditionally been used. Piped sewerage systems have typically been funded by a combination of user fees, assessments on abutting property holders, and general tax revenues (Jacobson and Tarr 1993). During the 1970s, laws such as the Water Pollution Control Act Amendments of 1972 provided municipalities with federal funds for up to 75% of the money needed to plan and build waste water treatment plants. By 1984, more than \$40 billion had been spent by the federal government through the award of approximately 17,000 grants to municipalities (Jacobson and Tarr 1993). Because of this, the proportion of the population served by waste water treatment facilities increased from about 67% to 75% (1976 to 1986 figures).

66. However, increasing pressure to maintain waste water systems and to meet minimum drinking water requirements has placed US municipalities in a bind. In 1995, the government estimated that \$138.4 billion would be needed to improve drinking water treatment facilities by 2015, with an additional \$332 billion required to upgrade waste water plants (Project Finance 1999b). But since 1979, the level of federal funding has decreased considerably (Anderson 1999).

67. These pressures are leading many government officials to reconsider the involvement of the private sector in US water services. Until now, the US water sector has been controlled by small, municipal operators – only 10 to 15 percent of more than 55,000 water utilities are privately-owned (Financial Times 1999c). This trend may change for three main reasons:

- New US laws have paved the way for more private involvement in the water supply and waste water treatment business
- Municipalities are finding it increasingly difficult to finance the improvements necessary to meet stringent environmental requirements
- With close to \$90 billion in annual revenues from water services, the US is the largest water market in the world (Barlow 1999).

68. Fueling the interest in private participation has been the ability of private firms, through the use of fixed-price contracts and performance guarantees, to comply fully with environmental regulations, while at the same time achieving significant cost savings in municipal systems (Haarmeyer and Mody 1997a). Large European water companies, such as Vivendi (which recently purchased U.S. Filter Corporation), are busy acquiring interests in the small, private water companies that dot the US. At the same time, large US firms from other sectors are looking to expand into the global water business – such as Azurix (a product of US energy giant Enron and Britain's Wessex Water PLC).

2.3 Developing countries and economies in transition: emerging models for private investment

69. Much of the same debate over the roles of public and private actors in water services is occurring in developing and transitional countries – for many of the same reasons. Declining public funds, deteriorating and undersized government water systems, opportunities for attracting new private investment, technical knowledge, and management systems – all are part of the mix.

70. The key for governments is to understand and choose from the wide range of approaches for improving the performance of water and sanitation systems. Some options keep the operations in public hands, but change the operational incentives. For example, in “corporatization,” the water utility remains in public ownership, but adopts a formal, corporate structure (Netherlands Ministry of Housing, Spatial Planning and the Environment 2000). The new structure puts it at arms length to the government, typically giving the corporation rights in setting tariffs, managing budgets, and financing new projects (Global Water Partnership 1999). Corporate structures may also enhance transparency and accountability compared with traditional government set-ups.

71. Other options involve private actors in a variety of ways and to a variety of degrees. Among the major approaches being used are the following:

- Private operation, public oversight, investment and ownership – various forms of service contracts
- Private operation and investment, public oversight and ownership – greenfield “Build, Operate, Transfer” arrangements, concession contracts
- Public-private operation and ownership, public oversight – joint ventures
- Unregulated private provision – small businesses, community organizations

72. Many of these approaches are derived from the experience in industrialized countries, particularly if international water companies are involved (as described above). Others – such as municipal bond financing (Box 4) and full privatization of water companies (following the British model, as in Chile (Box 5)) – are in the early stages of development. Each is described below, using examples from developing and transitional economies.

Box 4: Municipal Bonds -- expanding local markets

In the United States and Canada, subnational governments rely on the bond market. Bond debt issued by subnational governments in the two countries now totals more than \$7.4 trillion. Bond financing is possible because both countries have well-developed capital markets, and their history of macroeconomic stability has made private investors willing to make the long-term financial commitments infrastructure investment requires. Confidence in laws and procedures; public disclosure guidelines; and well-established financial track records for local governments are other prerequisites for a strong municipal bond market. Interest payments that are tax-free to the recipient are also a major plus, as they enable municipalities to borrow at lower cost than private firms.

In many developing countries, few of these conditions exist. Many municipal governments are viewed – often incorrectly – as unattractive borrowers lacking the autonomy to raise revenues or reduce spending.

However, municipal bond markets are emerging despite these concerns. In Latin America, 52 municipalities and provinces accessed capital markets between 1991 and 1998. Asia's local bond market is estimated at \$477 billion. All Czech cities with more than 100,000 people have issued municipal bonds, enabling the investment share of Czech municipalities to remain at more than 38% of their budgets, despite deep cuts in central government capital transfers. Standard and Poor's has given Prague and Ostrava "A" ratings for foreign currency bonds. Poland, Russia, South Africa and Turkey also have nascent municipal bond markets.

Source: World Bank 1999

Box 5: Chile's Market-Oriented Policy -- predictable regulatory and investment frameworks

The goals of water policy in Chile are increasing the availability of the resource, exploiting new sources only when absolutely necessary, and minimizing any ecological damage from new infrastructure or uses of water. Chile has developed legal and institutional means to reach these goals, beginning with the basic definition of water rights. It has also built legal and administrative frameworks for private investment in which many private firms have confidence.

In general, Chilean water law entitles secure water rights that are both tradable and transferable. The prevalent form of these rights are proportional rights (shares) over a variable flow or quantity; deeds stipulate an owner has the right to a number of shares at a certain location. Water is allocated by the market within and between sectors, and the law provides effective protection from detrimental third-party effects. Water users are organized in strong and compulsory users' organizations, with faculties to solve most conflicts between members.

Urban water and sewage city services that were once state-owned have been transformed into urban water and sewage companies. Shares are owned in different proportions by the public, municipalities, the regional governments, the national government, and private investors. Shares in some companies are traded in the stock markets. These companies have concessions to supply water and sewage services to a specific city or specific sectors of larger cities.

Source: Schleyer 1992

2.3.1 Private operation, public oversight, investment and ownership – service contracts

73. Under any of the various forms of service contracts (operations, management, sometimes leases), the government hires a private organization to carry out one or more specified tasks or services for a period of time (often five to seven years). The government remains the primary provider of the water service and only delegates portions of its operations. The private firm must perform the service for the agreed upon fee and meet specified performance standards. Governments generally use traditional competitive bidding procedures to award service contracts based on specific service requirements, which tend to work well given the limited time frame and narrowly defined nature of these contracts.

74. Examples of service contracts in the water sector include the operation of a water or waste water treatment plant, provision of water distribution services, meter reading, billing and collection operations, and the operation and maintenance of standpipes (see boxes below).

Financing Structures

75. Under a service contract, the government pays the private business a pre-determined fee for the service, which may be based on a ne-time fee, unit cost, shared savings, shared revenues, or other formula. One option involves a cost-plus-fee formula, where costs such as labor are fixed, and the private business also receives a share of profits. The private contractor does not typically have a business relationship with the end-users and all financial interactions are made directly with the government. The government is responsible for funding any capital investments needed to expand or improve the system. The only private capital invested is the contractor's fronting of the bid and other preparatory costs, which it will seek to recover through its fees.

Potential Strengths

76. Service contracts provide a relatively low-risk option for expanding the role of the private sector and, by going through the process of awarding and overseeing them, governments often gain a more complete understanding of their water systems.

77. Service contracts have great potential to provide better system operation, allowing the government to obtain improvements in performance and efficiency through technology transfer and the acquisition of technical and/or managerial capacity.

78. Service contracts are one of the most competitive forms of private involvement. Since the contracts are reissued frequently, contractors should be under continuous pressure to keep costs low. Also, because service contracts are limited in scope, the barriers to entry are fairly low. For example, more businesses have the capacity to install water meters or repair water pipes than to run an entire urban water system. This not only increases competition, but also provides a greater opportunity for the government to award the contract to a local business without sacrificing cost or quality.

Potential Weaknesses

79. Service contracts do not involve significant infusions of private capital, nor do they necessarily create a base from which to optimize entire water and waste systems. As a result, the contractor's effectiveness in improving the service performance hinges on the government's ability to provide the necessary capital investments and direction. Confusion over responsibility for "maintenance" (private) and "investment" (public) can also arise.

80. Service contracts leave the government in charge of many of the most explosive political issues – the fee imposed for services and the expansion of the system's network. Therefore historically, they do little to separate the government operator from the types of political intervention that have undermined publicly run water systems.

81. Municipalities are often under pressure to award service contracts to the lowest bidder, with less consideration given to the businesses' ability to provide high quality service. This can stifle the private sector's incentives to propose innovative solutions to providing the service both during the bidding process and provision of the service.

Box 6: Mexico City, Mexico – Service Contracts

The water and sewerage systems in Mexico City are well developed, but face many operating challenges. The aquifer that is the main source of Mexico City's water supply is overused, and the drinking water distribution network suffers from major leakage, with losses well over 30 percent. As of the mid-1990's, less than half of the water consumed by the system was billed, and only 70 percent of those bills were paid.

In developing responses, the government did not need much new investment capital, given that the then existing network reached 98 percent of the population for drinking water and 94 percent for sewerage. What the government did need was technical and commercial expertise in water operations – which it decided to obtain by involving the private sector. The government also believed that phasing in private management would alleviate some of the political problems anticipated over efforts to increase rates of fee collection.

The government chose to enter into a phased program of service contracts with the private sector. First, competition was built in by dividing the city into four zones and issuing four tenders. The lowest price for performing the tasks in each zone won the contracts, which were awarded to four different companies for 10-year terms in October 1993. Second, each contract anticipated three phases of work. Phases 1 and 2 involved identifying customers, and designing and implementing a more effective billing system. The government pays the contractors directly on a simple fee-for-service basis for this work. In Phase 3 (not necessarily performed after Phase 1 and 2 depending on the local system needs), the principal task is to make improvements in the physical distribution system. In this phase, the contractors' compensation is tied to revenue earned (fees collected from customers).

The fall of the peso, and a dispute from a losing bidder, caused delays in commissioning the work. Still, the installation of water meters is continuing, an important step in discouraging excess consumption. A leak detection program has also been initiated to help with bill collection and to reduce water losses.

Source: Haarmeyer and Mody 1997a

Box 7: Contracting with Private Companies in Santiago, Chile

The Metropolitan Company for Sanitary Works (EMOS) in Santiago, Chile has traditionally used contracts with the private sector for two types of activities: those related to investment and those dealing with maintenance, quality control, and general services.

Investment contracts include feasibility studies, designs, construction and supervision of works. They also include rehabilitation and replacement of facilities. As of the mid-1990's, private sector participation in this area represents approximately 95% of the total investment budget of the company. Contracts related to maintenance, quality control and general services represent nearly 22% of the current expenditure in operation and maintenance. These contracts cover areas as diverse as: the maintenance of water treatment works, and water supply and sewerage networks; water sampling and quality testing; meter reading and replacement; billing; information management; publicity; office cleaning; and transportation. Service contracts are maintained with three private companies for the maintenance of water distribution and sewerage networks. The contracts cover from a wide variety of tasks including leak repairs, repairs to valves and fire hydrants, removing blockages from sewers and house connections. The contracts also include the replacement of pipe, and other miscellaneous tasks in support of EMOS activities, such as earthworks and road repairs.

The contracts specify that the private companies should be available 24 hours of the day and 365 days of the year to undertake any of the tasks requested by EMOS. In order to cover the fixed costs of the private company, the contract specifies a minimum volume of operations for which EMOS guarantees to contribute towards covering those fixed costs. The contracts also include provisions for price variations as well as procedures for the technical supervision of the contractor by EMOS. The contracts are renewed every 2-3 years through a system of public or private tendering. Maintenance contracts have operated since 1981, generating efficiency in service provision.

Source: Gidman 1995

2.3.2 Private operation and investment, public oversight and ownership – greenfield “Build, Operate, Transfer” arrangements, concession contracts

82. If one of the government’s key goals is attracting more private capital into the water system, but it is uncomfortable giving up ownership of water assets, two major techniques are available. One focuses on the construction and operation of new treatment plants – so-called “greenfield” or “Build, Operate, Transfer” (“BOT”) arrangements and their variants. The other anticipates the construction of new facilities, but as part of the overall running of the entire water and waste water system, including customer billing and collection – so-called “concession” arrangements. Each is described below.

Box 8: China - Reforms to increase private investment in water services

From 1992-1996, foreign investment in water projects made up only 0.3% of the total amount of foreign investment in China. The PRC government funds 70% of the costs of water supply, with only 30% actually being paid for by the end-users. Recent regulations identify water supply plants (together with highways, tunnels, bridges and power plants) as a critical form of infrastructure eligible for development by foreign investors in BOT projects. The Chinese government has undertaken a number of reforms to promote private investment in the water sector. One of the four initial projects approved for BOT status by the State Planning Commission is the US\$100 million Chengdu No. Water Plant “B” BOT Project. As described in Box 11 below, this project was awarded to a foreign consortium including Vivendi in July 1998.

Source: Morrison and Foerster 1998

2.3.2.1 Greenfield/BOT arrangements

83. BOT contracts are designed to bring private capital into the construction of new treatment plants. Under a BOT, the private firm finances, builds and operates a new plant for a set period of time according to performance standards set by the government. The operations period is long enough to allow the private company to pay off the construction costs and realize a profit, typically 10 to 20 years. The government retains ownership of the infrastructure facilities and becomes both the customer and the regulator of the service.

84. BOTs tend to work well for new facilities that require substantial financing. Governments generally issue BOT contracts for the construction of specific infrastructure facilities, such as bulk supply reservoirs and drinking water or waste water treatment plants. BOTs typically involve the construction and operation of only one facility and not the entire system.

Financing Structures

85. Under BOTs, the private sector provides the capital to build the new facility. In return, the government agrees to purchase a minimum level of output over time, regardless of the demand. The purpose is to ensure that the private operator can recover its costs over the contract period. This requires that the government estimate demand with some accuracy at the time the contract is set. Otherwise, it will have to pay for water that is not being used, even if demand is less than expected. The size and time frames associated with BOTs require the development of sophisticated and often complicated financing packages. Frequently these involve substantial infusions of equity directly from the private project developers (in the range of 10% to 30%), combined with debt from third parties – usually international commercial banks. The possibility of using bonds to tap the international capital markets is also attracting increasing interest.

Potential Strengths

86. BOTs are an effective way to bring private money into the construction of new water and waste water facilities or the substantial renovation of existing ones.

87. BOT agreements tend to reduce market and credit risks for the private investors because the government is the only customer, reducing the risks associated with insufficient demand and ability to pay. Private investors will avoid BOT arrangements where the government is unwilling to provide adequate assurances that the private sector investment will be paid back.

88. The BOT model has been used to build new power plants in many developing countries. This history means that potential financial partners and operators have less of a learning curve to climb in structuring such transactions in the water and waste sectors, which increases their appeal.

Potential Weaknesses

89. BOTs generally involve only one facility, which limits the private firm's ability to help optimize system-wide resources or efficiencies. BOTs can, however, provide a platform for increasing local capacity to operate infrastructure facilities by exposing local employees to international practices.

90. BOTs provide some competitive incentives for efficiency, since private companies must compete on technical and financial terms to win the contracts. However, the duration and complexity of BOT arrangements make these contracts difficult to design, a fact that may eventually undermine the positive effects of the initial competition. For example, many BOTs have to be renegotiated to reflect changed circumstances once they are underway. These negotiations are then essentially conducted in the absence of competition.

Box 9: Izmit, Turkey – BOT for Construction and Operation of a New Drinking Water Plant

Seven years of negotiation led, in 1995, to the signing of a \$933 million BOT contract for the construction of a new drinking water plant in Izmit, a coastal town southeast of Istanbul. The plant will serve all 1.2 million of Izmit's residents. Thames Water of Britain is the lead investor in the consortium to build and operate the plant, which will revert to the state 15 years after operations begin.

One of the largest privately financed water supply projects in the world, Izmit has an innovative financing structure. First, there is substantial local participation. Thames has agreed to work with two local Turkish contractors who share in the equity ownership. Furthermore, the municipality is also a shareholder (15 percent) in the project. Perhaps the most critical aspect of the Izmit financing, however, is that the Turkish central government is guaranteeing 85 percent repayment of construction costs. This guarantee opened the doors to international finance in the face of concerns over "political risks" in Turkey. Two Japanese firms took another 15 percent of the equity and arranged for \$180 million in debt. Export credit agencies in Britain, France and Japan also helped the financing arrangements by covering political and commercial risks, and sharing the debt financing.

The Izmit agreement is "take-or-pay," obligating the city to pay for a minimum and maximum amount of water delivered by the project company. If the municipality defaults, the lenders have recourse to the Turkish government.

Source: Haarmeyer and Mody 1997a

Box 10: Chengdu, China

In August 1999, the Asian Development Bank ("ADB") approved a loan of the amount of US\$48 million to help provide a reliable supply of water to nearly 3 million residents in the City of Chengdu, the capital of Sichuan province, China. Chengdu is one of 108 cities in China, which has been classified as having serious water shortages.

The project is China's first pilot BOT water supply project and one that is being used as a model to encourage private sector participation in the water supply sector. The ADB borrower is Chengdu Generale des Eaux-Marubeni Waterworks Co. Ltd., a company sponsored by a consortium of Vivendi (France) and Marubeni (Japan).

The terms involve an 18-year contract, during which time, the project will construct and operate one of the most modern water supply plants in the PRC with a capacity of 400,000 cubic meters. A water intake works and a 27-km transmission line to the city is also part of the project.

The ADB loan for this project is approximately US\$26.5 million with an additional US\$21.5 million being financed through external commercial lenders other donors. The total cost of the project is US\$106.5 million.

Source: IPWA 1999

2.3.2.2 Concession contracts

91. In a concession contract, the government turns over full responsibility for the delivery of water and waste water services in a specified area to a private contractor ("concessionaire") – including all related construction, operation, maintenance, collection, and management activities. The concessionaire is responsible for any capital investments required to build, upgrade, or expand the system, and for financing those investments out of the tariffs paid by water users. The public sector is responsible for establishing performance standards and ensuring that the concessionaire meets them.

92. In essence, the public sector's role shifts from being the provider of the service to the regulator of its price and quantity. Such regulation is particularly critical in the water sector, given that water is a public good and piped delivery systems are natural monopolies. The fixed infrastructure assets are entrusted to the concessionaire for the duration of the contract, but they remain government property. Concessions are usually awarded for time periods of over 25 years. The duration depends on the contract requirements and the time needed for the private concessionaire to recover its costs and profit.

93. Most water concessions to date have been done in capital cities or at the national level. In part, this may be due to the greater size, and hence revenue base, of these concessions. It may also be due to the fact that they are being driven by national government leaders as part of their broader push for private sector involvement in traditionally government services.

Financing Structures

94. Over the life of the contract, the private sector manager is responsible for all capital and operating costs – including infrastructure, energy, raw materials, and repairs. In return, the private operator collects the tariff directly from the system users. The tariff level is typically established by the concession contract, which also includes provisions on how it may be changed over time.

95. Structuring the tariff and the accompanying regulatory system is often the most complicated part of any concession arrangement. Tariffs need to be high enough to allow the operator to make a profit if it

performs well, but not so high that the profits are excessive – causing a political backlash. The two most widely used approaches are the “price cap” and “rate of return” models. Under a price cap approach, the basis for the British regulatory structure, water prices are set for a number of years (usually five). If the water operator achieves higher than expected efficiencies, therefore lower costs, it can keep the savings as profit – until the next periodic price review. Under the rate of return approach, widely applied in the US, an allowable level of profit is determined (often in the range of six to 12 percent), and the operator is allowed to charge rates that result in that level of profit over its costs (Klein 1996).

96. Under either approach to setting tariffs, the key battles are over information. Does the regulator have enough information to make informed judgements as to the actual state of the concessionaire’s finances during the concession period? Is the private operator meeting the performance standards and are the customers well served? Managing information flow among the concessionaire, the users, and the regulators is one of the key challenges facing concession arrangements.

97. As with BOTs, the financing for concession investments typically involves a combination of equity and international debt. Moving from guaranteed payments by governments to anticipated revenues from customers increases risks to the private sector partner. This is particularly true for currency risks, as the revenues are in local currencies, while the debt payments often need to be made in foreign currencies.

Potential Strengths

98. Concessions are an effective way to bring private money into the construction of new water and waste water systems or the substantial renovation of existing systems.

99. Combining the responsibility for investments and operations gives the concessionaire strong incentives to make efficient investment decisions and to develop innovative technological solutions, since any gains in efficiency will usually increase profits. In some countries, concessions have been successful in both improving water services and reducing water charges.

100. Concession operations are less prone to political interference than government-operated utility services because the service stays under the same operator regardless of changes in governments.

Potential Weaknesses

101. Large-scale concessions can be politically controversial and difficult to organize. In particular, concessions often suffer from a failure to undertake sufficient dialogue and joint planning with affected parties (users, employees) prior to entering into long-term contractual commitments.

102. Although concession contracts specify performance targets, price adjustment mechanisms, and service standards, government oversight of the concessionaire's performance against those standards is critical. This often requires governments to expand significantly their regulatory capacity.

103. It is difficult to set fixed bidding and contractual frameworks for concessions that are to last for 25 years or more. No one can predict in advance – with the level of certainty applied in traditional public sector bid specifications – the most efficient and effective ways to provide the desired service over that period of time (Bennett 1998a). A number of methods for combining predictability and flexibility are being explored, such as (i) having the bidders offer a total amount of investment they are willing to make based upon a specified service fee -- without specifying how the total investment will be allocated or (ii) including contract terms that anticipate revisions of capital investment programs and tariffs throughout the contract period.

104. Some argue that the benefits of open competition are limited in the concession market since only a small number of large, international companies are usually able to meet the pre-qualification criteria for bidding to run a concession. In addition, concessions essentially create a monopoly, which then protects the concessionaire from most forms of competition during contract renegotiations.

Box 11: Aguas Argentinas, Buenos Aires – Water and Sewerage Concession

As part of Argentina's extensive privatization program in the early 1990s, control over Buenos Aires' water and sewerage system was awarded to Aguas Argentinas ("AA"), a consortium led by the French company Lyonnaise des Eaux. In order to win the bid, AA offered the greatest reduction in then existing water tariffs. In addition, AA agreed to a 30-year investment plan of US\$4 billion to connect 100 percent of the population in the concession area to drinking water and 90 percent to sewerage.

Since winning the concession, AA has connected over half a million new residents to drinking water and 300,000 to sewerage. Drinking water supplies have expanded and quality has improved. Increased efficiency has led to economic and environmental benefits through the reduced use of chemicals. Commercial incentives have led AA to check water quality more frequently than required by regulation and to re-examine how to address the waste water treatment issues.

Argentina's overlapping authorities to regulate environmental matters have caused some confusion. Questions have been raised over whether AA is subject only to the regulatory structure authorizing the concession, including environmental standards enforced by a specially created regulatory body, or also to separate, conflicting environmental legislation enforced by the national environment ministry alongside provincial and municipal authorities.

Some argue that the concession may also have led to missed opportunities to optimize the waste water treatment system during the privatization process. The speed at which the government decided to proceed required bidders to agree to construct several specific waste water collection and treatment facilities identified in prior government planning efforts. Questions have been raised about whether these specific facilities are really the most cost-effective way to address the waste water issues facing the city. Pursuit of more efficient investment plans led to the disqualification of one bidder and efforts to renegotiate the concession by the winning bidder.

The concession has also faced issues in low-income areas of the city. While water mains were laid, connection fees were sufficiently high that many households chose not to connect. Eventually, changes to the tariff system were made that allowed the connection fees to be eliminated.

Sources: Gentry 1998; Haarmeyer and Mody 1998b; Press Reports

Box 12: Sofia water – Recent Award of a concession

The Municipality of Sofia has selected International Water and United Utilities (including Suez Lyonnais des Eaux and a consortium comprising Vivendi, Marubeni and Berliner Wassertriede) as preferred bidders for the city's water and waste water concession.

The consortium has agreed to invest \$200 million over the life of the concession (25 years), including \$65.5 million during the first three years. To be included are the development of new facilities, refurbishment of the supply system, and the establishment of a customer service center.

This is one of the first concessions to be tendered internationally in Central and Eastern Europe. As such, it is being watched closely by those looking to participate in the growing private involvement in European water markets.

Source: Project Finance 1999c

Box 13: Manila Water Concession

Privatization of Manila's Metropolitan Waterworks and Sewerage System ("MWSS") was completed on August 1, 1997. MWSS was the government-owned water supply, treatment and distribution utility serving the metro Manila area of over 11 million people and 37 municipalities. Based on the privatization plan prepared by the International Finance Corporation ("IFC") – which was retained by the Philippine government as principal adviser to the project in 1995 – MWSS awarded 25-year concessions to two consortia to assume full operational and investment responsibility for the city's water and sewerage system. The two consortia, the Manila Water Company, Inc. ("MWC") and Maynilad Water Services, Inc. ("MWS") are expected to invest up to US\$7 billion during the contract period to improve and expand the system.

MWC is a joint venture of Ayala Corp. of the Philippines, United Utilities of the UK and the US -based Bechtel Corp. MWS is a consortium composed of the Philippine industrial group, Benpres Holdings Corp. and the French company, Lyonnaise des Eaux. MWC will be responsible for management and development of the water system in the eastern part of the city and MWS in the western. MWSS will be transformed into the economic regulator with responsibility to monitor and enforce the two concession agreements.

At present, only two-thirds of the population of Manila has access to a piped water supply and only 11% are connected to the sewerage network. Over 55% of the water produced is estimated to be lost through leakages or theft.

All this is to change dramatically as a result of privatization. Under the terms of the agreements, average water tariffs will decrease by more than 50% from present levels, water pressure and availability will meet international standards within three years, universal water coverage will be assured within ten years and more than 80% of the population will have sewerage and sanitation services within the concession period.

Source: Joseph 1997

Box 14: Bucharest Privatizes Municipal Water Services

The French firm, Vivendi, has won the tender to privatize the Bucharest municipal water services via concession, in the biggest privatization of a municipal-owned water company to date in Central and Eastern Europe. The contracts were signed in March 2000 by Vivendi, concluding a privatization for which the International Finance Corporation served as principal advisor to the Municipality of Bucharest. (cont.)

Currently, a state-owned municipal company, RGAB, provides water and sanitation services to the 2.3 million residents of Bucharest. In 1995, RGAB obtained a US\$25 million long-term loan from the World Bank to rehabilitate part of the water supply system and modernize meters. But the company faced low tariffs and relatively high non-payment of bills that made upgrading difficult. The new concession provides for the treatment and distribution of potable water and sanitation services. Vivendi will implement a tariff structure with a 15 percent real tariff increase in the first year of operation, no tariff adjustment for the next four years, and a downward adjustment thereafter. Preliminary calculations indicate that the average tariff over the life of the concession will be about 35 percent below the current rate of approximately Lei 3162.80. The quality and experience of the winning operator; the competitiveness of the tariff bid, which will directly benefit consumers; and the transparency of the tender evaluation process will contribute to reliable service, according to the Bucharest Municipality. This project received substantial technical assistance support from the governments of Denmark, Japan, and the Netherlands.

Source: International Finance Corporation. 2000.

Box 15: Worst-Case Scenario: Concession Breakdown in Tucuman, Argentina

In 1995, French water company Vivendi SA entered into a 30-year concession with the Peronist government to run the water and sewage system in the province of Tucuman. Within months, the company doubled tariffs to cover an aggressive investment program. During that same period, a new governor, Antonio Bussi, came into office and took issue with the privatization. Using the new, higher rates to rally support, he and his supporters took to the streets, encouraging citizens to stop paying their bills. Then, inexplicably, the water turned brown. Few residents needed more persuasion that privatization was a bad idea. The province accused Vivendi's unit of inadequate service, not filling guarantees, not completing work, not meeting quality standards, and not cutting tariffs on schedule. More than eight of ten residents stopped paying their bills, leading the company to rescind its contract. For Vivendi, which filed a \$100 million suit against the government, the move to end its contract was the first in its 145-year history.

The Tucuman water system is now back in state hands. The provincial governor allowed Vivendi out in October 1998, though a World Bank arbitration panel is still considering its complaint. In April 2000, Tucuman province dropped its 34.15 mln pesos lawsuit against Vivendi unit Cia Aguas del Aconquija SA. Vivendi has cross-sued Argentina at the Washington-based Inter-American Investment Dispute Settlement Centre for a total US \$335 mln under the bilateral 1991 investment protection treaty with France.

One would think that such high-profile problems would deter other governments from privatizing water services. But with private companies viewed as the only source of money to fix the region's pipes, privatization remains the path chosen by Latin governments – even if the politics of water is a delicate one.

Source: Hudson 1999; Financial Times 2000b

Box 16: Water Hikes Spark Protests in Bolivia

On April 12, 2000, protest leader Oscar Olivera called for a halt to week-long, violent demonstrations across Bolivia after the government canceled the water management contract granted to Aguas del Tunari, an international water consortium, for work in Cochabamba. The contract was terminated following a week of civil unrest over the planned increases in water tariffs.

Whilst Aguas del Tunari is claiming that the Bolivian government unilaterally terminated the contract, an official spokesperson from the Bolivian Ministry for Overseas Trade and Development claims that the consortium itself retired in order not to provoke any more clashes. According to Aguas del Tunari, investments made to date do not exceed \$10m (10.4 million euros or Pta1.736bn). The consortium is claiming compensation on the basis of the amount already invested, plus a 16 rate of interest and 0.25 per cent of capital for each lost year of the concession.

Source: CNN 2000; Financial Times 2000b

2.3.3 Public-private operation, investment and ownership, public oversight – joint ventures

105. In joint ventures, public and private actors assume co-ownership of water assets and co-responsibility for the delivery of water services. The public and private sector partners can either form a new company (as in the example from Cartagena below) or share ownership of an existing company (e.g., when the government sells shares in an existing company to the private sector – as in the Thai example below). Joint ventures create a new entity to implement the various types of project structures – for example, the government may award the jointly owned firm a service, BOT, or concession contract.

106. Joint ventures provide a vehicle for “true” public-private partnerships in which governments, businesses, non-governmental organizations and others can pool their resources and generate shared “returns” by solving local infrastructure issues. Under joint ventures, the government remains the ultimate regulator, but it also is an active shareholder in the operating company. From this position, it may share in the operating company’s profits and help ensure the wider political acceptability of its efforts. The private sector partner often has the primary responsibility for performing daily management operations.

Financing Structures

107. Under the joint venture model, both the public and the private sector partners are responsible for investments. Joint ventures require that both parties accept the idea of shared risk and shared reward. Each must be willing to make quantifiable contributions throughout the project development and implementation process. Different approaches to financing can be used depending on the nature of the services to be performed – varying from those under service contracts to those resembling concessions.

Potential Strengths

108. Joint ventures combine the advantages of the private sector – dynamism, access to finance, knowledge of technologies, managerial efficiency, and entrepreneurial spirit –with the social responsibility, environmental awareness, local knowledge, and job generation concerns of the public sector.

109. Under a joint venture, both the public and private sector partners have invested in the company and therefore both have a strong interest in seeing the venture work. This can allow for better conflict management.

110. Full responsibility for investments and operations gives the public and private sector partners a large incentive to make efficient investment decisions and to develop innovative technological solutions, since any gains in efficiency will directly increase their joint returns.

111. Early participation by the public and private sector partners allows for greater innovation and flexibility in project planning and helps ensure that both the public and private partners are able to optimize their goals.

112. Early dialogue between the public and private sector partners can help reduce the transaction costs associated with more traditional tendering processes.

Potential Weaknesses

113. The government's continuing regulatory responsibilities may lead to a conflict of interest in maintaining both public accountability and an eye on maximizing returns to the venture. This can increase the risk of political interference and reduce potential gains from private sector management.

114. Private sector organizations tend to focus on the “bottom line” – governments on the process. These differences are often manifested in the timetables each sector considers reasonable and can create barriers during project development.

115. The early dialogue between the public and private parties involved in some joint ventures may lead to alternative public tender procedures such as direct negotiation. This can raise concerns about transparency and corruption in the selection of partners, which can affect political acceptability and additional private sector investment.

Box 17: Cartagena, Colombia – Joint Venture in Water Service Provision

Facing huge inefficiencies and poor service, the government of Cartagena liquidated the public water and sewerage utility. In its place, it created a mixed-capital company – Acuacar – to serve the city's 750,000 inhabitants. Acuacar is jointly owned by the government of Cartagena and Aguas de Barcelona, a Spanish provider of water services. It has been awarded a 26-year operation and maintenance contract, and assumed control of the system in 1995. The City of Cartagena continues as the sole owner of the system, with full responsibility for funding any needed expansion. Aguas' is to provide operating services and receives a fixed percentage of total revenues and divided distributions from Acuacar's profits. The new company is regulated, in theory, by a national commission, but in practice the oversight responsibilities have been unclear.

Acuacar has proved considerably more responsive to its users than the former utility. Also, substantial investments in maintenance and rehabilitation have occurred after an 11-year hiatus and water quality has improved.

However, given the scope of needed investments, on the order of \$250 million over five years, and the fact that the private shareholder has no responsibility to invest, it is unclear how extensive further improvements can be. Savings from improved management appear insufficient to generate the needed level of investment or creditworthiness.

Source: Rivera 1996

Box 18: East Water- Thailand

The Eastern Water Resources Development and Management Company ("East Water"), a subsidiary of the Provincial Waterworks Authority ("PWA") of Thailand, took part in an initial public offering ("IPO") on the Stock Exchange of Thailand in early 1997 -- becoming the first water company in Asia to be listed on a stock exchange.

As a result of the stock offering, East Water's ownership was as follows: 44 per cent owned by PWA, 5 per cent by the Industrial Estate Authority of Thailand, with the remaining 51 per cent held by private portfolio investors. The listing resulted in Bt2 billion for East Water, allowing the company to finance many of its proposed projects from its own capital. For example, its new pipeline system project for Chachoengsao is to be financed mostly by its own capital with the balance from debentures. Expected to be completed in late 2000, the pipeline will expand East Water's network in industrializing areas.

Preparing for diversification, East Water has established a wholly owned subsidiary as its vehicle for expanding into the production and supply of "clean" and desalinated water. There are two main areas for East Water to expand into the clean water business. The first is to participate directly with the privatization of the state-owned water utilities. The other is to expand into areas yet to be covered by the state agencies. For example, East Water has ventured into the small, but high potential business of selling drinking water via vending machines.

Source: The Nation 1999

Box 19: Lithuania: Kaunas Water Works

An EBRD loan to Kaunas Water Works, a joint-stock company in Lithuania, is helping to finance a waste water treatment plant, rehabilitation and extension of the water network and pumping stations, and a water saving program. The project also includes an institutional development and technical assistance component related to project management, organizational development and training or personnel.

Source: EBRD 1995

Box 20: Kelantan, Malaysia: State Government Buys Back Privatized Water Supply

Thames Water has agreed to sell its entire 70% equity in Kelantan Water for MYR 50 million (EUR 12.4 million) to the Kelantan State Government. Kelantan Water was set up as a joint venture between state agency Yayasan Kelantan Darulnaim (30% equity) and Thames Water (UK) in 1995. Burdened with debts of over MYR 100 million, the company was unable to implement any pipe infrastructure works, bringing housing and commercial projects in the state to a standstill. The people in the state also had to endure low pressure, disruptions and unhygienic water supply. The Prime Minister has offered a MYR 600 million (EUR 149 million) soft loan to the Kelantan government to solve the current water crisis.

Source: The Star 1999

2.3.4. Unregulated private provision -- small businesses, community organizations

116. At the same time that governments are exploring these more formal ways to involve the private sector, areas not currently served by government water systems are being served by private providers. Some are small businesses (Solo 1998). Others are community-based water and sanitation associations (IRC 1996). Many fall outside formal government structures. Most operate in the poorer, peri-urban neighborhoods that face major issues of land tenure. All possess a largely untapped, potentially extremely valuable, base of knowledge and credibility for building local water businesses eventually to participate in more formal government procurement efforts.

Box 21: Small Scale Water Businesses

Recent studies suggest that in most cities in developing countries, more than half the population receives basic water services from private entrepreneurs, as opposed to an official utility.

There are a number of ways in which entrepreneurs provide this service. The most common is residential resale, where an individual with connections to the piped water systems resells water to neighbors and extended families through standpipes or extensions to trunk lines. In Bamako, Mali, it has been estimated that 25 percent of the city's water supply is provided through residential resales. Alternatively, those who have private wells sell ground water to secondary vendors. In Tegucigalpa, Honduras, Guatemala City, Guatemala, and Lima, Peru, as well as in Turkmenistan and Uzbekistan, form of water supply accounts for approximately 30 percent of total water availability.

Furthermore, a study by the World Bank found that small-scale network infrastructure systems also provide house connections. For example, in Asuncion, Paraguay, "aguateros" service more than 20 percent of the city through 200 aqueducts fed from wells, with each system serving between 50 and 1000 families. Private entrepreneurs also own or manage water points, "kiosks", latrines, pipelines, storage tanks and fillers, as in Dhaka, Bangladesh, Nairobi, Kenya and Addis Ababa, Ethiopia.

Source: Solo 1998

117. When water services from governments or private vendors are inadequate, community-based provision can fill the gap. Community-based providers include individuals, families, or local community associations. Community-based organizations ("CBOs") can play a key role in organizing local collective action. They can then work with international non-governmental organizations ("NGOs") and others to organize and fund the water services.

118. For example, community-based providers may buy water in bulk from the local utility and sell it in their community in buckets. Group taps may also be used to provide service to three to six households using only one tap. Other water options include "communal water point service" where 20 to 30 households install metered taps off the main system and regulate their own water use, paying the bill collectively.

Financing Structures

119. Small business and community-based provision typically involves low initial costs, as little capital equipment is needed and human capital is available through the local providers. Local knowledge generally allows for the development of least cost solutions, keeping expenses low. For community-based provision, initial organizational and material costs are often covered by NGOs, private charities, official development assistance, the local government, as well as by the community itself. Maintenance costs are covered through user fees.

Potential Strengths

120. Small business and community-based provision taps into local knowledge, which often results in the more efficient provision of services and protects against misguided investments.

121. Community-based arrangements typically reduce initial investment costs by integrating local resources, e.g. labor, local materials, as well as guarding building materials, supervising workers and provisions, etc.

122. Small businesses and community-based provision can provide local residents with a stable form of income, which can improve local economic conditions.

123. Small businesses and community groups are dynamic and often able to respond better to customer demand, resulting in more sustainable infrastructure services.

Potential Weaknesses

124. Two major concerns with small business and community-based provision are coverage and scale. Although often successful in specific neighborhoods, they can be difficult to expand to a larger scale or be replicated in other neighborhoods.

125. Governments are sometimes reluctant to support community-based providers because their informal methods of service provision are viewed as illegal and unstable. Similarly, "informal" water firms may be hesitant to increase their visibility and contact with formal government systems.

126. To build up sustainable community-based infrastructure projects takes time. Institutionalizing and maintaining those structures can be difficult.

Box 22: La Sirena, Cali, Colombia – Community-Based Provision of Water Services

In La Sirena, urban settlements lie on steep hillsides that require pumping water at very high costs. With 53 percent of the residents engaged in the “informal economy,” this area has minimal financial resources on which to draw. The community sought assistance from SIRENA, an inter-regional center for water supply and drainage, which helped establish a multi-stage filtration mechanism and a PVC (piping) network to render and distribute potable water throughout the settlements.

Since construction of the network in 1987, a user-elected Action Committee of volunteers has established a differentiated tariff regime according to type of household (households with tenants versus single family households). The Committee also employs two operators who monitor water quality and conduct daily network inspections.

In 1996, the community succeeded in funding improvements by obtaining outside financing. Tariffs pay for operation and maintenance costs, but future expansion will involve additional external financial support or direct financing.

Source: Watson 1997

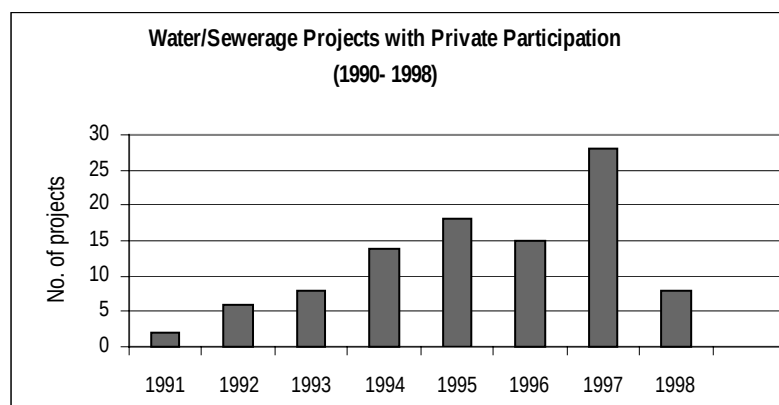
2.4 Summary

127. Ever since human settlements and government structures were large enough to support communal water systems, there has been an ebb and flow between public and private provision of water services. To this day, the key challenge has remained the same – finding the balance between public and private involvement that most effectively delivers the desired levels of water and waste water services to local water users.

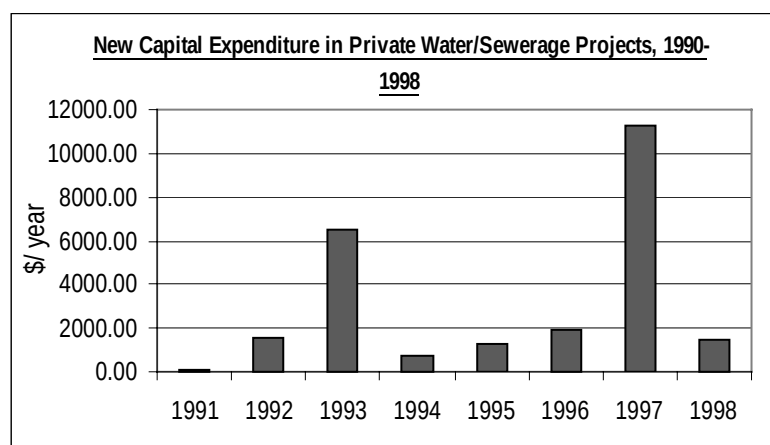
128. While most water and waste water systems remain in public hands (Roth 1987), the current trends around the world are toward increasing private involvement. Data from the World Bank’s database on private participation in infrastructure and other sources show the recent experience in developing countries, as reflected in figures 7 through 14.

129. Various forms of private involvement assign different roles to public and private parties. Matrix 1 summarizes the allocation of these roles across a range of structures. What stands out is that the government (indicated by the the darkest squares) always retains responsibility for setting and enforcing performance standards – regardless of the form of private involvement chosen.

130. For governments, NGOs and others interested in attracting more private involvement in their water systems, the critical questions are: (i) what lessons have been learned about private involvement in the water sector; and (ii) based on those lessons, what steps can be taken to attract more private involvement in water services. These topics are addressed in Parts 3 and 4 of this report.

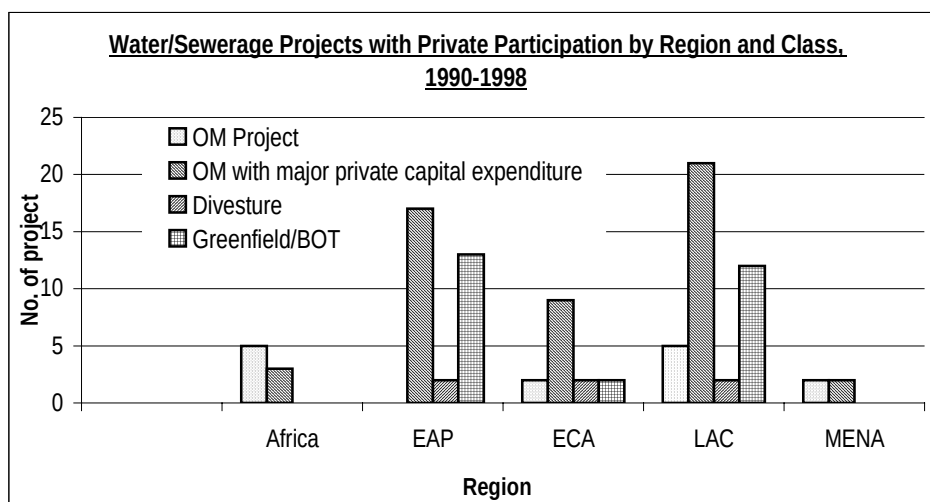
Figure 7: Water/ Sewerage Projects with Private Participation

Source: World Bank 1999

Figure 8: New Capital Expenditure in Private Water/ Sewerage Projects

Source: World Bank 1999

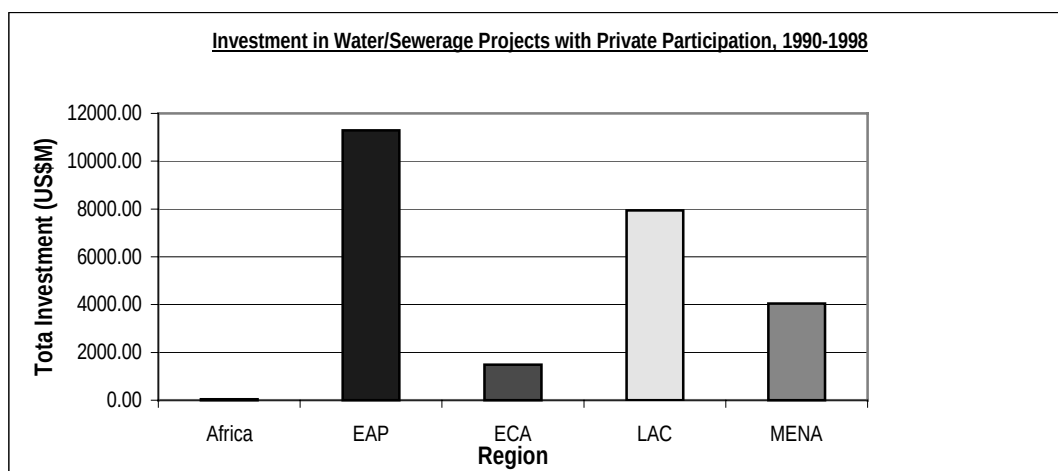
Figure 9: Water/ Sewerage Projects with Private Participation by Region and Class



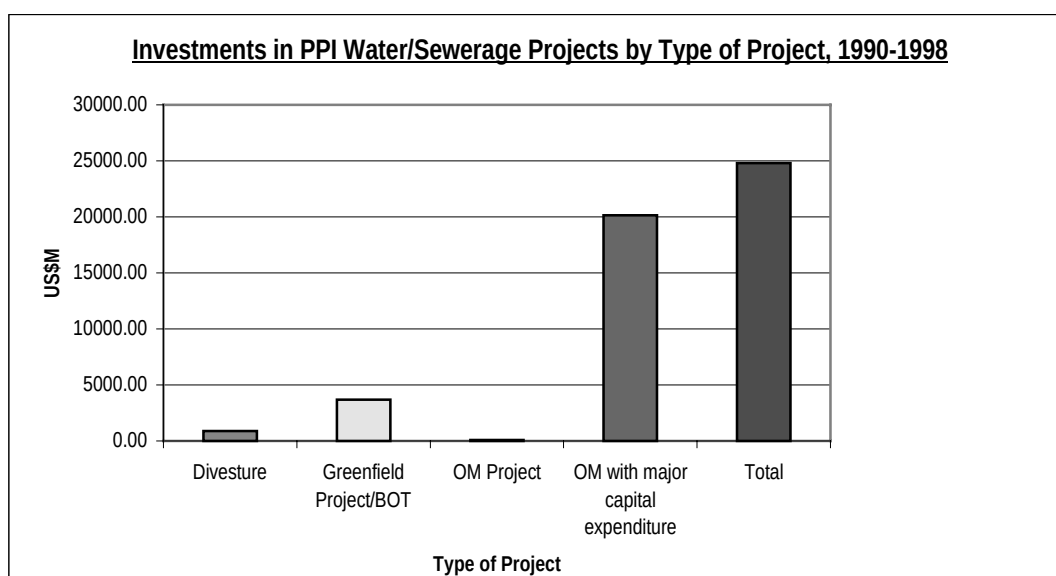
Note: EAP means East Asia and the Pacific; ECA means Europe and Central Asia; LAC means Latin America and the Caribbean; and MENA is the Middle East and North Africa

Source: World Bank 1999

Figure 10: Investment in Water/Sewerage Projects with Private Participation



Source: World Bank 1999

Figure 11: Investments in PPI Water/Sewerage Projects by Type of Project

Source: World Bank 1999

Figure 12: Present Use of Public-Private Partnerships ("PPPs") Around the World

	Investment (billions)	Purchases (billions)	Population (million)
Total Planned PPPs	\$ 117.7	\$ 21.6	240
Operational PPPs	\$ 112.7	\$ 20.8	216
MLIC Planned PPPs	\$ 36.7	\$ 3.1	165
MLIC Operational PPPs	\$ 32.2	\$ 2.3	142

Note: MLIC means middle and low-income countries

Source: Franceys 2000

Figure 13: Type of Contracts Operational in Middle and Low-Income Countries ("MLIC")

Lease	1%
ROT	2%
Divestiture	2%
Enhanced Lease	3%
Partial Divestiture	4%
Management Contract	12%
Concession	19%
BOT	22%
Service Contract	35%

Source: Franceys 2000

Figure 14: International Lead Contractors in Middle- and Low- Income Countries'**Water Systems**

Lyonnais des Eaux	36%
Aguas de Barcelona	6%
Vivendi Water	21%
SAUR	9%
Aguas de Valencia	2%
Thames	8%
Biwater	6%
United Utilities	2%
Anglian Water	2%
Severn Trent	1%
Azurix	5%
IWL	2%
Others	8%

Source: Franceys 2000

Matrix 1: Allocation of Public/Private Responsibilities Across Different Forms of Private Involvement in Water Services

	Setting Performance Standards	Asset Ownership	Capital Investment	Design & Build	Operation	User Fee Collection	Oversight of Performance and Fees
Fully Public Provision							
Passive Private Investment							
Design and Construct Contracts							
Service Contracts							
Joint Ventures							
Build, Operate, Transfer							
Concession Contracts							
Passive Public Investment							
Fully Private Provision							

Key: Dark grey = public responsibility
 Light grey = shared public/private responsibility
 White = private responsibility

Source: Yale-UNDP Partnerships Program 1998

PART 3: LESSONS LEARNED ABOUT PRIVATE INVESTMENT IN URBAN WATER AND WASTE WATER SERVICES

131. As described in Part 2, governments around the world are increasingly seeking to involve private firms in the provision of urban water and waste water services. This choice, however, raises concerns in many quarters. What are the tradeoffs governments must consider when deciding whether to provide or oversee water services? Why do some international private investors have trouble finding attractive water deals when there is a crying need for more investment in water services?

132. The purpose of this Part 3 is to summarize some of the lessons learned about the factors influencing private investment in water services. Its focus is on understanding the major issues facing both governments and potential private investors. Recommendations for actions that governments and others can take to meet these needs are provided in Part 4.

3.1 Private involvement does not relieve the government of its responsibility to ensure that basic rights to water are met

3.1.1 From ancient times to the present, water and waste water services have been provided by a mix of private and public actors

133. As described in Part 2, from the time that governments first started providing public services until today, both private and public actors have been involved in the water sector. In fact, private suppliers were there first, as individuals or communities meeting their own needs, or entrepreneurs meeting the needs of their customers. Both of those roles continue today in areas where governments cannot or will not provide basic water services.

3.1.2 Governments are responsible for ensuring that their public's basic needs are met – involving the private sector is just one tool for doing so

134. To the extent governments have taken on the responsibility for providing water to their citizens, they have a choice in how to do so. They can provide those services directly, retaining complete control over all aspects of the operations. Alternatively, they can involve private parties, to a greater or lesser degree, if it is likely to increase efficiency, access to technical and managerial expertise, or private investment. Either alternative may succeed or fail depending on a wide range of factors (Tang 1997; see also Boxes 15, 16 and 21 on failed efforts to involve private firms).

135. Either way, governments retain the ultimate responsibility for ensuring that basic public needs are met. Private sector involvement does not mean that governments are relieved of or must abdicate that responsibility. Rather, it means that governments must change the manner in which that responsibility is met.

3.1.3 Meeting their responsibility requires governments actually to understand and be driven by the needs of users

136. Satisfied water users are good customers and sympathetic voters. As demonstrated by the April 2000 riots in Bolivia (see Box 16), however, dissatisfied water consumers can be the spark that ignites smoldering resentments across a range of economic and social issues.

137. Subsidized water systems can also generate satisfied users, but only until the system falls apart – from water scarcity, high operating costs, poor maintenance, limited coverage, lost revenues, or other problems. This is the situation faced today by many water systems in developing and transitional countries. How to square the cost of adequate, long-term service with the fees charged to users is the key issue.

138. Users have proven over and over again that they are willing and able to pay for water services – provided that they are satisfied with what they receive. Governments must understand user needs and reflect them in their decision-making. Water planning must move from being driven by the technical supply of water services to being driven by user demand. Differentiated or decentralized services may meet the needs of users more effectively than traditionally centralized systems. Education programs may be needed to help users understand the constraints on the system, the options for addressing the constraints, and the costs of the different approaches. Transitional funding may be needed to ease the shift to full cost pricing. Special efforts – such as “life-line” tariffs or Chile’s water stamps program (see Box 23) – may have to be made to meet the basic needs of the poorest users.

139. Private firms are usually more attuned to customer demand than governments. They succeed or fail based on customer satisfaction. They have techniques for understanding and responding to customer needs. They are used to designing technical and managerial solutions to fit costs to demands. If governments decide to involve private firms, they can use the firms’ customer relations experience to help collect information on and design responses to meet customer demand in a cost effective manner.

3.1.4 If governments decide to involve private firms to help meet their responsibility, they also need to shift from being the manager of the water system to its overseer and regulator

140. As the provider of water services, the government manages all aspects of the water system. It decides what is to be built, who is to be hired to do what, how much is to be charged, what quality of water is to be provided, and all related matters.

141. The government takes on a very different role if it decides to involve the private sector. At least for those tasks assigned to the private firm (and they may be small or large), the government stops being the day-to-day manager of that work and becomes the overseer of the work done by the private firm.

142. This change in role requires governments to find a new, and often awkward, balance between too much or too little oversight of the private firm. If the government watches the firm’s every step, or second guesses every decision, there are likely to be few, if any, efficiency gains. On the other hand, if the government blindly assumes that the firm is doing a good job, and does not check its performance, the government’s responsibility to ensure basic water services is unlikely to be met.

143. Making this shift from provider to overseer and regulator is extremely difficult for many governments. This is particularly true for countries making a transition to a market economy, where there is little precedent for regulation of private activity under market frameworks. Even in countries with established markets, regulatory functions are not always undertaken in a consistent and transparent manner. Even where administrative systems generally work well, if the new “regulatory” body is made up of the same individuals who used to be the utility’s “management” team, they may find it difficult to take a more

hands-off approach. Ensuring that current employees are treated fairly in the transition to the new role can also raise a number of complicated issues.

144. As noted below, however, the government's regulatory capacity is one of the most critical considerations for potential private investors. If the government's regulatory and policy capacity is weak, little international private capital will flow into the water sector. The only options will be short-term, low-cost management contracts, or domestic investors. Alternatively, if the government's general framework for private investment is strong, and it is building credible regulatory structures for the water sector, many more opportunities will exist for attracting private capital.

3.1.5 Decentralization further complicates the shift in government roles

145. At the same time that governments are considering increased private involvement in water services, many are also engaged in broad-ranging decentralization of functions from national to municipal authorities. This can range from responsibilities to supply services to the authority to collect new types of revenues.

146. Decentralization often has both positive and negative implications for efforts to increase private involvement. Positive aspects can include bringing responsibility for ensuring service provision closer to the users. This should increase the influence of customers on the quality of the services rendered and the prices charged.

147. The biggest potential problems associated with decentralization concern the ability to attract new private investment. First, if private firms are to put their money at risk for long periods of time (see discussion in Section 3.2 below), they will require certainty in the conditions for the investment. Many decentralization processes lead to uncertainties in the allocation of responsibilities across national, provincial, and local authorities. Often, this is true both generally and specifically with respect to water rights. Second, many municipalities have little experience dealing with the private sector, borrowing money, or exercising regulatory functions. Substantial capacity building efforts are often required. Third, depending on the nature of the decentralization, it may be that the resulting areas for private involvement (secondary cities, villages) are too small to support the transaction costs associated with significant private investment.

148. All of these aspects of decentralization – both positive and negative – need to be considered and addressed as part of the changing roles for governments.

3.2 Water presents a paradox for many private investors – great opportunities, great risks

149. At the same time that the water sector poses complicated choices for governments, it also presents two faces to private investors – one very attractive, the other raising major concerns.

150. Three major characteristics of the water sector make it most attractive to private investors: the need for expanded water services; the revenue streams created by the demand for water; and the opportunities for increasing those revenue streams through improved system performance.

3.2.1 There is a great need to expand water services

151. Where there is a great need, there is a great opportunity – a truism for many private investors. The global scale of the need for new investment in water and waste water services is staggering (as described in Part 1). Combined with the growing international private investment in developing and

transitional countries, and the increasing decentralization of responsibility for urban public services, large opportunities are clearly presented.

152. These opportunities are of great interest to many potential private investors, most active are the French and English private water companies (Project Finance 1999a). New entrants are also looking to participate. Electricity and other utility companies are expanding beyond their traditional markets, bringing considerable financing and customer service experience. Technology suppliers and professional services firms are looking for their niches. Finally, passive private investors – from venture capital firms, through commercial banks, to infrastructure investment funds – are also in the hunt for attractive deals.

3.2.2 Users are willing and able to pay for many water services

153. Since access to drinking water is a basic need, it has great value to individuals. Most urban dwellers already pay something for their drinking water – either through connections to formal, networked systems or purchases from informal vendors and community-based providers.

154. As a result, the potential revenue streams are sufficient to interest private investors in drinking water services over the long-term. Even poorer, non-networked urban neighborhoods can be viewed as reliable sources of revenue, as they often pay more for their drinking water than wealthier areas (UNCHS 1996).

155. More difficult issues arise, as discussed below, for other parts of the water cycle – particularly waste water collection and treatment. While people are often willing to pay something to have sanitary wastes removed from their residences, they often value it less than access to clean drinking water (Dyk and Lynn 1999). Even less consumer value is placed on treating sanitary wastewater once it is taken away – particularly given the high costs of many conventional treatment processes (Anderson 1999). However, the increasing links between drinking water quality and municipal waste water pollution require that they be considered together.

3.2.3 Private involvement often improves system performance -- and increases revenues

156. As discussed in Part 2, governments often seek to involve the private sector to improve system performance – which it often does. Some of these improvements are due to the commercial incentives facing private providers, leading to a focus on greater efficiency and customer satisfaction. Other improvements stem from their greater access to technical and managerial knowledge. Finally, private providers may be able to tap additional sources of private capital – from their own equity to commercial debt – to support system operation.

157. Opportunities to improve system performance are also attractive to private providers. First, additional revenues and reductions in costs are immediately available. Improving customer records, billings, and collections is often a relatively low-cost method for dramatically increasing revenues (Briscoe 1998a). More efficient management of chemicals and other treatment inputs can cut operating costs. Increasing actual water supplied by reducing unaccounted for water (leaks and illegal connections) can – depending on the system – lead to major additional water sales.

158. Second, the durability and size of the system's revenue stream is often improved in line with performance improvements. Initial hesitations by governments or users over private involvement can be overcome once they see the benefits of better performance. More sympathetic ears will be turned to particular pricing or service issues if there is a strong track record. New business opportunities may also be created in related areas, ranging from construction to the provision of other public services.

159. For these, and many other more specific reasons, increasing numbers of private investors are looking intently at opportunities in the water arena.

160. As new, potential private investors look more closely, however, serious issues come to the fore. Some are endemic to the water sector. Others are magnified in developing and transitional countries. All increase the risks and costs associated with efforts to capture the investment opportunities that make the water sector so attractive.

3.2.4 Water is a basic human need – and an economic good – a volatile mix

161. People have a right to water. However, this right does not entitle one to an unlimited amount of water – due to ecological, economic, and social constraints (Gleick 1999).

162. Governments exist to help citizens meet their basic needs. Water is such a need, so governments have traditionally sought to provide it (Roth 1987). Many politically powerful citizens have come to view low-cost water as an entitlement. Many government officials have increased their power by controlling water services and maintaining low prices.

163. At the same time, water is increasingly seen as an economic good (Briscoe 1996). It has financial value to customers. Given the scarcity of water in many areas, there have to be incentives to conserve. Water should be allocated by prices, in combination with regulatory action. It can generate revenues sufficient to support private investments.

164. This is a volatile mixture, inviting major disputes over competing values and pricing. The bottom line, however, is that governments need to ensure that basic human needs are met. They have to remain involved in the water sector, even with private investment. The question for potential private investors is whether the form of the government's continued participation makes the investment more or less attractive compared to other opportunities. Much of the answer will depend on the clarity and predictability of the government's oversight.

3.2.5 Water networks are long-term, inherently risky investments

165. Clarity and predictability of government involvement are particularly important to private investors in networked systems – piped drinking water distribution or waste water collection.

166. Networked water systems have extremely high capital costs, well in excess of those in many other infrastructure services (Briscoe 1998b). They are mostly financed with debt, for as long a term as is commercially available. With high local interest rates in many developing and transition countries, much of that debt needs to be raised in dollars or other foreign currencies.

167. Given the high initial costs, extremely long payback periods are necessary. Revenue streams need to be as secure as possible, free from disruption either from governments or from water users. Rights over water assets – usually owned by the government – also need to be secure. Revenues are usually in local currencies, rather than the foreign currencies required to repay most of the debt, so private sector investors also carry currency convertibility and exchange rate risk.

168. All of these characteristics increase the risk to potential private investors in networked systems: the scale of the capital costs; the amount of debt necessary; the long payback periods; the government involvement in prices, standards, and collateral; as well as the potential for currency fluctuations.

3.2.6 Water fees are often too low to support major private investments

169. Many governments currently sell drinking water for prices well below the cost of providing the service (Briscoe 1998a). In some cases, this is to ensure that the basic needs of all citizens are met, even those who find it hard to pay. In other cases, it is to build political popularity or to avoid the civil unrest that might accompany efforts to increase prices. Even lower prices are usually assigned to sanitation services and raw water abstraction. In each, it is the political, not the economic, value of the water that is driving the calculation.

170. The impact on potential private investors is clear – the lower the revenue stream, the smaller the investment they will be willing to make.

3.2.7 Costs and risks are often too high

171. High capital costs, low fees – these are often just the beginning of the list of risks facing potential private investors in water. Other major areas of concern include high, up-front transaction costs, project-specific risks, and country-specific risks.

3.2.7.1 Transaction costs

172. The more money private investors have to put into a deal, the more they will have to take out in order to make an acceptable profit. Investors start incurring costs when they start looking for deals by speaking with municipalities. The costs continue to mount through the due diligence, bidding, and contract negotiation phases. All of these costs are incurred before any investments are made in improving system performance. All of them have to be recovered from project revenues – either from government payments or water user fees.

173. Transaction costs in the water sector are often extremely high (Klein 1996). International investors track investment possibilities around the world. Many governments actually know very little about their system's operations, increasing the private sector costs of due diligence and the uncertainties facing bids. Bidding procedures are extensive and expensive. Few model contract terms have developed and many government authorities have little experience negotiating water contracts – further increasing the learning and negotiating efforts necessary to put particular deals in place.

174. In addition to increasing project costs, one effect of high transaction costs is to focus potential international investors' attention on the biggest cities. It is there that they are likely to find revenue streams large enough to justify the up-front costs. This only compounds the problems facing smaller cities seeking to bring private sector expertise to bear on improving their water services.

3.2.7.2 Project risks

175. During pre-investment due diligence, potential international investors in water systems seek to identify, quantify and mitigate two major types of risks: project and country risks (Haarmeyer and Mody 1997a). As their names imply, project risks are those facing an individual project, while country risks are those facing any project in an individual country.

176. In the water sector, many project risks stem from the choices made by government. Will performance standards be changed over the life of the contract? Will capital investment requirements be changed? How will prices be adjusted? Are the procedures for making any such changes likely to be

applied in a fair and predictable manner? Will the government make the payments to which it has committed?

177. Other project risks stem from the choices made by users. Will users pay the economic value of water? What type of political pressure are they likely to put on the government and to what end – reducing prices, requiring more investment, shortening investment periods?

178. Depending on the length of the contract, the scale of the contemplated private investment, and the source of the revenue stream, project risks can pose major barriers to private involvement.

3.2.7.3 Country risks

179. The country risks facing water projects can also be large, depending on the scale of the investment sought. Currency risks – particularly in projects carrying large foreign currency debt – are a major concern. Macroeconomic conditions and the local political climate can pose major issues. The clarity and predictability of legal and administrative frameworks, particularly those concerning foreign investors, are important factors for international companies.

180. Governments are in the best position to reduce such country risks. Whether they are able or willing to do so varies dramatically from country to country.

3.2.8 Governments and users are often not willing or ready to address risks to investors' satisfaction

181. Clearly, private investors must take responsibility for many risks. This is particularly true for the business risks that they are in the best position to manage, such as construction costs, treatment plant performance, or the efficiency of billing and collection activities.

182. As noted above, however, other significant project and country risks lie more within the control of governments and users. How they respond has major implications for the willingness of and the terms on which private firms will choose to make investments.

3.2.8.1 Issues for governments

183. Many governments find it hard to address these risks to the satisfaction of private investors, in part, because they raise fundamental issues about the roles and capacities of the public sector.

184. At the heart of the issue for many governments is crafting their new role in the water sector. As discussed above, the fact that water is a basic need justifies continued government involvement. At the same time, in order to attract private investment and capture the opportunities for improved performance, governments need to transfer some of their traditional functions to the private sector.

185. Finding this balance is difficult. It requires handing some tasks over to private actors, while ensuring that core performance standards (quality, quantity, and price) are met and economically disadvantaged groups are protected, in a manner that does not unduly hinder efficient private operation. Some governments have chosen not to make this transition from manager to regulator on philosophical grounds. Others are unwilling to change as much as private investors require. Still others find that they are unable to do so for lack of political support or capacity.

186. In addition to these fundamental questions, other politically charged issues often affect government action in the water sector. The two most common are concerns about price increases and labor

issues. If governments have traditionally under-priced water services, and now seek to increase prices in order to support additional investments (public or private), considerable public opposition often needs to be overcome. Similarly, if private operators seek to increase efficiency through reductions in the number of employees, substantial opposition from labor interests can be expected.

187. Finally, private involvement requires many governments to acquire other new skills. For example, as municipalities take on new responsibilities under decentralization programs, they find themselves negotiating multi-million dollar contracts with private companies. For many, this is a new experience. Often, the results are major disparities in bargaining power, particularly when large, international water operating companies are involved. These problems are only magnified the further one goes from large, capital cities.

3.2.8.2 Issues for users

188. For many existing customers of government water systems, the potential involvement of private providers is viewed as a mixed blessing. On one hand, their service is likely to improve. On the other, they are likely to pay more. This leads to many questions: Why cannot the government do better in providing this social good? Is it appropriate to make a profit from meeting a basic human need?

189. Unless these and related questions are answered to the satisfaction of these, sometimes politically powerful, existing customers, there will be a lukewarm or even hostile public response to efforts to involve public investors.

3.2.9 International private water operating companies are limited in number and cannot do everything

190. Most of the private investment in water services to date (particularly in developing and transitional countries) has been made by organizations at either end of the spectrum of private providers: (1) a small number of very large international private water companies (Project Finance 1999a); or (2) a huge number of very small, informal water vendors or user organizations (Watson 1997).

191. Given most governments' goals of attracting increased technical and managerial experience, as well as potentially large sums of new private capital, their almost exclusive focus has been on involving the large, international companies. These firms are viewed as "one-stop-shops" for meeting all of the governments' needs. Efforts are made to lock them into long-term investment and operating contracts.

192. While this approach can work exceedingly well, it also restricts the potential scope of private investment. The international water companies are few in number. They do not have an unlimited capacity to make investments. They will seek out and concentrate on the largest, most potentially profitable opportunities.

193. By definition, this means that investments in poorer or smaller service areas are often left out or delayed. New ways need to be found to involve a greater number of private investors – of various sizes, nationalities, and experience – in improving the performance of water services.

194. Recommendations for steps that governments and NGOs can take to learn from these lessons and increase private involvement in urban water and waste water services are provided in the next Part 4.

PART 4: STEPS GOVERNMENTS AND OTHER ACTORS CAN TAKE TO INCREASE PRIVATE INVESTMENT IN URBAN WATER AND WASTE WATER SERVICES

195. “It is not the money that is missing, it is the deals” – a lament heard from many would-be international private investors in water and waste water services. Whether true or not – the fact that many potential investors feel this way creates tremendous opportunities for interested governments, non-governmental organizations and others to offer attractive investment opportunities to willing investors.

196. Developing attractive investment opportunities requires work across three major areas: market frameworks; information; and shared investments (Gentry 1998). These efforts should focus on applying the lessons learned about private investment in water described in Part 3. Recommended steps for doing so are set forth below.

4.1 Adopt market frameworks that encourage private investment in water supply and sanitation while protecting the public interest

197. Governments make the markets in water (Simpson 1992). They usually hold the basic ownership right to water. Through regulatory structures, they allocate rights to use water, protect water quality, and control the price and performance of networked water systems.

198. Governments should use their control over the water market to provide sound foundations for both private investment and protection of the public interest. In doing so, they should adopt and implement market frameworks that accomplish the following tasks:

4.1.1 Get prices right

199. Water should not be provided for free. Water fees should reflect the costs of providing the service, including profits when private investors are involved.

200. These conclusions serve both environmental and investment goals. Effective conservation of strained water supplies requires that water be given an economic value commensurate with its broader value to society. The willingness of users to pay for water services is the bedrock upon which most private investment in the sector is based.

201. Legitimate government concerns over ensuring that all people have access to water and waste water services should be addressed separately from the efficient operation of water services. In fact, for many poorer areas, connections to the networked system will reduce, not increase, the amounts currently paid for informal water provision. Lifeline or minimum service rates can be set, sometimes cross-subsidized by higher volume users, although such a system should be clearly delineated and recognized in accounting statements. Separate mechanisms for income support or assistance in paying water bills can also be established (see below).

202. The prices that need to be “gotten right” are not just for drinking water – attention should also be given to prices for waste water treatment and raw water abstraction at the same time (see discussion below).

4.1.2 Set performance standards to reflect local needs and demand

203. Market failures require that governments set and enforce performance standards for many parts of the water cycle. Customers of monopoly suppliers of drinking water rely on governments to control drinking water quality, quantity and price. Similarly, environmental advocates and raw water users look to governments to set and enforce standards for pollutant discharges to surface and ground waters.

204. The levels at which any of these standards are set have major cost implications. Decisions on standards are based on both (1) technical input on the effects of different levels on performance and (2) value judgments about the tradeoffs between costs and results. Different standards lead to different combinations of costs and results.

205. Since water users bear a large portion of the cost of meeting performance standards, they must be willing to do so over time in order for the standards to ultimately be achieved. This means that levels of performance should reflect local environmental and social conditions. Optimally, they should be driven by local demand (OFWAT 1995). Experience shows that users are willing to pay substantial amounts for the water services they need (Pernia and Alabastro 1997).

4.1.3 Improve regulatory capacity

206. Even when private investors are involved, governments retain large amounts of control over water and waste water services through their responsibility to set and enforce standards of performance (economic, environmental and social). As described above, this is primarily aimed at protecting customers against abuse of monopoly powers and water sources against further pollution.

207. This is a new role for many government officials. Traditionally, they were responsible for managing the delivery of water services. Now – in order to let private investors apply their different managerial and technical skills – government officials have to “butt out” and let the private firms work to meet the specified performance standards. Poorly performing regulatory systems are one of the major risks considered by private investors as they assess project risks across different investment opportunities.

208. Any government regulator has to strike a difficult balance – being sufficiently engaged with the regulated firm to be confident in receiving the information necessary to fulfill regulatory responsibilities, but without unnecessarily interfering with management decision-making. Finding the balance calls for clear rules, fairly applied in a predictable, timely and transparent manner (Smith 1997).

209. Involving users in regulatory decision-making can help improve regulatory performance. As noted above, their input will help build local political support for the performance standards set and ensure that such standards conform to local needs and willingness to pay. Their presence should also help reduce the risks of corruption and “regulatory capture” (in which the regulator is dominated by the regulated company) (Burns and Estache 1999).

4.1.4 Address drinking water and waste water together, as one part of broader watershed management efforts

210. The explosive growth of many urban areas in developing countries has led to equally large increases in pollution from municipal waste water. In transitional countries, the deterioration or absence of municipal waste water treatment facilities has also increased pollution levels. In developing countries, waste water treatment facilities may not exist at all.

211. The pollution impacts on water resources and health are staggering. Diarrheal diseases are the fourth leading cause of death worldwide, occurring almost exclusively in developing countries (WRI 1998). Surface and ground water sources of drinking water are contaminated. Fishing, tourism and other water-based economic sectors suffer.

212. One way for governments to address the need for municipal waste water collection and treatment is to provide it directly, paid for out of general tax revenues. This is the approach that was taken in many industrialized countries (see Part 1 above).

213. However, with the increasing private involvement in drinking water, it makes much more sense to incorporate waste water collection and treatment into these ongoing initiatives whenever possible. It is much less costly to install drinking and waste water pipes at the same time, than to do so in stages. Studies show that people are willing to pay for drinking water – including a charge for waste water in the bill. Drinking water can be cut off for non-payment – much more easily than toilets can be plugged. The challenge is in deciding what portion of waste water treatment costs will be allocated to users on their water bills, versus subsidized by other means.

214. Given the scale of the water problems facing many cities, efforts to improve drinking and waste water services should not be viewed in isolation, but should be integrated into broader watershed management programs. Where are the major raw water sources? What threats to their quality and quantity exist? What are the competing uses? What are the opportunities for reusing water? Answers to these questions have direct bearing on the quality and quantity of available drinking water supplies and the most pressing needs for improved waste water services. Addressing these issues naturally requires a municipality to cooperate with other national and local bodies concerned with water management.

215. The potential for using raw water abstraction fees in addition to user fee revenues to expand waste water treatment should also be explored. Many governments charge very little for use of raw water – even though major economic, environmental and social values are implicated, and no incentives to conserve water are created. Increasing raw water abstraction fees will both create such incentives for conservation and generate additional revenues – revenues that might be applied to sharing the costs of expanded waste water treatment facilities.

4.1.5 Choose methods for private involvement that fit local needs and context

216. Governments do not choose to invite private investors into water services just so that the firms can make profits. Rather, the purpose is to improve the delivery of water and waste water services in ways the governments believe they cannot achieve by acting alone.

217. Many different forms of private involvement are being tried (see Part 2). Some ask for major commitments by all sides over a long time – large amounts of private capital, more predictable regulatory systems, higher fees for users. Others are closer to trial runs – small investments of time, payments for services rendered, no change in user fees.

218. There is no universal “right answer” on how to use private investment to help improve water services. Experience in other locations can help generate ideas for meeting local goals. Ultimately, however, governments, investors, and users need to devise arrangements that address their local needs in a manner that fits the local context.

4.1.6. Use controls over market access to encourage creativity, competition, and inclusion

219. Since governments make the markets for water, they also control access to them. They should use that control to expand even further the potential benefits from private sector involvement, by stimulating competition between different private providers, and between public and private providers, while ensuring a level playing field (Briscoe 1998b).

4.1.6.1 Use bidding procedures that encourage innovation in system design

220. Traditional procedures for public procurement assume that the government knows the technical specifications of what it wants – pencils, power stations, water treatment plants. Bids are then evaluated based on the costs of providing equipment meeting the technical design criteria established by the government.

221. A very different situation exists when trying to optimize water and waste water services across large metropolitan areas. Many technical options exist, along with many different approaches to managing system assets. Working to traditional government design specifications may well not result in the most cost-effective solutions (Bennett 1998a).

222. In these circumstances, the bidding process should be used to generate innovative designs and management approaches reflecting the commercial experience of the private bidders. For example, bids could be based on the costs of meeting specified performance standards within prescribed periods – leaving the bidders free to determine the most effective methods for meeting the standards.

223. Such bidding procedures will require governments to modify their approach to technical design issues. Instead of specifying the designs to be used, they will have to evaluate the range of different designs offered by bidders. Setting performance standards and reviewing designs and performance against those standards is, however, much more consistent with governments' evolving role as regulator – not provider – of water and waste water services.

4.1.6.2 Expand access to the formal market to more potential bidders

224. There are limits to the number and types of projects the handful of big, international water companies can take on. Other types of companies – alone or in combination – can also provide the necessary expertise. For example, operation of treatment plants can be separated from billing and collection, which can be separated from management of project finance. Small, local companies are more likely to be capable of bidding on small projects or in smaller cities, and their potential involvement has the added benefit of achieving local business development goals. All of these potential private investors need to be brought into the effort to meet the huge demand for improved water services. All can help increase the competitive pressures for improved performance.

225. The “one-stop-shop” offered by the international water companies, however, is attractive to many governments. As a result, recent pre-qualification criteria for bids in many larger cities have essentially restricted potential bidders to the same, small group of companies (Dyk and Lynn 1999). In addition, many of the larger projects restrict the ability of the winner to use the system assets as collateral for loans or require that the operating company's shareholders remain unchanged for many years. The result is severely constrained financing options, a burden which can usually be overcome only by the large companies.

226. The longer-term answer in many countries may be to encourage the development of a pool of local, private water providers who can compete for the available contracts (this is what has happened in

France, see Part 2). They may be spin-offs or joint ventures with the international water companies, or new units within existing domestic infrastructure companies, or expanded versions of the informal businesses and community organizations now offering water services in peri-urban areas.

227. One way to encourage the development of such firms is by opening up the bidding process. Pre-qualification criteria could make it easier for new entrants to submit bids, alone or in combination with others. Opportunities in smaller cities could be targeted to local firms. Only by having a range of private firms from which to choose, of varying sizes and skills, will governments be able to optimize involvement of the private sector in anywhere near the range of projects desired.

4.1.6.3 Integrate the formal market for networked services with informal providers in traditionally underserved communities

228. In many developing country cities, two, completely separate drinking water systems exist – the formal, networked system usually run by government, and the informal, decentralized vendors or community organizations working in the poorer neighborhoods. When a municipal government moves to involve the private sector in the formal networked system, one of its key goals is often to extend the network into previously “unserved” areas.

229. This raises the question of how government efforts to extend networked services should interact with the existing, informal providers already serving those residents. One alternative is for the new network provider to assume the responsibility for serving all residents, effectively putting the informal providers out of business.

230. Another, often preferable approach, is to incorporate aspects of the services provided by informal entities into the formal municipal system. For example, during the planning stage, existing informal systems could be evaluated for their longer-term fit. Community organizations could help distribute water taken from new water mains, if connections to each household are not financially feasible in the near term. Building from the existing social capital in poorer neighborhoods, rather than replacing it with costly hardware, may be a more durable approach to ensuring improved water and waste water services.

4.1.7 Include water in efforts to improve domestic markets for private investment

231. Finally, in parallel with any efforts to attract private investment in the water sector, most governments in developing or transitional countries are trying both to strengthen their local capital markets and to increase their country’s attractiveness to foreign investors for all types of projects (Haarmeyer and Mody 1997a). Improving the performance of local banks, building local regulatory frameworks for bonds and other long-term debt financing, and expanding local stock exchanges are all important parts of the efforts to increase access to local currency financing. Since most water revenues are in local currency, increasing access to longer-term local currency financing will help reduce currency risks. Reducing and improving the transparency of regulatory controls on foreign investment is also important.

232. Helping to meet the need for private investment in the water sector should be an integral argument supporting these broader efforts. More predictable environments for foreign investors will increase their willingness to commit capital to water projects over longer periods.

4.2 Provide better information

233. In addition to building effective market frameworks, governments and other actors can help improve the efficiency of water markets by making better information more readily available to all

stakeholders. This is particularly important for increasing the capacity of users and governments to take on their new roles, reducing transaction costs, and increasing competitiveness pressures.

4.2.1 Increase public awareness of and capacity to influence water issues and trade-offs

234. Users pay. That is the foundation on which most efforts to improve the performance of water services are based. This is true both for efforts to increase the efficiency of water use, as well as to attract more private investment into the water sector.

235. Users need to be willing to pay in order for these efforts to succeed. They clearly are willing to do so, to some level, for reliable access to clean drinking water. They clearly can be hostile to efforts to increase the cost of drinking water or to introduce new charges – such as for waste water treatment.

236. Users are only willing to pay more if they understand the needs and the benefits. Providing them with information on competing systems and product quality, local water issues, the options for addressing them, and the costs of doing so is critical. Such information will help prepare users to: (1) participate in the decision-making process on the standards to be met; (2) contribute to the costs of meeting those standards through payment of water fees; and (3) help oversee the selection and/or performance of the private firms.

4.2.2 Expand municipal capacity to work with private water companies

237. Many municipal officials are being called on to undertake complicated, new roles – negotiating contracts with international water companies, regulating the private delivery of water services, participating in the financing for water projects. In many cases, they welcome advice on how to best fulfill these roles in manners consistent with their public responsibilities.

238. Peers in other municipalities are one of the best sources of such advice. Lessons learned from their experience can help inform new thinking. Email forums and regional workshops can build personal networks through which information can pass as needed over time. Expanding opportunities for such exchanges is a critical need. Several programs are now underway to help meet this need, such as the UNDP's Programme on Public-Private Partnerships for the Urban Environment (see bibliography). Information should be shared across all such programs to the greatest extent possible.

239. Local pools of professional advisors – financiers, lawyers, engineers – familiar with the issues facing private investment in water services also need to be developed. While experienced international advisors are available to help – as with the international water companies – they can only do so much, and often at a very high price. Tailoring private participation to local needs and building local water companies ultimately requires local advisors.

4.2.3 Reduce transaction costs by sharing or requiring less information

240. Some of the large transaction costs related to private investment in the water sector are unavoidable. If a government chooses to transfer to the private sector most of its responsibilities for providing water services over the long term, it will require an extensive bidding and review process. If large amounts of private capital are to be committed for many years, substantial resources will be applied upfront by both the government and the private sector to ensure that the money will be repaid at an acceptable profit.

241. It should be possible, however, to reduce transaction costs by sharing some types of information. At a global level, this might include publicly available databases of water projects and individuals involved, standard form bidding and contract documents, standard statements of qualifications, and similar items. For specific projects, it might include shared data on the state of the current water system or on customer willingness and ability to pay, to avoid duplicative efforts to collect this information. In fact, customer surveys may have greater credibility if done by third parties such as NGOs or academic institutions.

242. It may also be possible for governments and investors to require less information up front, depending on the nature of the private involvement contemplated. Short-term contracts should require less information than longer-term ones. Smaller cities may consider various forms of negotiated bids or joint ventures as a way to reduce initial costs.

243. In either case, concerted efforts should be made to strike a balance between the level of information truly needed going into a new relationship and the cost and time required to obtain it.

4.2.4 Enhance competitiveness pressures by reporting on performance

244. While it is difficult to introduce ongoing competition into networked water systems (OFWAT 1995), it is possible to simulate aspects of competition by comparing performance across water providers working in different localities. Often referred to as “yardstick competition” (Alcazar and Brook Cowen 1996), such information programs are built around common performance indicators. Periodically, the performance of different water providers is assessed against those indicators and the results released to the public.

245. No company or government body wants to be at the bottom of such a list. Not only can it add to user complaints, it may affect the firm's ability to raise additional finance. Considerable pressures to ensure a good ranking through improved performance are created.

246. Most of these initiatives are occurring at a national or local level. That may well be appropriate given the variations in conditions affecting water services across localities. Considerable additional pressures could be created, however, through the development of standard international performance indicators and their application on regional or global levels.

4.3 Make shared investments in urban water and waste water services

247. Because water is a basic need and an economic good, both governments and private firms have to invest time and resources in its provision. At a minimum, governments need to invest in regulatory systems sufficient to ensure that public goals are met and private firms need to invest to provide quality service.

248. Other, shared investments may also be appropriate, aimed at reducing upfront and transition costs, as well as to help ensure that social goals are met. Applying public funds alongside private capital can be an effective technique for achieving these goals. While the debate over the use of public funds to support private activities is beyond the scope of this paper, some areas for consideration are suggested below.

4.3.1 Share the costs of developing pre-investment information

249. Much of the information affecting transaction costs (discussed in section 4.2.3 above) is important to both sides. Private investors will have to develop some of it for themselves in order to be confident in their investment decision-making. Other types of information – such as global databases, form documents, surveys of existing system performance and customer willingness to pay – can be developed for joint use, applying funds from both public and private sources.

250. Even more fundamentally, water districts or municipalities in developing and transition countries often do not have the resources to prepare for bidding procedures, or to evaluate unsolicited proposals. Donor organizations can play a role in helping to promote open bidding and informed evaluation of private investment, creating “study funds” that water districts and municipalities can draw from for feasibility studies, project documents, as well as packaging and evaluating privatization proposals that clearly reflect their needs, standards, and willingness and ability to pay (Castro 1999; Arellano 1999; Flor 1999).

4.3.2 Provide separate income support

251. Ensuring that all citizens have access to clean water – regardless of their ability to pay – is a key goal for most governments. To the extent that governments are looking to subsidize the costs of water for the poor in some way, they should not do so through universal lower fees for water use. Rather, they should separate income support from water rate levels using techniques such as the “water stamps” program in Chile (see Box 23).

Box 23: Chile’s Water Stamps Program

Chile has developed an innovative and effective approach to helping the poor afford fully priced water and sanitation services. Until the late 1980s, water utilities in Chile used cross-subsidies to keep water rates low for the poor. This created several distortions. First, it meant that each poor person served was a financial loss for the utility – creating a disincentive actually to serve the poor. Second, it meant that utility managers were diverted from their primary focus – running their company efficiently – because they had to address issues associated with this payment imbalance.

The essence of the new approach is to separate the welfare and business functions. This was done through the introduction of “water stamps”. Water stamps are provided by the government to means-tested people. They can then use the stamps to pay part of their water bills. The new approach has taken utility managers out of the welfare business, and made subsidies visible and transparent.

Source: Briscoe 1998b

4.3.3 Ease transitions

252. If water rates need to rise or labor costs need to drop as part of a move to improve water services, public funds can help ease the transitions. Governments can choose to provide a declining universal rate subsidy over time to ease the transition to an economic price level for water (Briscoe 1998b). Similarly, governments can provide retirement, relocation, retraining, and similar packages to public employees affected by the shift to private investment. These types of public support – limited duration, declining amounts – can promote, rather than impede, the move toward greater efficiency in the water sector.

4.3.4 *Manage political risks*

253. Given the level of government interest and involvement in the water sector, one of the greatest areas of risk for private investors is how governments choose to manifest their participation. Will they keep their promises? Will they change the targets?

254. The best protection is for government officials to understand and honor their side of any bargain. There must be security both in terms of political structures, contract dispute mechanisms and political attitudes to tariffs. There must be confidence that (a) water laws and regulations are in place that support economic efficiency goals, and (b) the tariffs needed to finance investment, operations and profit are achievable (Global Water Partnership 1999).

255. International donor agencies can help reduce political risks. By investing in a particular project, they provide an attractive “halo effect” for potential private investors. In addition, a variety of publicly underwritten “political risk” insurance and related products are available to help manage such risks and should be maintained (Haarmeyer and Mody 1997a). Consideration should also be given to new ways in which donor support and innovative risk management tools might be applied to address risks of most concern to private water investors, such as those concerning contract enforceability, regulatory changes, and associated risks from scarce water resources and hidden defects, as well as the impacts of major fluctuations in local currencies.

4.3.5 *Contribute to the cost of waste water treatment facilities*

256. There may also be good reasons for general public revenues to be channeled alongside user fee revenues into new waste water treatment facility investments. The “polluter pays” principle suggests that the producers of municipal waste water – i.e. individual residents – should pay the costs of addressing their pollution (World Bank 1999). And certainly they should pay something. At the same time, the costs of waste water treatment can be extremely high, the willingness of users to pay is less than for drinking water, and waste water treatment is a public good (Briscoe 1998a). For all of these reasons, many industrialized countries built their waste water treatment facilities using general public revenues (see Part 2). Where such funds are locally available – such as through proceeds from increased abstraction fees or pollution charges – governments should consider making similar allocations of funds.

4.4 Actions for municipal, provincial, national, and donor governments, NGOs

257. Who should implement these recommendations? Many different actors should be involved, each according to their special competencies and fit in the local context. As much as possible, their involvement should be mutually supportive across the range of efforts needed.

258. One difficulty in assigning these recommendations for action to particular government entities is that, depending on the local circumstances, they may best be done by municipal, provincial, or national agencies. The tasks that need to be undertaken in order to attract more private investment, and the parties who may be involved, include the following:

- Setting the standards of performance (economic, environmental, social) to be met (municipal, provincial and/or national governments)
- Negotiating the terms of private involvement (municipal, provincial and/or national governments)

- Regulating the levels of performance achieved (municipal, provincial and/or national governments)
- Sharing the investment in water services (municipal, provincial and/or national governments, international donor agencies (public and private))
- Donating financial and technical assistance in support of these efforts (international donor agencies (public and private))

259. For purposes of the recommendations matrix below, the following assumptions have been made about the tasks to be undertaken by each party:

- “Municipality” means the government party most closely involved in the effort to engage with private investors, including setting standards for the water system, negotiating the terms of private involvement, and regulating performance;
- “National Government” means the government party that sets the broader context in which the private investment occurs, including macro-economic frameworks, generally applicable performance standards (such for environmental or labor matters), and sources of public sector financial assistance; and,
- “International Donor” means public or private providers of financial, technical or other assistance in support of efforts to improve water and wastewater systems.

260. In keeping with the motto “one size does not fit all,” the following matrix is only designed to provide illustrative suggestions for steps parties can take. Its purpose is to stimulate thinking about how these approaches might be adapted or new methods developed to fit local needs and contexts.

Matrix 2: Implementing the Recommendations :
Starting Points for Municipalities, National Governments and International Donors

<i>Party Recommendation</i>	<i>Municipalities</i>	<i>National Governments</i>	<i>International Donors</i>
Market Frameworks			
Set water tariffs to reflect real value	• Make water and waste water self-financing • Involve local users in rate setting	• Collect and share experience across cities on tariff setting and revision • Support user involvement (surveys, roundtables, etc.)	• Collect and share experience across countries • Support user involvement (surveys, roundtables, etc.)
Set appropriate performance standards	• Address local needs and preferences • Involve local users in the planning process	• Consider local impacts of national standards • Collect and share experience across cities	• Collect and share experience across countries • Support user involvement
Provide strong regulatory oversight	• Understand new, more focussed role • Respect private management's needs	• Create national forum or structure for better water regulation	• Collect and share experience across countries • Support regulatory development
Link drinking water and sanitation operations	• Acknowledge links (water quality, billing, etc.) • Include in tenders	• Integrate both into watershed protection efforts	• Collect and share experience across countries
Choose form of private involvement to fit local needs and context	• Articulate needs to partners • Understand options • Choose/develop own method for private involvement	• Collect and share experience across cities	• Collect and share experience across countries • Produce case studies of different models
Use market access controls to promote competition	• Understand options for involving new parties and approaches (including community based approaches) • Modify procurement criteria • Enhance bid review capacity	• Collect and share experience across cities • Modify national procurement criteria	• Collect and share experience across cities • Modify international procurement criteria
Tap domestic capital markets	• Advocate for local financing options	• Integrate water needs into efforts to build domestic capital markets	• Integrate water into support for efforts to build national capital markets

Matrix 2/.....contd.

<i>Party Recommendation</i>	<i>Municipalities</i>	<i>National Governments</i>	<i>International Donors</i>
Better Information			
Assess user needs	• Reach out to local users (meetings, surveys, etc.)	• Support efforts to involve users, including open access to information	• Support efforts to involve users
Increase public awareness	• Describe needs, costs and decisions to be made	• Conduct national water awareness campaigns	• Collect and share experience across countries • Support user involvement
Build municipal capacity	• Share experience with peers • Include local advisors as well as international advisors	• Create national forum for sharing lessons learned • Work with national professional organizations	• Build peer to peer networks • Collect and share experience across countries • Work with local advisors
Share information	• Rigorously consider info requirements • Pool information where appropriate	• Collect and share experience across cities	• Collect and share experience across countries
Require performance reporting	• Require regular reporting against performance criteria • Publicize results	• Collect and share experience across cities • Promote standard sets of performance indicators • Collect, compare and publicize results across cities	• Collect and share experience across countries • Promote standard sets of performance indicators

Matrix 2/.....contd.

<i>Party Recommendation</i>	<i>Municipalities</i>	<i>National Governments</i>	<i>International Donors</i>
Shared Investments			
Collect pre-investment information	• Contribute to bid development costs	• Collect and share experience across cities • Contribute to bid development costs	• Collect and share experience across countries • Contribute to bid development costs
Separate the income support function	• Establish or advocate for support mechanisms for some users • Contribute to funding support mechanisms	• Establish support mechanisms • Contribute to funding support mechanisms	• Collect and share experience across countries • Contribute to funding support mechanisms
Address transitions (tariffs, labor, etc.)	• Establish or advocate for transition programs • Contribute to funding transition programs	• Establish transition programs • Contribute to funding transition programs	• Collect and share experience across countries • Contribute to funding transition programs
Manage political risks	• Fulfill commitments to private partners and consumers	• Fulfill commitments • Support municipal commitments	• Invest in projects • Enhance risk insurance
Address waste water treatment	• Fit standards to local needs and context • Consider contribution to funding of new service	• Fit standards to local needs and context • Consider contribution to funding	• Collect and share experience across countries • Contribute to funding

4.5 Conclusion

261. Finding the right combination of roles for public and private actors in urban water and waste water services starts from a few basic principles:

- Governments control water markets
- Users pay
- Businesses need to make a profit
- Donors can help

262. How these principles are best applied to any particular situation depends on local needs in the local context. They do suggest the following, however:

263. Governments should not view private involvement as reducing the importance of their role. In fact, the roles played by governments are among the key determinants of both how attractive the opportunity will be to potential private investors and how effective private involvement will be in serving the public interest over time.

264. Users have to be willing to pay for the water and waste water services they receive. They need to understand the water issues facing their city and the options for addressing them, including the costs. User preferences should be reflected in the choices made by governments affecting the water services, particularly when users will be asked to bear the cost. Their preferences should also inform the oversight of private service provision, either directly as part of the regulatory structure or indirectly through solicitation of data on user satisfaction.

265. If private investors are involved, governments and users need to accept that they have to make a profit – at least as high or higher than that offered by competing investment opportunities. The returns realized by the municipality in terms of increased efficiency of service delivery should be enough to cover the incremental costs of the profit – if not, the private firm is not doing its job, or its involvement was not properly designed. Private firms should also recognize that their business interests are best met by taking a “reasonable” return over the longer term, rather than large profits in the short term which bear a high political cost.

266. Finally, donors can help – or hinder – these efforts depending on the approach taken. If they support government efforts to put effective policy frameworks in place, including the involvement of local users, they can render a real service. Donors are also well positioned to collect and make available experiences, contacts and information on the different ways governments around the world have chosen to involve private firms. To the extent possible, this information should be freely shared across programs – there is more than enough work to be done. Donors are obviously less helpful if their assistance is designed to impose a standard model approach on each, different situation.

267. All of these parties are part of the recipe for successful – as measured by all of the stakeholders – private involvement in urban water and waste water systems. By understanding, respecting and reflecting their goals and needs, private investment can be a powerful option for improving the delivery of water and waste water services.

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