Innovative Financing Mechanisms for the Water Sector

OECD

INNOVATIVE FINANCING MECHANISMS FOR THE WATER SECTOR

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Foreword

In the context of the ongoing financial and economic crisis, mobilising sufficient financial resources to meet critical environmental and social challenges may become increasingly difficult, although no less important than during boom times.

In the developing world, meeting the Millennium Development Goals for water and sanitation is a critical challenge. Providing access to water and sanitation is particularly important as it can make a significant contribution to the health and well-being of the population and help reduce the environmental pressures on one of the world's most precious (and scarce) resources. In developed countries, maintaining existing water and wastewater infrastructure, treating wastewater to standards that are consistent with environmental aspirations and investing in adaptation to the impact of climate change on the availability of water resources are all essential tasks that cannot be put off lightly.

The OECD has been working on water-related issues for many years. In 2007-08, it carried out a Horizontal Water Programme on "Sustainable Financing for Affordable Water and Sanitation Services, focusing on areas where it can provide value-added. The work culminated in the publication of a "synthesis report", *Managing Water for All: An OECD Perspective on Pricing and Financing* (OECD, 2009a) based on a series of background reports, focusing on the economic and financial aspects of water resources management and water and sanitation service (WSS) provision. The report emphasized the need for a cross-sectoral perspective and the importance of establishing a firm evidence base to support policy development and implementation.

One of the main messages in *Managing Water for All* is that the water and sanitation sector is seriously under-financed in many countries, leading to the deterioration and potential collapse of the infrastructure. There are two main ways to address the financing gap in the water sector where it appears: in the long-run, structural reforms are needed to improve the sector's revenue-generation potential so as to *fill* the financing gap. In the short to medium term, access to repayable finance (such as loans, bonds and equity) will be critical so as to *bridge* the financing gap. Given a number of structural issues in the sector, innovation is required so as to increase the attractiveness of the

sector to providers of repayable finance, particularly those bringing private sector funds.

The financial crisis has further contributed to raising doubts about the ability of the water sector to tap into repayable financing sources. As the cost of finance has increased for almost all actors of the global economy and financial flows have virtually dried up, the water sector has to compete with many other sectors and governments which are all scrambling to borrow.

As a result, public financing has come back to the fore as a significant source of investment for infrastructure sectors, particularly in the context of stimulus packages launched by a large number of developed and developing country governments. However, competition for scarce public funds is rife and heavy public debt burdens place natural limits on the ability for public investment programs to meet investment requirements in the water sector. This means that more than ever before, it will be important to evaluate how public financing can be used in an optimal manner so as to leverage repayable finance from the market. Various forms of finance will need to be blended so as to achieve the optimal financing package that allows meeting key policy objectives such as increasing access.

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Abbreviations and acronyms

3Ts	tariffs, taxes, transfers
ACP	Africa, the Caribbean and the Pacific
BOT	built, operate, transfer
CBOs	community-based organisations
DAC	Development Assistance Committee (OECD)
DFID	Department for International Development (United Kingdom)
EBRD	European Bank for Reconstruction and Development
ECAs	export credit agencies
EU	European Union
FCR	full cost recovery
GPOBA	Global Partnership for Output Based Aid
GWI	Global Water Intelligence
GWP	Global Water Partnership
IBT	increasing block tariff
IFI	international financial institution
IPO	initial public offering
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
JMP	Joint Monitoring Programme (WHO-UNICEF)
MC	marginal cost
MDGs	Millennium Development Goals
MFIs	micro-finance institution

NGO	non-governmental organisation
O&M	operation and maintenance
OBA	output-based aid
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
PCG	partial credit guarantee
PRG	partial risk guarantee
PIDG	Private Infrastructure Development Group
PPIAF	Public Private Infrastructure Advisory Facility
PPP	public private partnership
PSP	private sector participation
SCR	sustainable cost recovery
SFP	strategic financial planning
SME	small and medium enterprise
SONES	Société Nationale des Eaux du Sénégal
SSWSPs	small scale water service providers
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
US EPA	United States Environmental Protection Agency
WHO	World Health Organisation
WRM	water resources management
WSP	Water and Sanitation Programme
WSS	water and sanitation services

Executive summary

This report examines innovative financing mechanisms that can help attract new financial resources into water and sanitation services (WSS). A particular focus is placed on mobilising market-based repayable financing (such as loans, bonds and equity) as a way of bridging the financial gap to meet the Millennium Development Goals and other crucial sector objectives. The Camdessus and Gurria reports, published in 2003 and 2006 respectively, formulated a number of recommendations in this area. This report examines the extent to which these recommendations have been implemented and how financial innovation may need to adapt to the rapidly evolving global context and to the ongoing financial and economic crisis.

Market-based repayable finance is difficult to mobilise for WSS due to a number of constraints, which are referred to as "critical mismatches". A key constraint is that the sector is often perceived by potential providers of market-based repayable finance (such as banks, institutional investors, private equity funds, equity investors, project sponsors, etc.) as a "high risk / low return" sector when its fundamental economics (with relatively stable and almost "recession-proof" demand for the services and long-life buried assets) would rather place it in the "low risk/ low and steady return" category.

This report investigates how innovative financing mechanisms can help shift those perceptions in order to attract repayable finance so as to finance critical investments. It assumes that other reforms can be carried out in parallel, such as governance and tariff reforms, to ensure that strong revenue flows are generated so as to reduce risk and enable repayment of external finance over time. Other reports conducted under the OECD Horizontal Programme on Water have addressed these required reforms, especially tariff reforms (OECD, 2009d), which is why these issues are not addressed in detail here.

The report is somewhat narrowly focused on the financing of WSS rather than the water sector as a whole, in an attempt to limit the scope of the review and carry out a more in-depth analysis of the specific challenges faced by this sub-sector. Innovations that have been (or may be) developed for financing such services could potentially be transferred to other water-related activities, such as integrated water resources management or the provision of water for agriculture.

Finally, the report looks into the experience of developing innovative financial instruments in OECD countries as well as in middle-income and developing countries and investigates how specific country experiences could be usefully applied and scaled-up in other countries. Particular focus is placed on financing provided to asset-holders and water service operators (public, private or community-based) but also, to a degree, to households themselves when they are in charge of investing (for example, to build household latrines).

It is important to emphasise from the outset that the innovative financing mechanisms that are being discussed in this report are not a panacea, but merely constitute one of the elements that can help to improve the financing of water and sanitation services. Two of the limitations on their use include the frequent weakness of legal and institutional arrangements that govern the sector and the lack of sufficient cash flows to cover costs. This is problematic, because it means that many projects in the water sector are hardly bankable and their access to market-based repayable finance is therefore very limited. If marked-based finance is being provided nevertheless and crucial reforms are not being carried-out, there is a serious risk of default. A further limitation resides in the fact that some of the more promising financing mechanisms that are being presented in this report require contextual features, such as local capital and financial markets, institutional and human capacity to manage these instruments, which are usually found in the larger emerging economies, but more rarely in least developed countries where the needs are greatest. The applicability of the instruments discussed here therefore needs to be carefully considered on a case-by-case basis. The use of innovative financing instruments cannot be seen as an alternative to making crucial sector reforms aimed at making the sector as a whole more sustainable.

Sources of finance for WSS: combining the 3Ts with repayable finance

As noted in OECD (2009b), there are three basic sources of revenues for water and sanitation services: tariffs, taxation and transfers from Official Development Assistance (ODA) and other forms of solidarity. Taken together, these three sources (commonly referred to as the "3Ts") form the basis for achieving sustainable cost recovery (SCR). In many countries, there is a "financing gap" between the costs of meeting expected targets and the revenues coming out of the 3Ts. Expected future cash flows from the 3Ts can form the basis for attracting repayable finance, such as loans, bonds and equity.

Whilst revenues from the 3Ts can *close* the financing gap for WSS, the role of repayable finance is to *bridge* the financing gap. Repayable finance does not close the financing gap because it requires compensation, *i.e.* repayment at a future date plus remuneration for the use of capital, in the form

of interest or dividends. WSS providers usually look to mobilise repayable finance in order to finance capital expenditure for repairs, renewals or expansion of water and sanitation systems whilst ongoing operating costs and ordinary maintenance are routinely financed from a mix of the 3Ts.

OECD (2009a) underlined the importance of strategic financial planning to find the right mix of the 3Ts for achieving water and sanitation targets and leveraging repayable sources of finance. The present report examines in more detail how repayable finance can be mobilised, what innovations have been developed to increase such leveraging and how this is likely to be affected by the ongoing financial crisis at present and in the near future.

Of particular concern for this report is how *market-based* repayable finance can be attracted to the sector, *i.e.* funds that are commonly referred to as "private funds" (somewhat inaccurately, as we explain in the report). Prior to the financial crisis, high hopes had been pinned on the availability of such funds in the water sector. This was in the context of general enthusiasm for the introduction of private sector participation into the sector, which was seen as a way of bringing efficiency improvements and additional finance. One point had been crucially overlooked, however, which is that such private funds need to be repaid with compensation at some point in the future. Besides, the perception of risk attached to a particular investment, which is driven by its perceived credit-worthiness, has a direct impact on the cost of financing.

A number of critical mismatches have limited flows of repayable finance for WSS

Beyond the more general limitations mentioned earlier, *i.e.* weaknesses in governance and management systems and the lack of sufficient cash flows to cover costs, there are a number of more specific factors that contribute to hampering the flows of repayable finance into the water sector.

Affordability constraints. In developing countries and some OECD countries, it may be difficult to increase tariffs to cover costs beyond a certain point for certain groups of vulnerable customers (and there are different views as to how such affordability thresholds can be defined and measured).

Limited availability of funds for domestic operators and Small Scale Water Service Providers. Those operators need to raise equity capital and debt financing from local capital markets, which are often insufficiently developed to match supply with demand for such funds.

Risk profile and difficulties in managing certain risks. As noted in OECD (2009a), the water sector combines a number of risks which characterise infrastructure sectors, such as the commercial risk (mainly related to revenues), contractual risk, foreign exchange risk, sub-sovereign risk and

political interference (which limits the ability to set tariffs based on an evaluation of the financing gap to be covered). Investments in poor areas are considered to be particularly risky, because of assumed low collection rates and limited revenues. The foreign exchange risk is difficult to manage because of the fundamental mismatch between the fact that costs and revenues are in local currency whilst financing is usually available in foreign currency.

Lack of funds at decentralised level. In many countries, the decentralisation of infrastructure services has created large investment needs among local governments and utilities, whereas they have limited access to external repayable finance. Besides, financial management at the local level is often weak and local government entities' creditworthiness tends to be low. The IFIs themselves are often not allowed to lend at sub-sovereign levels or central governments are reluctant to let them borrow, for fear of ramping up the national debt in an uncontrolled manner. Another consequence of decentralisation is that many of the resulting water utilities are too small to access market-based repayable finance, as the transaction costs would tend to represent a high percentage of the size of any potential issue.

Short tenor of available financing. Water investments are long-life ones, whilst most financial markets and institutions in developing countries in particular would only offer short-term borrowing horizons. Their willingness to offer longer tenors would depend on the perceived risk of the investment and the existence of investors willing to invest over the long term (such as pension funds, for example).

Under-capitalised balance sheets. Many water utilities are in a dire financial condition. With high debt levels compared to equity, their ability to raise additional debt is limited or the costs become prohibitive.

Lack of understanding by external lenders and investors. Financiers are not familiar with the water sector, as it is often seen as very political and "difficult" due to the political nature of tariff setting and in some cases, vocal resistance to charging for water services.

Lack of bankable projects. As a result of these critical mismatches, "bankable" projects (*i.e.* projects that can be attractive to financiers) are few and far between in the water sector. This may also be due to the complexity of designing financial structures that can at least mitigate some of these mismatches, through the adoption of innovative financial instruments.

The role of innovation for attracting market-based repayable finance

Financial innovation can significantly help with leveraging market-based repayable finance into the water sector. This report reviews various types of innovative financial instruments, evaluates their current use and their

potential for development in the sector. Key points of this analysis are summarised below for each of the types of instruments under review.

Blending grants and repayable financing consists of combining concessionary financing (either grants or loans with a grant element) with repayable finance in order to support a single project or a comprehensive lending program. In the water sector, this has been done at the level of specific projects or via the establishment of financing vehicles which aim to combine diverse sources of finance (such as the EU-ACP Water Facility, various vehicles under PIDG – the Private Infrastructure Development Group or FINDETER in Colombia, which rediscounts commercial bank loans for local infrastructure development). Such blending can take many forms: ODA grants can be provided as interest rate subsidies, seed financing for revolving funds or contributions to the establishment of project preparation facilities (*i.e.* a number of innovations that are reviewed in further detail in later sections). The main objectives of blending are to attract funds that would otherwise not be attracted by a given project whilst ensuring that basic public policy goals, such as increasing access and serving the poor, are met. Such structures hold great potential in the water sector, especially in the context of the financial crisis, given that an element of subsidy is almost always going to be required.

Microfinance has been identified as a key way to overcome affordability constraints for providing access to services, particularly for households and small scale water service providers (SSWSPs) in developing countries. The use of microfinance has so far been limited in the water sector, partly due to a lack of awareness and limited understanding on the part of microfinance and water sector professionals of their respective sectors. The potential for rapid development of microfinance in the water sector has been undermined somewhat by the ongoing crisis, however, which has reduced financial flows available to micro finance institutions (MFIs) and made them more inclined to focus on their core markets, *i.e.* financing income-generating activities. The crisis has also led to increased poverty, thereby increasing the need for microfinance products. ODA can play a role in developing the use of microfinance for WSS by providing seed financing for revolving funds or microfinance institutions as a whole. Donors and IFIs can help build awareness of microfinance products, through capacity building activities or blending microfinance with other types of financing instruments in the projects they choose to support.

Output-based aid (OBA) is an innovative financing tool which has the potential to radically change the way subsidies are provided for a broad range of publicly supported goods and services. OBA subsidies are paid based on effective and measurable results to service providers, which are therefore better incentivised to deliver results. Although a growing number of pilot projects have adopted OBA principles in the water and sanitation sector, the

approach has yet to be mainstreamed. As currently applied, it has a reputation for complexity and high transaction costs, which means that in most cases OBA mechanisms have been difficult to scale-up (except in the case of broader programs, not necessarily tagged as OBA programs). Increasing the use of OBA may require being more explicit about the need for pre-financing, which could be achieved by combining OBA subsidies with access to microfinance, as it was done successfully in a landmark operation in Kenya. To reduce transaction costs, setting up OBA facilities at country level is another avenue that could be explored further so that project and service provider selection as well as contract monitoring can be carried out in-country rather than through an international institution. OBA principles can also be adopted in the implementation of government-led programmes, as done through the Total Sanitation Campaign in India.

Although a whole array of ***guarantees and insurance products*** are available from donors, IFIs and private institutions, they have not been used on a regular basis or at a large scale in the water sector. This partly reflects the changing structure of the market for water services: whilst international private operators have largely withdrawn, the guarantees provided by international institutions for relatively large "transactions" are less appropriate than previously. Besides, IFIs and donors have usually maintained fairly rigid rules about the use of these guarantees (for example, with counter-guarantee requirements or restrictions on the provision of stand-alone guarantees), which means that transaction costs for applicants remain high. The establishment of "guarantee facilities" at national level, to which donors and IFIs can contribute seed financing or overall guarantees (as done with LGUGC in the Philippines) could facilitate the provision of guarantees at the local level, which is more in line with the current market structure in the water sector. Donors and IFIs may also need to step in where private entities or governments have become less willing to provide guarantees.

Forming ***grouped financing vehicles*** can be a helpful way to provide access to finance to a large number of relatively small borrowers, particularly with the combined use of guarantees to improve credit rating. Such groupings are particularly well-suited to decentralized water sectors, in which small and medium-sized service providers are struggling to access financing on their own merit. In the sector, they have mostly been used as a basis for issuing bonds in countries with fairly mature financial markets. High transaction costs and limited knowledge, once again, can partly explain why their spread has remained somewhat limited beyond those markets. Donors and IFIs would need to step up their efforts in order to create such structures or help define institutional environments that would be conducive for grouped financing vehicles to be established where appropriate. This may require establishing such grouped financing structures directly (such as revolving funds, bond banks, etc.) or fostering the adoption of legislation that make

such structures more attractive (such as tax-exemptions on bonds issued by such structures as practised in the US or requirements that grouped financing vehicles be formed in order to access government financing).

Direct lending to sub-sovereigns, without the need for a central government guarantee has been practised with success for some time by some IFIs and donors, such as the EBRD or the AFD. However, many other donors and IFIs have not been able to lend at the sub-sovereign level, either because their internal rules do not allow them to do so or because they are not willing to take on a risk that they cannot manage adequately. Besides, sub-sovereign entities in many countries are either too weak financially to borrow or lack the capacity to put together a bankable project eligible for donor financing. Central governments themselves may not be willing to let sub-sovereign governments borrow directly, particularly when they are not able to keep control over the overall debt burden that is being accumulated at the national level (which they may have to cover ultimately in the event of bankruptcy, even if they have not provided an explicit guarantee. Donors may wish to evaluate how they can relax guarantee requirements at the sub-sovereign level, so as to pave the way for commercial lending to those borrowers. Reliance on revenue agreements with the sub-sovereign borrowers to either increase tariffs or intercept central government transfers can provide enough security to lenders without the need for central government guarantees. These types of agreements can help introduce financial discipline and support the implementation of reforms at the level of borrowers, as long as donors and IFIs can also provide adequate resources to support reform processes at the local level. Lending in local currency can also be a key tool to make such loans more attractive to local governments and water utilities. Finally, donors can combine these lending instruments with guarantees to commercial lenders so as to broaden the pool of financiers and investors interested in investing in water and sanitation at the local level. Direct lending to entities at the sub-sovereign level, such as municipalities or municipal utilities, can help those borrowers build a credit history and give them access to a broader range of investors, including commercial banks and equity investors.

Raising equity can help strengthen the balance sheets of water companies which tend to often be under-capitalised. Interesting models have been developed in the water sector to mobilize equity via financial markets (such as the Hyflux Water Trust in Singapore), thereby diversifying away from mobilising funds from private water companies (whose ability to bring in equity capital is limited in any case) and using such equity injections to leverage other forms of finance for capital investments. Mobilising equity through capital markets can strengthen financial discipline and improve transparency, including for companies that are primarily government-owned (including a number of state water companies in Brazil, which are publicly listed). When requested to provide equity in distressed situation, many donors tend to be

reluctant to do so as such equity contributions can sometimes be treated as an implicit subsidy when return expectations are very low. However, as long as financial discipline is maintained, equity contributions can strengthen the balance sheet and provide a sound basis for leveraging additional forms of finance, such as loans and bonds. In such selected cases, IFIs and donors can make such equity injections themselves, including in some cases by swapping debt for equity, or help with designing PSP contracts with equity contributions (such as in a recent transaction in St. Lucia prepared by IFC). Equity contributions can be an attractive financial instruments particularly in contexts where the risk can be controlled, so that the risk premium built into expected returns does not lead to unaffordable tariff increases.

Credit ratings can help improve transparency and facilitate access to financial markets for borrowers. Significant progress has been made in awarding credit ratings to municipal governments and water companies, although the use of such ratings has remained limited, particularly in markets that are too small to develop a national rating scale and where the costs of maintaining credit ratings cannot be warranted. The financial crisis has significantly affected the credibility of rating agencies, however, and more generally the reliability of ratings has been questioned in the light of time gaps with regard to information and a potential lack of independence of rating agencies (principal-agency problem). Donors and IFIs can potentially step in to develop "shadow" credit rating systems *i.e.* based on a one-off exercise, to examine the creditworthiness of particular companies and make recommendations on how they could improve their creditworthiness. Other donor initiatives to improve overall transparency and improve knowledge of the sector for external financiers can be helpful in this respect. For example, the benchmarking system IBNet set up by the World Bank could be strengthened so as to improve the reliability and comparability of the information produced. Overall, a lot of information is already collected by different institutions. Donor-led efforts to improve its quality, increase co-ordination between sources and disseminate its existence could have a positive impact on raising the profile of the sector with external financiers.

Finally, ***project preparation facilities*** can also help with the definition and preparation of bankable water projects. A limited number of such facilities have been set up at the international level. Project preparation facilities, on the whole, have enabled the preparation of bankable projects in an accelerated manner and improved the effectiveness of donors' contribution by pooling funds together for support to project preparation. They have been particularly useful in well-defined geographical areas where they have been set up to accompany well-defined policies, such as in Eastern Europe or the Mediterranean. In Sub-Saharan Africa, they can be particularly useful to assist countries with limited project preparation capacities to develop projects that can only attract repayable finance if they are combined with innovative

approaches to financing, such as blending grants and loans or using guarantees to reduce the risk perception. In future, donors and international organisations can help finance the establishment of more such efforts to define so as to prepare projects that they are either willing to finance themselves or to attract market-based repayable financing to (provided projects prepared in such a way can receive funding from a diversity of sources). The establishment of such facilities at the national level could also be encouraged, as it can reduce transaction costs and tie more easily into domestic financial mechanisms outlined in previous sections. Beyond the setting-up of project preparation facilities, local expertise for project preparation needs to be strengthened, from project conceptualisation all the way to design stage and for implementing accompanying reforms.

Overall, even though innovative financing tools to mobilize market-based repayable finance do exist, they have been under-utilized in the water sector by comparison with other infrastructure sectors. This may be due to a number of factors. On the one hand, there has been insufficient demand for these products due to a lack of awareness and training (which means that demand, even if it is there, is not expressed) and due to the availability of cheap concessionary finance. On the other hand, supply of market-based repayable finance has also been limited given that the economic characteristics of the sector are often not conducive to adopting such innovation.

The impact of the financial crisis: glimmers of hope in the midst of a financial storm?

In the context of the financial crisis, many sources of repayable finance potentially available for the water sector have dried up (starting from already low levels) and innovations that previously allowed improving the credit rating of a given entity (and thereby reducing its costs of borrowing), such as guarantees or grouped financing have largely disappeared. More than ever before, public finance has a role to play in leveraging market-based repayable finance to the sector. This does not necessarily mean pouring public money into water and wastewater projects (although this is partly what some governments are doing via stimulus packages) but rather improving the targeting in the use of public funds so as to leverage market-based finance. In particular, the grant element of OBA could be used more effectively so as to generate additional repayable finance of all kinds, from either public or private institutions.

The overall context following the crisis could potentially be conducive for more market-based finance to be allocated to the sector, however. On the one hand, private capital's appetite for risk has gone down and preferences have shifted away from high risk/high returns investments to those with

lower but steady and guaranteed cash flows, which is a distinctive feature of well-managed water companies. Given the renewed emphasis on protecting natural resources, the long-term strategic value of preserving and improving access to water is increasingly recognised. Finally, the boundaries between the public and private sectors have been blurred and the controversial nature of the debate on PSP has abated somewhat, with more dialogue going on at sector level and the recognition that a number of reforms are required regardless of ownership. In that context, market-based finance can potentially make a significant contribution to bridging the financing gap in the water sector, for private and public water service providers alike.

However ***financial innovation will not eliminate the need for reforms of the water sector.*** OECD (2009a) emphasized that "additional financial resources are a necessary, but not sufficient, condition for achieving internationally agreed, and other, water policy objectives". Other changes are needed alongside an increase in financing flows, such as improving governance, establishing the right regulatory and legal frameworks, promoting economic efficiency (including, but not exclusively, through tariff reforms) and support the development of local capacities. In developing countries, in particular, building ownership of the reform process by local stakeholders and overcoming the vested interests and opposition that often block reform are often preconditions for success.

The example of Manila Water shows that, even in the midst of the financial crisis, it is still possible to access financing on the back of a strong revenue performance and financial profile. As long as the political will is there to adopt the necessary reforms and to increase revenues whilst protecting the poorest customers (so as to enhance equity and minimise the risk of default by these customers), then revenues of water and sanitation service providers should be comparatively steady and "recession-proof". Over the long-term, the water sector will only be able to attract increased financing if such reforms can bring down the risk inherent to the sector. If this is achieved, the water sector could attract long-term investors looking to match their maturity requirements.

In addition, whereas innovation has an important role to play, it is important not to innovate for innovation's sake. In some cases, as demonstrated by the recent crisis, financial innovation has undermined the long-term viability of financing arrangements rather than strengthened it. Going forward, it is likely that innovative but simple structures will be preferred over complex structures in which actual risks cannot be adequately assessed, valued and mitigated.

Reducing transaction costs and improving the long-term sustainability of such financing will also be more important than ever before. Given that, in most countries, the water sector tends to be decentralised, financial

instruments which can only be mobilised at the international level are somewhat inadequate and too costly. In fact, high transaction costs have been a key constraint on scaling up innovative financial mechanisms when those have been developed. Each time that an IFI is brought in to design a financing structure on a tailor-made basis, this is costly and absorbs a lot of scarce resources on the part of IFIs, donors and national governments (when their time would be better spent on addressing broad policy issues).

Establishing institutions at the national level that can channel funds (both public and private) into the sector in order to finance relatively small projects rather than focus on a few landmark transactions at the international level could help achieve those objectives over the long term. Such facilities could include development funds channelling OBA subsidies to projects with a high potential for increasing access (such as the Honduras OBA facility), guarantee facilities at the national level (such as the LGUGC in the Philippines), grouped financing facilities (such as the Tamil Nadu Water and Sanitation Pooled Fund) or project preparation facilities aimed at increasing the number and quality of investment projects over a long-time period (rather than a 2 to 3 years window as currently practised by most international project preparation facilities). There are, of course, high transaction costs (and long lead times) associated with setting up such facilities but the benefits can be reaped over a longer period of time, for a higher number of recipients and potentially across other infrastructure sectors or municipal investments. This would also contribute to harmonizing lending procedures, which could help reduce transaction costs at the recipients' level.

To evaluate the ability of the sector to attract market-based repayable finance, it will be important that information be gathered and updated systematically. At present, such flows are poorly understood and cannot be tracked easily. The World Bank's Public Private Infrastructure (PPI) database is the most commonly referred to database on private financial flows, although it only captures private investments made in the context of private sector contracts. It will therefore be important to gather data on private financed mobilised through targeted use of public funds so that the leverage impact of alternative financing approaches can be adequately measured. Such a task would be a massive but crucial undertaking, which could be undertaken by international institutions or private entities looking to increase transparency in the WSS sector so as to generate more sustained interest from providers of market-based repayable finance.

Introduction

Overview

This report examines innovative financing mechanisms that can help attract new financial resources into water and sanitation services (WSS). A particular focus is placed on mobilising market-based repayable financing (such as loans, bonds and equity) as a way of bridging the financial gap to meet the Millennium Development Goals and other crucial sector objectives. The Camdessus and Gurria reports, published in 2003 and 2006 respectively, formulated a number of recommendations in this area.* This report examines the extent to which these recommendations have been implemented and how financial innovation may need to adapt to the rapidly evolving global context and the ongoing financial and economic crisis.

Market-based repayable finance is difficult to mobilise for WSS due to a number of constraints, which are referred to as "critical mismatches". A key constraint is that the sector is often perceived by potential providers of market-based repayable finance (such as banks, institutional investors, private equity funds, equity investors, project sponsors, etc.) as a "high risk/low return" sector when the fundamental economics of the sector (with relatively stable and almost "recession-proof" demand for the services and long-life buried assets) would rather place it in the "low risk/low and steady return" category.

This report investigates how innovative financing mechanisms can help shift those perceptions in order to attract repayable finance so as to finance critical investments. It assumes that other reforms can be carried out in parallel (as described in the Gurria report, World Water Council, 2006), such as tariff and governance reforms in particular, to ensure that strong and stable revenue flows are generated so as to reduce risk and enable repayment of external finance over time. Whilst the present report fully acknowledges the need for such hard policy choices to be made (particularly on the issue of tariffs),

* Winpenny, J. (2003).

it does not go into detail about how this could or should be done, as this is addressed in the background reports for the Horizontal Water Programme, such as the report on private sector participation (OECD 2009c) and the report on tariffs (2009d) as well as previous water-related OECD work.

In the context of the financial crisis, many sources of repayable finance have dried up and innovations that previously allowed improving the credit rating of a given entity (and thereby reducing its costs of borrowing), such as bond wrapping or securitisation, have largely disappeared. More than ever before, public finance has a role to play in leveraging market-based repayable finance. This may not necessarily require higher volumes of public finance but a more targeted use of such scarce resources. For example, building domestic institutions that channel international public finance at the decentralised level may be a very appropriate use of scarce public funds.

This report looks into the experience of developing innovative financial instruments in OECD countries as well as in middle-income and developing countries and investigates how specific country experiences could be usefully applied and scaled-up in other countries. Particular focus is placed on financing provided to asset-holders and water service operators (public, private or community-based) but also, to a degree, to households themselves when they are in charge of investing (for example, to build household latrines). This excludes financing to the sector as a whole for policy development.

Target audience

The readers targeted by this Report are policy makers in both OECD and non-OECD countries concerned with water, environmental policy, finance and development. The Report addresses specialists, but is also intended to be accessible to non-specialist readers. With this in mind, it tries to be jargon-free and sparing in its use of technical vocabulary. The objective is to explain potentially complex financial structures to the non-specialist and to increase awareness of the significant contribution that innovative financing can make for providing WSS for all.

Structure of the report

The report has four chapters:

Chapter 1 sets the stage. It starts by defining potential sources of finance for water and sanitation services (WSS) and sets out why this report focuses on how to attract market-based repayable finance to the sector and why innovation may be required to do so. It then recalls the recommendations made by the Camdessus and Gurría reports in this area and reviews the changes that

took place in the sector since then, which may call for a change in emphasis in the way those recommendations are taken into account.

Chapter 2 examines how market-based repayable finance can be mobilised in the water sector for different types of potential recipients. It seeks to evaluate why, in practice, such financing sources have failed to develop in a significant way, due to a number of "critical mismatches". Finally, it summarises what are key drivers for financial innovation to attract market-based repayable finance.

Chapter 3 looks in more details into the set of innovative financial instruments that can be used in the sector. It reviews how such tools have been used over the last ten years and examines in more detail Official Development Assistance (ODA) can be used to catalyse market-based repayable finance into the sector.

Chapter 4 reviews how the global financial crisis is likely to affect the potential development of such financial innovations going forward and what the implications for the role of public finance are.

Finally, the bibliography contains a list of the key references for this report.

Chapter 1

Setting the stage

This chapter has two main objectives. It starts by defining more specifically the scope of the overall report, by providing definitions for key terms and concepts and explaining why the report is more specifically focused on mobilising market-based repayable finance for the sector. Second, it recalls the key recommendations that had been made in the Camdessus and Gurría reports in that regard. Finally, it briefly summarises the evolutions that have taken place in the water and sanitation service sector in the last six years in order to assess the current relevance of these recommendations.

1.1. Financial flows for water and sanitation services

There are several types of financing flows to water and sanitation services, each of them with their specific characteristics. For the interest of clarity, the definitions used in this report for the different types of financial flows are provided in Box 1.1 and represented graphically in Figure 1.1.

Market-based repayable finance, *i.e.* loans, bonds and equity, is the subset of financial flows that need to be repaid, including remuneration for the use of capital at a rate set by the market. Such financing is usually provided by various entities (commercial banks, private water service operators, institutional investors via capital markets, private equity funds, etc.) on the assumption that the return they earn on their investment will make it worthwhile, once all risk factors are taken into account.[1] A key distinction between revenues from the 3Ts and repayable finance is that the former can fill the financing gap whilst the latter can only bridge the financing gap. Another important distinction is one of timing. Investments in WSS tend to be lumpy and front-loaded whereas cash-flows from revenues are spread over a much longer period of time. A key purpose of repayable finance is to provide financing up-front so as to pre-finance investments that are repaid over time.

Figure 1.1 shows how repayable finance can bridge the financing gap in water service providers' finances.[2] On this figure, repayable finance is broken down between concessionary repayable finance and market-based repayable finance. The former refers to loans that include a grant element and are provided by public institutions, such as International Finance Institutions (IFIs), bilateral donors or development banks established at national level.

Box 1.1. **Definitions**

In this report:

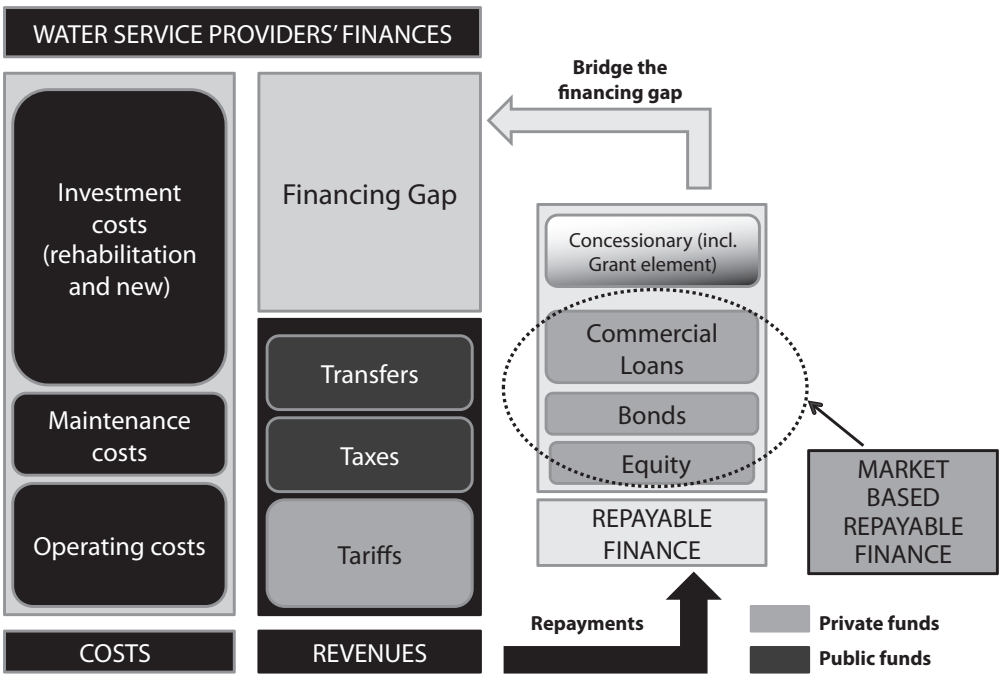
- **Water and sanitation services (WSS)** refer to all water services provided through man-made capital that deal with the supply of drinking water and sanitation services (from basic sanitation to wastewater treatment). These form the focus of the report.
- **3Ts** refer to the mix of tariffs, taxation and transfers from Official Development Assistance (ODA) and other forms of solidarity that provide revenues for water service providers and fill the financing gap.
- **Repayable finance** refers to financial flows that require repayment at a future date plus remuneration for the use of capital, in the form of interest or dividends. This may include loans, bonds and equity and can only bridge the financing gap, *i.e.* help finance upfront investments.
- **Market-based repayable finance** refers to a sub-set of repayable finance, where financing is provided through the market by private actors. This may include private loans, bonds and equity.
- **Concessionary repayable finance** refers to a sub-set of repayable finance, where financing is provided by public actors and includes a grant element, *i.e.* an element which does not need to be repaid or an element that requires compensation at below market rate (such as a subsidised interest rate).
- **"Public funds"** refers to financial flows coming via governments and charitable organisations from taxation and transfers. This may include public investment in infrastructure, public subsidies for operations and maintenance costs or the grant element in concessionary repayable finance.
- **"Private funds"** refers to financial flows coming from users of the service, private WSS providers and private financiers, such as commercial banks, equity investors or bondholders. This includes tariff revenues, private investments (such as household investments in on-site sanitation facilities) and market-based repayable finance in the form of loans, bonds and equity.

1.2. Why focus on market-based repayable finance in this report?

As noted in OECD (2009a), developed and developing countries face key challenges with respect to their water sectors linked to (i) increasing water scarcity, (ii) the need to increase access to water supply and sanitation in developing countries; and (iii) the need to rehabilitate water supply and sanitation infrastructure. These challenges all carry a significant price tag and substantial additional finance will be required to meet them. A recent WHO report estimated that USD 18 billion will be needed annually to extend existing infrastructure to achieve the water-related MDGs, roughly doubling current spending. In addition, according to WHO estimates, an additional USD 54 billion per year will be needed just to ensure continued services to the currently served population (this does not include the additional needs generated by new infrastructure).[3]

Financing to meet those challenges must come from all available sources, including public and private sources, in the form of revenues or repayable finance. The present report is focused on how repayable finance can be

Figure 1.1. **Using repayable finance to bridge the financing gap**



Source: based on OECD (2009), *Managing Water for All: An OECD Perspective on Pricing and Financing.*

mobilised to increase financing to the sector, with a specific focus on market-based repayable finance, for the reasons discussed below.

First, while the main focus of the OECD Horizontal Water Programme was on the ways and means of increasing revenues (or reducing costs) to fill the financing gap in the sector, it was felt that some attention should also be devoted to the way in which repayable finance can be mobilised. In most countries, it will take time to bring about efficiency gains and carry out the necessary reforms to fill the financing gaps, including, first and foremost, tariff reforms.[4] In the meantime, if the targets are to be achieved, it will be essential to bring in repayable finance to bridge the financing gap, and especially to do so on acceptable terms (financing cost, maturities, requests for collateral etc.). Going to the market for such financing, provided the market remains willing and able to contribute (a critical assumption which is discussed in more details in Chapter 4 on the impact of the financial crisis), is a key way to overcome potential limitations in the availability of public financing.

Second, hopes that direct private investment into and private lending to the sector would provide a significant and growing share of investment have not been fulfilled. The introduction of private sector participation (PSP) was often based on the misconception that private operators would bring financing with them via concession contracts or other similar contracts with investment obligations. According to a recent World Bank study on the track-record of public-private partnerships for urban water utilities,[5] "earlier expectations for increased private finance have proved unrealistic". This study points out that private financing of urban water utilities has been limited when compared with other infrastructure sectors, as it represented only 5.4% of the total investment commitments in private infrastructure between 1990 and 2000. Investment commitments by private operators (made in the year of financial closure) went down sharply in the aftermath of the Asian financial crisis, from a peak of USD 10 billion in 1997 to a low of about USD 1.5 billion in 2003, and have not recovered since.[6] In addition, such investment commitment figures were for the total amounts to be invested over the duration of the contracts, and most of the commitments were for a few large projects, with projects in Chile, Buenos Aires, and Manila representing nearly half the total amount.

In fact, many concessionaires proved unable to borrow from private financiers as originally expected, so actual private investment was much less than initially committed. By contrast, as pointed out by the OECD (2009c), concessions combining private and public financing (such as in Colombia, Guayaquil in Ecuador, and Cordoba and Salta in Argentina) and leases/affermages, where most of the investment was directly financed by the public partner proved more successful at expanding access, a key investment target of many such concessions. Another World Bank study based on detailed

regression analysis of water and electricity PSP contracts (with a data set of more than 1 200 utilities in 71 developing and transition economies) found that it was not possible to conclude that investment always increases with PSP (despite evidence of actual increases in water connections, the number of which increased by about 12% on average).[7]

Last, the diversity of market-based repayable finance is not always acknowledged. Although it has often dominated the debate, private financing via PSP contracts accounts for only a small portion of market-based repayable financing going into the sector. Market-based repayable finance can be provided to either public or private operators: given that publicly-owned utilities serve approximately 95% of the population worldwide, those utilities are likely to require the lion share of repayable finance, including market-based repayable finance for years to come. For example, municipal bonds subscribed by private investors in the United States (Box 2.1) have largely financed municipal (and hence) public operators. This type of financing has therefore the potential to bridge the financing gap much beyond the limited universe of privately operated water service providers. In many countries, particularly developing ones, attracting such type of finance can only be done via financial innovation, as explained below.

1.3. Why is innovation needed to increase market-based repayable finance?

Whereas market-based repayable finance has played a significant role to support the development of water and sanitation systems in OECD countries (alongside public investment), the use of this type of finance has so far been limited in the water sector in developing countries. Market-based repayable finance is either not available with adequate maturities to match the life of the investments or too expensive, particularly when compared to cheaper concessionary finance.

Given that WSS are very capital intensive and financing costs represent a sizeable share of the "revenue requirement" to be covered via the 3Ts, reducing the cost of financing should be a key objective of all water service providers as it can help reduce the need for subsidies and bring tariffs down. The main objectives of financial innovation are to increase access to repayable finance, to reduce the cost of capital and to extend the tenor of financing so as to leverage more repayable financing from a given stream of basic revenues. Financial innovation can be initiated either through the market (*i.e.* by the providers or recipients of finance when they have spotted an opportunity) or with the support of a public sector agency seeking to catalyse market-based repayable financing with limited public funds.

In the water sector in England and Wales, for example, considerable financial innovation has taken place in the last ten years, at the initiative of private companies and their financiers in response to a change in regulatory regime and substantial investment requirements driven by European Union legislation. This, combined with a tightening regulatory framework, meant that financial innovation was needed to lower the cost of capital and improve access to finance as explained (Box 1.2).

Box 1.2. **Financial innovation in the water sector in England and Wales**

The England and Wales water sector is the only one where privatisation, which took place in 1989, has involved the sale of assets to the private sector (only three other countries, including Chile, the Czech Republic and Belize have experience with outright sales of assets). Remuneration on the invested capital is calculated by applying the "Weighted Average Cost of Capital" (WACC) to a notional financing structure (the rateable value). Ofwat, the industry regulator, sets a price cap every five years in a process known as periodic reviews (PR09 was recently completed with Final Determinations published in November 2009). This approach allows companies to retain the benefits of efficiency gains and financial innovation up to the following periodic review, when the regulator decides on the share of these gains to be returned to customers in the form of price reductions.

Since privatisation, securing access to finance has been critical due to the size of the required investment programme to meet European Union quality improvement targets, which is going to cost over £80bn between 1990 and 2010 according to WaterUK, an industry body.[8] At the 1999 Periodic Review, the industry regulator allowed a relatively low cost of capital for most water companies, below what they could obtain on the market at the time. As a result, water companies were strongly incentivised to innovate to lower their cost of capital through reaching an efficient capital structure whilst maintaining financial sustainability. Examples of such innovation are discussed below.

- ***A switch from equity to debt finance***. The Welsh water supplier (Dwr Cymru) was sold by its distressed parent company in 2001 and bought by not-for-profit entity Glas Cymru. This entity, whose sole purpose was to buy Dwr Cymru, financed the entire takeover using bonds thus creating a situation where there is no equity capital in the company. Since the cost of debt was below the cost of equity, this financing structure means Glas Cymru achieved a very low cost of capital.

- ***Mechanisms to allow access to a broader class of bond investors by a broader class of water companies.*** This involved co-operation with large insurance companies (monoline insurers) as guarantors, which also allowed bundling together debt issues by smaller companies allowing them to access bond markets.

These innovations have been effective at reducing the cost of capital and allowed companies to increase gearing (the ratio of debt over equity) from about 20% in 1995 to 66% in 2008 while maintaining investment grade ratings. In addition, longer-term financing has been obtained by tapping into the market for institutional investors, such as pension funds, which matches the long-term capital programmes of the sector.

Box 1.2. **Financial innovation in the water sector in England and Wales** *(continued)*

One financing structure that combines several innovations discussed above is the ***artesian loan facility***, which was created to allow England's smaller water only companies (WoCs) access to bond finance, as this is usually cheaper than commercial bank finance. With an average company regulatory capital value of GBP 220 million, most WoCs are not large enough to issue bonds individually on commercially viable terms. The Artesian Loan facility provides an "umbrella" under which the WoCs can group together to issue debt at cheaper conditions. The credit quality of the combined bond issue is guaranteed by a so-called "monoline insurer", which guarantees the bondholders' demands in the case of failure of one of the firms in the loan structure. Investor security is further enhanced by disclosure agreements and isolating water revenues from other interests in the company. This combination of measures enhancing credit quality allowed small companies with large capital expenditure programmes to raise the required financing at very preferential terms. However, the future of the Artesian arrangement has recently come under scrutiny as monoline insurers' ability to guarantee against credit default in the current market climate has been questioned by rating agencies (Section 4.1).

Given sharp differences in the state of development of financial markets around the world, what is considered innovative in one country would not necessarily be so in another. In the United States, for example, municipal bond markets have long been used to finance infrastructure investment at municipal level (Box 2.1). The development of such markets in other countries is still limited, however, and would generally be considered innovative particularly in developing countries.

The public sector has a critical role to play in ensuring that financial innovation is used to address critical constraints for increasing funding to the sector. In many developing countries, international financial institutions (IFIs), donors or governments themselves have developed such innovative financing tools rather than the market itself. This is partly a reflection of the fact that financial markets in developing countries are less established. Local banks do not consider the water sector as an area for development, as the sector has a reputation for political entanglements and subsidised pricing. Bond and equity markets are much less liquid, due to the lack of a large investor base.

As the unfolding global financial crisis partly demonstrates, however, financial innovation does not always bring the expected results and it can even create additional problems. The concept of "innovation" often conveys the idea of complex financial structures that are difficult to understand by non-specialists. Financial markets at large have fallen prey to such complexity, as financial institutions took on much more risk than would have otherwise been deemed reasonable or manageable. In the water sector in England

and Wales, for example, some private equity investors have targeted water companies as they were hoping to extract quick returns by loading the companies with debt and using the benefits of a lower cost of capital for their own benefit rather than for investing in the companies (Section 2.2.4). To be effective, financial innovation therefore needs to be well channelled and regulated, an area where public sector agencies have a critical role to play.

Other limitations of innovative financing mechanisms are linked to the frequent weakness of legal and institutional arrangements that govern the water sector, and the lack of sufficient cash flows to cover costs. This is problematic, because it means that many projects in the water sector are hardly bankable and their access to market-based repayable finance is therefore very limited. If marked-based finance is being provided nevertheless and crucial reforms are not being carried-out in parallel there is a serious risk of default. A further limitation resides in the fact that some of the more promising financing mechanisms that are being presented in this report require contextual features, such as well developed local capital and financial markets, as well as institutional and human capacity to devise and manage these instruments, which are usually found in emerging economies, but more rarely in least developed countries where water services are poorest. The applicability of the instruments discussed here therefore needs to be carefully considered on a case-by-case basis.

1.4. Previous recommendations and their follow-up

Many sector specialists have already examined the need to increase financing to the water sector and the potential role that market-based repayable financing could play. The Panel on Infrastructure Financing (referred to as the "Camdessus Panel) was formed in late 2001 "to address the ways and means of attracting new financial resources to the water field". The Panel produced a report that neatly captured and distilled state-of-the art sector knowledge and ideas in this area.[9]

The Camdessus report included a long list of recommendations on how new financial sources could be attracted to the sector and how the environmental policy environment could be improved to make the sector more attractive. In particular, the report formulated detailed and concrete recommendations on how market-based repayable finance can be attracted to the sector (Box 1.3).

The report advised that most of its recommendations be implemented by 2006, the mid-point on the way to the Millennium Development Goals and that 2015 should be the next essential check-point, opening the third stage of a strategy leading to universal access and sanitation by 2025.

Box 1.3. **Camdessus Panel recommendations to increase repayable market-based financing**

Promoting local capital markets and savings

- Governments and central banks should put in place measures to ***promote local capital markets*** and address problems caused by their own actions in crowding out other borrowers.
- Governments, with the help of IFIs and donors, should be asked to ***promote the rating of sub-sovereigns,*** to facilitate their financing but also to enable transparency and the tracking of behaviour.
- Governments should consider taking steps to permit the ***development of domestic borrowing markets*** for sub-sovereigns.
- With appropriate reforms made in the light of lessons from previous experience, ***national development banks or specialised financial institutions should develop a role as intermediaries*** for channelling external and central government funds, and funds raised in local markets, to sub sovereign bodies.
- ***Governments should encourage the creation of credit pools for sub-sovereigns***, with an option of joint and several liability.
- ***IFIs and other agencies should extend their use of guarantees*** and the issue of local currency bonds to promote local capital markets, extend the maturity of local loans, and encourage the use of local pension funds in the water sector. They should urgently address statutory and managerial obstacles to their further use of these instruments.

International commercial lending

- ***Governments, IFIs and banks should encourage the development of local capital markets*** to enable better currency matching of revenues with borrowings.
- ***IFIs and ECAs should enhance and extend political risk coverage*** for projects, including the use of MFI guarantees and relaxation in ECA rules on guarantees and insurance.
- Banks and other lenders should develop and employ ***innovative financing techniques such as securitisation or collateralisation of loan-debt obligations*** (that is, combining a number of individual project loans into packages, taken up by other lenders).
- A new ***Devaluation Liquidity Backstopping Facility*** is proposed as one method of mitigating the risk of foreign exchange fluctuations in water projects at the sub-sovereign level.

Box 1.3. **Camdessus Panel recommendations to increase repayable market-based financing** *(continued)*

Private investment and operation

- Governments and water authorities should ***recognise the present and potential role of small-scale water service providers (SSWSPs) and other parts of the local private sector***, and provide a legal framework to encourage greater long-term investments by them.
- ***SSWSPs should be encouraged to improve their access to finance*** to increase their capacity to invest in the sector and reduce their cost of capital.
- Where public authorities are considering reforms of the water sector, or tenders of various kinds are being drawn up, ***private participation should be included as an option,*** to be decided on specific grounds of efficiency, cost and effectiveness.
- Donors and governments should be open to financing water projects by ***combining public funds with private financing*** in transparent and acceptable ways.
- ODA should be available to facilitate water projects managed by private operators under public control – for example ***output-based aid could be used to expand networks or fund revenue shortfalls*** on a diminishing basis under a concession. ODA could also be used to finance investment in assets owned by the public and operated by the private sector.
- ***Guarantee and insurance schemes offered by IFIs, governments and export credit agencies should be expanded in scope***, and the internal constraints on their use should be relaxed.

Source: Adapted from Winpenny, J. (2003).

Since 2003, numerous reports have been published, gathering and circulating additional evidence on the potential role of innovative financial instruments, such as risk mitigation instruments or sub-sovereign lending.[10] The Gurría report, published in the context of the 4th World Water Forum in Mexico in 2006, took as its main focus the demand for finance and the scope for developing the financial capacity of sub-national entities.[11] The present report builds on this literature and seeks to summarise current knowledge about attracting market-based repayable finance into the sector.

Seven years down the line, many of the recommendations in the Camdessus and Gurría reports remain highly relevant. The problems for attracting financing are well-known and the potential solutions that were proposed at the time were detailed and sensible. While significant progress has been made on implementing a number of these recommendations (*e.g.* sub-sovereign

lending) more efforts and time for their implementation are still needed. Few of the recommendations contained in the report have been adopted in a comprehensive way or led to radical changes in financing policies and practices. At the operational level, worthwhile initiatives have been taken in order, for example, to increase the use of guarantees, improve the targeting of subsidies or spread the use of revolving funds. These initiatives have remained at a limited scale, however, and have not been sufficient to attract new financing in a significant way (Chapter 3).

1.5. Key evolutions since the Camdessus and Gurría reports

Although the recommendations of the Camdessus and Gurría reports are still highly relevant, a change in emphasis may be required to reflect the changes that have affected the water sector in recent years and the impact of the global financial and economic crisis. Since the late 1990s, the water sector has evolved substantially, which has in turn affected the type of financing that may be required.

The market for water services has evolved rapidly. Following the serious difficulties or collapse of major concession contracts, such as in Jakarta (Indonesia), La Paz-El Alto (Bolivia) or Buenos Aires (Argentina), international private operators have readjusted their strategies and are no longer looking to invest in water services in emerging economies outside China and a few other isolated cases.

As noted in the OECD companion report on PSP,[12] whereas five operators (Suez, Veolia, Thames, Agbar and Saur) accounted for 53% of projects awarded during the period 1990-97, their share had dropped to 23% over the period 2003-2005. The majority of private sector contract activity focuses on management contracts or service contracts, which do not bring substantial financing apart from working capital. This report stated that "the changes in the private sector landscape accompany a trend among "traditional" international players towards shorter, less risky arrangements involving lower or no investment obligations".

Local operators of various scales, both public and private, have been working hard to fill the expectation gap left by the withdrawal of international private operators. They can be public utilities, local private operators that have gradually increased in size and financial status or small-scale water service providers (SSWSPs). Public water companies have retained their dominant position for the "official" or "formal" provision of water services around the world (*i.e.* leaving aside service provision by SSWSPs, for which coverage figures are not computed at the global level on a comprehensive basis).

In OECD countries, some countries such as the United States, the Netherlands, Sweden or Germany have a strong tradition of public water companies

which have been efficient, for the most part. In the developing world, some public companies have made great strides to improve efficiency and increase coverage. For example, in Cambodia, Phnom Penh Water Supply Authority (PPWSA) has operated a remarkable turnaround over the course of the last ten years. From 1993 to 2006, supply hours rose from 10 hours a day to 24 hours, the number of staff per 1 000 connections dropped from 22 to 4 and the utility added an extra 120 000 connections. Over the same period, its financial situation improved drastically, going from a heavy subsidy to full cost recovery. This turnaround took place after years of deterioration and neglect during the civil war, through the instigation of a culture of change in the utility, tariff increases and substantial external assistance from international donors.[13] Other examples of successful public utilities include ONEA in Burkina Faso, NWSC (National Water Sewerage Corporation) in Uganda, or even the asset-holding company SONES in Senegal. This being said, the majority of publicly-owned and operated water companies still face significant problems to finance critical operations and maintenance, let alone their development to meet existing and future demands on their services.[14]

On the private side, local private operators have significantly increased their market share, which rose to at least 40% of the private sector market by 2007.[15] Strong regional players have emerged in all major regions, spotting opportunities that were not attractive for international operators or buying back the share of their international partners in existing contracts. Some SSWSPs have developed their activities and have become more formally established. In some African cities, they are serving a substantial portion of customers especially in peri-urban areas, such as in Maputo (Mozambique) or in Lusaka (Zambia). They have increasingly become recognised as significant market participants to be reckoned with rather than outlawed or eliminated.[16]

The risk profiles and financing needs of these operators are very different from those of international private operators and there are also significant differences within this group of providers. This means that the financial innovations called for by the Camdessus and Gurría reports need to be adapted to this changing set of protagonists and that priorities have changed somewhat. For example, local operators (public or private) are less likely to borrow in international currency and their revenues are in the same currency as their outgoings (except for large pieces of equipment, material costs, etc.), which reduces the exchange rate risk. As a result, providing access to local currency financing at sub-sovereign level has become more urgent and critical than, for example, the establishment of a Devaluation Liquidity Backstopping Facility.

Increasing Official Development Assistance remains critical. The Camdessus and Gurría reports called for a doubling of ODA to the water sector in order to meet the MDGs. Although ODA to the sector has recently picked up (after a slump in the late 1990s), reflecting a real change in donors'

priorities, such massive increase has simply not happened. A large proportion of the additional funds went to a small number of countries and the share of ODA going to the water sector in Sub-Saharan Africa, the region that needs it most, has actually decreased.[17] A few international financial institutions have doubled their commitments. The Asian Development Bank (ADB), for example, launched the Water Financing Program to double its investments in the sector between 2006 and 2010 (to reach USD 10 billion over the 5-year period). To achieve this aim, they increased the use of some innovative financing instruments, such as sub-sovereign lending without a sovereign guarantee, multi-tranche lending (*i.e.* a line of credit for a long-term investment program) and local currency lending. The start-up of the program has been encouraging. By March 2009, the ADB had met about 38% of its target and it remains confident that the target could be met by the end of 2010.[18]

Developing country governments have yet to make the water sector a key priority, as the low degree of prioritisation of water and sanitation in their PRSPs reflects.[19] In certain countries, such as Uganda, harmonisation of donor funding policies resulted in fewer donors being involved and an overall decrease in external funds available to the water sector (by 80% between 2004/05 to 2008/09). This is particularly worrying given that, over the same period, Government spending in the sector decreased by one third. Although the sector performed well (following a remarkable turn-around of the state-owned national company, NWSC), the population grew at 3% per year during the same period, which means that substantial investments are required to keep up with population growth.[20]

In addition, evidence showing that a large proportion of public funds are siphoned away in the form of corruption is preoccupying. According to Transparency International, "corruption may raise the price of connecting a household to a water network by as much as 30%".[21] This calls for more oversight over the use of public funds, something the discipline of repayable financing can bring provided adequate safeguards are in place.

Changes in the global environment. Most importantly, the global environment has changed radically since the onset of the financial crisis in August 2007, following revelations about the banking sector's exposure to sub-prime mortgage debt in the United States. This means that some innovation called for by the Camdessus and Gurría reports may be more challenging to achieve than before, but innovative financing mechanisms are needed more now than ever before and further innovation will be needed.

The financial crisis has triggered a massive shift towards government financing, partial ownership and control of major private institutions by the public sector, including commercial banks (such as RBS in the United Kingdom or Citibank in the United States), insurance companies (such as AIG) or mortgage-lending giants (such as Fannie Mae and Freddie Mac).

With the "credit crunch" showing no sign of abating, competition for scarce market-based finance is rife and it remains to be seen whether the water sector will be able to rise to the top of the pack for accessing reduced flows of market-based finance and face up to increased competition for public funds. From now, it appears that multilateral institutions will need to provide much needed support to provide repayable finance to the sector, with the hope that these flows would catalyse market-based repayable finance when the latter starts to flow again.

Notes

1. Market-based repayable finance is often referred to as "private finance". This is a slight misnomer given that a major source of private finance, *i.e.* the households who receive water and sanitation services and pay for those via tariffs or invest directly in their own facilities, is not repayable and constitutes a direct source of revenues for water and sanitation services.
2. The FEASIBLE model, developed by the OECD and discussed in OECD (2009b) identifies several possible financing gaps, *i.e.* the financing (cash flow) gap, the national affordability gap or the household affordability gap. The present report is focused on the financing gap at the level of water and sanitation service providers, who are the primary recipients of market-based repayable finance.
3. WHO (2009).
4. For a discussion of tariff reforms and a review of recent experiences, see OECD (2009d).
5. Marin, P. (2009) as quoted in OECD (2009c).
6. Data from the World Bank PPI database, available on: *http://ppi.worldbank.org*.
7. Gassner, K, Popov, A. And Pushak, N. (2009).
8. Water UK (2008).
9. Winpenny, J. (2003).
10. For example: PricewaterhouseCoopers Securities (2003); Baietti, A. and P. Raymond (2005); Trémolet, S., Cardone, R., Da Silva, C. and C. Fonseca, (2007).
11. Van Hofwegen, P. (2006).
12. OECD (2009c). This report also provides a useful categorisation of new market entrants (Table 1.2).
13. See: *adb.org/Water/actions/CAM/PPWSA.asp*.
14. Baietti, A. Kingdom, W. and Van Ginneken, M (2006).
15. Marin, P. (2009). This figure is an underestimate, as it excludes China, where recorded PPPs serving 24 million people are based on mixed control between

the international operator and local investors (the latter holding a majority share) and where national operators in small cities may have gone unreported. It also excludes contracts such as Senegal and Cote d'Ivoire.

16. Kariuki, M. and Schwartz, J. (2005).

17. For additional details on ODA trends, refer to OECD (2009a) and OECD (2009b).

18. Presentation by Amy Leung (ADB) at the 5th World Water Forum in Istanbul, 18th March 2009.

19. Trémolet, S., Cardone, R., Da Silva, C. and C. Fonseca (2007).

20. Trémolet, S. (2009).

21. Transparency International (2008). Although the figures have been disputed, they give an order of magnitude.

Chapter 2

Mobilising market-based repayable finance

This chapter examines the potential recipients of market-based repayable finance in the water sector together with their specific needs or constraints. The chapter then looks at how sources of market-based repayable finance, such as loans, bonds and equity, have been used in the water sector before evaluating what the limitations on their use has been and identifying the needs for innovation.

2.1. Potential recipients of market-based repayable finance

In broad terms, potential recipients of market-based repayable finance include households themselves (when they are responsible for investing in their own facilities, such as on-site sanitation facilities) and the water and sanitation service providers. The organisation of water and sanitation service provision varies widely from one country to another and water service providers have different financing requirements and risk profiles. In about 90% of cases, formal water service provision remains the responsibility of public entities, which may include state-owned enterprises, local governments, municipal companies, asset-holding agencies, etc.[1] These service providers may have introduced some degree of private participation in their operations (via service contracts or management contracts) but they would usually rely on public sources of finance to fund their capital investment programmes (as tariff revenues are often insufficient to finance investments). There are important exceptions, however, such as the municipal water companies in the United States that have long relied on bond financing to fund their development (Boxes 2.1 and 3.7).

WSS are by nature local services. Water and sewage are bulky and costly to transport over long distances, with a limited case for integrated transportation networks as they exist for electricity or gas. As a result, most water service providers were initially set up at the municipal level. Over the years, however, market structure reforms in the water sector have oscillated

between decentralisation reforms, which may be driven by broader country-wide decentralisation processes and some degree of aggregation (in order to reach a more efficient scale of operations).

It is common to observe decentralisation reforms followed by aggregation trends, as countries are usually looking to reach the "optimal" scale for service delivery through experimentation rather than by design. As a result, it is difficult to generalise on global trends.[2] In some countries, particularly in the OECD, the pressure for achieving economies of scale for service provision has led to some degree of aggregation, either through the formation of groupings of municipalities (as in France, Italy or Spain) or the creation of regional or even national providers (such as watershed-based water companies in England and Wales, regional companies in Portugal and Italy, State-level companies in Brazil or national ones in West Africa). In developing countries, since the early 1990s, WSS have progressively been decentralised, which means that currently, the majority of water and sanitation service providers in those countries tend to operate at the local level. Such decentralised authorities have often been struggling to establish their financial standing in order to access financing on their own credit. This can be due to a number of issues. In some cases (such as in Indonesia or the Philippines), decentralisation was carried out without adequate revenue transfers from the central/government level to support the development of infrastructure at the local level. In other cases, there is no clear separation between the municipal government and the water service provider. For example, the service provider may be a municipal department, which may have poor capacity, with underpaid staff, and face difficulties to keep revenues from water (and sanitation) services separate from the municipality's general finances. As a result, local water service providers often have difficulties in mobilising financing, particularly if their balance sheet is weak and their ability to generate revenues deemed insufficient by financiers.

Stemming from the above trends, the structure of the markets for water and sanitation services varies widely from country to country and within countries. It is difficult to draw a typology of service providers and their respective financing needs (Table 2.1).

As mentioned above, ownership has in fact a limited impact on the type of finance that can be obtained, especially when compared with other factors. In principle, publicly-owned entities are equally able than private operators to access market-based repayable finance. It can in fact be attractive for them to do so as a way to improve their efficiency. As Marin (2009) mentioned, "in many countries, increased access to market-based financing without sovereign guarantees provides incentives for public water utilities to improve their financial and operating performance – in turn helping them to compete on more equal terms with privately managed ones."

From the point of view of accessing market-based repayable finance, a key determinant is the credit-worthiness of the water service provider, which depends on its ability to recover costs via predictable revenues and the strength of its balance sheet (including the current levels of indebtedness). Limited credit-worthiness will make it difficult to access market-based repayable finance without credit enhancement.

Finally, a key determinant of whether the service provider will even be considered by conventional lenders to obtain access to credit is whether or not they are legally registered. Small scale water service providers (SSWSPs), although they provide services to a large share of the population in developing countries, are often limited in their ability to obtain financing via

Table 2.1. **Characteristics of water service providers and access to finance**

Dimension	Potential cases	Impact on access to market based repayable finance
Level of operation	• Municipal • Group of municipalities • National	Municipal providers require access to sub-sovereign financing. National providers or those operating in the capital city may have easier access to financing at sovereign level and to sovereign guarantees.
Size[3]	• From a few hundred connections to several millions (6.2 million water connections for SABESP in Brazil)	Size, measured in terms of number of connections or turnover, has a direct impact on the ability to access capital markets given the transaction costs of putting financing together, which include a relatively high share of fixed costs.
Degree of corporatisation	• Municipal (or state) department • Corporatised entity within local government • Separate entity	This can impact the ability to ring-fence revenues from the provision of water and sanitation services. Such separation may prove unworkable for municipal operators. It will impact the confidence that financiers have with being able to reclaim their investment.
Ownership	From completely publicly-owned, to partial or full private ownership (note that private ownership of assets is relatively rare in the water sector where PSP contracts are more common)	Ownership has a relatively limited impact on the ability to access financing from private or public sources. Private operators can access financing from public entities (e.g. the European Investment Bank has been a key provider of finance for private companies in England and Wales) whereas public entities can tap into private finance (such as municipal operators issuing municipal bonds in the United States).
Credit-worthiness	From low to high credit-worthiness, depending on cost-recovery performance	The less credit-worthy providers either have limited access to conventional finance or can only obtain relatively short-term financing at a high cost. The more credit-worthy, the less need for credit enhancement.
Legal status	From legally registered to informal operators	Informality means that many SSWSPs have difficulties in opening a bank account and accessing credit from the conventional banking sector.

conventional routes in order to finance their expansion, especially when they are not legally registered. As they often operate in a legal vacuum, lenders are often reluctant to lend them anything as they could be expropriated at any time. Obtaining access to finance can be a key motivation for these providers when seeking a form of formal registration, which should be explicitly offered by the authorities in charge.

2.2. Potential sources

Sources of market-based repayable finance can be broadly divided into two types:

- ***Debt finance***, including loans from commercial banks, bonds issued through capital markets and project finance;[4]
- ***Equity finance*** including listed and non-listed equity, with the former mobilised through capital markets whilst the latter comes from individual corporate investors or private equity funds.

Debt financing has been the backbone of most infrastructure investment in developed countries. Depending on the development of local bond markets and the size of the debtor, it has come either in the form of bonds or loans. In developing countries, water companies traditionally rely mostly on bank loans to finance capital investments (and especially concessionary loans from development institutions) but other forms of finance, such as bond finance, project finance or equity finance have emerged as important ways to complement more traditional forms of finance.

The next section reviews how each source of finance has been used in the water and sanitation sector. It examines the type of constraints that have limited their development, particularly in developing countries, and the potential innovations that can be adopted in order to overcome such constraints. Each type of innovation is explained in more details in Chapter 3. Although these innovations are presented separately, in practice they would often be combined in order to meet the specific constraints faced by each service provider and to reflect the conditions of the local financial markets. The impact of the recent financial crisis on these sources of finance and the potential role of innovation is reviewed in more details in Chapter 4.

2.2.1. Bank finance (Commercial loans)

Short and medium-term commercial loans are common for financing working capital requirements in developed and developing countries alike. Short and medium term lending facilities may also need to be used to finance investments in countries where obtaining long-term bank financing to match

the long asset life of water sector investments is difficult, as commercial banks are not able or willing to lend over such long periods.

In developing countries, in particular, commercial banks (when they exist) are often reluctant to offer long-term financing to the water sector. In Kenya, according to COWI (2005), the longest retail loans that could be obtained from domestic banks by individuals and companies were for a maximum duration of three years, and ranged from USD 1 000 to USD 100 000. In addition, the research, undertaken for the EU-ACP Water Facility, found that the local banks did not lend to the water sector because the latter had not been able to generate sufficient revenues, for various reasons, to repay any banking sector loans. Hence, it found that local commercial banks would not lend to the water sector at all.

Commercial banks are usually not familiar with the water sector, which is perceived as a high risk sector due to frequent difficulties with increasing tariffs at the local level, inefficient management and operation as well as wide-spread corruption. Such perceptions result in a high risk premium being charged (on top of the Government standard lending rate, which reflects the overall country risk) and high financing costs. In addition, in many developing countries, commercial banks are unwilling to compete with development banks and international financial institutions, which offer financing to the water sector on more favourable terms. The availability of such "concessionary" financing is often limited, however, and can only cover a portion of the market, usually through the national utilities rather than at sub-sovereign level.

On the demand side, water utilities' revenues may not be sufficient to cover market-based financing costs (as well as the costs of running the business, *i.e.* operations and maintenance costs), even after measures to improve efficiency and reduce costs have been undertaken. This in turn limits the water service providers' ability to borrow in order to finance critically important maintenance and investments, leading to a vicious cycle of under-investment, deteriorating infrastructure, worsening services and consequently, even lower revenues. In some cases, revenues cannot be increased beyond a certain threshold because of affordability constraints that limit the ability to increase tariffs. As a result, many utilities are in a dire financial condition, especially publicly-owned ones as they may have more difficulties in increasing tariffs and collecting revenues.

Poverty and affordability constraints are commonly used arguments to limit tariff increases, when in fact, there is abundant evidence that the poor who are not connected to the networks end up paying much more for WSS. Tariff reforms would often be needed in order to improve the revenue base of the utility and its credit-worthiness. Where there are affordability constraints, targeted subsidies can be used in order to channel subsidies to poor customers

so as to maintain access to the service for these customers whilst not keeping average tariffs too low.[5]

Finally, certain types of water service providers may not have access to bank financing, for a variety of reasons. As mentioned above, SSWSPs, for example, are often unable to gain access to credit when they operate without a clear legal status or when they are too small or informal to present reliable and auditable financial statements. Water service providers in small towns often face similar problems, as they would not have a sufficient number of qualified staff to prepare financial accounts. Market structure reforms, such as aggregation,[6] can help in overcoming some of these constraints, by increasing the size of the water service provider. This can expand the revenue base (giving more comfort to potential providers of bank finance) and give the ability to improve the financial management of the water service provider as a whole by hiring specialised staff.

Prior to or alongside sector reforms, financial innovation may be needed to increase access to commercial bank financing as follows:

- To use ODA and concessionary finance in a targeted manner that can blends with commercial bank financing (Section 3.1);
- To provide access to bank finance to smaller, local water service providers that may otherwise be excluded. This can be done via micro-finance (Section 3.2.) and may also require combining micro-finance with targeted subsidies (Section 3.3.). Increasing lending to sub-sovereign borrowers via grouped lending instruments (Section 3.5) or directly without a sovereign guarantee (Section 3.6) can also be considered;
- To extend the maturity of available bank financing to the sector, via the use of risk mitigation mechanisms such as guarantees (Section 3.4);
- To strengthen the balance sheet of potential borrowers through the use of debt-equity swaps (Section 3.7);
- To increase the availability of commercial bank financing to the water sector, through developing commercial banks' understanding of the sector (Section 3.8) and developing "bankable projects" (Section 3.9).

2.2.2. Bond finance

In developed countries, the water sector is considered to have a low risk profile that makes it well suited to the debt market. Bond financing is common in developed markets as it often offers cheaper access to debt

finance than loans. The types of bonds issued can include corporate bonds, sovereign bonds or municipal bonds, depending on the structure of the water sector. For example, in the United Kingdom, the water market is dominated by large private water and sewerage companies which issue corporate bonds. In the United States, water companies are smaller municipally owned companies. Despite recent difficulties, municipal bonds have provided a major source of finance for water and sanitation investments in the US for many years (Box 2.1).

Box 2.1. **Municipal bond markets for water and wastewater investments in the United States**

In the United States, government-owned utilities serve around 90% of customers while privately owned utilities serve the remaining 10%. Municipalities in the US generally finance infrastructure by issuing municipal bonds, including for water and wastewater projects. The first municipal bonds for water projects date back to 1837. Municipal bonds became the main form of water financing in the 1890s and their importance grew since then. According to the Federal Reserve, about USD 2.3 trillion in municipal bonds were outstanding in 2007, sold to more than 60 000 issuers. Between 1994 and 2003, 11% of the municipal issuance went for water and wastewater projects, equivalent to about USD 9 billion annually. Low default rate spurred the popularity of municipal debt. According to FitchRatings, the default rate on municipal bonds for water and wastewater projects was 0.03% between 1980 and 2000, the lowest for all municipal bonds and lower than the AAA-rated corporate debt (0.5%).

Up to the recent financial crisis, municipalities with a lower credit rating used to insure their bonds to reduce their costs. Municipal bond insurers, also known as monoline insurers, provide a back-up guarantee to debt issued by lower rated borrowers in exchange for an insurance premium. Thus a city or regional municipal borrower rated A, by paying a premium, could enjoy AAA rating. To fulfil their role, monoline insurers need high credit ratings. However, their exposure to subprime lending affected their credit ratings, sending ripple effects throughout the US municipal bond market (Section 4.1).

Sources: Sirri, E. (2008), "Testimony Concerning Municipal Bond Turmoil before the Committee on Financial Services", US House of Representatives, March 2008, *http://www.sec.gov/news/testimony/2008/ts031208ers.htm*; Dizard, J. (2008), "Life stirs again in Muni bond market", *Financial Times*, November 2008, *http://www.ft.com/cms/s/0/dfc5a398-ad14-11dd-971e-000077b07658,dwp_uuid=727d194a-bc36-11db-9cbc-0000779e2340.html*; Fahim, M. (2009), "Municipal bonds have been issued by US local governments since 1812", *CityMayors Finance*, *http://www.citymayors.com/finance/bonds.html*; Aneiro, M. (2008), "Cities and States Feel the Squeeze", *Wall Street Journal*, November 2008, *http://online.wsj.com/article/SB122782389292062403.html*.

Bond issuance for water and sanitation sector investments has so far been concentrated in a few countries, mostly in developed countries. According to Lloyd-Owen (2006), it was estimated that bonds for water and sanitation investment had been issued in 21 countries between 2000 and 2006, although 86% of issuance activity had been concentrated in France, the UK and the US.[7] In many developing countries, bond markets for water and sanitation are still small or non-existent. This partly reflects the fact that capital markets in general tend to be under-developed. On the Nairobi Stock Exchange, for example, there were 74 Treasury bonds listed as of end 2005 but none of them had a maturity of more than six years. Besides, trading volumes were very irregular and usually low.[8] In some of the poorest countries the prospect of using bonds may be a distant one, due to the absence of capital markets and the lack of appropriate capacity in government and financial institutions.

As a consequence, there are only a few developing markets where bond issuance for water and sanitation has taken place and their development has usually required mechanisms for credit enhancement, such as the provision of guarantees (Section 3.3). In Asia, for example, India and the Philippines have been leading the way, thanks to the use of a number of innovative instruments which are reviewed in more details in later sections. In the Philippines, the market for municipal bonds has gathered strength following the creation of the Local Government Unit Guarantee Corporation (LGUGC), a small structure that provides bond guarantees to municipalities (Box 3.6). Water corporate bonds have also been successfully issued in the Philippines, with the recent success of Manila Water bond's issue demonstrating the resilience of this market to the financial crisis (Box 4.1). In India, the Tamil Nadu Urban Development Fund has supported pooled bond issuance by urban local bodies for infrastructure projects, giving them access to this type of finance (Box 3.9).

According to Winpenny (2008), a small number of African countries have issued sovereign bonds of investment grade status, but this instrument is rare at municipal level, and still more so at utility level. The bond issuer needs to have a good credit standing, which normally limits the use of bonds to larger and financially solvent cities and even in such cases, credit enhancement may be necessary as well as obtaining a rating for the entity and the particular bond issue. For example, the city of Johannesburg issued a bond for essential infrastructure investment in 2004 with two partial credit guarantees (PCGs) from the International Finance Corporation and the Development Bank of South Africa (DBSA) (Box 2.2).

Other African countries have sought to follow suit, with support from international organisations. For example, the World Bank's Water and Sanitation Programme (WSP) has been providing technical assistance to the state-owned national utility in Uganda, NWSC (National Water Supply Corporation), to issue a USD 60 million corporate bond without a sovereign guarantee The bond would

take the form of a Medium Term Note (MTN) programme, which could be issued in about three tranches to finance relatively small ongoing capital investment projects. The advantages of such a structure is that, although the initial costs of putting the bond structure together are relatively high, the company can issue successive tranches in a relatively flexible manner to match its capital investment needs rather than raise the funds in one go and loose part of their value through depreciation. Targeted investors for the bond include institutional investors (pension funds) in Uganda but also in neighbouring countries, such as Kenya (with a possible listing on the Nairobi Stock Exchange). At the time of writing, however, preparations for the bond issuance were ongoing and uncertainty introduced by the global financial crisis put the future bond issuance at risk.

Financial innovation is needed to develop access to bond markets as follows:

- To improve the credit rating of potential bond issuers via the use of risk mitigation instruments such as guarantees (Section 3.4);
- To expand the investor base through the use of revolving funds (Section 3.5);
- To group or pool water service providers together so that they reach a critical mass to issue bonds and reach a broader investor base and the transaction costs of structure deals can be reduced (Section 3.5);
- To increase transparency and information about the sector through the development of credit ratings (Section 3.8).

Box 2.2. **Bond issue for infrastructure investment in Johannesburg**

In June 2004, the city of Johannesburg issued a 12-year Rand-denominated bond with a value of USD 150 million-equivalent in order to fund essential investment in the City's infrastructure, including in water, electricity and roads. Part of the bond proceeds was also used to restructure the city's existing debt so as to improve its debt profile. Although the City had previously sought funding beyond 10 years, municipal authorities faced a constraint in that they could not issue beyond 6 or 7 years at an acceptable price without external credit enhancement. For this bond, they obtained two partial credit guarantees (PCGs) from the International Finance Corporation (IFC) and the Development Bank of Southern Africa (DBSA), each for 20% of the bond issue. These guarantees enabled the City to obtain a higher credit rating for this bond (three notches above the City's stand-alone rating, from A- to AA- in the Fitch scale), allowing for an extension of the bond maturity. This also helped the city to diversify its investor base.

Source: Winpenny, J. (2008).

2.2.3. Project finance

In the broad acceptance of the term, project finance (PF) consists of financing long-term infrastructure through a special purpose entity that can be financed with project debt and equity. A PF scheme would involve a number of equity investors, known as sponsors, as well as a syndicate of banks that provide loans to the operation. The loans are most commonly non-recourse loans, which are secured by the project itself and paid entirely from its cash flow, rather than from the general assets or creditworthiness of the project sponsors. The financing is typically secured by all project assets, including the revenue-producing contracts, and guarantees are usually needed in order to manage identified risks. A special purpose entity is usually created for each project, in order to shield the assets owned by a project sponsor from the detrimental effects of a project failure.

In the water sector, PF can take many forms, ranging from BOT (Build Operate Transfer) contracts to build and operate specific facilities (such as water or wastewater treatment plants) to concession contracts, which transfer responsibilities to manage the entire service, including distribution. For example, project finance arrangements where loans are secured against the cashflows of desalination or treatment plants have been a popular way of financing greenfield projects in the Middle East and elsewhere.

Activity is mostly focused on the Chinese market at present. Despite a slowdown in the number of deals announced in 2007 and 2008, China remains one of the world's largest markets for PPPs in the water sector and it is one of the few remaining emerging markets where private operators are prepared to mobilise financing. Up to the end of 2007, there were around 350 PPP contracts signed in total in China. The highest activity level was seen between 2004 and 2006, with close to 60 PPP contracts awarded per year during that period. Of the contracts signed, around two-thirds were for wastewater and the remainder for water and they have tended to be primarily focused on BOTs for specific investments rather than concessions to manage the entire utility (including distribution). Initially, PPP activity in China was concentrated in the high income urban areas on the coast, but by 2007, activity had spread to the entire country and the most active markets were found away from the coast. All types of investors (ranging from international private operators to domestic public companies) are competing for contracts.

In some cases, the project finance model has been used to finance investments in the overall utility. This is a key defining characteristic of the concession model, which was expected to bring in significant amounts of investment in the 1990s. This model of financing capital investments has worked well in certain cases, despite widely publicised failures in other places. For example, the concession in La Paz-El Alto (Bolivia) had extended coverage successfully before it was brought to an abrupt close by the Government of Bolivia following political upheaval. As mentioned in Marin (2009), "the early termination of the La Paz–El Alto concession is a paradox. The PPP performed well in

expanding access for the poor, in one of Latin America's poorest countries and without recourse to public funding from the government or donors". The concession's record at expanding access and whether or not it complied with its original targets has been hotly debated, however, in Bolivia and internationally.[9] On the whole, as mentioned in Chapter 1 above, this financing model has brought less investment for expanding access than originally anticipated, partly because the coverage targets were insufficiently specified and partly because incentives to expand service in poor areas were inappropriate.[10]

A key constraint on the development of this type of financing for water projects relates to the exchange rate risk borne by project developers. Whereas the majority of revenues for the project tend to be in local currency (mostly from tariffs), the debt and equity carried out by these projects tend to be denominated in foreign currency, thereby exposing the financial structure to foreign exchange risk. Some PSP contracts have tried to deal with that risk by denominating tariffs in a foreign currency (typically in USD) or introducing clauses that would lead to automatic tariff adjustments in the event of currency devaluation. In a number of cases, however, these clauses have been difficult or impossible to enforce.

In Argentina, for example, the Buenos Aires concession contract ran into troubles after the peg between the peso and the US dollar was abandoned in early 2002, following a loss of confidence in the national currency and a run on the banks. Although there was an explicit clause in Aguas de Argentinas' contract that would have enabled the company to adjust tariffs to reflect the *de facto* devaluation, this proved unenforceable. Politicians feared the impact of increased water tariffs on their citizens, who were already suffering greatly from the economic crisis, with high inflation and drastic increases in unemployment and poverty rates. After three years of unsuccessful tariff negotiations and attempts at international arbitration, Suez withdrew from the concession in September 2005.[11] Going forward, the likelihood that governments would agree to such arrangements for allocating the exchange rate risk and the enforceability of such arrangements appears low, which means that managing the exchange rate risk remains a significant issue.

Financial innovation related to PF is therefore needed to achieve the following aims:

- To cover part of the costs of expanding access via the provision of output-based subsidies (Section 3.3);
- To improve the risk coverage through the use of guarantees and increase their availability (Section 3.4);
- To reduce exposure to foreign exchange rate risk (Sections 3.4 and 3.6);
- To increase the number of bankable projects for development (Section 3.9).

2.2.4. Equity finance

Raising equity can, at first sight, appear attractive to finance long-term investment as it is a source of finance with no specific deadline for repayment. Equity holders are usually interested in holding their stake over the long term in order to benefit from future dividends and any potential increase in the value of their equity. As a result, equity investors have a keen interest in the success of the company in which they have invested, although they are also more exposed to the business risks (especially given that, as equity holders, they would be repaid last in the event of a bankruptcy). When equity capital is provided by private investors, this would usually be reflected in a comparatively higher cost of equity when compared to the cost of debt, which means that the expected returns on equity (including dividends and share appreciation) would tend to be higher than the interest charged on debt instruments, such as loans and bonds.[12]

Partly as a result of this, private equity is usually not used to finance capital investments in the water sector. Instead, it tends to be used as collateral for other forms of financing, and particularly private finance. A comparatively higher cost of equity also means that there are usually clear financial advantages in "leveraging", *i.e.* in increasing the share of debt in the overall capital structure of a company so as to reduce the weighted average cost of capital (WACC).[13] Such leveraging is only beneficial up to a certain point, however, beyond which a high debt burden would result in credit deterioration leading to a higher cost of debt, as the risk of defaulting on debt obligations increases.

Shares can either be listed on a stock exchange (the listed equity model) or held privately, by the founders and managers of the company or by institutional investors. Lloyd-Owen (2006) estimated that in 2005 there were 94 listed water companies worldwide and 32 unlisted water companies with private shareholding. The use of these alternative models in the water sector is discussed below.

Listed equity model

The majority of listed water companies are in Europe, North America and China. A few other countries have listed water companies on local or international stock exchanges, such as state-owned companies in Brazil (Box 2.3), Manila Water in the Philippines (Box 4.1), Lydec in Morocco or Tallinn Water in Estonia (Box 3.10). According to Lloyd Owen (2006), company listing can be a useful way to increase transparency in company management (as managers become directly accountable to shareholders). It can also allow transferring ownership from a multinational to local shareholders, as it happened for Lydec in Morocco, a company that provides water, sanitation and electricity services in Casablanca.[14]

In Brazil, several government-owned water and sanitation providers are listed on the São Paulo Stock Exchange. These include SABESP (*Companhia de Saneamento Básico do Estado de São Paulo*) in the State of São Paulo (Box 2.3), COPASA in the State of Minais Gerais and SANEPAR in the State of Parana. Although the public sector retains a controlling share, the process of preparing a market listing and the associated information disclosure and transparency requirements have increased the credibility of these companies and helped them access additional sources of financing from a broader pool of investors.

A key constraint weighing on the ability to raise capital on the stock exchange is linked to the development of local capital markets, however. According to Marin (2009), financial markets in some middle-income countries, such as Chile, China, Colombia, Malaysia or Morocco have matured considerably in recent years, thereby helping water companies having access to medium or even long-term funds in local currency at reasonable rates. In

Box 2.3. **SABESP, a company listed on the São Paulo and New York stock exchanges**

SABESP (*Companhia de Saneamento Básico do Estado de São Paulo*) provides water and sanitation services in the State of São Paulo, Brazil's richest and most populous state. At the end of 2008, it served 26.3 million people in 365 out of the 645 municipalities in the State.

SABESP issued shares on the São Paulo Stock Exchange for the first time in June 1997. In April 2002, the company joined the Novo Mercado segment, the highest corporate governance segment of the São Paulo Stock Exchange. SABESP also began trading American Depositary Shares (ADSs) on the New York Stock Exchange in May 2002. The State is required by law to remain the controlling shareholder and it currently owns 50.3% of SABESP's shares. SABESP's strategy and major policy decisions are formulated in conjunction with the State Secretariat for Sanitation and Energy. SABESP's listing has provided SABESP with cash for investment but has also changed the company. SABESP has committed to additional corporate governance practices and disclosure requirements in addition to those already required under Brazilian law. This provided discipline to the company and enhanced good governance. The State of São Paulo knows that the markets will scrutinize its decisions relative to SABESP's management. SABESP's enhanced credibility helped it access additional financing sources. For instance, SABESP issued Eurobonds in 2003 and 2006 for a total of USD 238 million. Over the last ten years, SABESP has paid dividends of around BRL 3.23 billion (USD 1.63 billion).

Sources: SABESP website, *www.sabesp.com.br* and Bovespa website, *www.bovespa.com.br/indexi.asp.*

other developing countries, stock markets have remained small and illiquid, which makes raising equity for water companies a difficult task and not particularly attractive given the limited potential for using equity to finance capital investment.

Privately-held companies

By contrast, privately-held companies are not listed on a stock exchange. Shares can be held either by the founders, the staff, institutional investors or government entities and are traded directly between those entities rather than through a market

A specific model of this which has emerged in recent years in OECD countries is the "private equity" model. Under this model, investors and funds make investments directly into private companies or conduct buyouts of public companies that result in a delisting of public equity. The capital for private equity investments is raised from retail and institutional investors, and can be used to fund new technologies, expand working capital, make acquisitions or to strengthen the balance sheet. Many private equity firms conduct what are known as leveraged buyouts (LBOs) where large amounts of debt are issued to fund a large purchase. Private equity firms then try to improve the financial results and prospects of the company in the hopes of re-selling the company to another firm or cashing out via an Initial Public Offering (IPO).

In developing countries, it has been sometimes difficult to diversify share ownership and attract private investors, as equity investors consider that returns in the water sector are low compared to what can be earned elsewhere (especially when adjusted for risk). This appears to be changing in recent years with the rapid development of privately-held domestic operators and the emergence of numerous SSWSPs, where owners often have to put their own equity into the business.[15] Access to equity capital for such small operators can be a real constraint, however, especially if they have a limited track-record in the sector (for example, for construction companies seeking to diversify into water services).

Key innovations required to develop equity financing in the water sector include:

- Improving access to equity capital for SSWSPs and domestic operators (Section 3.2);
- Improving market participants' understanding of the water sector via mechanisms to increase transparency, such as the development of credit ratings (Section 3.8);
- Most importantly, developing local equity markets, which is something that goes beyond the water sector and is not dealt with explicitly in this report.

2.3. Critical mismatches driving innovation: a summary

All of these financing sources have been used to various degrees to finance WSS but some critical mismatches have limited their more widespread use, which is why innovative mechanisms are required to overcome them. These are summarised below.

Affordability constraints. In developing countries and some OECD countries, it may be difficult to increase tariffs to cover costs beyond a certain point for certain groups of vulnerable customers (and there are different views as to how such affordability thresholds can be defined and measured). This is a particular constraint for setting connection charges, which are used usually to cover part of the costs of network expansion. If set too high, connection charges can be a significant hurdle preventing access by poor customers to the network. Over the long term, tariff reforms are the most efficient way to address such micro-affordability constraints, either by redirecting cross-subsidies or targeting direct subsidies onto poor customers (OECD, 2009d). However, tariff reforms can typically take a long time to get through the political process and can suffer many setbacks. Some form of financial bridging mechanism may be required in the interim.

Limited availability of funds for domestic operators and SSWSPs. Those operators need to raise equity capital and debt financing from local markets, which are often insufficiently developed to match supply with demand for such funds. Even if those operators can have access to capital, they may need additional incentives in order to provide services in areas where they would not normally operate, such as rural and peri-urban areas.

Risk profile and difficulties in managing certain risks. As noted in OECD (2009a), the water sector combines a number of risks which characterise infrastructure sectors, such as the commercial risk (mainly related to revenues), contractual risk, foreign exchange risk, sub-sovereign risk and political interference (which limits the ability to set tariffs based on an evaluation of the financing gap to be covered). Investments in poor areas are considered to be particularly risky, because of assumed low collection rates and limited revenues. The foreign exchange risk is difficult to manage because of the fundamental mismatch between the fact that costs and revenues are in local currency whilst financing is usually available in foreign currency.

Lack of funds at decentralised level. In many countries, the decentralisation of infrastructure services has created large investment needs among local governments and utilities, whereas they have limited access to external repayable finance. Besides, financial management at the local level is often weak and local government entities' creditworthiness tends to be low. The IFIs themselves are often not allowed to lend at sub-sovereign levels or central governments are reluctant to let them borrow, for fear of ramping

up the national debt in an uncontrolled manner. Another consequence of decentralisation is that many of the resulting water utilities are too small to access market-based repayable finance, as the transaction costs would tend to represent a high percentage of the size of any potential issue.

Short tenor of available financing. Water investments are long-life ones, whilst most financial markets and institutions in developing countries would only offer short-term borrowing horizons. Their willingness to offer longer tenors would depend on the perceived risk of the investment and the existence of investors willing to invest over the long term (such as pension funds, for example).

Under-capitalized balance sheets. Many water utilities are in a very dire financial condition (especially publicly-owned ones, when tariffs are too low to cover even operating costs). With high debt levels compared to equity, their ability to raise additional debt is limited or the costs become prohibitive.

Lack of understanding by external lenders and investors. Financiers are not familiar with the water sector, as it is often seen as very political and "difficult" due to the political nature of tariff setting and in some cases, vocal resistance to charging for water services.

Lack of bankable projects. As a result of these critical mismatches, "bankable" projects (*i.e.* projects that can be attractive to financiers) are few and far between in the water sector. This may also be due to the complexity of designing financial structures that can at least mitigate some of these mismatches, through the adoption of innovative financial instruments. The following Chapter seeks to provide more information on how such innovations have been developed and what role they could play in the water sector.

Notes

1. According to Pinsent Masons (2008), private companies were serving 5% of the world's population in 1999 but this share had increased to 11% in 2007 and 2008, with between 731 and 751 million people served by the private sector. It was not clear whether that included small scale water service providers as well.
2. ERM, Stephen Myers and Hydroconseil (2005).
3. Note that the size and the level of operations are not necessarily linked. Size largely depends on population density and the size of the country as a whole. For example, whereas SDE, a national-level utility in Senegal served 455 287 customers in 2007, Manila Water, which operates in the East Zone of Manila served 741 000 domestic connections by early 2006.
4. Project finance is a particular way of bringing debt financing into a water project which enables better risk managementfor project sponsors.
5. OECD (2009d).
6. ERM, Stephen Myers & Hydroconseil (2005).
7. Lloyd-Owen, D. (2006).
8. COWI (2005).
9. For example Pérez, J. (2006).
10. Trémolet, S. and Hunt, C. (2006).
11. "Last rites for Aguas Argentinas", *Global Water Intelligence*, Vol. 6, Issue 10 (October 2005).
12. When equity capital is contributed by public entities, as it is the case in the majority of water companies which are publicly-owned, the public owner may not necessarily expect remuneration on its contributions. Repayment would only occur in the event of privatisation, i.e. if the public owner were to sell its share to private entities, which is very rare in the water sector as noted earlier. In that case, therefore, equity capital is equivalent to a subsidy provided by the public owner.
13. The WACC reflects the weighted average cost of capital where the weights attributed to the cost of debt and the cost of equity reflect the relative percentages of debt and equity in the overall capital structure. The CAPM (Capital Asset Pricing

Model) allows estimating the cost of equity for an individual company or portfolio, by estimating its relative risk compared to a portfolio of similar companies or credits. This would require estimating the equity risk premium for the overall market and the specific risk for the company or a similar one.

14. Interview with David Lloyd-Owen.

15. OECD (2009c).

Chapter 3

Pushing the boundaries of innovative finance

This chapter seeks to evaluate which innovative financial instruments have been used in the water sector to access market-based repayable financing over recent years and with which results. Each type of innovative financing instrument is examined in turn, starting with a short description of the instrument, an evaluation of its current use in the water and sanitation sector and an evaluation of the role that ODA can play in developing the use of such instruments. Indeed, as mentioned in the Camdessus report, "aid should be used to catalyse other financial flows by such means as funding initial overhead costs, providing equity for revolving funds, guarantees, and subsidies targeted to performance (such as output-based aid)".[1]

Table 3.1 can be used as a guide to navigate through the Chapter, as it links the innovative financial mechanisms presented in the Chapter with the critical mismatches they are seeking to address. The list that appears in this table is clearly not exhaustive, as there is almost unlimited potential for innovation in this area. Besides, such innovations are often combined as financial structures need to be tailored so as to adapt to the critical mismatches that materialise in each case. Table 3.3 at the end of the section evaluates the applicability of these financial mechanisms to different sets of circumstances.

3.1. Blending grants and repayable financing

What does blending of grants and repayable financing consist of?

Blending grants and repayable financing consists of combining concessionary financing (either straight grants or loans with a grant element) with repayable finance (from IFIs or market-based sources) in order to support a single project or a comprehensive lending program. Blending ODA grant funding and IFI loans allows minimising the affordability constraint so as to facilitate access for populations that are not served and mitigating the perceived risks, thus creating better conditions to attract more local currency loans from

commercial banks and equity from the private sector. The main purpose of blending is to use grants so as to allow attracting repayable financing that would not have been provided otherwise, whilst ensuring that the resulting project is not so expensive that the poor are excluded from the service.

Such blending can take many forms, some of which are reviewed in turn in the following sections. For example, ODA grants can be provided as interest rate subsidies (Section 3.2), seed financing for revolving funds (Sections 3.2 and 3.5), contributions to the establishment of project preparation facilities (Section 3.9), etc. A key distinction is that blending can either be achieved at project level or at institutional level.

At the level of a particular project, blending can be achieved by defining the overall financing needs of the project and mobilizing resources from various sources into a single financial package in order to make it more acceptable and affordable to beneficiary populations and to allocate the risks more appropriately between project sponsors and financiers. One institution would usually need to act as the lead financier, much in the same way as a

Table 3.1. **Examples of innovative financial mechanisms in the water sector**

Critical mismatch	Examples of innovative financial mechanisms
Affordability constraints at household level	• Blending grants and repayable financing (Section 3.1) • Micro-finance (Section 3.2) • Output-based aid (Section 3.3)
Limited availability of funds for domestic operators and SSWSPs	• Micro-finance (Section 3.2) • Output-based aid and innovative contract (Section 3.3)
Risk profile and difficulties in managing certain risks (e.g. political risk, foreign exchange risk)	• Blending grants and repayable financing (Section 3.1) • Guarantees and risk insurance (Section 3.4) • Devaluation backstopping facility (Section 3.4) • Local-currency financing (Sections 3.4 and 3.6) • Revenue agreements in lieu of guarantees (Section 3.6)
Lack of funds at decentralised level	• Municipal bonds (Section 2.2) • Pooled funds, revolving funds and bond banks (Section 3.5) • Instruments to increase sub-sovereign lending (Section 3.6)
Short tenor of available financing	• Guarantees (Section 3.4) • Equity contributions (Section 3.7)
Under-capitalized balance sheets	• Raising equity to strengthen the balance sheet, convertible loans, debt-equity swaps, “asset-light” expansion models (Section 3.7)
Lack of understanding by external lenders and investors	• Blending grants and repayable financing (Section 3.1) • Credit ratings (Section 3.8) • Project preparation facilities (Section 3.9)
Lack of “bankable” projects	• Project preparation facilities (Section 3.9)

leading bank organises a banking syndicate to pool resources in order to finance a single project and spread the risks; the key difference being that some financing is in form of grants rather than loans. The different types of financing provided can match the risk profile of each project component, with some institutions providing grants for components which are more risky or with strong affordability constraints, such as connections in peri-urban areas.

Blending can also be achieved when specific financial institutions are set up to pool financing from both concessionary and market-based sources and where public funds are used to trigger financing on a market basis. The difference with a project by project approach is that it is explicitly written in the mandate of such institutions that they should seek to combine financing sources.

To which extent has blending been achieved in the water and sanitation sector?

At the project level. Blending has been achieved in a few cases in the water and sanitation sector when a single IFI or donor has taken the lead to develop an overall project and pulled in financing from various other donors and, in some cases, commercial banks. This was done by the World Bank in the case of the water sector reforms in Senegal, for example (Box 3.14). In Mozambique, the European Investment Bank (EIB) took the lead to finance investments for an existing lease contract in the capital Maputo.[2] The EIB provided core funding for the infrastructure via a loan whilst other donors provided grant financing, such as the EU Water Facility or the Agence Française de Développement (AFD).

The five co-financiers of the Maputo water supply project in Mozambique signed a Memorandum of Understanding setting common procedures, namely for procurement, disbursement and approvals that benefit significantly the promoter and the project implementation in particular. About half of current 335 SSWSPs (small scale water service providers) operating in Maputo are likely to benefit from the project via an Output Based Aid component (Section 3.2). They are to be awarded small concession-type contracts, on the basis of which they can go to the commercial banking sector in order to (pre) finance their investment. This type of "anchor" financing gives the opportunity to all forms of financing to be provided rapidly as the overall project framework has been well defined upfront and allowed an IFI such as the EIB to provide repayable financing (at rates which are close to market rates) in areas where those funds would otherwise be too expensive.

At the institutional level. Blending can also be institutionalised, so that different types of funders do not have to match up for each specific project. This allows reducing transaction costs and financing of smaller projects,

including technical assistance support or project preparation. Examples of such blending at the institutional level exist at the international level, such as the ACP-EU Water Facility or the Private Infrastructure Development Group (PIDG) (Section 3.9) and at the national level, such as FINDETER in Colombia, the Bulgarian Fund for Local Authorities and Governments (FLAG) in Bulgaria[3] or the Philippines Water Revolving Fund, recently set up with support from the United States Agency for International Development (USAID) and the Japan Bank for International Cooperation (JBIC).[4]

International facilities. In 2004, the European Union established the EU-ACP Water Facility with a view to increase the effectiveness of its assistance to the water sector in countries signatory to the Cotonou Agreement in Africa, the Caribbean and the Pacific (ACP) and catalyse additional financing. The process for releasing the funds was demand-based. Two tranches of EU grant funding of Euros 250 million each were released successively in 2004 to 2005, following a call for proposals that generated applications from 1 300 applicants. This facility was successful at mobilising additional financing (with a leverage ratio of 1.74 in the first tranche and 1.80 in the second tranche) for a mix of projects (including some at sub-sovereign levels). Loans remained limited, however, as they only accounted for 14% of total costs and contributions from market-based sources were minimal.[5] Similarly, the African Water Facility, was created in 2004 following an initiative from the African Ministers' Council on Water (AMCOW) in order to mobilize resources to finance water resources development activities in Africa. Its core financial mechanism includes the provision of grant financing in order to mobilize matching financial resources in the form of concessionary or commercial loans or grants.

A group of donors created PIDG with a more specific focus on mobilising private sector investment to assist developing countries to provide infrastructure for development.[6] PIDG is an umbrella organisation for several facilities and associated programmes, which were set up to address specific gaps in the market for the provision of infrastructure by combining public and private financing. Overall, PIDG vehicles have had very limited activities in the water sector.[7] The Emerging Africa Infrastructure Fund (EAIF), set up to provide long-term foreign exchange debt in Sub-Saharan Africa by blending repayable finance with grants, has not signed any projects in the water sector despite several attempts at doing so. InfraCo, an infrastructure project development company designed to assume the risks and costs of early stage project development in areas where many traditional developers have retreated, has been working on a number of water and sanitation projects although none of them had come to financial close as of mid 2009. In Madagascar, for example, InfraCo is developing the Sandandrano water project which proposes to establish a new water supply utility to serve approximately 11 communes that surround the capital city (total project costs are estimated at USD 50 million). The financial crisis

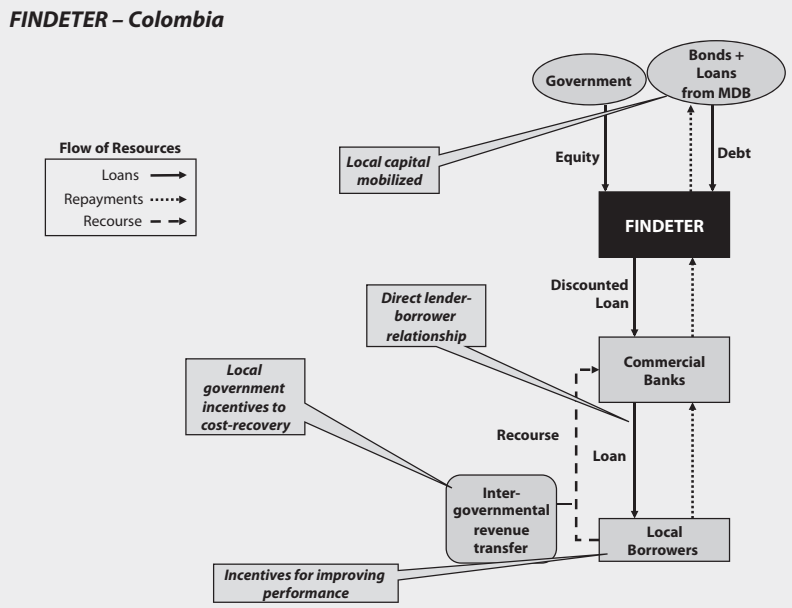
combined with recent political upheaval on the island means that the prospects for identifying a private investor are limited, especially given that the project would require substantial amounts of grant financing in order to be financially viable. Finally, GuarantCo, a local currency guarantee facility under PIDG designed to mitigate credit risk for local currency financing of infrastructure has yet to provide a guarantee in the water sector. Such dearth of water projects has prompted the PIDG management team to examine in more details what needs to be done in order for PIDG facilities to increase their activities in the sector. They found that, given the difficulties encountered to finance the sector compared to opportunities in other sectors, a dedicated financing vehicle (a "PIDG Water Window") should be set up in order to blend grant financing with the financial instruments provided by PIDG facilities and therefore reduce the cost of finance. This vehicle is still at the feasibility stage at present.

Box 3.1. **FINDETER in Colombia: incentivizing commercial banks to lend to local entities**

The Colombian government established FINDETER (*Financiera de Desarrollo Territorial*) in 1989 to help support a major decentralisation program. At the time, municipal governments had no experience with borrowing from banks. Commercial lenders had only short-term deposits and no experience with lending to municipal governments. By lowering the cost of loans, FINDETER enhanced commercial banks' willingness to lend to municipal governments. The Republic of Colombia owns around 90% of FINDETER's shares, with the remaining owned by Colombia's local governments. Although it relied on international financing at the start (primarily from the Inter American Development Bank and the World Bank), FINDETER's revenues from existing loans financed more than 78% of its activities in 2006. In addition, FINDETER has achieved an AAA local credit rating (from Duff & Phelps), which has helped accessing less expensive financing.

FINDETER acts as a second-tier lender, encouraging first tier lenders (commercial banks) to enter into direct relationships with local entities. Local entities can be local governments or corporatised entities under the control of a local government. FINDETER rediscounts loans that commercial banks make to local borrowers, making it more financially attractive for commercial banks to lend to local entities, as shown below. In practice, this means that a local entity applies for a loan to a commercial bank. The bank and FINDETER appraise the proposal. If approved, the bank lends to the local entity. FINDETER then in turn lends that amount at a discounted rate to the bank. The commercial bank remains responsible for servicing its rediscounted loan from FINDETER regardless of its own repayment experience from the local borrower. The bank thus absorbs 100% of the credit risk. The local borrower also has to set up a special account into which intergovernmental payments flow. The bank has a senior right to intercept revenues if loan payments are due. The bank in turn endorses these liens to FINDETER. Thus, if a participating bank becomes insolvent, FINDETER can still collect its dues directly from that bank's local borrowers. This set-up is represented in the figure below.

Box 3.1. **FINDETER in Colombia: incentivizing commercial banks to lend to local entities**
(continued)



FINDETER rediscounts all or part of a loan and can offer maturities of 8 to 15 years, whereas loans to municipalities without FINDETER support would usually not exceed 5 years. Where appropriate, there can be a capital grace period of up to 3 years and an interest grace period of up to one year. Thanks to FINDETER, commercial banks have been willing to operate in the local debt market and to offer local borrowers long-term loans at attractive rates. From 1990 to 2003, FINDETER has financed about USD 2 billion in loans to more than 700 municipalities while maintaining low levels of bad debt (under 2% in 2003). Some years, FINDETER has approved more than USD300 million in new loans. Water and sanitation investments represent about 25% of these loans. One criticism was that FINDETER's process to appraise loans was long. In 2003 FINDETER introduced a streamlined process, which led to an increase in its lending activity. This streamlined process reflects FINDETER's increasing comfort with the loan origination by banks. Finally, although one of the former President of the organisation had to step down due to corruption allegations in 2001, the organisation has received the all-clear from the National Audit Office (Contraloría General) in recent years.

Source: Kehew, R., T. Matsukawa and J. Petersen (2005); Castalia (2008); FINDETER website: *www.findeter.gov.co/aymsite/index.php?alr=&*.

National-level facilities – the example of FINDETER. At the national level, a number of institutions have been set up which have successfully blended concessionary and commercial financing in the water sector. For example, FINDETER was set up in Colombia to attract commercial bank financing into local infrastructure by lowering the cost of these loans to municipal borrowers. About 25% of the portfolio of FINDETER has been in the water and sanitation sector (Box 3.1).

What is the potential for further development?

Blending of concessionary finance with market-based repayable financing appears to hold great potential for financing the water sector going forward, given that an element of subsidy is almost always going to be required in any financing package for projects in the sector. In the context of the ongoing financial crisis, the importance of such blending is likely to become more important and will require the creation of new types of financing vehicles, particularly at domestic level, in order to achieve this. One note of caution here, however, is that as for grouped financing vehicles (Section 3.5), the setting up of such institutions often takes time and the initial costs of doing so can only be off-set over a long time frame

A benefit of blending is that it can minimise the risk of "crowding-out" of market-based financing by concessionary financing, a risk that is often encountered in countries which are highly dependent on external financial assistance. Water sector utilities may not even try to arrange a commercial loan when donors offer better financing terms and are eager to disburse funds for the few bankable projects they can identify. By deliberately blending both types of financing, donors can avoid crowding out commercial lending and help increase understanding of the sector by external financiers.

3.2. Extending the range of potential borrowers via micro-finance

What is micro-finance and what role can it play in the water and sanitation sector?

Micro-finance refers to all financial services offered to individuals or businesses that do not have access to mainstream financial institutions in order to help them to initiate and develop their economic activities. Micro-finance products are usually available with flexible collateral conditions and are offered by specialized micro-finance institutions (MFIs), which can be of varied size. With respect to lending instruments, loan size can range from very small loans for household investments or micro-business development to funding of small projects with loan sizes of less than half a million USD offered on a commercial basis by micro-finance and other financial

sector players. To offer products to their customers on a sustainable basis, MFIs need to pay careful attention to their financial, institutional and organisational viability. The MFIs would usually be well established in the community, which gives them an edge in terms of assessing a borrowers' ability to repay and enables them to rely on peer pressure and community cohesion to obtain repayment.

In the water and sanitation sector, micro-finance can be used to provide access to finance to those who would otherwise be excluded, such as households, SSWSPs or even community based organisations (CBOs) and non-governmental organisations (NGOs). It can help address the affordability constraint at household level, as it enables them to spread investments over a longer period of time and reduces the impact of the initial cash outlay. MFIs may also be present in areas where commercial banks do not reach, such as in rural areas, which is particularly important when responsibilities for WSS have been decentralised.

How has micro-finance been applied in the water sector?

Even though micro-finance as a financing model is now well-established with a solid track record, its applications to the financing of WSS has remained somewhat limited. From the experience to date, there appears to be a remarkable potential to develop, although this is likely to require support from governments and international financial institutions, in the form of financial support and capacity-building. A recent review conducted by Meera Mehta for the Gates Foundation sought to evaluate the importance of microfinance in the water and sanitation sector.[8] The study confirmed that, contrary to other sectors such as education, health and housing, where microfinance institutions are very active, MFIs rarely offer tailored products for WSS. Only a few large MFIs in Asia have achieved significant scale in these areas, such as BRAC, Grameen Bank and ASA in Bangladesh, SEWA in India and the Vietnam Bank for Social Policy in Vietnam (Box 3.2).

As Mehta (2008) indicates: "Experiences so far suggest that although several pilots are available to study, the sustainability and scalability of the market is still unknown". Mehta (2008) identified three types of microfinance products in the water sector: retail loans to help households access WSS, loans to small and medium enterprises (SME) for small water supply investment and loans for urban service upgrading and shared facilities in low income areas of towns and cities. These are described in more detail below.

Retail loans for water and sanitation household investment. Retail loans are generally used for new water connections, construction of family wells, bathrooms, toilets, or purchasing water purifiers. They are provided to individuals with tenor of less than three years. The loan amount ranges from

approximately USD 30 to 250 (sanitation loans tend to be smaller). Next to these targeted MFI products, an important share of general purpose loans from MFIs acting in India and in a few African countries (Benin, Zambia, Uganda) is increasingly used for water and sanitation activities. According to the Indian microfinance institution SEWA Bank, 15% of the loans it provided in the city of Admedabad have been used for water or sanitation sector activities in the past five years.

Donors have provided support for the development of retail loans for water and sanitation. In particular, they have concentrated on building linkages with regular MFIs or banks. For instance, in September 2006, Bank Rakyat Indonesia (BRI) signed a Memorandum of Understanding with a

Box 3.2. **Revolving funds for water and sanitation in Vietnam**

In 2001, a Sanitation Revolving Fund (SRF) component was incorporated in the World Bank-financed Three Cities Sanitation Project in Vietnam to provide loans to low-income households for building on-site sanitation facilities. The SRF provided small loans (USD 145) at partially subsidized rates to low-income and poor households to build a septic tank, a urine diverting / composting latrine or a sewer connection. To access the loans, households needed to join a Savings and Credit group, which bring together 12 to 20 people who must live close to each other to ensure community control. The loans covered approximately 65% of the average costs of a septic tank and enabled the household to spread these costs over two years. The loans acted as a catalyst for household investment although households needed to find other sources of finance to cover total investment costs, such as borrowing from friends and family.

The initial working capital for the revolving funds (USD 3 million) was provided as a grant by the World Bank, Denmark and Finland. The SRF was managed by the Women's Union, a countrywide organisation representing the rights and interests of women that has a long experience with running micro-finance schemes. The initial working capital was revolved more than twice during the first phase of the project (2001 to 2004) and was then transferred for subsequent phases to be revolved further. Combined with demand generation and hygiene promotion activities, the SRF helped around 200 000 households build sanitation facilities over the course of seven years. The revolving fund mechanism allowed leveraging household investment by a factor of up to 25 times the amount of public funds spent. Repayment rates are extremely high (almost 100%).

This pilot approach has since been scaled up, via other World Bank-funded projects (with an outstanding working capital of about USD 25 million as of March 2009) or through the Vietnam Bank for Social Policy (VSBP). The latter offers separate products for water and sanitation, through the Safe Water and Rural Environmental Sanitation Program (SWRESP). In 2007, the amount of loans for SWRESP was USD 20 million.

Source: Trémolet, S. with Perez, E. and Koslky, P. (2010); Mehta, M. (2008).

water utility company (PDAM) initiating a micro-credit financing scheme for household water connections. This initiative, supported by USAID Environmental Services Program, is to be scaled up countrywide with a target of 10 000 connections by 2009. In Vietnam, the World Bank and the Governments of Finland and Denmark provided seed money for a revolving fund for household sanitation investments. The fund, which was managed by the Women's Union, a pervasive organisation throughout the country with a long experience in micro-finance schemes, proved very successful and was scaled up through further World Bank projects and the Vietnam Bank for Social Policies (Box 3.2)

Such revolving fund mechanism can be seen as an extension of the traditional group lending methods (such as *tontines* in West Africa).[9] In many countries, their record has been patchy because of difficulties with maintaining the value of the initial fund. However, when the revolving funds are organised with external seed financing to provide initial working capital (at subsidised rates) and the support of an established MFI, such as in the example in Vietnam, they appear to be an effective way of leveraging private finance (household investment in on-site sanitation in that case).

SME loans for water and sanitation. SME loans can be provided to community groups, private providers in greenfield contexts, or for augmentation/rehabilitation of WSS. According to Mehta (2008), experience with this market segment is limited, and has not gone beyond a few pilot projects. SME loans have been provided to small public utilities or small service providers.

For example, in Togo, CREPA (Centre Regional pour l'Eau Potable et l'Assainissement à Faible Coût), an institution bringing together seventeen African states and dealing with water-related issues, encouraged a change towards private provision of services in 2001, due to important water shortages and an inefficient public utility. A credit scheme was elaborated via six domestic microfinance institutions. It was foreseen that at least two households from a given area would be allowed to contract a loan for new water investments (either a USD 3 000 loan for a shallow borehole or a USD 1 000 loan for a rainwater harvesting tank). Although the loans are subscribed by households, funds are disbursed directly to the private drilling companies. The viability of these loans is linked to the reselling of water in bulk or in buckets by the households, which act as small private providers. From 2001 to 2006, approximately 1 200 households had their own water points funded through loans from local MFIs.

Although they are currently limited and have so far remained at the level of pilot projects, SME loans could significantly help small water supply projects. To secure access to finance for SSWSPs in such a way, other reforms would need to be adopted, such as the definition of clear legal and regulatory frameworks for SSWSPs to operate under. In poor areas, where affordability

constraints may limit their development, such loans may need to be combined with subsidies (preferably output-based subsidies), as it was done in a project financed by K-Rep in Kenya (Box 3.4).

Loans for urban upgrading and shared facilities. In urban slums, the provision of improved WSS would often require prior activities to upgrade the settlement as a whole. Micro-finance can be used to provide loans for an overall upgrade and financing shared facilities. A few MFIs in Latin America and India have ventured into this critical but challenging area. For example, the Peruvian microfinance institution Mibanco is offering its customers a line of credit entitled "urban upgrade", to offer loans to communities who plan to upgrade water, electricity and road infrastructure in their neighbourhoods. These are individual loans for each community member but the funds are paid out directly to the project provider, contractor, or network installer. The loans can be for USD 10 000 to 160 000 to cover up to 90% of the project costs. They have a tenor of six months to five years and carry a 25% interest rate.

In those communities, microfinance can play a key bridging role when subsidies or public investments have been promised but take time to be delivered. However, this would require improving the design of subsidy schemes so as to encourage, not exclude, the use of microfinance in urban services upgrading. This would also require enhancing links with local governments to ensure effective links between slums settlement programmes and local services utility networks.

It should be noted, however, that microfinance is particularly suited for relatively small investments and where the commercial banking sector is weak or underdeveloped (*i.e.* rural areas). Due to the typical tenure and interest rates, such finance is usually not well adapted to support investment with long pay-back times or requiring significant investment. In addition, due to relatively limited experience with using microfinance for water and sanitation investments (partly because they are not recognised by some as income-generating investments), it would be preferable to use microfinance in areas where strong microfinance institutions already exist and are looking to extend their activities to the water and sanitation sectors.

What role can ODA play to catalyse the development of micro-finance products?

Many of the existing experiences of using micro-finance for WSS have been carried out with the support of donors, in the context of major programmes for improved water and sanitation with associated technical assistance. For example, the work of BRAC, a Bangladeshi NGO delivering MF products to the water sector is linked to a program supported by the Dutch Government.

Donor funding could be used to catalyse the development of micro-finance products for the water and sanitation markets by addressing the following constraints:

- Lack of awareness of WSS sector issues among MFIs in the country/region where they operate. There is a similar lack of awareness among WSS sector practitioners of the potential applications of micro-finance instruments to the sector;
- Lack of specialised products for water and sanitation promoted and tested by MFIs, especially for SME-type products structured around project finance approaches;
- Limited access to medium/long-term funds for MFIs to finance their activities (particularly in the context of the global financial crisis) and difficulties to blend micro-finance products with subsidies in order to meet affordability concerns.
- Grant funding for technical assistance, training and sector development, particularly when a change in the institutional set-up is needed.

3.3. Alleviating affordability constraints with output-based aid

What is output-based aid and what role can it play in the water and sanitation sector?

Output-based aid (OBA) is a mechanism that ties the disbursement of public funding to the achievement of clearly specified results that directly support the delivery of basic services.[10] The full amount of subsidies is paid to the beneficiary (private or community operators) *only once these results have been met*. This allows leveraging private sector funds, which usually need to pre-finance a large portion of the costs. The need for subsidy is assessed on the basis of demand, costs and social benefits generated. The amount of subsidy is reduced by introducing competitive pressure on the operators, which incites them to keep costs down for the same service quality. OBA financing helps to direct subsidies to the targeted populations more accurately and to make operators accountable for funds through the monitoring of their actual performance. The objective is that OBA payments should only complement and never substitute for user tariffs as the main source of service providers' revenue.

Marin (2002) identified four potential ways for applying the OBA concept to the design of water concessions,[11] including: to improve affordability for targeted groups via consumption subsidies, to expand water and sanitation coverage via connection subsidies, to ease the transition to cost-covering tariffs and to expand wastewater treatment. The Camdessus report had also

recommended that output-based aid could be used to expand networks or fund revenue shortfalls on a diminishing basis under a concession (Box 1.3).

How has OBA been applied in the water sector?

The main concept behind OBA (*i.e.* to pay subsidies only after the output has been delivered) has been applied in a number of cases, either through World Bank funded projects or via other channels. According to a recent review by GPOBA,[12] there are currently 33 OBA projects with World Bank participation in the water and sanitation sectors, of which 24 are water supply schemes, 3 are sanitation schemes and 6 are providing both water and sanitation. In terms of volume of subsidies disbursed, the water and sanitation sector accounted for 26% of GPOBA's portfolio, the largest share attributable to a single sector.

The majority of projects identified involved one-off subsidies for access. They mainly include piped-water schemes, and access is usually defined as the delivery of working connections as demonstrated through a paid water bill. Of the projects identified in the water and sanitation sectors, 9 include OBA subsidies funded by IDA and IBRD, for a total OBA subsidy funding for the water sector of USD 90 million. The review concluded that "OBA is still at the pilot stage in the water sector, although lessons for scale-up are now available".

Aside from the GPOBA programme, OBA principles are frequently referred to but have yet to be mainstreamed into the design of projects by governments and donor agencies.[13] There are a few important exceptions, however, where OBA principles have been applied without necessarily being tagged as OBA projects. For example, social connection schemes in West Africa (such as in Senegal or Ivory Coast) can be considered as early OBA schemes. In India, the approach of the Total Sanitation Campaign (a nation-wide programme to boost sanitation coverage, particularly in rural areas) was revised in 2004 to make the payment of the subsidy to below-poverty line (BPL) households dependent on the entire village reaching Open Defecation Free (ODF) status.[14] OBA mechanisms have also been considered by bilateral donors, such as the AFD in Morocco and South Africa,[15] but they are yet to apply those principles on a significant scale.

So far, the most popular way of using OBA in the water and sanitation sector has been to support poor households who cannot afford the full cost of a water connection. This mechanism works as follows: a fixed subsidy amount is paid to a private operator for each new water connection installed in a poor neighbourhood. Such a scheme allows mobilizing private funding in support of coverage extension objectives and provides flexibility to the operator, both in the funding sources and for carrying out the expansion

plan. A significant risk with such approach, however, is that the newly connected users might not receive adequate service from the operator after the connection has been installed. To enhance the sustainability of the schemes, a portion of the output-based payment can be withheld until several months of service delivery have been made. For instance, in the Vietnam Rural Water project involving East-Meets West (EMW), an international NGO, 80% of the subsidy is disbursed from GPOBA to EMW upon realisation of the connection and the remaining 20% after proof of six months of satisfactory service provision. In the Kenya Microfinance for Community Water Schemes project, the community water associations are bearing performance risk as they do not get paid until evidence of outputs has been received in the form or working connections, several months of service delivery and in some cases demonstration of increased sales.

In order to focus subsidies on the poor, OBA projects often rely on geographic targeting, *i.e.* they target areas where the poorest are concentrated and where there is little risk of including beneficiaries who are not considered deserving. In addition, a number of these projects use self selection and/ or means tested targeting mechanisms, which can increase their targeting effectiveness. In the Philippines, for example, the Manila Water Supply project uses a combination of geographic targeting and means tested targeting. The project targets communities that are officially certified as "indigent" as per standardized means proxy tests indicating that a majority of households fall under the national poverty line. By contrast, the India Improved Rural Community Water in Andhra Pradesh project successfully combines three major targeting mechanisms – geographic, means tested and self-selection – and is highly effective in reaching the poor. To target individual beneficiaries in the villages, the project uses the government's "white ration card", a system that entitles low-income individuals to obtain basic commodities (such as rice or flour) at a reduced price.

A key finding of the GPOBA/IDA-IFC review is that "OBA is not geared to extensive leveraging of private debt and equity in and of itself, but that the real success of OBA is the ability of relatively small amounts of subsidy to mobilize private sector expertise for poor areas where the private sector would otherwise not go".[16] A World Bank funded OBA project in Paraguay, for example, sought to attract local Paraguayans operators (*aguateros*) and construction firms active in the water sector to unserved rural areas and small towns by providing an output-based aid subsidy, awarded through competitive bidding (Box 3.3).

The introduction of an OBA subsidy requires that each project be pre-financed using other sources of funds. In some cases, such pre-financing requirements can be a real constraint, especially when the service providers are relatively small and have difficulties in mobilising funds for investment.

Box 3.3. **OBA to support Paraguay's aguateros development into rural areas**

In the early 2000s, the rural water agency in Paraguay (SENASA), in charge of providing water and sanitation service to rural communities with fewer than 10 000 inhabitants, reached about 37% of the rural population (or about 18% of households nationwide). In the process, it created more than 1 000 water users associations, which assumed responsibility for service provision. In addition to partially contributing to the costs of constructing the systems, SENASA had to provide large subsidies to communities since they often failed to make agreed cash contributions or to service their debt. Reliance on public financing was high and public subsidies for rural water and sanitation systems amounted to an estimated USD 300-400 per connection. With this system, Paraguay would have needed more than 20 years to reach 85% coverage in rural areas.

Alongside the public water utility in charge for urban areas (ESSAP), small private providers known as aguateros were supplying water to about 500 000 people in peri-urban areas, mainly in the greater metropolitan region of Asunción. These small operators had constructed piped water supply systems over the previous 20 years without public financing. Many were not registered as businesses, operating as part of Paraguay's active informal sector. Altogether, aguateros served around 9% of the country's population in 2004 or about 17% of all Paraguayans with piped water supply. Given the constraints of the state water utility and the traditional water user association model, public authorities concluded that private providers would be the best means of reaching unserved communities and rapidly expanding rural coverage. SENASA agreed to implement a pilot output-based aid program to attract aguateros and local construction companies to serve small towns.

In the first phase of the pilot, it was determined that a per-connection subsidy (amounting to USD 150 for each connection) would be provided. The winning bid, matching both technical requirements and the lowest connection fee, was extremely competitive, committing the winning consortium (two construction companies and an aguatero) to build water systems in all four towns at USD 200-217 per connection. To make it easier for poor residents to pay, the winning consortium hired these residents during construction, paying them with cash and with vouchers to reduce their connection fee.

In the second phase, the bidding variable changed from the connection charge paid by users to the connection subsidy provided by the government. The connection charge per household was fixed at USD 80 per household. In the first phase of the pilot all subsidy payments were withheld until the operator had demonstrated it had successfully provided the connections, constraining the private sector to mobilize most of the construction financing. In the second phase, shares of the total subsidy payment were to be progressively released as the operator completes components of the system.

Source: Drees, F., Schwartz, J. and A. Bakalian (2004).

Combining OBA subsidies with micro-finance can therefore be an attractive way of facilitating pre-financing by local service providers whilst maintaining the incentives on serving poor customers. This approach is being piloted in Kenya, via K-Rep bank, a local bank with a focus on micro-finance and development projects (Box 3.4).

An alternative way of financing SSWSP which does enable substantial leverage of private financing by SSWSPS is the DBL (Design Build Lease model), which is a form of project finance suited to relatively small-scale operators. A key difference, however, is that most of the financing under the DBL model is provided up-front, and the operators need to repay the loan via payment of a lease fee intended to cover the initial capital outlay. The World Bank has experimented with these models in the Philippines, Indonesia and Cambodia. In Cambodia, for example, the design-build lease approach provides long-term financing and technical assistance to entrepreneurs willing to build and operate systems in small towns. The entrepreneurs need to finance only 10% of the initial capital costs up-front and then pay the rest of the capital costs put up by the Government of Cambodia in the form of a lease payment. In that way, they benefit from the very advantageous borrowing rates of the Government, which passes on long-term financing at terms comparable to what it receives from the World Bank. In addition, entrepreneurs are provided up-front with fairly detailed designs, which help them in bid evaluation and project start-up. The incentive to provide services over the long-term is strong, since they need to generate sufficient revenues in order to pay the lease payment every year.

What may be needed to expand the use of OBA subsidies in the water sector?

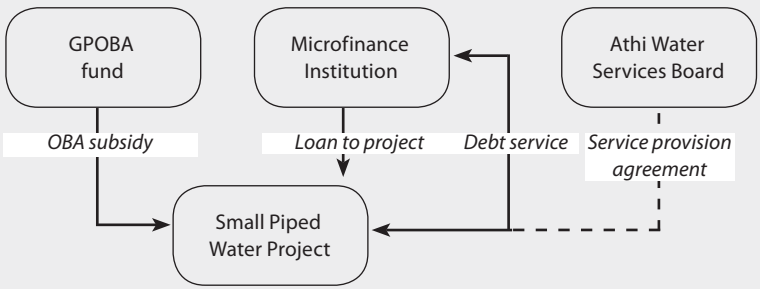
In terms of sources of funds, OBA consists of using taxes and transfers in order to leverage market-based repayable financing and help reach low-income households in a more cost-efficient manner. Reasons for its limited use in the water and sanitation sector so far are varied. The OBA approach, as practiced by GPOBA, has been criticised by some as being overly complex, which sometimes generates relatively high transaction costs and makes it more difficult to scale-up beyond the pilot stage. There appears to be trade-offs between the quality of the targeting and incentive mechanisms and the costs of designing and operating the schemes. However, it is ultimately the quality of the design of the scheme that enable the poor to truly benefit from the scheme: this requires that the right incentives be established for service providers, via granting the contracts on a competitive basis, designing the contracts and establishing regulatory oversight.

Besides, most of the OBA schemes so far implemented have been designed as pilot schemes in the context of broader World Bank projects, which partly

Box 3.4. **Combining OBA with micro-finance in Kenya: the experience of K-Rep bank**

The Water and Sanitation Program and K-Rep bank have developed a pilot project for supporting local water service providers in Kenya that combines micro-finance to leverage commercial resources with output-based subsidies to ensure appropriate focus on network extensions. K-Rep Bank was officially established in Kenya in 1999, as a bank with a focus on micro-finance, small and medium enterprises, poor households and development-oriented enterprises.

The pilot project was designed to address some of the constraints weighing on water service providers in reaching communities through micro-finance, which include limited MFI exposure to the water sector and/or project finance; interest rates and tenors beyond what is affordable; and a lack of up-front collateral for small piped water systems. Institutional and financial arrangements work as follows: the small piped water project (the borrower) contracts a loan with the micro-finance institution (K-Rep Bank) and is responsible for making debt service payments to this institution. Further to the Kenyan Water Act of 2002, the small water project has to sign a Service Provision Agreement (SPA) with the Water Service Board (WSB) in whose jurisdiction it falls (for example, the Athi Water Services Board-AWSB for the area surrounding Nairobi). Upon successful completion of the project, the Global Partnership for Output-based Aid (GPOBA) pays subsidies to the small piped water project (figure below), which reduces the overall size of the loan to the communities, and keeps debt service payments affordable. It also provides better risk management from the lender's perspective and increases incentives for project completion as the subsidy is transferred upon the delivery of agreed outputs (including the increase in the number of connections and changes in revenues collected).



Prior to the subsidy release, the K-Rep Bank's loan amounts to 80% of the total investment. This share drops to about 40% upon successful delivery of the outputs (which needs to be independently verified) and payment of the subsidy. After the release of the subsidy, the MFI remains responsible for collecting the remainder of the loan that is to be covered from water revenues. Technical assistance grants are also provided to assist with project development: each community project receives a grant for management assistance during project implementation and during the first year of operations.

Sources: Trémolet, S., Cardone, R., Da Silva, C. and C. Fonseca (2007); Mehta, M. and K. Virjee (2007).

undermines their ability to be scaled-up and mainstreamed through a country's overall financing strategy. One potential way of achieving quicker scale-up could be to establish funds (such as Universal Service Funds in the telecommunications sector) which could provide OBA subsidies to targeted communities on an on-going basis rather than as one-off projects. This approach is currently being tested with GPOBA support, in the form of an OBA facility in Honduras.[17] The Facility is to be housed within the Honduran Fund for Social Investment (FHIS) and will provide USD 4 million in subsidies for the financing of eligible water and sanitation infrastructure projects, selected based on rigorous identification criteria. The OBA Facility will effectively work as a challenge fund, in which subprojects compete with each other for funding. Pre-financing will also be made available through the Facility for those project implementers that need it, although the payment of the subsidy will remain linked to the output. Although the approach seems promising, the facility has yet to produce results, which means that it is too early at this stage to evaluate whether such "mainstreaming" of an OBA approach can be successful or not.

Finally, recognising the constraints on pre-financing at programme-design stage (as it was done in Kenya, where OBA was combined with micro-finance) can help in making OBA subsidies more attractive to water and sanitation service providers which are otherwise struggling to maintain their financial equilibrium, let alone to invest in expanding their services.

3.4. Mitigating risks with guarantees and insurance

What are risk mitigation instruments and what role can they play in WSS?

Risk mitigation instruments can help with mobilising market-based repayable financing for the water sector in many ways. Risk mitigation instruments are "financial instruments that transfer certain defined risks from project financiers (lenders and equity investors) to creditworthy third parties (guarantors and insurers) that have a better capacity to accept such risks".[18] These instruments can be used to improve access to finance for developing country governments and local infrastructure companies by improving the terms of their commercial debt (extending tenor and reducing interest rates) or helping to attract equity investors. In developing countries, such instruments would typically be provided by international financial institutions (IFIs), bilateral donors, export credit agencies (ECAs) or private political risk insurers. In OECD countries, private companies referred to as "monoline insurers" can also provide guarantees to water companies or local governments which would otherwise have difficulties in accessing repayable finance via the market.[19]

A broad range of risk mitigation instruments is therefore available from a variety of institutions. As each of the potential provider refers to their products

in slightly different ways, understanding what is on offer and which risks can be mitigated in such a way can be slightly complicated. Table 3.2 summarises the main types of instruments provided by IFIs, bilateral donors and ECAs.

In particular, Partial Credit Guarantees (PCGs) and Partial Risk Guarantees (PRGs) are two key instruments that can be used to lengthen the terms and reduce interest rates for water infrastructure projects (Table 3.2). The key difference between these two instruments is that a PCG covers part of the debt service of a debt instrument regardless of the reasons for default whereas a PRG covers commercial lenders in private projects for the full amount of debt in the event of default caused by certain risks, as specified in the guarantee instrument. Whereas PCGs are used to support public investments projects involving sovereign borrowing, PRGs are usually used to support private sector projects. The use of these two key instruments is described in more detail (Table 3.2).

Table 3.2. **Risk mitigation instruments: definitions and applications**

Risk mitigation instrument	Definition	Examples of risks covered
Partial Credit Guarantee (PCG)	Covers part of the debt service of a debt instrument regardless of the reasons for default. Provided by IFIs and a few bilateral donors. Improves a borrower's market access and the terms of its commercial debt.	Most risks, including commercial risk and political risk.
Full Credit Guarantee or Wrap Guarantee	Covers the full amount of the debt service in the event of default. Usually provided by private monoline insurers to achieve a higher credit rating for bond issuers.	Most risks, including commercial risk and political risk.
Export Credit Guarantee or Insurance	Covers losses for exporters or lenders financing projects tied to the export of goods and services. Provided by ECAs.	Percentage of political risk and commercial risk.
Partial Risk Guarantee or Political Risk Guarantee (PRG)	Covers commercial lenders in private projects for the full amount of debt in the event of default caused by certain risks, as specified in the guarantee instrument. Those risks are political in nature and defined on a case-by-case basis. Provided by IFIs and some bilateral donors.	Political risks, for a wider range than those provided by the market, including government contractual obligations and actions having a material adverse impact on the project.
Political Risk Insurance (PRI)	Covers equity investors or lenders in the event of default due to political risks. Coverage is usually less than 100% of the investment or loan. Provided by IFIs, ECAs and private investment and political risk insurers.	Political risks, such as currency inconvertibility and transfer restrictions, expropriation, war and civil disturbance.

Source: adapted from Matsukawa, T. and O. Habeck (2007). For a detailed list of available risk mitigation instrument, refer to INFRADEV's website on: *www.globalclearinghouse.org/InfraDev/rmlist.cfm*.

Partial Credit Guarantees (PCGs). PCGs are flexible and can be structured to meet the needs of specific debt instruments and market conditions. Traditionally used by governments or public entities, PCG are also being more recently used by sub-sovereign governments, municipalities and private companies to borrow domestically from commercial banks or issue in the domestic capital market in local currency. A Partial Credit Guarantee can lift the borrower's credit rating above a critical threshold, at which access to the market is possible. The guaranteed coverage level is set to achieve a target bond rating to facilitate bond issuance, or at a level required to encourage commercial bank lenders to participate. The International Finance Corporation (IFC) is among the international agencies that offer credit-enhancing PCGs to private companies. These partial guarantees have the special feature of being able to be issued in foreign or locally denominated currency. This feature has the advantage of eliminating the foreign exchange risk for local borrowers, which means that they can be used to issue bonds in local currency for example.

Partial risk guarantees (PRGs). In addition to standard political risks, this mechanism can be applied for regulatory, legal and contractual risks. It can cover breach of contracts, changes in law, licenses requirements, obstruction in the process of arbitration and non-payment of termination amount. In countries with nascent regulatory regimes, PRGs can cover part of the regulatory risk if the government's obligations are specified in a contract, by activating the "breach of contract" clause.

Risk mitigation instruments are not a panacea, however. Underlying projects must be "bankable" (*i.e.* their return on investment must be sufficient to attract private investors) or entities receiving finance need to be creditworthy in the eyes of the entities that accept to mitigate such risks. Besides, providers of risk mitigation instruments may still require a sovereign guarantee or counter-guarantee from the central government when they are providing guarantees to local governments or utilities.

Sovereign guarantees are issued by central Governments to guarantee that a borrower's obligation will be satisfied if the latter defaults on its obligations. These guarantees may be difficult to obtain when governments are under considerable pressure to keep their overall debt exposure down and limit their off-balance sheet commitments. Even where a government is financially strong, a government's willingness to give a guarantee will depend on the degree to which it is committed to the project as well as on its perception of what the market will bear.

Finally, some risk mitigation instruments have been criticised when they shelter project sponsors and lenders from market forces and discipline. For example, a 100% credit risk cover may reduce the effort a lender puts into investigating the status and prospects of the borrower. In response, one can

argue that a guarantee that raises borrowers' credit standing to the point where they enter the local market for the first time exposes them to market forces in a healthy way. As a result, guarantees can be most successful where they have a catalytic effect for countries or institutions that are at or just below creditworthiness. And even when risk mitigation instruments are in place, project sponsors and lenders must still manage risks actively in order to minimise the likelihood of project failure, not only because it is in their interest to reap the benefits from the project (or the investment, in the case of a utility) but also because mobilising cover via such instruments may be difficult and costly.

How have risk mitigation instruments been used in the water sector?

Although a broad range of risk mitigation instruments is available to borrowers and investors, these have not been used on a large scale in the water sector, especially when compared to their extensive use in other infrastructure sectors such as power or roads. There are only a few examples where such instruments have been used for water sector projects, as briefly summarised below.

Partial Credit Guarantees. The International Finance Corporation (IFC) has provided Partial Credit Guarantees (PCGs) to the City of Johannesburg in South Africa (Box 2.2) or to the Tlalnepantla water project in Mexico (Box 3.11). In both cases, an interesting feature of these PCGs is that they were provided for debt instruments denominated in local currency. This can be done only in countries where IFIs can borrow in local currency so as to be able to hedge the currency risk.

USAID has also been active in this area, via its Development Credit Authority (DCA), which was established in late 1999 to stimulate commercial lending through the use of partial credit guarantees.[20] Since its creation, USAID-DCA has made more than 200 partial credit loan and bond guarantees, which has enabled approximately USD 1.6 billion of private capital to be lent in more than 60 countries (note that this applies to all sectors, not only water and sanitation). The cost to USAID was approximately USD 53 million, meaning that for every dollar spent by USAID, an average of USD 30 was made available by the private sector. On the overall portfolio, the actual default rate was less than 1%. With about USD 250 million of total lending, the water and sanitation sector accounted for about 15% of that total portfolio, showing that the sector has been relatively slow in taking up this kind of innovation. A notable example of a PCG issued by USAID in the water sector was in the context of a pooled financing facility in the State of Tamil Nadu in India (Box 3.9).

By contrast, other international institutions that offer PCGs to their clients, such as the World Bank, have not used this type of instrument in the water sector so far despite willingness and interest to do so. They attribute this to a number of factors. On the one hand, the World Bank's charter requires that a counterguarantee be provided by the Government as an indicator of their interest in the project.[21] This limits the potential for sub-sovereign projects to obtain such types of guarantees, as local governments may face difficulties in obtaining a sovereign guarantee from their Government. Second, they have seen very limited demand from the water sector for innovative financial instruments due to a lack of familiarity and insufficient training to adapt such instruments to the needs of a particular project.

Partial Risk Guarantees. MIGA (Multilateral Investment Guarantee Agency, a member of the World Bank group) provided political risk insurance for a private water concession for the first time in 2001. This was to support a concession in Guayaquil (Ecuador) (Box 3.5). Since this landmark deal, however, MIGA's involvement in the water sector has been limited, something they would attribute to a lack of demand for their products on the part of governments and project sponsors except in the Chinese market where demand has consistently been strong, where they have provided guarantees as well as mediation services for a number of projects.[22]

Another interesting innovation has been the creation of country-specific guarantee facilities, such as the Local Government Unit Guarantee Corporation (LGUGC) in the Philippines, which is a credit enhancement mechanism for municipal infrastructure that has been used extensively to guarantee the financing of water sector projects (Box 3.6).

What can be done to increase the use of risk mitigation instruments in the water sector?

The Camdessus report had noted the limited use of guarantees in the water sector and made specific recommendations on how to increase their application (Box 1.3). Six years down the line, it appears that many of these recommendations still apply, given that the use of risk mitigation instruments has not gone beyond a few landmark transactions by international institutions and guarantee facilities in a few countries.

Changes to IFIs and donors internal rules and procedures. The Camdessus report had identified a number of constraints on the broader use of guarantees, including certain rules within donor organisations, and made recommendations for their amendment which still hold true today. For example, although risk mitigation instruments enable IFIs and bilateral donors to leverage private sector funds with a limited use of their own funds, guarantees and other types of contingency instruments are often treated on

Box 3.5. **Political risk guarantee for water and sanitation: the role of MIGA in Guayaquil (Ecuador)**

MIGA mitigates non-commercial risks by insuring investments against the risks of currency inconvertibility and transfer restrictions, expropriation, war and civil disturbance, and breach of contract. Besides, MIGA offers mediation services for guaranteed investments to prevent disputes from escalating. This IFI also provides technical assistance to help countries attract and retain foreign direct investment, as well as providing free online information on investment opportunities. The types of foreign investments they can cover include equity, shareholder loans, and shareholder loan guarantees, provided the loans have a minimum maturity of three years. Equity investments can be covered up to 90%, and debt up to 95%, with coverage typically available for up to 15 years, and in some cases, for up to 20 years. MIGA may insure up to USD 200 million, and if necessary more can be arranged through syndication of insurance. Pricing is determined on the basis of both country and project risk.

The first MIGA guarantee for water investments was signed in Guayaquil, Ecuador in 2001 to guarantee USD 18 million investment for International Water Services B.V. of the Netherlands in an Ecuadorian subsidiary (Interagua). This was a 30-year concession with a performance bond for non-compliance by the company. The guarantee offers protection for the investment against the risks of expropriation, war and civil disturbance. It also covers the performance bond against the risk of wrongful call. The guarantee provides that the amount of compensation cannot exceed the performance bond. The concession aimed to improve the services and operating performance of the existing municipal water utility, especially to poor areas that have little access to potable water and poor sanitary conditions, by reducing the amount of water that is unaccounted for, increasing cash collection and increasing service coverage by 30-40%. Overall, the municipality expected to increase coverage to 90% and 60% for water and sewage services, respectively, by 2013.

In January 2008, a complaint was filed by residents of the city of Guayaquil and the Asociación Movimiento Mi Cometa y Observatorio Ciudadano de Servicios Publicos, regarding International Project Water Services Guayaquil (Interagua). The complaint raised the following social and environmental concerns: repeated cuts of residential water to the poor, lack of service provision to poorer neighbourhoods, lack of wastewater treatment, noncompliance with the concession contract, resulting in infringements of MIGA's safeguard policies. The IFC Ombudsman (CAO) visited the project site in February 2008, to meet with the complainants, the company, and the regulator and try and resolve the issues. As of early 2009, the concession was still running, despite a difficult political context, and the MIGA guarantee had not been exercised.

Sources: Baietti, A. and P. Raymond (2005); Pinsent Masons (2008); MIGA website: *www.miga.org/.*

the same basis as loans by IFIs and donor agencies in their internal tracking systems. In other words, guarantees are treated as if they were equivalent to a loan exposure for 100% of the amount. This situation discourages the use of guarantees and many IFIs and bilateral donors have an institutional bias in favour of providing loans and grants rather than issuing guarantees. In order to lift these barriers to develop the use of guarantees, the Panel recommended that IFIs should revise their policies on capital provisioning, where these are undue constraints on the use of guarantees. According to John Wasielewski at USAID-DCA, IFIs and donor agencies tend to be overly conservative and risk-averse in their use of guarantee products with a view to maintaining their own credit worthiness (IFIs usually benefit from an AAA rating, which is critical to ensure relatively low borrowing costs). In his opinion, these institutions are behaving more like private financiers than development institutions. USAID-DCA itself can be viewed as too conservative given that the default rates have been very low, which means that they have not been sufficiently willing to push the boundaries of "acceptable" risk.

Most IFIs would require sovereign counter-guarantees for issuing their instruments for public projects (such as the World Bank, as discussed above). By contrast, the private sector arms of the IFIs (for example, MIGA and IFC) can, in principle, issue their risk products without sovereign counterguarantees. However, it turns out that counterguarantees are often required even for private projects, especially for breach-of-contract cover in countries with inadequate legal, regulatory, and institutional frameworks. This is especially the case for WSS projects in non-investment-grade countries. Although many emerging market infrastructure projects utilizing project financing have been conceived, most have been stillborn mainly because sovereign guarantees could not be obtained.

Furthermore, whereas most IFIs are able to issue guarantees on a standalone basis, others restrict the use of guarantees to loans in which they participate. According to Camdessus, such participation requirements complicate the structuring of financing transactions since the IFIs concerned have to make a direct loan to the borrower even if a guarantee is all that is required. Thus, the Camdessus report recommended that these IFIs should amend their articles so as to enable them to have the freedom to issue guarantee on a standalone basis.[23]

Instruments to mitigate foreign-exchange risk. One specific recommendation formulated by the Camdessus report was the creation of a devaluation backstopping facility in order to mitigate foreign exchange risks, as these are notoriously difficult to manage in water projects (where revenues are usually denominated in local currency whilst a high percentage of costs, including most financing costs, are usually in foreign currency).

Box 3.6. **Local Government Unit Guarantee Corporation (LGUGC) in the Philippines**

In the Philippines, outside metro Manila, water is a local government responsibility which may be discharged by the Local Government Units (LGUs) directly or by water districts (corporatised entities whose boards are appointed by the LGU heads). In the 1990s, even creditworthy LGUs had difficulties accessing sufficient capital to meet their infrastructure investment needs mainly because commercial lenders were unfamiliar with the risks involved in lending to LGUs. LGUGC was set up in 1998 to help LGUs access financing by offering guarantees on LGU loans and bonds. It is owned by private and public owners including the Bankers Association of the Philippines (38%), the Development Bank of the Philippines (37%) and the Asian Development Bank (25%). Over the past decade, LGUGC has helped LGUs mobilize capital from a range of banks and bond investors for all types of infrastructure projects. The small but growing LGU bond market in the Philippines, a rarity in an emerging economy, can largely be credited to LGUGC's contribution.

LGUGC offers two main services:

- A *guarantee mechanism* to reduce the risk of an LGU (or any other eligible entity, such as a water district) default on loans and bonds. LGUGC only guarantees projects that generate revenue. If the guaranteed entity defaults, LGUGC can intercept the tax revenues remitted from the central government to the LGU. As part of its guarantee program, LGUGC also offers technical assistance to LGUs with preparing projects for financing. The guarantee fee ranges from 0.5% to 1.25% per annum of the face value of the outstanding principal. The guarantee is irrevocable and immediately payable in event of default.
- *Credit rating services*. In the absence of an entity specialized in LGU risk evaluation, the LGUGC has established an internal LGU credit screening and rating system. This system evaluates the LGU's capacity to pay and willingness to honour contractual obligations.

Out of the 26 projects that LGUGC has guaranteed so far, nine have been water projects. LGUGC supports investment in water with credit enhancements for LGUs and water districts borrowing. Some examples of guarantees for water projects include guarantees to Indag Water District for a Php15 million loan (about USD 315 000) and to Laguna Water District for a Php100 million loan (USD 2.1 million) for expansion of the water supply system. Most of the municipal bonds floated in the Philippine market since 1998 have had an LGUGC bond guarantee. As of January 2009, closed deals represented Php2.9 billion (USD 60.4 million). LGUGC has not experienced any default so far. The LGUGC is willing to provide these services because it understands better than traditional lenders the risks related to LGUs.

Sources: Kehew, R., T. Matsukawa and J. Petersen (2005); LGUGC's website, *www.lgugc.com/*.

According to Baietti and Raymond (2005), in the simplest terms, a devaluation backstopping facility would consist of a fund or a contingent commitment of funds provided by an international financial institution that could be drawn upon in the event of significant currency devaluation. In this case, rather than triggering an unsustainable tariff increase, the funds would be used to offset temporary shortfalls in meeting debt-service payment obligations (and possibly dividend payments) concurrent with gradual tariff increases. These tariff increases would be previously agreed on and expected to be sufficient over time to recoup funds drawn down from the facility.

Despite initial interest following the Camdessus report, such facility has not been established in the water sector (and this type of mechanism appears to have been used only once for a power project in Brazil) and foreign exchange risk remains notoriously difficult to mitigate. However, the relevance of creating such a facility has been greatly reduced by the withdrawal of most international private operators from the water sector (Section 1.5). A more direct way of addressing this risk would therefore be through the provision of local currency financing, particularly to sub-sovereign borrowers (Section 3.5).

Provision of local currency guarantees and creation of domestic guarantee facilities. Lending in local currency, combined with guarantees for local currency instruments, can be a powerful way of expanding lending to local water projects, especially for those projects that are too small to attract the attention of international lending institutions. At the international level, the World Bank, in partnership with the IFC, created a Municipal Fund for development of guarantee instruments targeted at promoting sub-sovereign lending (Section 3.5). As with other international facilities, this has had limited activities in the water sector, however. More promising is the experience of domestic guarantee facilities, such as the LGUGC (Box 3.6). Donors could seek to replicate this example by providing seed financing to domestic guarantee facilities which can then provide guarantees for domestic currency loans at the local level.

Finally, it appears that the providers of risk mitigation instruments to support infrastructure financing in developing countries have to pursue their efforts in improving these instruments. They have to make them more effective at catalysing diverse types of transactions and to increase available infrastructure financing. It seems necessary to expand and facilitate the use of these instruments in multilateral and bilateral official agencies and promote collaboration with private financiers and insurers in lieu of direct lending. However, maximising the potential effect of guarantees would depend on a suitable enabling environment being in place, as guarantees can only support the financing of otherwise good projects and not redress existing problems such as unclear financial sources or an undefined institutional framework.

3.5. Creating grouped financing vehicles to increase access to finance

What are grouped financing vehicles?

A series of instruments have been used in order to increase access to repayable finance (including market-based repayable finance) for small water and sanitation providers. Given the relatively high transaction costs of organising finance and the need for a strong credit history, setting up grouped financing vehicles (such as revolving funds, pooled funds or bond banks, each of them with specific characteristics) can help finance a large number of small projects and facilitate access to a number of credit enhancement mechanisms. The main objectives of establishing such vehicles are to achieve scale so as to leverage additional finance as a group, reduce transaction costs (particularly from the point of view of the borrowers) and, from the lenders' point of view, spread risks through adopting a portfolio approach. These common characteristics justify dealing with these types of grouped financing vehicles in conjunction. Those vehicles are usually used to raise finance as a group but would usually provide financing on a project by project basis to the entities that have joined up under the grouped structure.

The ways in which these grouped financing vehicles are referred to reflects differences in emphasis with respect to the distinguishing features of each financing vehicle:

- The basic principle behind a ***revolving fund*** is that the funds initially brought in as seed capital can be revolved several times. If the revolving fund is providing loans, for examples, loan repayments made into the fund can be used to make new loans, without any time limitation. For water and sanitation investments, these have been pioneered in the United States to finance investments generated by the Clean Water Act adopted in 1972. In its simplest form, the revolving funds have enabled the provision of revolving Federal and State grants to the sector so that these funds can benefit more than one project (Boxes 3.7 and 3.2).
- A more sophisticated version of a revolving fund is when government grants are used to leverage additional market-based repayable finance, usually through issuing bonds purchased by private investors. The proceeds can then be on-lent in order to finance projects in the water sector. Such extension of the revolving fund principle may also be referred to as a ***bond bank*** (Boxes 3.7 and Box 3.8).
- ***Pooled financing*** is a method of overcoming the high credit risks and transactions costs of individual small municipalities by grouping them together with others, to produce a collective bond issue of a minimum threshold size. Each municipality is required to make

a deposit into a collective reserve fund (which may or may not be a revolving fund), which acts as a guarantee for the issue. The bond may receive further credit enhancement with the aid of external guarantees for the reserve fund, as used by the USAID's Development Credit Authority (DCA) in Tamil Nadu State in India (Box 3.9).

What role can grouped financing vehicles play in the water and sanitation sector?

Grouped financing vehicles have been used fairly extensively in the water sector, particularly in the United States, England and Wales (through the Artesian loan facility, as described in Box 1.2) and some middle-income countries such as Mexico (Box 3.8) or India (Box 3.9). A revolving fund has also been created successfully in the Philippines with support from USAID and JBIC. As this instrument also blends ODA with commercial lending, it is discussed in more detail in Section 3.7. They are particularly well suited to the sector as most WSS providers tend to operate at the local level and to be relatively small. For example, the United States have a long experience of using revolving funds to finance water and wastewater projects at the local level, through the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund, as described in Box 3.7.[24]

In the United States, the pooled financing model has successfully raised capital for municipal and communal infrastructure. In a capital market as broad and well-developed as the one in the US, the bonds issued by such funds are generally considered by credit rating agencies and investors to be relatively secure investments. In the US, the relatively lower rate of interest on these bonds compared to other comparably risky investments of similar duration (for example, corporate bonds) is compensated by the fact that the interest on the bonds paid to the investors is exempt from federal, and sometimes state, income taxation. However, this system of tax exempt interest is uncommon in other countries.

Over recent years, USAID has actively promoted the use of pooled financing mechanisms for infrastructure sectors (based on the country's own experiences with such mechanisms) as a way to leverage financing for the water sector in developing countries, followed more recently by the Japan Bank for International Cooperation (JBIC) and the UK's Department for International Development (DfID). In particular, USAID has promoted the creation of bond banks to act as a financial intermediary that accesses the private capital market, sells its own securities and on-lends the proceeds to participating local governments.

A bond bank's primary goal is to improve access to financial markets for small, frequently rural, local-government borrowers. It can lower the cost of

Box 3.7. **US State Water Revolving Funds**

Revolving funds have been successful at promoting investment and providing an affordable source of financing for water and wastewater projects in the US. The Federal Government capitalizes these state-owned funds and the state government must match the contribution. Where appropriate, states have also leveraged additional funds through issuing tax-exempt bonds to retail investors and investment management institutions. Revolving funds typically provide loans and, once repaid, the capital is available for new loans. The funds would also provide various forms of direct and indirect assistance to the borrowers.

The Clean Water State Revolving Fund (CWSRF) was created in 1987 to finance municipal wastewater facilities and pollution control mechanisms in the United States. Each state operates its own CWSRF program. A range of different entities (including communities, individuals, businesses and non-profit organisations) can apply for CWSRF funding for eligible projects. Funding may be in the form of grants or loans at below-market interest rates (with repayment terms of up to 20 years) or as a combination of the two. The funds target small and disadvantaged communities. The Drinking Water State Revolving Fund (DWSRF) was established in 1996 to finance water supply projects. Its structure and processes mirror those of the CWSRF program. When loan recipients make repayments to the state program, the funding is "revolved" and made available for further projects.

The funds have been very successful at lending significant amounts to a large variety of projects, allowing small municipalities to access financing despite their small size and annual budgets. Over the past 20 years, the CWSRFs have lent USD 63 billion for 20 711 projects in communities of all sizes (of which 96% went to wastewater treatment projects). They have lent USD 2.31 for every dollar the federal government had initially allocated. The DWSRFs have lent USD12.6 billion to 5 555 projects over 10 years.

As of 2006, 27 states had leveraged their state revolving funds by issuing state bonds, doubling the amount of such funds. However, this might end up causing excessive leverage. Furthermore, because of their success in disbursing funds, there is a risk that revolving funds might crowd out commercial sources from serving water and wastewater providers, especially since the volume of funds made available through this mechanism has recently been increased by the US stimulus package (Chapter 4).

Sources: Lloyd-Owen, D. (2005); United States Environmental Protection Agency (2006).

capital and improve the lending terms for municipalities by incorporating various forms of credit enhancement. Bond banks also have the capacity to prioritise development projects according to their financial profitability. Developing the more profitable projects first can secure the initial capital and generate new sources of revenues, which can be used to mobilise new financing for developing a second generation of projects. This process can be repeated several times, so as to increase the number of projects financed in such a way. Bond banks usually administer the funds in an output-based way, *i.e.* by disbursing the funds gradually as progress is achieved rather than as an initial lump-sum.

Box 3.8. **Bond bank financing for water and sanitation in the State of Quintana Roo (Mexico)**

The State of Quintana Roo, with the support of the USAID/EDI Global Development Alliance Program, created a bond bank in 2006, the Quintana Roo (QR)-Bond Bank. The QR-Bond Bank is a pooled financing vehicle which intercepts different revenue streams and pledges them to pay for debt obligations, so as to increase the credit rating of the borrowing entity.

In October 2007, the QR-Bond Bank helped the State Commission for Water and Sanitation (*Comisión de Agua Potable y Alcantarillado*, CAPA) to access an amount – in local currency-equivalent to USD 30 million dollars – from the domestic capital markets USD. Terms and conditions were unprecedented in Mexico for a water entity. The bank loan from Citibank had a 15-year term and was provided at inter-banking rate plus 19 basis points on the back of a transactional rating of AA.mx, when other water utilities in Mexico were hardly obtaining any financing or only through short term loans (approximately 3 to 6 years) at 400 to 600 basis points over inter-banking rate. The Federal Government matched this financing by providing another USD 30 million. The overall USD 60 million dollars helped build new drinking water infrastructure to benefit 77 000 people and new water and sanitation infrastructure to benefit 150 000 people.

The bond bank helped overcome a number of constraints that had been preventing the State of Quintana Roo from building an effective and consistent financing framework in water and sanitation sector. Water utilities are not considered as federative entities and therefore receive no national tax transfers. Water bill collection rates are relatively low, as the Federal Constitution of Mexico guarantees water supply to citizens, even if they do not pay for it and the culture of non-payment for infrastructure services is widespread. In spite of the continued focus and improved management of payment levels, this means that revenue streams are not perceived as secure by potential investors. Finally, the Mexican municipal bond market in general lacks enough credit insurance products for potential municipal issuers. In an arena where municipal credit ratings are low compared to domestic investment grade standards, credit enhancement becomes a key necessity.

Source: State of Quintana Roo (2008). See also: *www.makingcitieswork.org/toolsAndResources/implementation/SIF* on USAID-GDA.

USAID, in association with Evensen Dodge International (EDI), has developed a program referred to as the Global Development Alliance (GDA) to promote the use of innovative instruments such as bond banks or revolving funds. Amongst others, this program helped establish a bond bank for water sector financing in the State of Quintana Roo in Mexico (Box 3.8).

Another landmark project developed by USAID was the Tamil Nadu Urban Development Fund (TNUDF), as part of the Tamil Nadu Urban Development Project that aimed to develop municipal infrastructure financing in the late 1980s. This initially state-sponsored municipal development fund was transformed in 2002 into a public-private funding and loan pooling scheme that led to the setting up of a special vehicle particularly addressing small local bodies, the Water and Sanitation Pooled Fund (Box 3.9). Building on the principle of credit aggregation, the WSFP was the first successful pooled market financing outside the US.

Box 3.9. **The Tamil Nadu Water and Sanitation Pooled Fund (WSPF) in India**

In 1996, the Tamil Nadu Urban Development Fund (TNUDF) was set up as a public-private partnership, with the aim of providing sustainable financing for infrastructure investment. The Government of Tamil Nadu (GoTN) owns 72% of the capital and 28% is held by three Indian private financial institutions which have a majority stake in the asset management company that manages the fund, the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL). This has given credibility to the fund to attract private capital flows into development projects. By 2004, the majority of the portfolio consisted of sewerage and water supply projects.

A fund dedicated to small local bodies: The Water and Sanitation Pooled Fund (WSPF)

The TNUDF approach tended to be used for municipalities with large and predictable revenue streams. However, a majority of the local bodies in Tamil Nadu with large neglected infrastructure needs are small and medium sized municipalities. Bond issuance fees and credit rating charges involved in accessing capital market often generate transaction costs that are too high for the smaller Urban Local Bodies (ULBs). In order to ensure the inclusion of weaker ULBs and relatively small but essential projects, GoTN (Government of Tamil Nadu) and TNUDF instituted a special purpose vehicle called the Water and Sanitation Pooled Fund (WSPF) in August 2002. This fully owned Government Trust was set up to finance essential services like water and sanitation for small and medium towns and raising resources on a pooled basis through a market driven approach. TNUIFSL was also entrusted with managing this fund.

Box 3.9. **The Tamil Nadu Water and Sanitation Pooled Fund (WSPF) in India** *(continued)*

Pooling the water and sanitation requirements of thirteen municipalities and town panchayats, WSPF mobilized capital market finances through an unsecured Structured Debt Obligations for Rs.304.1 (USD 6.2 million) in December 2002. The bond had a coupon of 9.20% p.a., a tenor of 15 years with a put and call option at the end of a ten year period. Key mechanisms which helped reduce financing costs included:

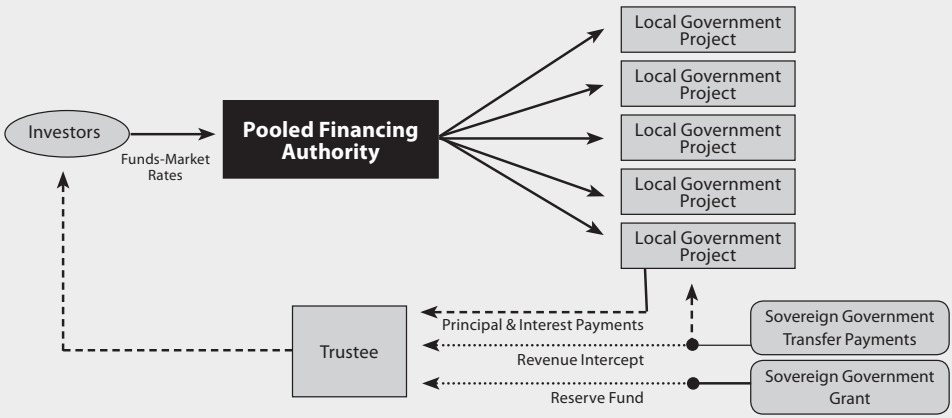
- Pooling a number of projects reduced the bond issue's transaction and rating costs and made the issue more attractive to investors;
- The bond's repayment was supported by a portfolio of loans on-lent to the municipalities;
- The bond was issued in Indian Rupees preventing foreign currency risk;
- The credit rating of the project pool was enhanced through structuring the debt to provide a series of credit guarantees. This allowed creating an investment grade product (AA rating from two agencies) and reducing significantly the debt's coupon.

To strengthen market's confidence in the bond, three different levels of credit enhancements were used:

- The first level was a ***no-lien escrow account set up by the thirteen ULBs on all their revenues*** including property and other tax collections, non-tax receipts and state devolutions. In order to avoid maturity mismatches in revenue and repayment profiles, each ULB had to transfer $1/10^{th}$ of its annual debt service to a separate fixed deposit account, with precedence over other commitments. The cumulative deposits were then transferred to the WSPF account to service bond holders.
- A ***Debt Service Reserve Fund***, named the Bond Service Reserve Fund (BSF), was set up by the government of Tamil Nadu with liquid investments of Rs. 69m (about USD 1.42 million) which was equal to one full year of debt service. The reserve fund is sufficient to ensure that the fund can continue to pay its creditors (that is, the purchasers of its bonds or its lenders) even when one or more of the fund's municipal borrowers fail to make repayments to the fund for interest on, or principal of, their loans. This additional security for the fund's investors makes it possible for the fund to issue its bonds on the capital markets, or to borrow from institutional lenders, at rates and on terms that allow it to make loans to municipal borrowers on attractive interest rates and other terms.
- A ***partial credit guarantee (PCG) was issued by USAID*** for 50% of the principal amount, with the balance covered by an undertaking by the Government of Tamil Nadu, in the form of a government order that the shortfall would be replenished by the GoTN to the BSF deducting their respective share of State Finance Commission (SFC) funds accruing to the municipalities involved.

Box 3.9. **The Tamil Nadu Water and Sanitation Pooled Fund (WSPF) in India** *(continued)*

The overall financial structure is summarised in the following flowchart:



Source: World Bank, "Local Financing for Sub Sovereign Infrastructure in Developing Countries"

The successful track record of the Tamil Nadu Water and Sanitation Pooled Fund (WSPF) pooled financing in 2002 inspired the state of Karnataka, which decided to develop a similar scheme, and later the Government of India which scaled up the approach at national level to support urban reforms.

Sources: Mehta, M. (2003); OECD (2009c), Venkatachalam, P. (2005).

What role can ODA play to develop the use of grouped financing tools?

Grouped financing vehicles can play a significant role to attract repayable finance (including market-based repayable finance) to small and medium sized WSS providers. To date, they have mostly been used as a basis for issuing bonds in countries with fairly mature financial markets but intensive marketing and dissemination efforts are ongoing (through USAID GDA) to promote the adoption of these approaches in countries as diverse as Guatemala, Ecuador, Ghana, Indonesia, Ukraine or Vietnam. Such structures can be fairly time and resource intensive to setup, however, which is partly a reason why they have not been more widely adopted for financing water and sanitation investments. In part, this is due to a lack of familiarity with this

type of financing instruments, to legal obstacles to their establishment (a key innovation such as the ability to issue tax-exempt bonds may not sit well in all constituencies for example) and to difficulties in getting local governments to act together towards a common goal.

Other donors have expressed interest in grouped financing approaches[25] or have adopted this type of approaches in their projects (such as the EIB in Turkey and Romania). Basic principles of grouped financing approaches may be used by donors and governments to set up facilities to mobilise market-based repayable finance for decentralised providers. These include pooling resources from various sources into a single financing entity and using guarantees to enhance the credit-worthiness of such pooled financing entities.

3.6. Increasing lending to sub-sovereigns via innovation

What innovations can be used to increase lending to sub-sovereigns?

Making financing available to sub-sovereigns (*i.e.* local governments below the central government level and decentralised water and sanitation utilities) is critical to ensure investment in decentralised WSS. The critical innovation in this area is when IFIs and bilateral donors agree to lend to sub-sovereigns without a counter guarantee from the central government but would instead rely on a variety of "securities" or agreements with the ultimate recipients of finance. Such direct lending can contribute to building the borrower's credit history and catalyse market-based repayable finance either simultaneously or at a later stage. Financial support at local level can therefore strengthen those borrowers' credit-worthiness (by imposing discipline) and attract a much broader range of financiers and investors by giving them comfort to step in.

How have such innovations been applied in the water sector?

International financial institutions have sought to adapt their financing policies and practices to provide financial support to sub-sovereigns, either in the form of loans or guarantees, with a view to catalyse additional market-based repayable financing. Although these initiatives are not specifically targeted at the water and sanitation sector, they have benefited water and sanitation investments to varying degrees. This section review the experience of the European Bank for Reconstruction and Development (EBRD) and of the World Bank's Municipal Fund, set up in partnership with the International Finance Corporation (IFC) in this area. Other IFIs, such as the European Investment Bank (EIB), the Inter-American Development Bank (IADB), the Asian Development Bank (ADB) and the African Development Bank (AfDB) have taken steps to increase their sub-sovereign operations, although this has remained somewhat limited in scale.

Finally, some bilateral donors have also been lending to sub-sovereigns without requesting a central government counter guarantee. For example, the Agence Française de Développement (AFD) has started to provide direct financing to water utilities without central government guarantee, such as to SONES (in Senegal), CAMWATER (in Cameroon) or PPWSA (in Cambodia). For such transactions, they would require a rating, a specific financial analysis and certain assurances relative to revenues. Such loans are provided on a concessionary basis but are intended to form the basis for commercial banking finance at a later stage.

The EBRD has been leading the way for sub-sovereign financing. The EBRD has been lending directly to sub-sovereign governments for more than a decade in former socialist countries in central and Eastern Europe and was the first of the regional development banks to set up a dedicated team focused on municipal finance, the Municipal and Environmental Infrastructure (MEI) team, which lends either to municipalities or to municipal utilities.[26] EBRD loans to sub-sovereigns were worth EUR 1 628 million as of end 2008 and accounted for 48% of total EBRD lending, up from 30% when they were first introduced in 1997.[27] Water and sewerage is one of the key sectors for the MEI team, as it accounted for the highest volume of lending in 2008 (EUR 898 million or 56% of total lending by the MEI team). Interest rates are set on a commercial basis for local currency loans (where possible) with maturities between 10 and 18 years.

The EBRD was the first development bank to extend loans to sub-sovereign entities without requesting a sovereign counter guarantee. For example, between 2005 and 2006, the EBRD made 28 loans to sub-sovereign entities without such a guarantee for a total volume of more than EUR 350 million. The EBRD also provides direct financing to municipally-owned or partially municipally-owned companies without a municipal guarantee. The Bank has been able to support this kind of risk thanks to a very deliberate approach to risk mitigation. They carefully select partner cities with an initial focus on revenue generating projects. They combine financial assistance (through loans priced at a commercial rate but sized conservatively) with technical assistance to support the reform process.

A key tool for risk mitigation is the signing of a "project support agreement" with municipalities, in which municipalities agree to certain tariff increases to allow debt repayment. Although this does not eliminate the political risk (as what mayors sign today could be reversed following an election), the EBRD has been willing to take on that type of risks as they feel that it is politically very difficult for a municipality to allow its municipal utility to default. Such agreements may include provisions similar to "revenue intercept" provisions, whereby the lender can intercept funds from the central government to the local government to secure its loan repayment. For

example, in the case of a loan to St. Petersburg Vodokanal, the EBRD signed a project support agreement that gave the bank access to bills owed to the Vodokanal by entities owned by the Federal government (such as the navy or the army) in the event of default on loan repayment. In that case, the Federal government did not have direct obligations towards the EBRD so it could not be described as a guarantee as such.

The provision of such support can contribute to building a credit history for the borrower, which in turn enables mobilising market-based repayable finance at later stages. For example, the EBRD has been providing financial support to Tallinn Water (Estonia) at various stages of its reform process (Box 3.10), culminating in raising equity from domestic investors in an IPO.

World Bank's Municipal Fund. In 2003, the World Bank Group created a Municipal Fund, in partnership with the International Finance Corporation (its private sector branch) to finance essential infrastructure investments at sub-sovereign level. The program aims to help build the capacity and creditworthiness of subnational borrowers and develop local markets for municipal financing. The involvement of the IFC can give comfort to local banks, enabling them to lengthen the maturity of local-currency loans they can provide, consistent with the long-term nature of the investment. The objective of the Municipal Fund was to provide financing and credit enhancement to subnational public sector entities and to enhance their capacity and their creditworthiness without the use of central government guarantees. The Municipal Fund can use the full range of IFC financial instruments on the back of the

Box 3.10. **Strengthening the financial viability of Tallinna Vesi (Estonia)**

The EBRD has co-operated with Tallinna Vesi since 1994, moving along all stages of reform in the water sector, starting from a sovereign guaranteed loan to the municipality, through a corporate loan, to the privatisation to a strategic investor and assistance in the IPO of Tallinn Water, achieving overall a very significant transition impact. In 1994, the EBRD provided a EUR 22.5 million loan (with a sovereign guarantee) to finance the rehabilitation of water and wastewater treatment plants, groundwater wells and wastewater networks. In 2001, the municipality sold a 50.4% stake in the company to International Water and United Utilities for USD 75 million. The company borrowed EUR 15 million from the EBRD to finance post-privatisation investment and optimise the capital structure in 2002. In 2003, the EBRD made an equity commitment by buying out International Water Ltd. In 2005, the EBRD helped initiate an IPO to float the company on the Tallinn Stock Exchange. EBRD's involvement led to an increasing corporatisation and involvement of the private sector, culminating in an IPO. The latter helped in broadening the shareholding in the company and devolving corporate activities to the local level, with UU's stake falling from 38% to 26.5%.

Source: Pinsent Masons (2008); *Global Water Intelligence* (various articles).

IFC's AAA balance sheet, including loans, guarantees and equity investments, to broaden a sub-sovereign client's access to capital markets. These instruments are provided at commercial rates in a broad range of currencies, including local currencies. The fund can also help local government entities access technical assistance for capacity building.

In the water sector, one of the key Municipal Fund transactions was the Tlalnepantla Municipal Water Conservation Project in Mexico (Box 3.11). Activity in the water sector beyond that landmark transaction has been rather limited, however.

Key limitations with sub-sovereign lending are linked to the requirement of a good financial track-record and preferably a credit rating for sub-sovereign entities, which are frequently not available. In addition, national governments are often reluctant to let sub-sovereign entities borrow as it may put the overall financing standing of the nation at risk in the event of uncontrolled borrowing.

Box 3.11. **Tlalnepantla Municipal Water Conservation Project (TMWC) in Mexico**

IFC (together with Dexia Crédit Local) provided a partial credit guarantee in local currency to a 10-year bond denominated in Mexican Pesos (USD 9.2 million equivalent) and issued by a private Mexican Trust. The Trust was established to raise funds and on-lend to the Tlalnepantla Municipal Water Company (OPDM) and the Tlalnepantla Municipality as joint obligors to finance a water conservation project of USD 8.8 million equivalent. The bond achieved a local scale rating of AAA.mx, three notches above the Municipality's stand-alone rating at issue, and was sold to eight local institutions.

The Municipality's financing objectives were twofold: (i) to extend the maturity of the debt to better match the long-term nature of the investments and (ii) to diversify the funding sources for long-term infrastructure projects. The bond, backed by OPDM's water revenues, matures in 2013.

IFC (together with Dexia Credit local) provided a partial credit guarantee (PCG) of 89% of the principal outstanding, which could be used to pay bondholders if there were insufficient funds in the Trust. The PCG from IFC and Dexia allowed the bond issue to achieve a local rating of AAA.mx, which was required by long-term institutional investors in Mexico. This was the first municipal bond issue in Mexico to finance essential infrastructure investments that was to be serviced from OPDM's own revenues and not using directly federal transfers. The project was completed successfully in 2006, with technical assistance provided by IFC. The bond was subsequently refinanced to take advantage of declining spreads in Mexico.

Source: www.ifc.org/ifcext/subnationalfinance.nsf/Content/sampleproject2.

What role can ODA play to catalyse lending to sub-sovereigns?

Direct lending to sub-sovereigns, without the need for a central government guarantee has been practised with success for some time by some IFIs and donors, such as the EBRD or the AFD. For example, the continuous involvement of the EBRD in a defined geographical area has allowed supporting the financial development of sub-sovereign borrowers in a gradual manner, as it has been the case with Tallinn Water for example.

However, many other donors and IFIs have not been able to lend at the sub-sovereign level, either because their internal rules do not allow them to do so or because they are not willing to take on a risk that they cannot manage adequately. Besides, sub-sovereign entities in many countries are either too weak financially to borrow or lack the capacity to put together a bankable project eligible for donor financing. Central governments themselves may not be willing to let sub-sovereign governments borrow directly, particularly when they are not able to keep control over the overall debt burden that is being accumulated at the national level (which they may have to cover ultimately in the event of bankruptcy, even if they have not provided an explicit guarantee).

Donors may wish to evaluate how they can relax guarantee requirements at the sub-sovereign level, so as to pave the way for commercial lending to those borrowers. Reliance on revenue agreements with the sub-sovereign borrowers to either increase tariffs or intercept central government transfers can provide enough security to lenders without the need for central government guarantees. These types of agreements can help introduce financial discipline and support the implementation of reforms at the level of borrowers, as long as donors and IFIs can also provide adequate resources to support reform processes at the local level. Lending in local currency can also be a key tool to make such loans more attractive to local governments and water utilities.

Finally, donors can combine these lending instruments with guarantees to commercial lenders so as to broaden the pool of financiers and investors interested in investing in water and sanitation at the local level. Direct lending to entities at the sub-sovereign level, such as municipalities or municipal utilities, can help those borrowers build a credit history and give them access to a broader range of investors, including commercial banks and equity investors.

3.7. Strengthening the balance sheet via equity injections

How can equity injections help mobilize market-based repayable financing?

Raising equity can help strengthen the balance sheet of a water service provider. This in turn can improve its credit-worthiness and its ability to raise debt and bond finance at a cheaper cost. As described in Section 2.2.4

above, equity can come from a variety of sources. If equity is provided by private investors either directly or via financial markets, it can bring with it market discipline, *i.e.* high expectations in terms of information disclosure and financial returns. If equity is provided by the public sector, return expectations are much lower (if any). Public equity investors are mostly concerned by ensuring the long-term sustainability of the business and having some control over key management decisions. Some donors have agreed to swap outstanding debt for equity, so as to strengthen the balance sheet by increasing the equity-debt ratio and raise its credit standing.

What role have equity injections played in the water sector?

Water sector providers have mobilised equity financing under a variety of models in order to support the development of their activities and leverage other forms of financing.

In OECD countries, some water sector providers have been bought out by private equity investors who sought to extract rapid returns before selling them on to other investors. The private equity model has been on the rise in the water sector in developed countries in the last ten years. Private equity investors have been attracted by the opportunities to refinance water companies, although they were mostly concerned with lowering financing costs for operations rather than financing capital investments. According to Lloyd-Owen (2006), fourteen deals took place in five countries between 2001 and 2005. By 2007, it was estimated that 16 companies were held by what are essentially financial investors, one in France, two in the US, five in Chile and eight in the UK. The private equity market has been particularly active in the United Kingdom in recent years, with 19 major private equity deals between 2001 and 2007.[28] A number of water companies were bought by banks and investment funds at premiums of up to 30% above their regulatory asset base (RCV) such as Southern Water's takeover by Greensands Holdings in 2007 and the acquisition of Kelda Group by a consortium led by Citigroup and HSBC in early 2008. Thames Water, the company that serves 8 million people with water and 13 million with wastewater services in and around London, was acquired by the Australian group Macquarie in December 2006, which resulted in the company being taken private and delisted from the London Stock Exchange. The development of the private equity market has ground to a halt in the wake of the financial crisis, however (Section 4.1.4), which means that such a model for developed and developing countries is likely to be limited. Besides, institutional investors in the private equity model have tended to be focused on realising quick returns through financial engineering rather than investing in the long-term development of companies.

Such financial innovation did not bring clear benefits for the companies concerned and has proven a risky investment when the financial crisis has

shattered return prospects for these equity investors. By contrast, in some middle income countries such as Singapore or the Philippines, equity has been raised in a way that has been more conducive to financing capital investments and business development. For example, Hyflux, a Singapore-based water company, has developed an interesting model to develop its activities on the Chinese market by ring-fencing its own balance sheet and leveraging private funds via the equity market to finance new projects (Box 3.12).

In the Philippines, the struggling Maynilad concession received a sizeable cash injection via a private equity investment, which was to be used to reduce the debt and finance new investments (Box 3.13).[29]

Although equity comes from very different sources (the financial markets in the case of the Hyflux Water Trust and private investors in the case of Maynilad), both companies have been able to use such equity stakes to leverage other forms of finance so as to fund substantial capital expenditure programmes. In both cases, equity investors appear to be committed over the long-term rather than to make quick returns over the short-term.

Box 3.12. **The Hyflux Water Trust in China**

One of the most interesting financing models employed in China's water sector is the Hyflux Water Trust. The trust's parent company, Hyflux, is a private company listed on the Singapore stock exchange since 2001. Hyflux's business was built around its membrane filtration technology. Its main activities are the development, manufacturing and sale of filtration equipment of water treatment and desalination; installation and commission of treatment systems, turnkey engineering services and installation of industrial equipment.

The Hyflux Water Trust was launched on the Singapore stock exchange in 2007. As of March 2009, it had a market capitalisation of approximately USD 58 million. The Trust is 31.5% owned by Hyflux, with the rest of the shares publicly traded. The Trust is responsible for operating and managing all of Hyflux's BOT contracts and has right of first offer and right of first refusal for any new projects. This allows the parent company to pursue an "asset light" capital structure, freeing up the capital invested in plants so that Hyflux can develop new projects, which is where its managers see Hyflux's greatest value added.

When it was established, the Trust owned a portfolio of 11 plants, including 3 water treatment, 6 wastewater treatment and 2 wastewater treatment and recycling plants in China. It has concessions to operate these under 20-30 year contracts, with minimum off-take agreements for 45% of total output. Since its establishment, it has acquired stakes in four further project companies, including both water and wastewater treatment. HWT assets are all currently located in mainland China but it actively considers opportunities in India, the MENA region and other "high-growth" global markets.

Source: www.hyfluxwatertrust.com/index.php.

What role can ODA play in this area?

Donors can play a significant role in emphasising the importance of equity as a source of long-term market-based repayable finance. On the one hand, donors and IFIs can take equity stakes themselves, as they have done in the case of SONES in Senegal via debt-equity swaps to strengthen the balance sheet (Box 3.14). SONES is a public asset-holder in charge of investing in the rehabilitation and expansion of the system throughout the national territory. This company was created following sector reform in 1996 and has since been able to establish a firm financial standing, which has enabled it to raise financing from a variety of sources, including commercial sources.

The IFC, the private arm of the World Bank, also takes equity stakes in the companies it supports. For example, it has recently taken a USD 15 million equity stake in Manila Water to which it has also provided two corporate loans worth USD 60 million.[30] A largely unanswered question for IFIs and donors remains when it may be most appropriate to provide equity financing in such a way. Such equity injections need to be treated as an investment with expectations of earning a return on this investment. Given its nature and

Box 3.13. **Equity investments in struggling Maynilad Concession**

In 1997, Maynilad was awarded a 25-year concession for the management of water and wastewater systems in western Manila. The Asian financial crisis raised the cost of debt and affected the financial viability of the concessionaire, which stopped paying its concession fees in 2001. The outstanding debt was passed to the state-owned Metropolitan Waterworks and Sewerage System (MWSS) and converted into equity in 2005. The Government did not want to take over operations and sought to sell an equity stake to a private investor.

In December 2006, the Philippines unit of investment group First Pacific and local group DMCI partnered and won the bid to buy the shares in Maynilad for USD 503 million (including USD 447.23 million for 84% of the shares and USD 56.67 as a concession fee). This was almost 10 times the minimum bid of USD 56 million. Manila Water, which runs the system in the east of the capital, made the only other offer (USD 456 million). The bulk of the USD 503 million is to be used to fund capital expenditure to upgrade distribution and pay off debt. The new shareholders have planned a large capital expenditure program to rehabilitate the pipe network throughout the western zone and reduce system losses. Maynilad had budgeted around USD 105 million in 2007 and USD 168 million in 2008 for capital expenditures. Maynilad's five-year capital expenditure program up to 2012 is worth about USD 840 million at current exchange rates.

Sources: Asian Development Bank, *Maynilad, On the Mend, Rebidding Process Infuses New Life to a Struggling Concessionaire*, 2008; Maynilad Water website: *www.mayniladwater.com.ph*.; *Financial Times*, December 2006, *Deal on Maynilad bid*, *www.ft.com/cms/s/0/f8be8274-84e0-11db-87e0-0000779e2340.html?nclick_check=1.*

constitution, the IFC is able to apply such private sector discipline but other IFIs and donors may have difficulties justifying earning a return on their investment.

In other cases, IFIs have supported the development of private sector participation models with substantial requirements for equity contributions from

Box 3.14. **Innovative financial instruments for SONES in Senegal, including donor equity contributions**

In 1995, the Government of Senegal initiated major reforms in the urban water sector, which have yielded substantial results in terms of increased water availability, performance improvements and extension of coverage within the service area. The existing national utility, SONEES was split into three entities: an asset-holding company SONES owning the water service assets, a private company (SDE) operating the system and providing water services under a 10-year affermage contract with SONES, and a state-owned company ONAS owning and operating the wastewater assets. SONES built up a significant cash requirement over the construction period of the Water Sector Project, which peaked in 1998 with a total cash shortfall of USD 21 million. The Government had agreed to a clear path for increasing tariffs over time but this still left the need to cover the temporary short-fall. SONES used three instruments to achieve this objective, including:

- A ***commercial bank loan*** was obtained as a credit line where Citibank and Companie Bancaire de l'Afrique Occidentale (CBAO) provided a maximum amount of USD 21.4 million over 6 years at a 10% interest rate. This facility was made contingent on a SONES deposit of remittances from SDE into a special account from which debt service payments would be made. Furthermore the banks required a letter of comfort from the Government of Senegal and made the line of credit available only after the World Bank credit for the water sector project was effective. The decision to obtain a commercial line of credit was an innovative departure from usual government practice in Senegal. While it resulted in some delay to disbursement of the water sector project credit, it became one of the key components of the reform. SONES's ability to successfully attract and negotiate private finance was an important indicator of its new status as an autonomous, credible, and bankable entity.
- ***Structuring some of the World Bank and KfW financing as equity instead of loan***. In order to reduce the impact of the investments on the water tariffs, IDA (member of the World Bank) and KfW funds were reassigned by the State to SONES with approximately 50% in the form of equity and 50% in the form of a loan. As a result, 60% of WB and 50% of KfW financing were transferred as equity. This had the obvious advantage that no debt service should be provided on this capital but required the willingness from the two donors. However, it raises questions for the future as to whether the company should pay an annual dividend on the money invested this way. This kind of "debt for equity" swap has been instrumental in the balance sheet restructuring of SONES.

Source: COWI (2005).

private operators. This is in process in Saint Lucia, where the Government (with transaction support from IFC) is looking to award a PPP contract requiring a substantial equity investment from the private operator at bidding stage (Box 3.15).

Box 3.15. **St Lucia water concession: seeking to mobilize equity capital via a water concession**

WASCO is the dominant service provider of water and sewerage services for the Caribbean island of Saint Lucia (180 000 inhabitants). Current water demand on the island is not totally met and is expected to rise due to natural population growth and demand generated by the tourism industry. With transaction advice from the IFC, the Government of Saint Lucia sought investors to recapitalize and operate WASCO. The water and sewerage concession in St Lucia that had been put together was innovative as it requires bidders to commit to fund a portion of the equity of the new service provider and it opened equity ownership to institutional investors.

The contract was to be awarded through the valuation of the quality of the business plan (80%) and the value of the bid price (20%). Two financial bids (from Suez and Cascal) were submitted in October 2008 and opened in December. At the time of writing, however, contract award had been suspended, however, as the losing bidder had pointed to irregularities in the process.

Key elements of the transaction included:

- The Government was to maintain ownership of the existing infrastructure assets through WASCO, and will assume all of WASCO's existing liabilities. The Government was to create a "NewCo", into which it would transfer WASCO's operating assets. NewCo would receive a 25-year renewable non-onerous lease on the infrastructure assets of WASCO, and a license to provide WSS. The winning bidder was to manage NewCo's operations.
- The winning bidder was to inject cash as equity in NewCo, in exchange for 40% of NewCo's shares. The National Insurance Corporation, a Government owned pension fund, was supposed to contribute cash (*pari-passu* with the winning bidder) in exchange for a 20% shareholding in NewCo. An institutional investor was also to contribute cash in exchange for a 20% shareholding (with the objective of disposing of the shares to the public as soon as feasible). The Government wanted to retain the remaining 20%. The minimum equity of NewCo was to be set during the bidding process.
- In addition to injecting equity, the winning bidder also had to pay a "bid price" to the Government of St Lucia. The Government was to use the receipts of the bid price payment to serve part of the WASCO liabilities it retained. As this was not going to be sufficient to service all liabilities, the Government was to cover the remainder.

Source: IFC.

3.8. Increasing transparency in the sector via credit ratings

What are credit ratings and what role can they play to increase market-based financing?

Credit ratings are grades attributed to individuals, public or private corporations or even countries reflecting an assessment of their credit worthiness and their ability to pay back a loan or debt obligation in the future. As a rule of thumb, a poor credit rating indicates a high risk of defaulting on a loan, and thus leads to high interest rates or potentially the refusal of a loan. Credit rating agencies are responsible for attributing credit ratings and all have their own rating scales. The largest credit rating agencies, which tend to operate in most OECD and middle-income countries, include Moody's, Standard & Poor's and FitchRating. Credit rating agencies have also been set up in established financial markets throughout the world, such as in India (CRISIL) or in Mexico (HR Ratings de Mexico), where they have developed national rating scales. As of March 2008, there were 64 credit rating agencies worldwide.[31] On the African continent, however, the only credit rating agencies are located in South Africa and Nigeria, the two largest markets in the region. The other national markets are too small to develop a national rating scale.

The attribution of a rating to a corporation, a municipality, a special purpose vehicle or a particular bond issue can greatly enhance investors' confidence in the investment, as it demonstrates that the borrowing entity has complied with a number of transparency and good book-keeping requirements. The credibility of rating agencies has been negatively affected by the financial crisis, however, as many criticised those agencies for not having adequately appraised the risks of sophisticated securities, such as mortgage-backed securities, and thereby contributing to the financial bubble.

How have credit ratings been developed in the water sector?

Domestic rating agencies have made a substantial contribution to increasing the use of ratings for water utilities and sub-sovereign entities. In India, for example, credit ratings awarded to utilities and Urban Local Bodies by leading international and domestic credit rating agencies (such as Fitch, CARE or CRISIL) have made a positive contribution to the development of a market for municipal bond financing.[32] As a result, 35 urban local bodies have obtained a local currency credit ratings in India and 10 have accessed capital markets to help expand and finance infrastructure services.[33]

In other countries, such as the Philippines, the Government itself has supported the development of a credit rating system for local water utilities.[34] Executive Order 279 (adopted in February 2004) laid the ground for reforming financing policies for the water supply sector. The Executive Order set

out that all Water Services Providers, including Water Districts and Local Government Units, would be categorized into four groups ranging from creditworthy (CW) providers to non-creditworthy providers (NWC). The most credit-worthy providers would tap into loans from government (Municipal Development Fund Office or the Development Bank of the Philippines) and private financial institutions with their resources derived from cost-recovering tariffs. The less credit-worthy providers would rely on concessional debt and grants from the government and financing from NGOs.

In less developed markets, particularly in Sub-Saharan Africa, credit ratings for water utilities are virtually non-existent, which reduces transparency and constrains opportunities for diversifying financing to the sector.

How can ODA support the development of credit ratings?

The Camdessus report suggested that Governments should encourage and facilitate the entry of rating agencies and bond insurance/ financial guarantee companies into their domestic capital markets, as this has been done in the Philippines to some extent (although the ratings were attributed by a government institution rather than by an independent institution).

IFIs and donors can also play a role in supporting the development of domestic credit rating agencies and getting them to focus more actively on the sector. In doing so, they could follow the lead of the Public Private Infrastructure Advisory Facility (PPIAF) and the Water and Sanitation Program (WSP) which have recently financed the development of a credit worthiness assessment/diagnostic process for seven water utilities in order to better understand their credit worthiness.[35]

As part of this exercise, a South African based credit rating agency, Global Credit Rating (GCR) assigned investment grade domestic currency credit rating to all seven companies, which should improve these companies' confidence in approaching domestic markets for funding (these ratings were only "shadow credit ratings" as part of a one-off exercise rather than ratings being consistently monitored and updated on an ongoing basis). In some countries, the report noted that "these ratings compare favourably to the ratings accorded by GCR to various large entities operating across other key sectors (within the same countries as those of the participating water utilities)". However, the assessment noted that these ratings were lower than what would be expected given their quasi-monopoly situation. They attributed such relative weakness to high debt levels, poor liquidity and insufficient internally generated cash flows. They noted that such ratings had great potential to improve but that major constraints on credit worthiness mostly revolved around socio economic, structural, administrative and financial issues.

An important side benefit of this activity was to familiarise local domestic financial institutions to the needs of the water sector, as they have traditionally perceived the sector to be a very high risk one. The report recommended that water utilities should engage more directly with credit rating agencies in order to improve their rating and attractiveness to local investors, which indicates that water utilities themselves need to be more pro-active in this area, with or without donor support.

Going forward, the use of credit rating should be considered with caution. The use of such ratings has remained limited, particularly in markets that are too small to develop a national rating scale and where the costs of maintaining credit ratings cannot be warranted. Such barriers can mostly be alleviated through capital markets development rather than via water sector reforms. In addition, the financial crisis has significantly affected the credibility of rating agencies and more generally the reliability of ratings has been questioned in the light of time gaps with regard to information and a potential lack of independence of rating agencies (principal-agency problem).

As a result, government agencies and donors may have to provide ongoing support for the development of shadow rating agencies so as to enhance the availability of information on the sector and overall transparency. International benchmarking initiatives, such as IBNet managed by the World Bank,[36] may also play a role in this area, provided the coverage and reliability of such instruments can continuously be enhanced.

3.9. Developing "bankable" projects through project preparation facilities

What are project preparation facilities?

Preparing bankable water projects is not an easy task, especially if innovative financial instruments are required in order to improve their bankability. Many governments or water utilities are struggling to mobilise financing and are not necessarily aware of the best ways to reduce interest costs, lengthen tenor or pool small and medium sized towns together in order to access finance. A common phrase in Africa is that "too much money is chasing too few projects", given that a lack of bankable, packaged projects often seems to be the most critical limiting factor for infrastructure investments and particularly in the water and sanitation sector.[37]

To address this issue, project preparation facilities can be set up to support project identification, appraisal and due diligence, and they can even extend to piloting projects and subsequent scaling up. Project preparation and development facilities can help getting a grip on potential earnings streams so as to attract repayable finance of all types.

How have they been used in the water sector?

In recent years, IFIs and donor organisations have created a substantial number of ad-hoc project preparation facilities, which are usually focused on a particular region or sector. A number of these facilities have been used to assist with the preparation of water and wastewater projects. The European institutions have been particularly active in this area in order to accelerate the preparation of projects in former socialist countries in Eastern and Central Europe, the Mediterranean or, more recently, Sub-Saharan Africa.

One of the first such initiatives was the Project Preparation Committee (PPC), which was set up in 1993 under the "Environment for Europe" process to facilitate environmental investment projects in eastern and south-eastern Europe, the Caucasus and Central Asia. The PPC was initially set up as a network of bi-lateral donors, IFIs and partner countries, with a secretariat based at the EBRD. In recognition of the important contribution it had made in the area of environmental financing, the PPC was internalised in 2007 within the EBRD to form the core of a dedicated sustainability initiatives team inside the Bank's Environment and Sustainability Department.[38]

The European Union has later created a number of such facilities to channel financing in former socialist countries, such as the Joint Environment Programme I and II, the Black Sea Investment Facility (BSIF) (which ran from May 2004 to October 2006), the Danube Investment Support Facility (DISF), the Water Investment Support Facility (WISF) (which ran from June 2005 to December 2007) or the Environmental Project Preparation Facility.[39] A review of these facilities managed by the PPC found that such vehicles had made important contributions to promoting IFI investment in environmental infrastructure, particularly through fast and high quality project preparation support activities. Although several of these facilities had initially been set up with a broader remit (including agriculture or solid waste), they have placed a heavy emphasis on water and wastewater services as well as water resource management.

The European Investment Bank has also led on the establishment and management of project preparation facilities which have been active in the water sector. For example, the EIB is managing the Facility for Euro-Mediterranean Investment and Partnership (FEMIP) to support the modernisation and opening-up of Mediterranean countries, which has become a key instrument of EU policy in the region in the framework of the Euro-Mediterranean Partnership.

The FEMIP makes accessible the whole range of EIB instruments, including the financing of up-stream technical assistance or local currency loans to companies and projects that generate no export income. Between 2002 and 2008, the EIB/FEMIP provided EUR 714 millions to the water /

environment sector and EUR 35 million in technical assistance (over 35% of funds available through FEMIP). An appropriate combination of external sources of finance (loans, grants) and donor co-ordination is a prerequisite for obtaining financing under FEMIP.

In addition, with support from the ACP-EU Water Facility (Section 3.1), the ACP-EIB Water Project Preparation Facility (WPPF) was set up to fund technical assistance for project preparation activities in the ACP region. The WPPF has been established for an initial period from 2008 to 2010 with funds of EUR 3 million, of which EUR 2.25 million have been provided by the European Commission (EC) through the ACP-EU Water Facility and EUR 0.75 million by the EIB. The intent is to finance the preparation of at least eight projects in countries with limited project preparation capacities, such as Congo-Brazzaville, Burundi or Niger.

At a more global level, the Technical Assistance Facility (TAF) has been set up under PIDG (Section 3.1) to provide grants to help governments, quasi-governments and private sector entities to access PIDG Facilities, investment vehicles and affiliated programs and has supported the development of a few projects in the water sector.

How can ODA support the development of bankable projects?

Project preparation facilities, on the whole, have enabled the preparation of bankable projects in an accelerated manner and improved the effectiveness of donors' contribution by pooling funds together for support to project preparation. They have been particularly useful in regions where they have been set up to accompany well-defined policies, such as in to support the upgrading of infrastructure in countries candidate for accession into the European Union. In Sub-Saharan Africa, they can be particularly useful to assist countries with limited project preparation capacities to develop projects that can only attract repayable finance if they are combined with innovative approaches to financing, such as blending grants and loans or using guarantees to reduce the risk perception.

Some aspects of their activities have been criticised, however. Grant finance channelled through these facilities has usually been focused on the first step of project preparation, without necessarily providing support for upstream institutional reforms or downstream implementation activities. These facilities are also seen by some as a channel for helping IFIs prepare projects, which should be one of their core activities and therefore amounts to an implicit subsidy for those IFIs. In some cases, their operating timeframe is also too short and would need to be extended to last 3-5 years so as to reflect a typical project cycle.

In future, donors and international organisations can help finance the establishment of more such efforts to prepare projects that they are either willing to finance themselves or to attract market-based repayable financing to (provided projects prepared in such a way can receive funding from a diversity of sources). The establishment of such facilities at the national level could also be encouraged, as it can reduce transaction costs and tie more easily into domestic financial mechanisms, some of which have been outlined in previous sections.

3.10. Summary evaluation

The innovative financial mechanisms that have been outlined in this section are very diverse in terms of objectives and level of complexity. As such, they are not necessarily applicable nor are they suitable to any kind of circumstances. Table 3.3 sets out the contexts in which they would be most applicable and potential limitations on their use.

Table 3.3. **Summary of innovative financial mechanisms: applicability and potential limitations**

Innovative financing instrument	Applicability	Potential limitations
Blending grants and repayable financing can be done: • At project level: a donor takes the lead to define the overall financing package for all sources of finance. ODA grants are provided as interest rate subsidies, seed financing for revolving funds, contribution to setting up project preparation facilities… • Via dedicated institutions in charge of attracting repayable financing by blending funds (which can be set up at international or national levels).	• Applicable in all contexts where an element of subsidy is required to maintain tariffs at an affordable level.	• At project level: requires a donor willing to take the lead to identify financing requirements beyond what it is likely to finance itself • At institutional level: dedicated institutions may be difficult and costly to set-up. It requires strong institution-building capacities and a conducive legal and political system at country level.
Microfinance: loans for water and sanitation investment, either to households, small and medium enterprises or for urban upgrading and shared facilities	• Well-suited to small investments, where the commercial banking sector is weak or underdeveloped (i.e. rural areas).	• Not well-suited to support large investments with long payback period • Need for strong MFIs already in place which are willing to diversify into water and sanitation

Table 3.3. **Summary of innovative financial mechanisms: applicability and potential limitations** *(continued)*

Innovative financing instrument	Applicability	Potential limitations
Output-based aid (OBA): the provision of subsidies after the output has been provided, as a way to leverage repayable finance	• Well-suited in countries where water sector entrepreneurs are willing and able to take the pre-financing risk • High transaction costs for pilot transaction; can partly be overcome by setting up dedicated facilities at national level	• Does not overcome the need for pre-financing for SSWSP; it may be better combined with other forms of finance to assist with pre-financing needs • Setting up dedicated institutions may be a lengthy and costly exercise
Guarantees and insurance products can be used to improve the terms of commercial debt (extending tenor and reducing interest rates) or attracting equity investors.	• May be most beneficial for borrowers that are just below credit-worthiness to help them access capital markets for the first time • Creation of domestic guarantee facilities can reduce transaction costs (as opposed to IFIs providing guarantees on a case-by-case basis)	• Only applicable in countries with functioning capital markets • Underlying projects must be bankable or entities receiving finance must be creditworthy in the eyes of their guarantors • Sovereign guarantees may still be required (and may be difficult to obtain) • Domestic institutions providing local-currency guarantees may be difficult and costly to set up.
Grouped financing vehicles can help finance a large number of small projects and facilitate access to credit enhancement mechanisms, such as guarantees, for the group as a whole	• Well-suited for financing decentralised water providers operating at a small scale	• Mostly applicable to countries with fairly well-developed capital markets • Legal system needs to allow some of their attractive features (such as tax-exemptions and bond "wrapping")
Direct lending to sub-sovereigns, when multilaterals agree to lend to sub-sovereigns without the need for a counterguarantee	• Well-suited to financing decentralised water providers • Can help build a sound credit history for local borrowers, who can then tap sources of repayable finance (loans and equity)	• Many donors are not currently allowed to lend at sub-sovereign level without a sovereign guarantee • Domestic governments may be reluctant to allow their sub-sovereigns to borrow to avoid breaking overall credit limits

Table 3.3. **Summary of innovative financial mechanisms: applicability and potential limitations** *(continued)*

Innovative financing instrument	Applicability	Potential limitations
Raising equity via financial markets, from the public sector or directly via private equity	• Can help strengthen the balance sheet of water service providers that are already in relatively good financial health. • Can increase transparency and help build a sound track-record to mobilise other financing	• Requires fairly developed capital markets and clear accountancy rules that are consistently applied
Credit ratings assigned to a borrower or to a particular bond issue	• Can enhance investors' confidence in the investment, as it demonstrates that the borrowing entity has complied with good book-keeping and transparency requirements	• Requires existing credit rating agencies willing to assign ratings to the issues • The credibility of credit rating systems has been affected by the financial crisis
Project preparation facilities can support project identification, appraisal and due diligence as well as pilot projects and subsequent scaling-up	• Can be useful to support specific processes, such as upgrading of infrastructure in preparation for accession to the EU • Can be useful to assist countries with limited project preparation capacities	• Does not guarantee access to repayable financing for the project (and is more likely to lead to concessionary financing rather than market-based repayable financing)

Notes

1. Winpenny, J. (2003).
2. Interview with José Frade, Head of Water and Sanitation Division, European Investment Bank, January 2009.
3. See: *www.flag-bg.com/?l=2*.
4. OECD (2009a). The fund was launched in October 2008, i.e. in the midst of the financial crisis. Revolving funds are discussed in more details in Section 3.5.
5. Gruppo SOGES.
6. See: *www.pidg.org/*.
7. CEPA (2008).
8. Mehta, M. (2008). This section draws heavily on the findings of this study, which is the first detailed review of the prevalence of micro-finance in the water and sanitation sectors.
9. Note that the revolving fund concept has also been used at a broader scale in the water sector, as described in Section 3.4.
10. This innovative mechanism was introduced by the World Bank in 2002 and led to the establishment of the Global Partnership on Output-Based Aid (GPOBA) in January 2003. GPOBA is a donor-funded pilot program to test the approach with a view to mainstreaming it within IDA as well as with other development partners.
11. Marin, P. (2002).
12. GPOBA/IDA-IFC Secretariat (2009).
13. By contrast, the review found that the OBA approach had become "mainstreamed" as one of the key modus operandi for interventions in the telecommunication and road sectors.
14. Trémolet, S. with Perez, E. and Koslky, P. (2010).
15. Trémolet, S., (2006).
16. GPOBA/IDA-IFC Secretariat (2009).

17. Mandri-Perrott, C., M. Schiffler and A. Aguilera (2009).

18. Matsukawa, T. and O. Habeck, (2007).

19. Box 1.2. on the role that monoline insurers played in enabling access to a broader class of bond investors by a broader class of water companies in England and Wales. Their capacity to provide insurance has been greatly reduced following the financial crisis, however, as described in Chapter 4.

20. See: *www.usaid.gov/our_work/economic_growth_and_trade/development_credit/* for more information.

21. Based on interview with World Bank Treasury staff. Additional information can be found on: *http://siteresources.worldbank.org/INTGUARANTEES/Resources/Overview_of_the_World_Bank_Guarantee_Program.pdf.*

22. Based on an interview with Judith Pearce and Elena Palei at MIGA.

23. A global guarantee facility, GuarantCo, has been set up under the Project Infrastructure Development Group (PIDG) to enhance local currency debt issuance by private, municipal and parastatal entities for infrastructure projects in lower income countries around the world and help match the demand for local medium and long-term funding. Although the water sector is potentially targeted, however, so far this facility has only provided guarantees in the transport, telecommunications and industrial infrastructure sectors. See: *www.guarantco.com* and Section 3.9.

24. The revolving fund structure is used in other sectors in the United States, such as to finance small preservation projects for historical monuments or neighbourhoods.

25. For example, the AFD (Agence Française de Développement) has identified a gap in financing for small towns which cannot mobilise local commercial bank financing or international funds due to the foreign exchange risk.

26. Global Water Intelligence (2006).

27. EBRD and the Financing of the Municipal Sector, CS-EBRD Roundtable Seminar, 10 February 2009.

28. Pinsent Masons (2007).

29. Although the company was initially intending to release issue shares for the first time on the local stock market via an IPO, they have indefinitely postponed it due to the ongoing financial crisis (Section 4.1.4).

30. See: *www.ifc.org/ifcext/infrastructure.nsf/Content/WaterGas*.

31. See: *www.defaultrisk.com/rating_agencies.htm*.

32. Global Water Intelligence (2008a).

33. CEPA (2008).

34. Trémolet, S. (2009).

35. Global Credit Rating Co. (2008). The seven utilities included 5 service providers (NCWSC in Kenya, NWSC in Uganda, ONEA in Burkina Faso, SDE in Senegal and SONEDE in Tunisia) and 2 asset holding companies (AWSB in Kenya and SONES in Senegal).

36. See: *www.ib-net.org*.

37. Winpenny, J. (2008).

38. See: *www.ebrd.org*.

39. See: *www.rec.org/REC/Programs/REREP/PEIP/docs/4th_regional_meeting/l4_davies_ebrd_ppc.ppt*.

Chapter 4

Assessing the impact of the global financial crisis

This chapter looks at the potential effects of the global financial crisis on the availability of market-based repayable finance for the water sector and at the impact of the ensuing economic crisis on overall sector financing from the 3Ts.[1]

The global financial crisis, which was triggered by defaults in the US subprime mortgage sector in August 2007, has since spread to all areas of the global economy, affecting real and financial sectors alike. The age of cheap and plentiful credit enhanced by high levels of leverage abruptly came to a halt. In the medium term, the cost of debt is likely to be higher and demand for risk exposure of any kind reduced, which means that sources of market-based repayable finance for the sector may be severely curtailed. The financial crisis has also extended to the real economy, meaning that revenues for water companies from the 3Ts are likely to be affected. Governments' stimulus packages, which partly focus on green investments (including water and wastewater) and co-ordinated responses from IFIs and donors mean that the worst impacts from the crisis may be mitigated. Overall, the water sector may fare comparatively better than other sectors and could emerge from the crisis with a stronger ability to attract financing, including market-based repayable finance, once liquidity starts flowing again. Such positive development can only materialise if long-term sector reforms are continued so that the sector can be perceived as low-risk with steady returns.

Section 4.1 examines the potential impact of the crisis by source of repayable finance. This section shows that debt finance has become substantially more expensive especially at higher levels of risk, with particularly severe impacts on water financing for non-OECD countries and sub-sovereign entities. Numerous project finance deals have been put on hold or indefinitely postponed whilst water stock equity valuations have taken a beating, thereby substantially reducing institutional investors' appetite for water sector investments. Section 4.2 looks at the impact on revenues from the 3Ts to fill the financing gap and whether these could provide a stronger basis to attract

repayable finance in future. Finally, Section 4.3 draws out an overall assessment of the new global context for financing water and sanitation investments going forward.

4.1. Potential impact on market-based repayable finance

This section reviews the likely impact of the crisis on each main source of market-based repayable finance and the implications for the use of a number of financial innovations, such as the use of government guarantees or "bond wrapping" from private insurers to offer a higher credit rating than would otherwise be available (Box 1.2). The precise impact of the financial crisis is somewhat difficult to predict, especially as the market conditions are continuously evolving with timid signs of a recovery emerging in the second quarter of 2009.

4.1.1. Bank Finance (commercial loans)

The revaluation of risk that has taken place during the financial crisis led to dramatic increases in the cost of commercial debt finance, a focus on higher quality debt and shorter tenure arrangements. Numerous banks have been forced to de-leverage, which has reduced the overall availability of debt financing. Despite several rounds of governmental rescue plans for the financial sector, banks remain reluctant to lend, except at much higher rates.

In developed markets, interest rates on loans have risen substantially from their early 2007 levels in the wake of the financial crisis. According to data from Dealogic, before the crisis, companies offering security equivalent to an A rating were able to obtain loans at next to no premium compared to interbank rates. These premiums had risen to 120 to 130 basis points (1.2 to 1.3%) for A rate equivalent companies and 130 to 200 basis points for BBB rate equivalents by early January 2009.

These increases have been felt particularly in countries with less developed bond markets, where bank loans play a comparatively more important role in infrastructure funding. In early 2009, the World Bank[2] pointed to a severe contraction in bank lending in developing countries, with the 12-month average in August 2008 down to USD 20 billion from USD 32 billion in August 2007. Where loans are still available they are only offered on a short term basis, increasing refinancing risk. This suggests that private loan finance is currently not in a position to provide meaningful support to investments in developing country water services.

Impact on the potential for innovation

Sovereign guarantees are no longer a panacea. The protection offered by sovereign guarantees in developing countries, which had previously been seen as a critical way to improve rating and lower the cost of finance (Section 3.3), has been called into question by the financial crisis via the deterioration in the financial profile of government entities. For example, in December 2008, Fitch downgraded 18 banks in the Middle East including two ultimately backed by the Government of Dubai, as the latter was itself running into financial difficulties, partly due to the burst of the real estate bubble.[3]

Microfinance institutions have suffered (albeit somewhat less than traditional banks) and maybe less willing to diversify into water and sanitation. With respect to micro-finance, there are differences in opinion regarding how the financial crisis is likely to impact the availability of funds for microfinance institutions (MFIs) and in particular, their willingness to offer microfinance products for water and sanitation investments (Section 3.1). Some institutions, like Fitch Ratings, state that it will be difficult for the sector to remain immune from the global financial crisis, particularly due to its effects on the real economy. Fitch expects the impact of the global financial crisis on the microfinance sector to be two-fold: a funding or liquidity impact, which increases levels of refinancing risks for microfinance institutions (MFIs), particularly for non-deposit taking MFIs dependent on local or international wholesale funding; and an economic impact, with financial performance affected by lower lending volumes, increased costs of funding, tighter net interest margins, higher rates of default due to increased poverty rates and higher volatility in foreign exchange losses/gains. In a recently published report, Fitch says the current crisis is exposing some MFIs as they have increasingly converged with the mainstream banking sector over the recent years. Other institutions argue that, whilst the global financial crisis has led to a significant decrease in international capital available to the microfinance sector, microfinance may be less adversely affected than other sectors given that MFIs have been much less inclined to leverage their balance sheets in a risky manner as practiced by traditional lending institutions.

In the context of the crisis, MFIs are reacting in several ways, such as increasing interest rates, scaling back expansion plans, and/or seeking to expand their equity base. MFIs will need to improve their operating discipline, and ensure that their infrastructure (enterprise risk management systems, internal controls, management capabilities, and so on) is enhanced to meet the demands of future expansion. In such a context, their willingness to enter relatively new areas, such as lending for water and sanitation investments with no direct income-generation potential, may be dampened.

4.1.2. Bond Finance

Debt financing via bonds has also been negatively affected by the financial crisis, although a number of high-profile issuances show that investors still have appetite for strong names in the sector.

Corporate Bonds

In the wake of the subprime crisis, corporate bond markets in developed countries were virtually closed in early 2008. Since that time, however, investment grade debt is now widely available again, although at a substantially higher cost. Such cost increases are well demonstrated by the experience of United Utilities (UU), a UK water company. For abond issue in December 2008, UU had to pay a 2.95% premium above the yield of a UK government bond while four years ago a similar bond sold at a 0.5% premium. This difference is indicative of the increases in the cost of debt for utilities issuing at low investment grade ratings. In the Eurozone, the spread between the yield of BBB bonds (a rating common amongst water companies) and the yield of government bonds rose from an average of 100 basis points between 2003 and mid 2007 to over 500 basis points in January 2009.

In the spring of 2009, there were signs that corporate bond issuance was picking up and that strong credits are finding it easier to attract investors. For example, Suez Environnement, a leading French water company, placed a EUR 1.8 billion dual tranche bond issue in the market in late March 2009 at a slightly lower cost than originally expected due to overwhelming demand. With an A3 credit rating from Moody's, the company had to pay a premium of 225 basis points on the 5-year tranche and 300 bps on the 10-year tranche. The two tranches also allowed the company to extend the average maturity of its overall debt portfolio from 3.61 to 4.48 years.[4]

In developing countries, the cost of corporate bonds also went up sharply. JP Morgan's CEMBI index (which covers mainly investment grade issues in middle income countries) broke the 1 000 basis points over US treasury bills mark in November 2008, up from 150 bps in August 2007. These enormous costs of borrowing led to a steep fall in bond issuance, which was down to USD 5 billion for the year from August 2007 to August 2008, compared to USD 13 billion for the previous year, and it was likely to fall further according to the World Bank.[5]

While there is no specific information on the performance of water bonds, experience suggests that the rating grade is the key determining factor for the cost of borrowing rather than the sector (bearing in mind, of course, that the rating is set based on the financial performance of the borrower). The example of Manila Water's bond issue, which was over-subscribed even

though it was launched in the midst of the financial crisis, shows that debt remains available even in less developed markets for companies that manage to maintain a strong credit rating.[6]

However, the Manila bond does remain the exception rather than the rule for non-OECD countries. Any corporate issuer below investment grade rating is likely to find it extremely difficult to raise funds at all even in developed countries. Since July 2007, activity in the high yield debt market (i.e. for borrowers with a low credit rating) has been almost non-existent. As of March 2009, there had been no high yield issuance from water sector issuers since the Brasilian water company SABESP issued BB-rated bonds in 2006.

Box 4.1. **Manila Water bond issue in the Philippines: optimism in the eye of the financial storm**

Manila Water Company was formed in 1997 (through a consortium led by the Ayala Group, a Philippines conglomerate) and operates the East Zone Concession in Manila for water and wastewater. In October 2008, in the midst of the financial crisis, Manila Water issued over USD 62 million worth of 5-year fixed rate peso-denominated bonds with a coupon of 8.25%. A few days later, the company announced the issue was oversubscribed and exercised its options to increase the offer to the maximum of PHP 4 billion (over USD 82 million). Investors considered Manila Water as a quality and secure investment. Credit rating agency Philippine Rating Services (PRS) gave its highest rating (Aaa) to Manila Water's bond issue. This is partly because, as a water and sanitation provider, Manila Water is engaged in a basic and necessary service. Manila Water's key strengths also include strong shareholder backing, solid earnings and cash flow generation, a sustainable regulatory framework, and good management. International financing institutions such as the International Finance Corporation, European Investment Bank and DEG (Germany) are all current lenders of the company.[7]

Such bond issue was considered an achievement in difficult conditions, and even more so when considering that the investors priced Manila Water credit at only 100bps more than 5 year Philippines Government peso-denominated bonds. Manila Water likely benefited from a liquid local market. In September 2008, approximately Php516 billion (USD 10 billion) was invested in Special Deposit Accounts (SDA), which are low risk investments products with the Philippines Central Bank. With the Manila Water bonds issue having the highest rating from the Philippines Rating Services corporation ("PRS Aaa") and a higher return than the Special Deposit Accounts, the bonds were an alternative for investors with excess liquidity. In the wake of the financial crisis, however, the Manila regulator cancelled a tariff increase, although the concessionaires are hoping to get their money back through an extension of their concessions. Negotiations are currently ongoing.

Sources: Manila Water, *www.manilawater.com*; *The Philippines Star*, *www.philstar.com/Article.aspx?articleid=407017*; Asian Development Bank, *http://asianbondsonline.adb.org/philippines/philippines.php.*

Sub sovereign debt

The conditions in the municipal bond market are not very favourable either. In the United States, where municipal bonds have made a significant contribution to financing the water and wastewater sector (Box 2.1), the financial crisis has seriously impacted municipal bond markets as a source of finance. Municipal-debt issuance was down sharply in 2008, particularly during the last months, as the credit crunch led to higher interest rates and reduced investors' interest. Municipalities issued about 9% less bonds in 2008 compared with 2007 and about 40% less in the September to December 2008 period. For example, in mid October 2008, the Clark County Water Reclamation District in Nevada delayed a planned USD 250 million bond issue to fund expansion of the district's wastewater treatment facilities and repair its collection system. The district cited bad market conditions. Two weeks later it returned to the market but for slightly less than half the forecasted amount.

This decline is partly due to the fact that the credibility of credit rating agencies has been questioned and that monoline insurers, which provided insurance to improve the rating of municipal bonds (Box 2.1) have been downgraded to near junk status. As a result, highly rated municipal bonds have somewhat lost their attractiveness for cautious investors, making it difficult for US municipalities to raise the budgeted funds. For example, in January 2008, Fitch Ratings (and later Moody's) reduced the credit rating of Ambac Financial Group Inc, a major monoline insurer, from AAA to AA. This downgrade triggered a simultaneous downgrade of bonds for over 100 000 municipalities and institutions totaling more than USD 500 billion. Consequently, many bondholders sought to sell bonds insured by companies that had recently been downgraded or that may be soon. Such events in the municipal bond markets have created unanticipated hardships for municipal issuers and increased their borrowing costs. Despite these troubles, municipal bond defaults had remained an extremely rare occurrence as of February 2009.

In most less developed markets, municipal bonds were not available even before the onset of the crisis due to poor creditworthiness and transparency of those entities (Section 2.2.2). Where they are available, costs have risen starkly. For example, in December 2008, Indian municipal bonds were paying coupons of 10.5 to 11.5%. This led stronger companies to look outside of the municipal market and to issue corporate bonds instead because the cost of these had increased less strongly.[8]

Impact on the potential for innovation

The rating agency downgrade of large financial insurance companies such as Ambac and MBIA to near junk status[9] and the discrediting of securitisation given its role in exacerbating the banking crisis have led to a reduction in the scope of bond instruments available. Index-linked debt, which has been an important way of lowering the cost of capital in England and Wales (Box 1.2), is much harder to issue without backing by a monoline insurer, as the swap market in this area has few players. This has reduced the volume of index-linked debt issued by non government-backed entities dramatically.

The unavailability of financial insurance has also made "wrapping" bonds, the practice of improving credit ratings through financial insurance which was extensively used in the US and UK markets (Boxes 1.2 and 2.1) unavailable. This has led to an increase in costs as notionally wrapped bonds are now valued based on the underlying collateral with the wrapping effectively discounted.[10]

4.1.3. Project finance

Project finance has largely run aground in the wake of the financial crisis. Compared to 2007, a large number of financial institutions are now unwilling to lend to project finance deals, which has significantly reduced the availability of finance to these arrangements. With water companies in no position to commit a substantial amount of equity, project financing structures have required a re-think. These have forced a number of ongoing projects to seek medium term bridging loans at much higher margins than originally envisaged.

For example, Abu Dhabi's Shuweihat development and Bahrain's Ad Dur project were amongst the worst affected, at least initially.[11] These projects had to readjust their banking consortia by entering into much less favourable shorter term borrowing structures as "bridge loans", in the hope that market conditions would improve in the meantime so that they could then provide longer term financing at better terms. In both cases, financial closure was only possible with the entry of a sovereign bank. The Ad Dur project is now backed by the US ExIm Bank and a consortium of Islamic banks and was due to reach financial close with a slight over-subscription in June 2009.[12] In the case of Shuweihat, a Japanese consortium that had lost the initial competition was brought back in after the original winner had failed to secure financing, as the Japanese consortium had financial backing from JBIC, the Japanese development finance institution. A number of other projects have been affected by the turmoil with many private project finance undertakings now involving either direct financing by a state-backed bank or at the very least some form of guarantee.

4.1.4. Equity finance

As with debt finance, equity financing is more difficult to obtain in the midst of the financial crisis. Across all developed markets, the equity risk premium (ERP) (compared to risk-free investments) has gone up, making any attempts to raise new equity more expensive. UBS's estimates of the European ERP topped 10% recently from about 7% for most of 2007/08. Equity markets in emerging markets are usually less well developed, which means that ERP figures are not as easily available. It is safe to expect that equity premiums will have risen by at least the same magnitude. The next two sections look at the effect of the credit crunch on the equity side of listed and privately-held water companies.

Listed water companies

The financial crisis has affected listed water companies heavily, at least initially. A weighted index of Asian water stocks was down 47.5% at the end of 2008 compared to its January 2008 value. American water stocks lost 5% of their value during the same period while European water stocks were down between 30 and 90% throughout 2008. Market leader Veolia lost 64% of its value during 2008 after issuing two profit warnings. There was little hope of topping up depleted capital reserves with IPOs for water companies virtually disappearing. Amongst others, water American Water Works (US), Nova Cerae (Brazil) and Maynilad (Philippines) had to postpone their Initial Public Offerings (IPOs) due to the adverse market conditions.[13]

Although equity valuations had fallen substantially, there were next to no share buy backs in 2008 suggesting that no water company was in a position where it would like to forego cash. A number of projects in the Middle East failed to close financing because the project developer's stock value has been hit to a degree that did not allow it to raise the required levels of capital.

In early 2009, equity valuations have bounced back substantially however. The GWI Water Index, which tracks major water stocks around the globe, was up 7.7% in May 2009, with Veolia regaining a large percentage of earlier losses for example (up 30% during that month).[14]

Privately held water companies

At present, private equity companies are less interested in f water companies due to the severe damage they suffered in the second half of 2008. Consultancy firm McKinsey reports[15] that, overall, volumes of private equity deals fell by about 72% from the levels of 2007 with for example the German market shrinking by 88% in volume of deals done between the third and fourth quarter. Activity in the water sector is likely to have been affected in

similar proportion, although the sector is not liquid enough to provide meaningful sector figures (even in the "good times", there were some periods with no private equity activity at all in the water sector).

Moreover, due to limited amounts of leverage, the size of deals has shrunk substantially with the large end of the private equity market (>USD 10 billion) not registering any deals. Thus, only few deals done in 2008 were in the range that would be reached in a sale of a medium sized English water and sewerage company (WaSC) and none in the range of a large WaSC. With leverage forecast to remain low in the near future, private equity only seems to be a viable option for smaller entities rather than those covering full utility operations on a regional scale since no potential buyer would be able to raise the debt required to buy a large entity.

Infrastructure funds, pioneered by Macquarie and Babcock Brown, are a fairly recent addition to equity investors in water companies. They remain active in the water sector as evidenced by Santander's USD 300 million takeover of Chile's Aguas Nuevas in January 2009 although established firms Macquarie and Babcock & Brown lost over 40% of their share prices and saw assets under management diminished in 2008. UBS raised more than USD 1.5 billion for a new long-term infrastructure investment fund in a move that underlines the sector's relative resilience to the financial crisis. Due to the crisis, the fund is to focus on established infrastructure in stable, well-developed countries and has already taken a stake in UK-based Southern Water.

Pension funds have also been interested in the water sector and remain so as the long time horizons and stable revenues match their future liability profiles. However, large losses on their underlying assets (for example, -34% on Irish funds and -13% on UK funds with US funds posting their worst month for at least eight years in October 2008) have reduced their ability to invest in infrastructure. Given the magnitude of these losses, they may be required to shift out of infrastructure even if infrastructure is performing well in order not to break their portfolio diversification requirements. On the other hand, the Chinese government is rumored to put pressure on local pension funds to increase exposure to prop up ailing infrastructure projects.[16]

On the whole, availability of market-based repayable finance has been negatively affected by the financial crisis and the potential to rely on certain financial innovations seriously dented. This trend has to be placed in the broader context of the overall availability of finance to the sector, however, so as to assess the likely impact on investments going forward.

4.2. Potential impact on the 3Ts

As mentioned in Box 1.1, revenues to fill the financing gap in the water sector can come from three main sources, including tariffs, taxes and transfers. The financial crisis and its subsequent impact on the broader economy is likely to impact the availability of such funds in different ways.

4.2.1. Tariff revenues are likely to remain low

The financial crisis is likely to affect the ability for water companies to raise tariffs in two main ways, through a hardening of affordability constraints and a possible increased political reluctance to increase tariffs to sustainable cost recovery levels.

The affordability constraint will be particularly felt in developing countries and low income countries. Although the latter initially appeared to be shielded from the sudden stop in private capital flows, they are now affected as the financial crisis spread to the real economy, with a reduced demand for traded goods (including agricultural products and raw materials), a decrease in foreign worker remittances and the aftermath of the energy and the food crisis. According to World Bank estimates, "the global crisis will result in 53 million more people living in extreme poverty (below USD 1.25 a day) in 2009 or 65 million people more if a threshold of USD 2 is used". This is likely to increase revenue risk for water service providers and their financiers (particularly with respect to micro-lenders, who are directly exposed). In developed countries, household incomes are also stretched and consideration will need to be given for people on low income, whose homes have been repossessed or with special needs who face increases in the cost of their utility bills and other costs in general.

Governments may also be more reluctant to allow necessary tariff increases as such increases would negatively affect their popularity at times when they are already struggling to maintain their legitimacy.

4.2.2. Tax transfers to surge only where stimulus packages target water

The financial crisis is likely to have a two-pronged effect on government transfers to the water sector. A potentially negative impact is that, during times of crisis, there are many competing demands for limited public funds. Substantial public borrowing is likely to exacerbate the pressure on non-sovereign borrowers, through a "crowding-out" effect, making it even harder for them to borrow at acceptable rates. On the other hand, several governments have responded to the crisis by unveiling substantial stimulus packages

which could benefit the water sector. Following the lead of the United States and China, many of these stimulus packages include measures to "green the economy" (such as the "Green New Deal" announced in South Korea) and, in some cases, investments in water and wastewater. The two aspects are closely linked: it is only if governments are able to borrow that they can choose to invest in the water sector. Governments in developing countries are less likely to be able to do so and may be tempted to make "temporary" cuts in water and wastewater investments so as to reallocate those resources to other sectors, with potentially long-term damaging impacts.

Potentially negative impacts: increase in government borrowing and risk of crowding out. The need for large scale government involvement in support of ailing economic sectors, ranging from financial services to the automotive industry, has led to massive increases in public borrowing. Government borrowing in many countries is up to levels not seen in 20 years and projected to be at close to 14% of GDP in the US and 12% in the UK.[17] Currently, sharp drops in central banks' reference rates and the unattractiveness of risky private debt means that interest rates on government bonds are low, allowing cheap financing. However, evidence from the bond markets also suggests that raising the funds committed through government borrowing may be substantially more difficult in the future. The FT reports that a number of governments, including Germany and the UK are struggling to meet their bond auction targets.[18] This indicates that the cost of government borrowing could rise in the near future, which would in turn lead to cut backs in the availability of funding. In May 2009, Standard & Poor's expressed alarm about the UK's budget deficit and switched its outlook from "stable" to "negative", outlining that the country could effectively lose its AAA-rating.

The situation in developing countries is likely to be even more precarious. Government balance sheets are generally weaker allowing less scope for borrowing. Analysis of JP Morgan's EMBIG index of developing country sovereign debt shows an increase in spreads against US treasury bills of 500 basis points to 700 bps indicating that the cost of borrowing has already risen substantially. Given that demand for government bonds remains strong, this may crowd out other issuers looking for finance, possibly increasing the cost of sub-sovereign and corporate debt even further.

Potentially positive: in certain countries, the water sector will receive substantial investments through governments' stimulus packages. The advent of large scale stimulus programmes in all leading economies and the explicit emphasis placed on infrastructure have increased hopes that cheap government funding may be increasingly available to the water sector.

In high-income countries, according to a World Bank estimate, infrastructure spending was going to account for between 22 and 26% of the total stimulus packages on average.[19] Out of the total infrastructure spend,

the share of the water sector was relatively modest however. For example, the stimulus plan by the US government involves USD 4 billion for the state water revolving fund and a further USD 2 billion for water projects,[20] which are substantial amounts but accounted for less than 1% of the overall package (USD 787 billion). Besides, there are real concerns about how these substantial amounts are going to be spent, given the bias towards "shovel-ready" projects that can quickly be implemented and are not necessarily compatible with sound planning practices.

In emerging market countries, infrastructure investment accounted for a much higher proportion of the total stimulus packages, with 64% on average.[21] In China, for example, the central government has reacted to the global economic crisis by announcing a massive fiscal stimulus package of which 88% is to be focused on infrastructure investment. The total programme amounts to about RMB 4 trillion over two years (USD 586 billion), with approximately 25% directed towards environmental projects. Within this category, the central government identified improvements in rural drinking water quality and rolling out wastewater treatment in towns as particular priorities, with USD 13 billion to be injected into the wastewater industry alone during the 2009/2010 financial year.[22] However, one side-effect of such a massive cash injection (from the government as well as state banks and state-owned firms) is that private investments have been put on hold as local governments are expecting public funds from the central government. The move towards government funding has been mirrored by a similar move in other emerging economies, with large countries such as India, Brazil and Mexico all committing large amounts of funds to the water sector.[23] In the latter two cases, the stimulus has been accompanied by initiatives to re-structure the sector.

By contrast, other countries, especially developing ones, have not been able to allocate funds to the water sector and have in fact cut investments as a way to cope with the short-term impact of the crisis. For example, Kazakhstan has cut water infrastructure spending citing the financial crisis as the reason.[24] According to Ooska news, Egypt is also planning to cut the budget allocated to sanitary sewer projects from USD 2.8 billion in 2008-2009 to USD 781 million in the following fiscal year, "as a result of the decline in the Egypt's national income due to the current global financial crisis".[25] According to the World Bank, "experience from previous crises (such as the 1997 Asian crisis) has shown that infrastructure investments often bear the brunt of shrinking public expenditure at the national and subnational levels. For the poorest countries, sustainable and predictable flows of government funds to the water sector to finance investments are therefore unlikely to be forthcoming until the recession is over. Reduced funding for infrastructure, while expedient in the short run, can be particularly detrimental in the longer term however, as infrastructure services are key drivers of sustained economic growth and poverty alleviation".[26]

4.2.3. International transfers will increasingly be needed to fill the gap

Given the trends outlined above, it is likely that international transfers from IFIs, bilateral donors and charitable organisations will increasingly be needed to fill the financing gap in the water sector and to enable the continued provision of market-based repayable financing. The example of the Shuweihat project in Abu Dhabi, which is going ahead thanks to the support of the Japanese Bank for International Cooperation (JBIC), points to the fact that such lenders are likely to take an increasingly important role in providing repayable financing that can trigger a market response. Going forward, IFIs may also need to play a more important role by taking the place of financial insurers in enhancing credit quality by guaranteeing bonds and loans to reopen the debt market to higher risk borrowers.

The critical question is whether IFIs are going to be willing and able to do so. There are no confirmed figures as yet as to how the financial crisis will affect official development aid. Previous crises have usually seen official development assistance fall, as it tends to be the easiest budget item to cut in times of fiscal tightening. Research by UNICEF and Fordham University found that, for example, US ODA has historically fallen during financial crises.[27] Aware of this potential risk, Governments have committed at the G20 in London and other meetings that they would not reduce aid and instead seek to increase aid flows in order to help the poorest countries deal with the impacts of the global crisis.

On the lending front, some IFIs such as the EBRD or the EIB have seen a growing demand for their services and products, especially as the competition from commercial banks has reduced. It should be noted, however, that such IFIs have to finance their loans through the capital markets and that their own borrowing costs have increased in line with the market.

Members of the World Bank Group have expanded their lending facilities as a response to the crisis and have set up specific facilities to address what they identified as the sectors most at risk. For example, learning from the experience of the Asian crisis in 1997, the World Bank has identified the need to maintain long-term infrastructure investment programs as critical in order to minimise the long-term impact of the current slowdown. In response to this, they have set up a 3-year Infrastructure Recovery and Assets (INFRA) platform, which aims to support adequate infrastructure provision in IDA and IBRD countries during and after the crisis. Its proposed activities include stabilizing existing infrastructure assets by providing funding to infrastructure projects that face temporary liquidity problems, to ensure delivery of projects that are government priority by providing additional financing for infrastructure investments, sub-national lending and technical assistance. Although a large emphasis is placed on energy efficiency and green investments, a

portion of these funds and services is likely to be made available to the water and sanitation sectors.

To support local banking sectors and small scale lending, the International Finance Corporation (IFC) and the German development bank KfW have established the Microfinance Enhancement Facility, which is expected to provide refinancing to more than 100 microfinance institutions in up to 40 countries. It will support lending to as many as 60 million low-income borrowers in many of the world's poorest countries. This could also potentially benefit micro-finance activities in water.

4.3. In sum: glimmers of hope after the drought?

In summary, the financial crisis has affected all major means of financing water projects. Debt financing has become more expensive across the board. The magnitude of the increases has been larger for bank debt compared to bond debt. Bond markets remain open in principle as shown by new issues by UK water companies although they require higher premiums and a strong credit rating. This negatively affects projects in areas with high country-specific risk and sub-sovereign issuers.

Project finance deals based on high debt levels granted to off-balance sheet special vehicles are no longer feasible, particularly in countries considered to be risky. New project finance structures will need to involve co-operation with sovereign-backed banks and will often require bridging loans at less favourable conditions. Equity valuations of water companies have also fallen substantially (although they have partially recovered most recently), while the financial health of possible investors such as private equity funds is in doubt. However, pension funds and infrastructure funds remain in a comparatively healthy position to invest in water companies where stability can be guaranteed and are likely to be attracted to the sector as it provides opportunities for long term investments.

This new situation following the crisis will require re-thinking the way in which the water sector is financed. Key features of a new financing strategy will likely have to involve:

- Some deleveraging in developed markets will be required to maintain strong credit quality, which is increasingly important for accessing bond markets;
- Access to debt through bond markets is less likely to be available for smaller companies. This may lead to consolidation or pooled financing to ensure continued finance ability;

- Given many other priorities placed on government funding, it will become much harder for municipal water companies to raise the required funds while capital expenditure requirements in the water sectors around the world remain large;
- There are signs that governments will not be able to provide the required financing in all countries because their balance sheets are weak. In these cases, relying on private access to finance may be a solution as large, high credit quality corporate borrowers generally retain access to funds;
- To improve availability of credit, revive project finance deals or encourage investment by equity funds in emerging markets, the devaluation risk may have to be recognised and insurance will have to be given. This could either take the form of a devaluation backstop facility provided by governments or IFIs or an increase in local currency financing;
- IFIs could take the place of monoline insurers to provide (partial) credit guarantees that could improve loan and bond terms for water companies otherwise struggling to obtain adequate financing. It is also possible to think of IFIs as providers of "bond wrapping" in a structure similar to the UK Artesian loan that improves debt market conditions for small water companies;
- Project finance may have to be rethought completely as existing financing structures have become unsustainable. In the future ODA providers and IFIs may look to catalyse local investment by providing co-financing including partial grants.

Where the above instruments can be implemented, the water sector may be able to emerge strengthened from the crisis. The trade press generally leans towards a relatively optimistic view. A water newsletter recently estimated that *"*while the looming prospect of a prolonged global economic downturn may delay many infrastructure projects for years, one type of investment will likely prove to be immune from even the bleakest economic environments – water.*"*[28]

This assessment relies on two types of factors. On the one hand, investment needs in the water sector are simply not going to go away. Where investment is crucial, governments do tend to find the money, as witnessed in the case of the development of Australian desalination capacity.[29] Second, the underlying economic profile of the sector could be well-suited to the current economic environment, where emphasis is placed on identifying low risk and steady returns projects and investments rather than on maximizing returns by taking on substantial amounts of risk. A key risk that has traditionally been difficult to manage is the currency risk, and the current crisis has actually

increased currency volatility. However, with domestic investors and operators gaining in prominence and experience, the latter may be able to gain access to finance whilst keeping the currency risk down.

In sum, the impact of the financial crisis on financing water investments will differ from country to country. How well an individual country's water sector can cope with changes to financing conditions will depend heavily on the current financing structure, the degree to which tariffs cover costs and the country's fiscal and debt position, which will also determine the size of a possible stimulus package.

Notes

1. This section of the report analyses the impact of the financial crisis up to spring 2009. Although the general trends have remained the same, market evolutions since that period have not been taken into account.
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Further reading

Managing Water for All (2009)

Private Sector Participation in Water Infrastructure: OECD Checklist for Public Action (2009)

Social Issues in the Provision and Pricing of Water Services (2003)

The Price of Water: Trends in OECD Countries (1999)

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