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Financing Water Supply and Sanitation Investments: Utilizing Risk Mitigation Instruments to Bridge the Financing Gap

Aldo Baietti and Peter Raymond



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The World Bank, Washington, DC

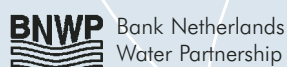


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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AfDB	African Development Bank
BOT	Build-Operate-Transfer
CAS	Country Assistance Strategy
DBL	Design-Build-Lease
DFV	District Finance Vehicle
DMC	Developing Member Country
EBRD	European Bank for Reconstruction and Development
ECA	Export Credit Agency
EIB	European Investment Bank
EXIM	Export-Import Bank
FX	Foreign Exchange
G-8	Group of Eight
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IFI	International Financial Institution
IMF	International Monetary Fund
IsDB	Islamic Development Bank
LGU	Local Government Unit
MDG	Millennium Development Goal
MIGA	Multilateral Investment Guarantee Agency
MOF	Ministry of Finance
MWSS	Metropolitan Waterworks and Sewerage System
OBA	Output-Based Aid
O&M	Operations and Maintenance
ODA	Official Development Assistance
OPIC	Overseas Private Investment Corporation
PPI	Private Participation in Infrastructure
PPP	Public-Private Partnership
PCG	Partial Credit Guarantee
PRG	Partial Risk Guarantee
PSP	Private Sector Participation
S&P	Standard & Poor's
WSS	Water Supply and Sanitation

1. SUMMARY

Water supply is essential for growth, as well as for social well-being. It is probably the most difficult of all infrastructure services to substitute, and its absence or deficiency represents a particular burden on the poor. In the developing world, 2 out of every 10 people lack access to a safe water supply, and 5 out of 10 have inadequate sanitation. This means that worldwide, more than 1.1 billion people do not have access to safe drinking water, and roughly 2.4 billion are without adequate sanitation. Yet even these estimates understate the extent of the access gap. Service is poor, even in many countries that have water supply systems. For many consumers, piped water is often intermittent, and, when available, it is unsafe for drinking. In addition, sanitation facilities are often inadequate, overloaded, in disrepair, or unused.

To improve the situation, the World Summit on Sustainable Development in 2002 specified the targets of the Millennium Development Goals, which aim to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015. Success in this would mean providing an additional 1.5 billion people with access to safe and reliable water and about 2 billion people with basic sanitation services. To achieve these goals, annual investments in water supply and sanitation in developing countries would likely need to double from the historical level of US\$15 billion to US\$30 billion per year.

Maintaining even current investment levels, let alone doubling them, represents a daunting challenge in the face of constrained public resources and aid flows; however, involvement of the private sector has so far remained very limited. According to the World Bank's Private Participation in Infrastructure (PPI) database, the water sector received only 5 percent of total private investment in infrastructure between 1990 and 2002. It has thus been a particularly difficult sector for attracting sorely needed private capital, operational skills, and management expertise. The main reason is that the water sector is subject to a number of specific risks, which do not affect the other infrastructure sectors—or affect them to a lesser degree. These risks include high capital intensity, political pressure on tariffs, a frequently held conviction of water as a “free” good, deficient regulation, subsovereign risk and lack of subsovereigns' access to financing, poor condition and insufficient knowledge of networks and customer bases, and currency mismatch between revenues and financing sources.

An additional feature of the water sector is that the market structure for service provision is usually very decentralized and dispersed, with local entities (municipalities or rural communities) often assuming full responsibility for investment, financing, and operations. This structure presents particular challenges for raising financing and makes the water sector particularly dependent on mobilizing local financing sources.

Private Participation and IFI Risk Mitigation in Water Supply and Sanitation

International financial institutions (IFIs) offer a number of risk mitigation instruments designed to reduce certain kinds of risks that investors confront in doing business in developing countries. These risks are typically associated with the political, legal, contractual, and social environment of a country. A comparative review¹ of the utilization of these instruments found that while a certain

¹ In June 2003, the World Bank commissioned PricewaterhouseCoopers to carry out a “Comparative Review of IFI Risk Mitigation Instruments and Direct Subsovereign Lending” by surveying the guarantee and lending instruments and actual experience in the use of such products. The survey included the Asian Development Bank (ADB), African Development Bank (AfDB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), International Bank for Reconstruction and Development (IBRD), Inter-American Development Bank (IDB), Islamic Development Bank (IsDB), International Finance Corporation (IFC), and Multilateral Investment Guarantee Agency (MIGA). The study was jointly funded by the Bank-Netherlands Water Partnership.

success had been achieved by IFIs in providing risk mitigation for power, telecom, and transport, these instruments have been used only rarely in water supply and sanitation.

Although the low use of risk mitigation instruments was already visible during the peak period of PPI in the first half of the 1990s, the post–East Asian, Russian, and Argentinean financial crises period marks a new and more difficult period for private participation and financing in water supply and sanitation. Today, investors have a heightened awareness of risks and a much lower tolerance for taking on investments in countries that exhibit poor economic and fiscal conditions. Moreover, private lenders are equally cautious in extending financing to projects that demonstrate poor fundamentals or that are in countries that have inadequate legal and regulatory regimes.

The small share of private participation in the water supply and sanitation (WSS) sector and the extremely low level of risk mitigation instruments underscore (a) the specific nature of the risks affecting the sector; (b) the lack of adequate project preparation (and thus of bankable projects); (c) the difficult access of water investments to financial markets; and (d) the constraints and limitations among the various risk mitigation instruments, which render them inadequate to respond in a significant way to the challenges of the water sector. Given these serious impediments, it is no surprise that despite the urgent need for risk alleviation, the effective demand for risk mitigation products has been lacking. This paper focuses on ways to better connect water sector investments with financial markets and to adapt risk mitigation instruments correspondingly.

Emerging “Hybrid” Finance Transactions and Development of Local Financial Markets

In moving forward the agenda for risk mitigation, it is important to recognize that the profile of transactions and the involvement by the private sector, both as equity sponsors and financiers, have materially changed in the postcrisis era. The large, dominant international operators of yesterday are playing a significantly lesser role, at least in direct financial placements. However, local operators are getting more involved, and smaller transactions in provincial capitals and other urban settings are becoming more prevalent.

We will have to also recognize the fact that public-private partnership (PPP) in the form that we have known in the past (for example, a conventional build-operate-transfer [BOT] or a concession) will play a much lesser role in the near term and that publicly owned utilities and their local governments may need financial support and enhancements to tap private sources of debt financing. Moreover, in line with this thinking, there is also the need to better tailor the risk mitigation products and to identify where value added could be brought forth in the new hybrid financing arrangements² that have evolved since the crisis period.

With leases, *affermage*, and management contracts and other arrangements becoming more relevant in the postcrisis era, there will be a need to look at new ways to deliver guarantees or enhancements that will better facilitate transactions that involve lesser direct financial commitment on the part of the private investor or operator.

² Hybrid financing schemes involve the sourcing of financing from both public and private sources, unlike the more conventional private project financings for bulk water and service-level activities.

In some cases, there may be some equity participation in the transaction, either as an initial contribution or as a deferred profit, as in the case of design-build-lease (DBL) schemes. Such schemes may involve private companies as operators—as well as equity investors—in projects that could be regarded as more risky and for which guarantees have not been traditionally available. In such cases, guarantee products may need to also look at mitigating equity interests against certain political and regulatory risks.

New Focus of Risk Mitigation Instruments

Adapting current IFI instruments to better deal with a changing investment environment and to address some constraints in their past use will generate greater demand for these products and thus improve access of water projects to financial markets. Work is needed to (a) develop new guarantee products or to modify existing products, (b) streamline internal processes and procedures within IFIs, (c) deal with client-demand issues, and (d) improve product understanding through better marketing efforts. Following are the areas in which a new focus of risk mitigation needs to be developed.

- **Output-Based Aid**

A specific form of government support has been introduced in various countries over the past few years. It provides subsidies, not during the construction, but during the implementation phase of a project and links them to the operator's performance (for example, quantity and quality of water delivered, new connections established). However, in many country and sectoral environments, the mobilization of private financing by the operator is not possible because of the uncertainty of the government payment stream. It would thus appear justified to design partial risk or breach-of-contract guarantees to backstop operating cash flows that are based on government contractual payments for operator performance (which may be disrupted by nontimely payments of government subsidies to the utility operator). As output-based aid (OBA) mechanisms become more prevalent in extending coverage to poorer communities, partial risk guarantees provided by IFIs may thus serve as an effective new instrument to ensure government's capacity to fund operational or connection subsidies during transitions or over an extended period of time.

- **Local Financial Market Development and Financial Market Access of Municipalities and Public Entities**

Beyond facilitating and enhancing public commitments, IFIs can play a broad role in increasing local financial market access for private water projects. This could include project structuring to match revenue generation with liabilities, channeling of local savings into water investments, incorporation of local debt holders as stakeholders in projects, introduction of market performance benchmarks to improve risk-and-return ratio for local savings instruments, or development of swap instruments to hedge against currency movements.

As decentralization to local governments proceeds, lending to subsovereign entities is becoming more important and issues with subsovereign risk more prevalent. On the flip side, local governments can also play an influential role by backing up the financial sustainability of their water utilities and by ensuring sustainability through transparent prudential oversight. Also, there is the continuing problem of financial performance in the sector, but a rising need to increase coverage to poorer communities. Much attention has therefore been given lately to involve subsovereigns as key financial partners to water utilities and for IFIs to support local governments or utilities directly. However, many local governments and utilities either lack the financial capacity

or the proper regulatory framework and governance to act as credible financial partners. IFIs could help local governments and public utilities to bridge this gap via improvement of corporate governance, enhancement of creditworthiness, and initial financial backing.

- **Foreign Exchange Risk and Liquidity Support**

There is an important and immediate need to sort out the currency risk issues, as indicated. This should not emanate from a debate of public versus private, but rather to create financial stability and performance in the sector. All utilities that cannot source domestic financing have to confront the issue of currency risks. As such, central governments should be more involved in resolving this central issue and taking on the objective of shielding sectoral infrastructure enterprises from severe macro and currency shocks. Risk mitigation could be arranged in the form of a government- or IFI-supported liquidity facility or both, which would protect water projects against sudden and unexpected cash shortfalls often resulting from the devaluation effect on debt service. Another type of risk mitigation could be an IFI partial credit guarantee that would cover a specified number of interest or principal payments or both. Foreign exchange insurance facilities have also been utilized in public finance schemes, but have often lacked appropriate management of such schemes to ensure financial sustainability. There are significant opportunities for strengthening the management of such foreign exchange (FX) insurance schemes, again for minimizing the related shocks to water utilities and other sectoral infrastructure institutions from major currency devaluations.

With regard to currency risks, IFIs can also assist governments in developing a more effective policy framework for allocating these risks to different groups. In addition, there is a need for more design work and piloting of various facilities that can be utilized for ensuring cash liquidity to utilities in times of macro instability and sizable devaluations. Other facilities for ensuring certain currency risks should also be explored, particularly with the objective of how IFIs can backstop governments under different devaluation scenarios. The design work must include, among others, a simulation of cash shortfalls for utilities under such scenarios, with the objective of devising which band can best be handled by a special-purpose fund.

Wholesale Approaches

Because the players have changed to more smaller and local companies, the approach of going to the market with risk products should accommodate the needs of this market segment. The IFIs' traditional approach to retailing risk mitigation products cannot work for smaller investments in more remote places. The transaction costs would be prohibitive, and the marketing would be neither efficient nor cost-effective. Accordingly, IFIs need to expand their design of broader capital market operations that may incorporate greater use of local banks acting as retailers of various risk and lending instruments. IFIs can participate in designing these operations and in acting as wholesaler of funds and underwriter of guarantees.

Financial Markets and Subsovereign Government Assessments

IFIs can also improve their sector strategy work in water supply and sanitation by incorporating in such analysis an assessment of the capacity of both domestic financial markets and subsovereign governments. This should serve to develop the appropriate financing framework in a given country, together with how various risk mitigation instruments can be deployed to strengthen its implementation.

2. INTRODUCTION

The Millennium Development Goals (MDGs) raised awareness of the need to expand access to safe drinking water and sanitation to the developing world. We have now a far better understanding of the dimensions of the problem and the financing challenge ahead. Truly, the investment needs are daunting and continuing to grow. The World Commission on Water estimated that investment in water in all subsectors must increase from US\$75 billion to US\$180 billion annually to meet the MDGs. Investments in water supply and sanitation alone would need to also double from the current US\$15 billion to US\$30 billion annually.

In March 2003, the World Panel on Financing Water Infrastructure (chaired by Michel Camdessus) released its report, “Financing Water for All,” drawing attention to the finance challenges of the sector. The report put forward substantive recommendations to bridge the financing gap, a number of them were directed to multilateral financial institutions to make greater use of their risk mitigation instruments and to lend more through subsovereign governments to attract more private financing in the sector.

Risk mitigation instruments can indeed provide added assurances to lenders and private equity sponsors to reduce or nullify unacceptable risks of doing business in economies that have not yet demonstrated a sustained track record of stability. Sponsors and lenders wish to limit their focus on the attractiveness of the investment purely based on commercial and operating risks and on projected cash flows. Risk regarding changes in government policies, relating to anything from tariffs and foreign exchange to property rights and expropriation are not controllable by, nor the specific competencies of, water utility operators and should be assigned to parties who have the experience and business practices to best to manage such risks. Subsovereign borrowing or other forms of direct financial support are also viewed as a way to attract more financing for water through the added credit capacity of local government units (LGUs) and their inherent interests to develop a local infrastructure that affect their constituencies directly.

However, the experiences in the use of risk mitigation instruments in water supply and sanitation have not been at all encouraging. The instruments themselves have some limitations in their use in water investments. More important, the problems in the sector are in fact much more deep-rooted, particularly since the retrenching that has taken place as a result of the various financial crises, most notably in East Asia and Latin America. With few private projects, the effective demand for risk mitigation has also been low. Water and sanitation projects have traditionally attracted relatively little private finance when compared with other infrastructure sectors. For the period 1990–2001, only 5 percent of investment in developing-country infrastructure projects with private participation went to the water sector, as compared with 44 percent for telecoms and 28 percent for electricity.

So what is the way forward? How can water projects attract more financing from both public and private sources. Can risk instruments be deployed more effectively to meet the needs of the market, and can financial ties with local governments help in this regard? This paper attempts to explore some of these issues and offer observations on what can be done to move the WSS sector finance agenda forward, with particular focus on the deployment of risk mitigation instruments and guarantees. Substantial work is also being undertaken by IFIs to improve the long-term sustainability of the financial markets; however, this requires a more substantive discussion of issues and constraints that are beyond the scope of this paper.

In response to the Panel's recommendations and a subsequent request by the Group of Eight (G-8), the Bank Group has begun a series of initiatives designed to investigate and possibly resolve some of most persistent financing problems in the sector. A comparative review³ was carried out to summarize the experiences of the multilateral banks in issuing guarantees for water and other infrastructure projects. The review also looked into the experiences in direct lending to subsovereigns.

Subsequently, a working group meeting of all the IFIs was held to review the experiences with risk instruments and subsovereign lending and to identify ways to increase financial flows to the sector. This paper presents some of the findings from this review, in addition to other work currently ongoing in this area.

3. WATER SUPPLY AND SANITATION AND THE FINANCING PROBLEM

Many of the Bank Group's member countries exhibit similar performance problems in water supply and sanitation: low service coverage, high physical water losses, and the generally unreliable quality of drinking water. Many utilities in these countries are poorly managed, operate with tariffs well below cost-recovery levels and are therefore struggling financially, and lack the governance and resources to improve performance and grow. Even more have not even begun to address the huge financing difficulties in sewerage and sanitation.

Public financing to meet this development challenge is scarce or entirely unavailable. Governments face many pressing and competing demands for direct budget allocations and real public debt ceilings. Private financing from both equity and debt is potentially more abundant, but very selective in investment choice. Water investments in many market segments are thus encountering great obstacles in attracting private financing in the Bank's member countries. Some major city centers may have overcome some of these problems, but regional urban centers and (more so) the peri-urban areas and rural towns typically lag far behind. Private flows to the WSS sector have been negligible, accounting for only 5 to 10 percent of total investment. Private financing has actually decreased over the past few years (see Box 1).

Capital markets in many of the Bank's client countries are not adequately developed to source long-term domestic funds, and thus whatever debt can be raised is usually in foreign exchange and carries significant exchange rate risks. Private long-term debt financing is generally not available in the maturities or at rates needed to render tariffs affordable. Finally, many developing countries face significant management and governance issues that interfere in the efficient delivery of services and make it hard for utilities to make commercially sound investment and operational decisions.

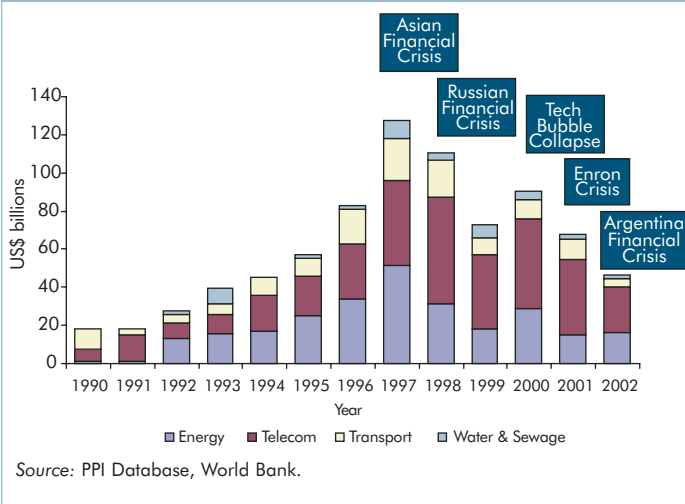
The lack of proper governance has also made it very difficult to set up effective regulatory oversight that can be sustained over time. The time testing of regulatory oversight and other reforms is essential for providing private lenders and sponsors with the assurance and investor confidence leading to sustained capital flows.

For much of the 1990s, the private sector played an important role in the provision of emerging market infrastructure investments and in service provision. Private sector participation (PSP) in developing-country infrastructure grew at an average annual compound rate of more than 32

3 PricewaterhouseCoopers, "Comparative Review of IFI Risk Mitigation Instruments and Direct Subsovereign Lending," 2003.

percent, from US\$18.1 billion in 1990 to US\$127.5 billion in 1997, the peak year for such investments (see Figure 1). The onset of the East Asian and successive economic crises, the poor financial performance of emerging market projects, and the number of failed and renegotiated projects challenged both existing investments in emerging market infrastructure and the financial condition of many project sponsors in these markets. As a result, private sector participation declined from its peak of US\$127.5 billion in 1997 to US\$46.7 billion in 2002.

Figure 1: Private Sector Participation in Infrastructure by Sector (1990–2002)



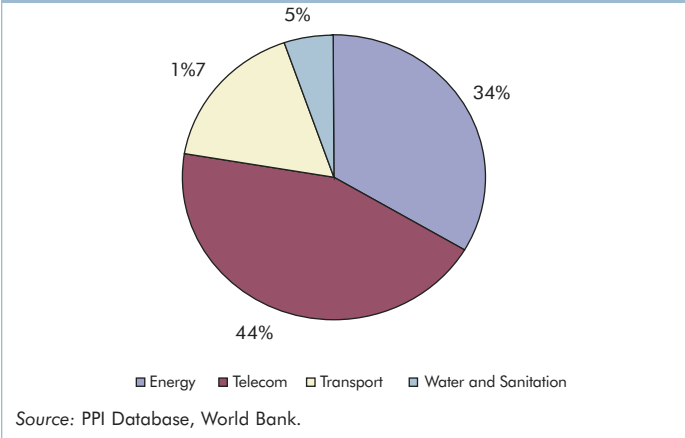
While the gross value of private investments in infrastructure totaled some US\$805.2 billion from 1990 to 2002, the water sector accounted for only US\$43.5 billion or approximately 5.4 percent of the total (see Figure 2). In sharp contrast to this, private sector participation in power was US\$270 billion or 34 percent of the total, while in telecoms, PSP was US\$355 billion or 44 percent of the total.

Also, while the introduction during the 1990s of various forms of public-private partnerships in the WSS sector led to 43 countries awarding 203 projects for a total investment of US\$40 billion during 1990–2001, these represented only 8.1 percent of all infrastructure projects awarded during the same period.

At its peak in 1997, private participation in the WSS sector brought US\$9.4 billion in investment to emerging markets, approximately one third of the estimated amount needed to

meet the MDGs. By 2002, private participation in the WSS sector had fallen to US\$1.9 billion. The reasons for this have been manifold, principal of which are a number of risks that the private sector is increasingly wary of assuming (see Box 1).

Figure 2: Private Participation in Infrastructure by Sector, 1990–2002



4. INVESTMENT IN WATER SUPPLY AND SANITATION INFRASTRUCTURE

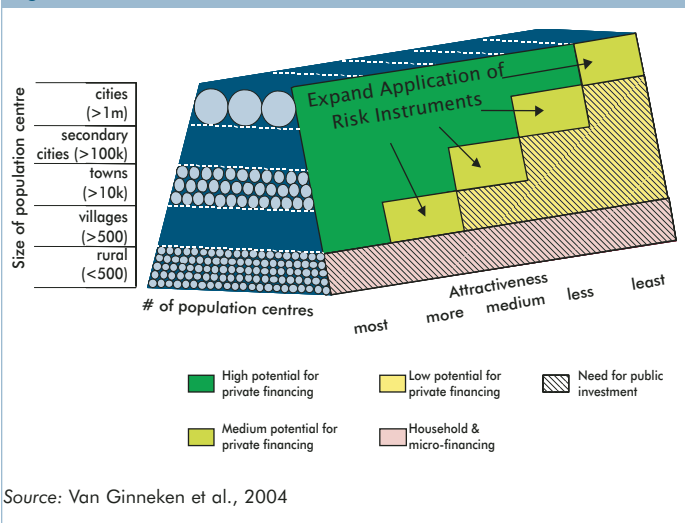
Investment attractiveness in water supply and sanitation infrastructure has been closely correlated to project scale and degree of acceptance (and enforcement) of commercial principles. Figure 3 graphically depicts the sustainable financing opportunity in the water and sanitation sector, reflecting many of the challenges noted above. On the vertical scale is the size of the WSS system. Generally, the larger the urban area served, the greater the opportunity for sustainable investment, public or private. The horizontal scale depicts the investment attractiveness based on perceived risk, implying higher risk profiles for smaller towns and rural areas.

Given their scale and national importance and assuming a reasonable ability to recover costs, the potential for private finance in the water sector is thus higher in larger population centers where perceived risk is low. As these factors (that is, size of population center and potential for cost recovery) decrease, the potential for private financing is also reduced. In rural areas with populations under 500, household finance and microfinance are favored over traditional private financing because of the smaller project scale.

Box 1: Reasons for the Lack of Private Sector Participation

- Capital intensity, with high, up-front investments combined with long payback periods and low sector returns
- Risk of political pressure on tariffs
- Weak or inconsistent regulation, lack of transparency, and perceived risk of regulatory capture
- Subsovereign risk – local government entities standing counterparty to bulk water sale agreements while having a poor collection record, suboptimal financial condition, and weak credit
- Water unaccounted for, water loss, inadequate distribution networks in a state of disrepair, and the lack of investment funding to remedy the same, thus threatening long-term project viability
- Foreign exchange risk, with mismatch between local currency revenues and foreign currency financing
- Forms of credit backstop (for example, sovereign counter guarantees for financial obligations of subnational entities being scaled back in the face of decentralization, ratings agency reviews and downgrades)
- Lack of local government access to bank and capital markets due to absence of central government authorization, and competition for scarce financial resources
- Aversion of private insurers and reinsurers to providing bond insurance and political risk insurance to subnational entities in developing countries due to lack of transparency, poor financial condition of reference entity, and absence of credit rating.

Figure 3: Private Sector Potential in Different WSS Markets



However, actual private investments may not materialize, even among the more attractive opportunities. Experience has shown that few real opportunities materialize beyond the largest urban settings, and even in these largest towns, private investments in water have been relatively few. Private projects in secondary or smaller urban towns have been even fewer, despite what could be regarded as similar project risk profiles and adherence to market principles. We also know that risk profiles vary by the mode of PPP that is chosen. For example, bulk water projects that are based on offtake agreements with a local utility are generally viewed as less risky than service-level activities that extend into all commercial aspects of the operation, including the management of water losses and the politically charged rate-setting processes.

Several reasons, beyond project risk profiles, could explain why many good projects are not taken up. First, international operators and financiers that have been dominant in past PPI initiatives have had a

strong bias for large-size projects. For this group, transaction costs are high, thus limiting interest in smaller-size investments. Moreover, because water projects include a relatively smaller proportion of export content than other infrastructure sectors, WWS has not benefited from the buoyant role that export credit agencies have played in the financing of private infrastructure projects in developing countries. Also, actual investment has been largely predicated on overall country settings and general business climate conditions. Most purely private deals have been conducted in countries with favorable sovereign risk ratings.

On the other hand, local private operators could have played a more important role in the private financing of smaller WSS projects, but may have been precluded, among other reasons, by the lack of long-term domestic sources of debt financing or international banks not willing to enter this particular market.

5. IFI RISK MITIGATION PRODUCTS AND THEIR UTILIZATION (2001–2003)

Guarantees can work in several ways to transform opportunities into effective investments. First, they can mitigate risks of the private investors and financiers that lie outside the inherent project fundamentals (that is, political, regulatory, and policy and sovereign risks). Second, they can enhance the creditworthiness of the borrower to extend maturities and lower the effective cost of debt. Figure 3 shows the potential for the effective use of risk instruments that exists in primary and secondary city projects that are rated as being the least attractive for private investment. Risk instruments can also improve private finance options for medium to more attractive projects in villages and small towns. However, projects that fall into the areas that show low potential for private financing and that are not viable are likely to need considerable public sector investment and intervention before they can qualify for the application of risk instruments.

Guarantees, however, cannot force certain groups of investors and financiers to alter their business models or to consider investments that they may not have considered in the past. In addition, guarantees cannot or should not make fundamentally unviable projects viable.

IFIs offer a wide range of risk mitigation instruments designed to address the need for noncommercial, political risk mitigation products by lenders and debt or equity investors contemplating investment in emerging markets. These instruments have been developed to mitigate risks that investors have little ability to control. These are risks typically associated with the political, legal, contractual, and social environment of a country. IFIs have sought to avoid covering commercial risks that investors should be able to manage on their own.

These risks and the products developed and offered by the IFIs have been fully documented in other literature and are summarized in Annex 1. Generally, the risks and related products can be classified into four main categories, namely traditional political risks, contractual and regulatory risks, credit risks, and foreign exchange risks. IFIs have been broadening the coverage of their risk instruments, and such categorization is a convenient, but not rigid, division of instrument coverage.

The nine IFIs surveyed as part of a recent World Bank study⁴ have issued 124 guarantees since 2001. Of these, 52 guarantees were for infrastructure projects accounting for US\$2.3 billion,⁵ or 36 percent of all guarantees issued by value. Of the 52 guarantees issued for infrastructure projects, 46 covered traditional political risks, 14 covered contractual and regulatory risks, and six were credit risk instruments.⁶

However, during this period, only four guarantees were issued for WSS projects, representing less than one percent of all guarantees issued, or 1.5 percent of the value of all infrastructure guarantees. Of these four guarantees, one was a traditional political risk instrument (issued by the Multilateral Investment Guarantee Agency [MIGA]), one was a contractual and regulatory risk instrument (issued by IsDB), and two were credit risk instruments (both issued by the International Finance Corporation [IFC]).

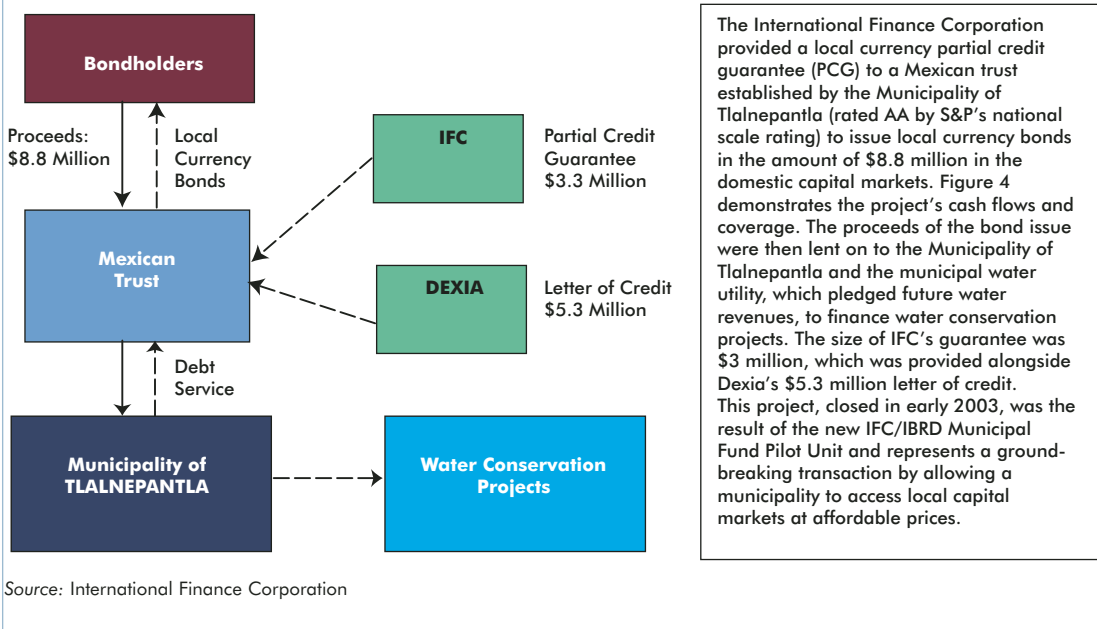
4 See PricewaterhouseCoopers, "Comparative Review of IFI Risk Mitigation Instruments and Direct Subsovereign Lending," and footnote 1.

5 The figure refers to the value of the debt or equity covered by the guarantee.

6 Although between 2001 and 2003, 52 guarantees were provided to infrastructure projects, the sum of the breakdown into traditional political risk instruments, contractual and regulatory risk instruments, and credit risk instruments is higher because of instruments covering one or more categories of risk. The guarantees provided by IBRD covered both traditional political risks and contractual and regulatory risks, and the guarantee provided by IADB covered the nonpayment of a termination amount, which falls under the contractual and regulatory risk category, as well as other traditional political risks. Also, five MIGA projects that provided coverage for breach of contract also covered for certain traditional political risks. In this analysis, credit risk coverage, which by nature covers all other risks, has been counted separately.

Of the two IFC water projects, one was the result of recent initiatives by the IFC—International Bank for Reconstruction and Development (IBRD) Municipal Finance Unit, launched in early 2003 (see Figure 4).

Figure 4: Tlalnepantla (Mexico)



While progress has been made in utilizing these instruments for infrastructure projects in the power and telecom sectors, the application of these instruments in the WSS sector has been very limited. Also, while the Bank and other IFIs understand the constraints in increasing the pipeline of WSS projects through greater use of these instruments, there exists a need to develop, both within the IFIs and in the infrastructure finance markets, a better and more comprehensive

understanding of existing instruments, their comparative strengths and weaknesses, and their relevance in leveraging private financing flows to the sector.

It is also important to note that at least for the foreseeable future, public financing will continue to dominate as the most important source of funding WSS projects. Hence, although the premise behind the creation of these instruments was to increase private capital flows to the sector, IFIs should exercise greater flexibility through the effective use of these instruments in WSS projects, regardless of where they fit within the entire continuum of public and private options in the provision of WSS services.

6. FOREIGN EXCHANGE RISK

In the wake of the Asian, Russian, and Argentinean financial crises, devaluation risk has perhaps become one of the foremost concerns of investors in emerging market infrastructure. Currency crises have demonstrated the limits of contractual agreements, where despite provisions to the contrary, currency devaluation could not be offset by commensurate tariff increases. In many instances, such tariff increases were politically and socially infeasible to effect.

In times of such crises, tariffs become insufficient to cover operating costs, let alone to continue to meet debt-service requirements and generate returns on invested capital. Capital investment programs are therefore suspended, and investors, lenders, and governments enter into extensive and tedious renegotiation of contracts—or exit from their contracts altogether.

No meaningful foreign exchange risk coverage exists today, either in the commercial markets or among the IFIs for most emerging market currencies. IFIs have, however, reported their interest in exploring two specific areas to address such risk: options for local currency financing and

specialized foreign exchange cover. However, work in these areas is in the conceptual phase, with many issues still needing substantive analysis.

To start with, devaluation risk cannot be viewed in isolation as one single risk level because the financial impact can vary extensively, depending upon the event and circumstance. As such, it is helpful to divide devaluation risk into three different categories, representing the level of financial impact each imposes.

The first category can be termed **“creeping” exchange rate fluctuation**—a band within which, based on past performance and future assessments, a currency may be expected to fluctuate on a year-to-year basis. Because of this expectation, based on past experience, such fluctuations can be reasonably borne by consumers within limits through quarterly or annual adjustments to the tariff levels.

The second category could be called **“shock” devaluation**, where a relatively sudden, unexpected, and significant devaluation (that is, normally between 5 and 10 percent) of the local currency takes place. This could result from contagion or a sudden flight of investment caused by domestic or international events. A key characteristic of shock devaluation would be the belief, based on economic fundamentals, that the currency will recover over a reasonable duration (that is, within five years).

However, given the extent of the devaluation, it may not be feasible to immediately recover the entire ensuing cash flow loss that would result in a given incident. The increases in tariffs would need to be more gradual, particularly if they are highly sensitive to political pressures. As such, in the interim, utility operators would have to absorb the impact of reductions in related cash flow and revenue streams to the detriment of ongoing investment programs or other cash needs. The particular difficulty in financing cash flow losses resulting from shock-type devaluations is that a utility may not be able to raise the necessary stopgap financing from financial markets because of a deteriorating financial standing. For this reason, this category of risk appears to be the best suited for risk mitigation because the insurer could provide coverage for the temporary shortfall resulting from the inability of the operator to raise user tariffs to required levels.

The third and most difficult category of devaluation can be termed **“catastrophic” devaluation**. This would consist of a sudden, unexpected, and significant devaluation, where the prospect of exchange rates returning to previous levels are remote over the foreseeable future (that is, more than five years). This is the type of devaluation that has occurred in countries subjected to the financial crises in East Asia, Russia, and (more recently) Argentina. In many countries in East Asia, for example, exchange rates remain at almost half their precrisis levels six years after the crisis took place. Dealing with such risk is much more complex because neither operators nor their insurers would ever be able to recover the ensuing cash flow losses and would therefore not be in a position to actually mitigate such risks. The risk of such catastrophic devaluations would thus amount to an unbearable risk for any operator or lender in many developing countries. It is the possibility of this occurrence that may restrain investment in the first place, particularly after the detrimental effects of such crises on project cash flows have been documented.

Local Currency Financing

Local currency financing would greatly relieve a part of the financial risk associated with local currency devaluations.⁷ With revenues denominated in local currency, the ability of infrastructure

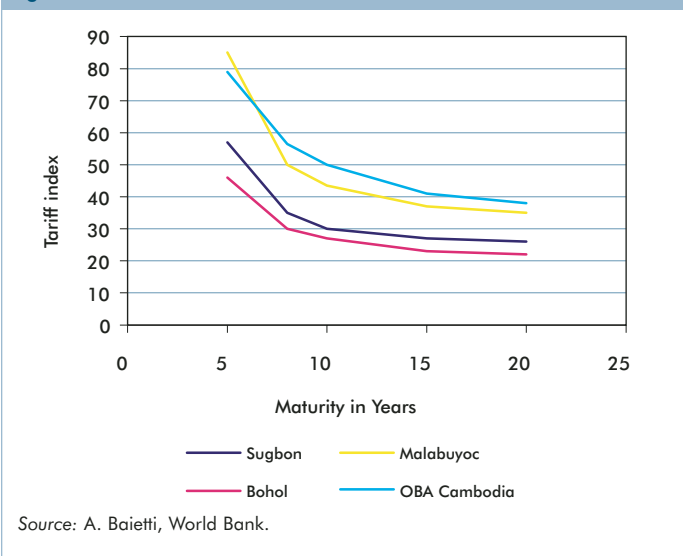
⁷ To the extent that inputs such as chemicals and fuels for electricity, as well as capital costs, are imported, local currency devaluations would also affect operations and maintenance costs and investment costs, in addition to debt-service commitments.

projects to access financing for new investment or to affect capital improvements in local currency would significantly reduce exposure to foreign exchange risk. However, in many developing countries, the depth and breadth of domestic financial markets are not sufficient to mobilize long-term financing at affordable rates. The importance of long-term financing for water supply and sanitation is borne out in Figure 5.

A simulation was carried out on the effects of loan tenures on tariff levels in four urban settings that were planning major system expansions. The result of this exercise implies that loan maturities can indeed have a significant impact on affordability and cost recovery; therefore, long-term maturities are essential, particularly for customers in poorer nations.

More precisely, tariff levels would need to increase substantially to meet debt-service obligations; that is, interest and principal payments on any loan with less than a 10-year term (see Figure 5). In contrast, the impact on tariff levels beyond 15 years would be marginal because the benefits of longer principal amortization periods would be offset in great part by higher interest payments associated with loans having long-term maturities. Maturities between 10 and 15 years appear to offer the best option for affordable tariff levels.

Figure 5: Effect of Loan Maturities on Tariffs



IFIs have been looking at ways to improve access to local currency financing and to local currency credit risk mitigation instruments. Local currency bank or capital markets financing is a real possibility for certain emerging markets. A number of IFIs are concentrating their efforts on developing local capital markets to enable greater local currency financing, backstopped as needed by IFI credit risk guarantees (for both local currency bond issuance and local bank loans). A second area of IFI interest entails direct provision of local currency loans by the IFIs. However, because of many IFIs' internal risk management requirements, such direct local currency loans are most likely to be available only (a) when the IFIs can raise funds in the same currency to match their exposure or (b) in currencies where cross-currency swap markets are available to hedge IFI exposure. Consequently, direct lending in local currency by most IFIs has been limited to a select group of countries such as Mexico, Chile, South Africa, India, Thailand, and China.

Devaluation Backstop Facility

A devaluation backstop facility has received much attention because of the adverse impact of the various emerging market financial crises. In many cases, public and private operators have been hit very hard with mounting debt-service obligations and deteriorating balance sheets. In the simplest terms, a devaluation backstop facility would consist of a fund or a contingent commitment of funds that could be drawn upon in the event of a significant currency devaluation. In this event, 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 are previously agreed on and expected to be sufficient over time to recoup funds drawn down from the facility. Fundamental assumptions for making such a facility work would be either (a) to index the tariff to local inflation (tariff increase along with local inflation and a real appreciation of the local currency that would

recoup the cumulative depreciations in prior years) or (b) other indexing (for example, partly indexed to foreign exchange rate, with a cap for maximum periodic increase), that would implement a predetermined formula for annual tariff increases that would enable the facility to repay the loan.

To date, only the Overseas Private Investment Corporation (OPIC) has established such a facility (for the AES Tietê power project in Brazil), and OPIC currently does not intend to offer another.

7. CONSTRAINTS IN THE USE OF GUARANTEES

The comparative review⁸ identified a series of constraints to the greater use of current risk mitigation instruments. These constraints can be classified as (a) client government issues, (b) internal process issues, and (c) product understanding and acceptance issues.

Client Government Issues

Lack of viable WSS sector projects. The demand for IFI risk instruments is constrained by the limited availability of bankable water projects. This is as much an upstream problem in terms of adequately prepared projects as it is one of investor demand.

Sovereign guarantees: Most IFIs require sovereign counterguarantees for issuing their instruments for public projects. In contrast, the private sector arms of the IFIs (for example, MIGA and IFC) can, in principle, issue their risk products without sovereign counterguarantees. In reality, however, 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 WWS projects in non-investment-grade countries. Securing such guarantees can be time-consuming and must usually be done in the context of the IFIs' larger lending and country assistance programs. Moreover, the preparation and administration of such sovereign guarantees can require the same up-front effort as a loan product, with lower direct tangible benefits to the government. Sovereign counterguarantees on private infrastructure projects can also meet resistance from governments because it adds to their contingent liability exposure and affects their overall debt ceilings.

Credit scoring: While most governments are supportive of instruments that facilitate investment, they would typically prefer a loan over a guarantee facility if they are offered on a one-to-one basis. A number of IFIs have reported efforts to score guarantees so that they were only a fraction of par to a loan. The World Bank recently approved 75 percent additionality for both IBRD and International Development Association (IDA) guarantees in terms of CAS envelope and lending program calculation.

Need for creditworthy domestic financial and capital markets institutions. To achieve domestic financing for projects credit enhanced by IFI partial credit guarantee products, it is essential that the IFI be comfortable with a number of criteria, including (among others) the creditworthiness of the borrower and the credit appraisal and financial administrative capacity of local financial institutions extending the loan (alternatively, the trust structure being established for a bond financing that provides security for creditors and the guarantor). Such local currency partial credit

⁸ See PricewaterhouseCoopers, "Comparative Review of IFI Risk Mitigation Instruments and Direct Subsovereign Lending," and footnote 1.

cover is also offered in countries with higher credit ratings, implying more limited use in the poorer countries that lack the basic financial infrastructure.

Internal Process Issues

Internal constraints at most IFIs have posed an obstacle to more widespread use of their risk mitigation instruments. In an environment where lending is prioritized and guarantees are scored at parity with loans, guarantees are unlikely to be championed from within the institution. Also, while many of these organizations have dedicated guarantee departments, their instruments represent only a few of a wide array of products and services offered and must therefore compete for management attention. Because of the above reasons, risk mitigation instruments face the additional challenge of having to compete for wider acceptance within the IFI country assistance strategy process. Some IFIs have suggested the approach of bundling guarantees with other IFI products to improve institutional acceptance and wider use.

In addition, the due diligence undertaken for deciding upon the use of risk mitigation instruments requires the application of technical skills in credit analysis, particularly for subsovereign entities, and the scoring of political, contractual, and regulatory risks. Some IFIs are better equipped at present to undertake this analysis than others.

Product Awareness Issues

IFIs and market participants (sponsors, lenders, credit rating agencies) both reported constraints to the understanding and use of certain IFI risk mitigation products—in particular, contractual and regulatory risk products. More recently introduced, and subject to the specific terms of the legal and regulatory agreements negotiated in an individual project, the trigger events for payment and the claims processes offered by these products are not yet standardized or well understood by investors or lenders. To a certain extent, these instruments, by their very nature, are unlikely to achieve the same level of “productization” as traditional political risk instruments. A number of market participants have indicated only a vague awareness of how these instruments work, suggesting the need for a broader information outreach campaign. Moreover, because of their greater complexity, negotiating and finalizing the terms and conditions of this coverage are, in general, more time-consuming than for traditional risk products. These constraints are also applicable to most other IFI risk instruments that are plagued by a lack of understanding of instrument structure and application, claims and payment processes, and uncertainty over the ability of instruments to effectively lower the cost of debt.

For the water and sanitation sector, these guarantees must often support undertakings by subsovereign entities. For the capital markets to value the IFI guarantee accurately and contribute toward reducing the cost of financing, the contract documentation, dispute resolution, and claims-processing procedures must be well defined. Most subsovereign governments lack the ability and experience to adequately specify such terms and conditions in contract documents, while others are unable to exert effective influence over issues of national policy or over unanticipated changes in operating conditions. For these reasons, a number of investors with projects involving local governments expressed their desire for IFI coverage with specific backing by a sovereign counterguarantee. While such preferences are understandable, involving the sovereign can add to transaction costs and contribute to delays in the documentation and closing of the deal.

Table 1 provides an indicative ranking of market understanding and acceptance of risk mitigation instruments against the market’s indicated priority for those instruments. For Market Acceptance, a

Table 1: WSS Market Acceptance And Need for Risk mitigation Instruments

Instrument	Market Acceptance	Indicated Need in WSS Sector
Traditional Political Risk Instruments	High	Medium
Contractual and Regulatory Instruments	Low	High
Credit Risk Instruments	Medium	Medium to High
Devaluation Risk Instruments	Low	High

Source: PricewaterhouseCoopers, LLP

high ranking indicates that the market has strong familiarity with that instrument and its use. For Indicated Need in WSS Sector, a high ranking means that feedback received from market participants indicates strong interest in, and demand for, such instruments.

These results would need to be corroborated with a more detailed market survey, but they highlight the fact that those instruments in apparent greatest demand are least understood or available in the market.

8. A CHANGING MARKET

The post–East Asian, Russian, and Argentinean currency crises period marks a new era for private participation and financing in water supply and sanitation. Today, investors have a heightened awareness of risks and a much lower tolerance for taking on investments in countries that exhibit poor economic and fiscal conditions. Equally, private lenders are much more cautious in extending financing to projects that demonstrate poor fundamentals or are in countries that have inadequate legal and regulatory frameworks. Greater use of risk instruments in the past could have possibly thwarted much of the risk averseness that now overshadows PPI endeavors. Some of the adverse financial impact could have been mitigated, and the current reluctance to invest may have in fact been lower than it is today.

But not entirely. In many cases, past losses experienced by these transactions were due to systemic risks that could not be mitigated by existing products. Moreover, the constraints on past utilization of such instruments are well documented. Some of them stemmed from investors’ misplaced confidence in tariff adjustments and other legal agreements being honored, while others were the result of risks being deemed acceptable. The added transaction costs and bureaucratic delays involved in lining up guarantees with IFIs also contributed to a fading of investor interest. However, a combination of all of the above factors and others led to investors shying away from incorporating these instruments within project security packages if the projects can be financed without such IFI support (for example, with export credit agencies’ [ECAs’] enhanced political risk insurance).

The fact that so few guarantees were issued in water supply and sanitation during the height of the private investment in infrastructure points not only to constraints among the various instruments but also to the lack of bankable projects and the resulting lack of an effective demand for these products. In other words, the perceived genuine opportunity to invest, irrespective of

constraints, may not have been present in the first place. IFIs can play a critical role in stimulating further WSS sector investments by continuing to help countries prepare appropriate regulatory and legal frameworks and to adopt cost-recovery principles for the WSS sector, even if subsidy schemes may be required for some time. IFIs can also assist in preparing specific projects for private participation.

Fine-tuning current risk instruments now is certainly helpful and will surely lead to refinements and possibly greater demand for their use; however, the profile of transactions with any involvement by the private sector appears to be changing materially in the postcrisis era. Conventional BOTs or concessions today are much fewer. The large dominant international operators of yesterday are playing much less of a role, at least in direct financial placements. Their preferred choice of PPP options are those that transfer the financing risk to the public partner (as in management contracts and leases), and it is not at all clear that with the current risk instruments, these investors can be led back to assuming project financing risks. Also, there is the continuing problem of financial performance in the sector, but this issue has always existed and is widely reflected by the low rate of actual private projects in water compared with the other infrastructure sectors. IFIs' role in helping countries set up appropriate legal, regulatory, and institutional frameworks and cost-recovery regimes (either via user charges or tax revenues) is thus essential to enable the mobilization of both public and private funding for the sector.

Local operators appear to be entering the market in greater numbers, even as risk investors; however, their financing capacity and interest appear generally aimed at systems in provincial capitals and smaller urban towns that have generally not attracted the larger international operators. The decentralization of service delivery responsibility to lower tiers of government is also changing the dimensions of the market because local governments are becoming key stakeholders and financing partners in the water sector and other local infrastructure, though the financing and risk-taking capacity of local governments are often limited. With that, private domestic banks primarily in middle-income countries are increasingly interested in entering this market segment, not only as financiers of local infrastructure but also to tap into the increasing general business that can be generated by local governments.

Finally, with the increased risk averseness of private investors, risk allocation schemes appear to be shifting, with greater focus on transaction models that blend financing from both public and private sources. Hybrid financing schemes have emerged to accommodate the paradigm shift in the appetite for risks and to take advantage of the comparative strengths that each party, public and private, brings to the infrastructure finance market (see Box 2).

9. PUSH FOR FUNDAMENTAL REFORMS TO CREATE CREDITWORTHY UTILITIES AND SUBSOVEREIGNS

Going forward, there is certainly the need to continue the push for fundamental reforms in the sector and to create creditworthy utilities and municipalities that can access long-term financing on their own, without the need for credit enhancements or guarantees. This is essential, particularly for developing countries that confront strict fiscal constraints and debt ceilings, because the only solution is to move toward mobilizing the more abundant sources of private financing.

The greater the willingness for users to pay for the cost of service, the more financing options that these countries have to fund investment expansion and modernization. This is visually borne out by Figure 6.

Box 2: Hybrid Financing Schemes – Blending Public and Private Finance

Reliable sources of external financing, both in terms of equity and debt, are essential for development of water utilities. Even at cost-recovery tariffs that generate sufficient returns on invested capital, new sources must be tapped continuously in order to sustain the required growth. Yet in many countries in the developing world, the sources of financing, in the form of both equity and debt, are not consistently available. On one hand, governments continue to struggle to come up with equity funds to sustain their utilities capitalization. On the other hand, private financing markets are not usually well developed enough to source debt financing in the tenors that are needed.

Hybrid finance schemes have evolved over the years because of these two principal weaknesses in the financial markets: the lack of reliable sources of equity funds (that is, counterpart funds) in purely public schemes and the lack of depth in local debt markets, which precludes sourcing long-term financing to render tariffs affordable. Because equity does not have an explicit repayment commitment requirement and essentially constitutes risk capital, it is generally the comparative strength of private investors, but usually at a higher cost overall. Equity is also able to lower the risk profile of the capitalization structure, again because it can better withstand the destabilization effects of short-term external shocks. On the other hand, Bank loan and partial credit guarantee instruments can offer tremendous flexibility to devise financially sustainable solutions, which would otherwise not be achievable through purely private debt.

For example, smaller-size projects in remote towns can be financed through long-term debt by channeling loan funds through local financial intermediaries backed by sovereign counterguarantees, where foreign exchange risks will be taken by the central government; or a local financial intermediary can issue local currency bonds under a partial credit guarantee to extend long-term loans to projects. With such strategies, it is possible to penetrate markets with viable PPP models that have not been of interest to major private lenders. Bringing in small private operators with equity resources can then allow expansion strategies to be implemented in otherwise less attractive markets. Because of the limited availability of public debt funds, it is important that any such interventions be designed as models for eventual replication elsewhere and for leveraging other and more market-oriented sources of financing.

Hybrid finance schemes are evolving further (for example, output-based aid) to finance other less attractive segments of the WSS markets such as sanitation and sewerage, extension to poorer communities, and peri-urban areas.

At the lower end of the spectrum, where utilities are realizing **explicit cash losses** at the operating level, the opportunities for financing are extremely limited and confined to subsidies normally through budgetary transfers from national or subsovereign governments. Some bilateral grants may be available in special cases, particularly if the utilities serve poorer communities.

As utilities demonstrate recovery of explicit cash commitments for operations and maintenance (O&M) and for projected debt service, greater opportunities for financing open up—essentially, access to borrowing. These, however, would still generally be limited to public debt sources such as special-purpose infrastructure, development, and municipal funds raised from fiscal budgets; grants; and IFI lending backed by the sovereign governments. In such cases, utilities would not be able to realize surpluses in internal cash generation, and thus new investment and expansion would have to be entirely funded by sourcing new financing explicitly for such

Figure 6: Financing Options at Different Levels of Financial Sustainability

Creditworthy in Tested Country Conditions	Country Conditions and Developed Financial Markets	
Marginally Creditworthy	Reliable Refinancing Sources & Security for Loans	
Sustainable Cost Recovery	Anticipates Long-Term Cost Impacts (that is, FX, asset reevaluation)	
Cost Recovery	Profitable in Any Given Year, But Not Sustainable in Long Term	
Pay-As-You-Go Recovery of Cash	Capital Subsidies	
Unviable Loss-Making Utilities	Capital & Operational Subsidies	

Source: A. Baietti, World Bank.

purposes. For this reason, the level can be termed “**pay-as-you-go**,” an approach that is common in some developed countries, but feasible only because such countries have more ample resources available to finance new investments as they arise. If developing countries did not have such serious budgetary problems and large unmet demand and service coverage, this approach could certainly suffice in public sector investments. Because of these two reasons, however, the more sustainable approach is to strive toward higher levels in financial sustainability and creditworthiness and tap private sources of financing.

At the **cost-recovery level**, a utility is recovering not only all costs of O&M and interest charges but also the invested capital plus the implicit return on that capital. While this may imply a

financially sustainable situation, this is not necessarily assured in all cases, particularly for utilities that do not have access to long-term debt financing. This is a notable problem in many developing countries where long-term financing is not available. In such cases, debt-service commitments can in fact be greater than the annual depreciation charges, resulting in cash flow losses and a financing gap. Moreover, if debt is raised in foreign exchange, the utility may be subject to sudden losses if it did not adequately provide for the currency risks.

Reaching **sustainable cost recovery** implies that all cash and cost commitments are explicitly addressed, such that there is greater assurance in the long term for sustaining investments and operations. This means that all explicit and implicit charges are factored into the tariff-setting process, including ensuring adequate returns on investments, making adequate provisions on foreign currency loans, and ensuring that proper maintenance is carried out and that assets are revalued to reflect their full replacement cost. In such situations, the financing options increase dramatically as more funds are generated internally for leveraging additional debt financing. Moreover, the operations become more attractive to private investors and lenders.

Moving toward bankable utilities (that is, **creditworthiness**), often requires additional elements that are often lacking in publicly owned utilities in developing countries: (a) accurate historical and projected financial statements (balance sheet, income statements, and cash flow statements); (b) adequate and valid security for loans; and (c) a regulatory framework that permits the utility to cover efficient costs and strengthen the capacity of utilities to raise additional equity for expansion and other purposes. As such, moving to the creditworthiness stage has often motivated private participation because many national or local governments as owners or shareholders could not provide the needed equity support because of their own budgetary constraints. Some governments with fewer financial constraints, mostly in developed countries, have been able to instill the proper governance and financing framework, allowing utilities to achieve this status without privatization.

The final stage, where most financing options become available, including public equity and debt offerings, bond issues, securitization, and so forth, occurs when countries themselves become financially and politically stable and creditworthy, allowing the domestic financial markets to develop and flourish. Of substantial importance in these conditions is that long-term financing would be available in local currency, reducing the foreign currency risks for both investors and consumers.

10. DEPLOYING GUARANTEES TO MEET THE CHANGING NEEDS OF THE MARKET

IFI guarantees have been utilized in private infrastructure projects on occasion to bridge the upper tiers in creditworthiness (that is, creditworthy projects in less than investment-grade countries). Again, this presumed a transformation from public to private operation. The World Bank's partial credit guarantee has been offered to private lenders for extending the maturities on financings to public sector institutions, albeit previously all in cases of foreign currency borrowing of national government or their agencies and for projects in non-WSS sectors.

Given that the market and the type of transaction models have evolved, there will be a need to refocus the deployment of guarantee products in the following three ways:

First, we will have to recognize the fact that PPP in the form that we have known in the past will play much less of a role in the near term and that publicly owned utilities and their local governments may need enhancements to tap private sources of debt financing. Moreover, in line with this thinking, there is also the need to better tailor the guarantee products and to identify where value added could be brought forth in the new hybrid financing arrangements that have evolved since the crisis period. Hybrid financing schemes may involve private companies as operators as well as equity investors in lower tiers of financial sustainability (below the sustainable cost-recovery level as shown in Figure 6), for which enhancement products have not been traditionally available.

Second, barring the existence of long-term domestic currency financing in many host countries, there is an important and immediate need to sort out the currency risk issues. This should not emanate from a debate of public versus private, but rather to create financial stability and performance in the sector. All utilities that cannot source domestic financing have to confront the issue of currency risks. There has been discussion about government-supported facilities that can tackle this problem; it would seem unlikely that any commercial institution can bear the risk of currency catastrophic devaluations. As such, near-term solutions may not necessarily emanate from an enhancement product per se, but rather an improved policy framework on how tariffs should be adjusted and who should bear these risks under different devaluation scenarios. Private financiers would not be attracted without protection against this exchange rate risk.

Third, because the players have changed to more smaller and local companies, the approach of going to the market with risk products should also change. The Bank's traditional approach to retailing risk products doesn't work for smaller transactions. The transaction costs would be prohibitive, and the marketing would be neither efficient nor cost-effective. As such, there is a need for developing more wholesale facilities that would involve local financial institutions more in retailing activities.

Enhancements for Hybrid Financing Arrangements

With leases, affermage, and management contracts and other PPP arrangements becoming more relevant in the postcrisis era, there will be a need to look at new ways to deliver guarantees or enhancements that will better facilitate such transactions. A main difference between these schemes and pure concessions or BOTs is that the private operator typically does not assume a role in financing and, as such, does not bear the related risks directly. In some cases, there may be some equity participation in the transaction, either as an initial contribution or as a deferred

profit, as in the case of design-build-lease (DBL) schemes. Unlike debt, equity does not impose an explicit repayment commitment and, as such, may result in less year-to-year volatility on financial operations.

The greater the equity contribution, the more likely the operation may be able to withstand the impacts of external shocks and enhance financial stability. However, equity is also more expensive than debt; therefore, increasing the capital structure with private equity would also increase the weighted average cost of capital of the operation and, in turn, the cost-recovery tariff. One would therefore need to weigh the benefits of greater stability from higher equity investments against the concomitant higher costs in the form of higher tariffs.

Given the nature of these transactions, both parties, public and private, need forms of guarantee, but in different ways. With lesser direct financial commitment on the part of the private investor or operator, the public side needs added assurances that the private sector will commit to fulfilling its own part of the agreement for the duration of the contract and will not walk away from a transaction for whimsical reasons or if a good part of the financial rewards are realized early on into the transaction period. For example, in a DBL agreement, the bulk of the profits can accrue during the early part of construction, which may thus create a disincentive to continue to manage the operation for the remaining contract period. A good legal system may not assure an expedient resolution in such cases, and where such a system is lacking, sanctions or remedies may not even be available. Assuring the expedient and fair resolution of contractual issues will undoubtedly facilitate these transactions. In this regard, strengthening bonding insurance, escrow, and other security arrangements where they are weak would help, as would the structuring of transactions to ensure that benefits either accrue evenly to the operator or progressively more during the later part of the project period.

Equally, for private operators, there may be a need for partial risk and breach-of-contract guarantees, even though there may be little or no risk capital at stake and only the operating cash flows and contractual payments for operator performance (which may be disrupted by nontimely payments of government subsidies to the utility operator) would be affected. As output-based aid (OBA) mechanisms become more prevalent in extending coverage to poorer communities, guarantees may serve to ensure a government's capacity to fund operational or connection subsidies over an extended period of time (see Annex 2).

Payment on claims should also be prompt and, where there is cause, should compensate the operator for out-of-pocket costs, such as mobilization and bidding costs. Currently, most instruments require the arbitration process to play out completely before ruling on an appropriate dispensation against project sponsor claims. Only OPIC and the Export-Import Bank (EXIM) have enhanced guarantee programs that make partial dispensation pending the outcome of the arbitration. If the judgment goes against the claimant, the funds have to be returned with interest. Moreover, these guarantees should be made to cover the contractors and related returns if these are part of the transaction.

With the public sector assuming a greater role in raising the debt portion of the capital base, there is also the need to solicit greater financial support to enhance the creditworthiness of water utilities as direct borrowers. Local government units can play a decisive role in this regard; however, to the extent that water utilities are separate autonomous entities as opposed to a department of the municipality, the preferred course is for local governments to participate as guarantors, rather than borrowing directly on behalf of their utilities. The district finance vehicle

(DFV) being created by the Shanghai Urban Development Investment Corporation (also known as Shanghai Chengtou Corporation) is being established for this very purpose. The DFV is a special-purpose entity created by the municipal government's investment arm that will pool the infrastructure investment needs of 19 districts of the Shanghai Municipal Government, will credit-enhance the same against the general obligation and revenue streams of the districts, and will source funding from the municipal bond markets.

The alternative practice of channeling funds through local governments as borrowers would only stifle the goal of creating autonomous creditworthy water utilities because utilities would remain indefinitely in the financial shadow of their municipality. Moreover, utilizing the debt capacity of the utility with a guarantee from the local government may expand the total borrowing capacity because it relies more on the financial standing of the utility as the borrower, rather than reducing the overall debt capacity of the municipality.⁹ As such, greater emphasis should be made to solicit local governments as guarantors of their water utilities and to develop the required guarantee structure and the necessary security guidelines and agreements that can be put in place for this purpose.

One way that IFIs might support this concept is by entering into cooperative underwriting programs with local governments that would essentially reinsure guarantees offered by municipalities to utilities by diversifying utility credit risk on their books through the Bank to a number of local and international reinsurers, thus enabling them to offer their credit enhancement services while maintaining their credit exposure limits against a single entity.

Needless to say, empowering the financial support of municipalities requires that they themselves have sufficient creditworthiness to effectively serve as guarantors. To serve in this capacity, municipalities must also be legally allowed to act as guarantors and to assess whether central government transfers can be intercepted as security for the loan. Central government or their agencies can serve as ultimate guarantors in countries where the creditworthiness of local governments are yet to be established.

Mitigating Foreign Exchange Risk

Currency-related costs, like other expenses incurred in the running and financing of a utility, are a legitimate cost of doing business. When there is no other option but to source long-term debt in foreign currency, the utility assumes the exchange rate risk as an implicit cost, which should be fully factored into the tariff equation. The inability or unwillingness to do so is the reason for many of the past financial problems in the sector.

One of the lessons¹⁰ learned from the East Asian financial crisis is that many utilities did not anticipate such risks because their currencies had been stable for some time before the crisis. As a result, these same utilities assumed their financing obligation based on the false assumption that foreign currency loans, because of their lower nominal rates, were actually cheaper than domestic loans and carried little or no added risk. As such, provision of currency risks was not factored into the tariff formula, and ultimately the financial commitments exploded from the sudden and sharp

⁹ Depending on how unfunded guarantees are treated on the books of the local government and what percentage of the face value of the guarantee is imputed.

¹⁰ Aldo Baietti, "Private Infrastructure in East Asia: Lessons Learned in the Aftermath of the Crisis," World Bank Technical Paper 501, April 2001.

devaluations of the local currency. The utilities confronted the dilemma of trying to increase tariffs under conditions of substantial economic downturns, an exercise in which they were largely unsuccessful. It was politically impossible to adjust tariff levels in the short term to recover current costs, as well as to regain lost ground.

The lessons and policy implications of this situation are clear. Financial disaster is assured if these implicit risks are not factored into the tariffs. Moreover, while there is a tendency to disregard the extent of these risks in periods of stability, the reckoning is almost unequivocally assured. Recent studies carried out on currency movements in developing countries have found that the trend of local to foreign currency has generally been downward. The impact of currency devaluations can be indexed into tariffs only within reasonable limits because tariffs, particularly in the water and power sector, are often subject to political interference. Tariffs also include additional indexation provisions for inflation, changes in taxation, changes in interest rates, and so forth. Combining these provisions for rate increases with indexation for currency devaluation often implies politically difficult adjustments, as demonstrated in the recent, long-drawn-out renegotiations of emerging market infrastructure projects.

Moreover, governments that transfer currency risks to their sectoral institutions also confront much more difficult cleanup situations in times of significant macro downturns. While International Monetary Fund (IMF) and other IFI restabilization programs exist at the central government level, there are few such mechanisms or programs currently available for undertaking a quick sectorwide restructuring and refinancing of bankrupt public utilities and local governments. As such, financial problems resulting from macroeconomic crises linger on for some time after the central government finances stabilized. A case in point is the WSS sector in Indonesia, where the aftermath of the financial crisis left most utilities in serious financial trouble, if not total bankruptcy. Despite this, and almost seven years since the crisis, the consequent financial restructuring of the individual public utilities is proceeding at a snail's pace. A little over 10 of about 300 public utilities have reached a final financial workout agreement with the Ministry of Finance and their respective local governments. The rest are still under significant financial turmoil, with clear damage to the sector because of suspended investment.

If currency risk cannot be fully passed on to users, it should also not be borne by subsovereign sectoral agencies that have no way of hedging or mitigating such risk, particularly if these agencies do not earn their revenue in foreign exchange. In fact, these risks should be best handled by the central level, particularly the finance ministries that are in the best position to mitigate them. More important, central governments should insist on greater oversight when their public utilities or local governments are lured by seemingly less costly foreign currency-denominated loans and do not properly reflect the risk of losses on their balance sheets. On IFI lending, there is now greater acceptance of this because many central agencies have realized the detrimental impacts of currency risks on public utilities and other infrastructure organizations. In some cases, central governments have decided not to pass on the currency risks altogether to public enterprises and utilities that cannot hedge such risks.

Such central agencies have stepped in to assume the currency risk for their sectoral institutions. This is commonly approached by passing on the foreign currency IFI loans in local currency, with an interest rate premium for the foreign exchange cover. This practice essentially converts the debt obligation of the utility into a local currency one. The process then shields the utility from foreign exchange risks associated with its borrowing and allows tariffs to be set along more stable guidelines. This mechanism also has an important benefit for the development of a long-term

local currency debt market as on-lending rates on IFI loans converge closer to local market rates, allowing local banks the opportunity to enter this market with local currency loans.

The interest rate premium is intended to defray the foreign exchange costs of the central agency (typically the ministry of finance or its equivalent) that takes on the risk; however, such operations are not typically accounted or managed separately because flows go directly to the general treasury.

Table 2 illustrates how this concept can be adapted to a special-purpose facility specifically designed to mitigate the financial exposure on foreign borrowing for public infrastructure projects.

If indeed currency losses are recognized as a legitimate cost of doing business and recoverable for the utility, then ultimately there are only two groups that should bear these risks: consumers (users) or taxpayers or a combination of both. In many ways, this could also be viewed as allocating risks between national and local levels.

The problems, however, begin in the immediate term, when utilities are expected to bear the financial consequences without the certainty of making up the losses. Whether utilities should shoulder this burden has been very much a matter of debate, but their financial condition may not be able to sustain the added cash flow burden. With certainty, neither consumers nor taxpayers are well served if such a condition leads to financial bankruptcy of the utility; and again, subsovereign utilities do not have the capacity nor the competence to hedge such risks.

Table 2. suggests a different allocation of risk among the various parties. Ultimately, this allocation still rests between users and taxpayers, with users taking on the effects of “creeping” devaluations while taxpayers take on the effects of the “catastrophic.” In shock occurrences, the impacts could actually be shared. In the immediate term, special mechanisms can be set up that are better capable than public utilities to deal with these financial risks. In circumstances of creeping devaluations, a price adjustment mechanism can adequately be developed, and many such mechanisms are already in place and being successfully implemented.

In shock situations, the current approach of central government ministries passing on foreign currency loans to public water utilities under an interest rate premium could be replaced by a professionally managed special-purpose facility. This facility could eventually build up an institutional capacity for better gauging macro stability and currency movements to better manage the exposure. This would also lead to better pricing techniques and possibly the development of a

Table 2: Allocating Currency Risk Categories to Different Groups

Currency Risk Category	Ultimate Risk Bearer	Immediate Risk Bearer	Mechanism
Creeping	User	User	Annual Tariff Adjustments
Shock	User-Taxpayer	FX Risk Facility	Credit Line or Insurance Fund
Catastrophic	For Resolution	For Resolution	Preestablished Crisis-Resolution Strategy

Source: A. Baietti, World Bank.

forward market in local currency. Discussion about such a facility has focused on two forms: a credit line that would allow utilities to borrow and an insurance facility that would actually cover a determined devaluation risk, subject to predetermined caps based on exposure limits. While the former helps to close a financing gap, the latter actually provides insurance cover for the risk, thereby protecting the utility, at a price, from the devaluation-related impacts altogether. The line-of-credit scheme still looks to the utility to bear the immediate financial burden, while the insurance scheme looks to a facility to bear this risk. The facility would be run on a commercial basis, again raising revenue from the interest rate premiums to cover its cost from local currency devaluations. Again, the facility would only operate within a specified band of currency movements to ensure sustainability.

The much discussed liquidity backstop facility is the line-of-credit approach. While in many ways this would relieve the immediate cash flow needs of utilities, it has to be approached with caution because it may actually aggravate the financial situation by building up debt in periods of economic downturn—a counterintuitive approach. Moreover, there are no assurances from past trends that the additional debt and related interest charges could ever be recouped over any reasonable time frame; therefore, the facility needs to be backed up with the tariff regime or agreement that would enable the operator to earn sufficient cash flow to repay the loan through tariff increase over time. For these reasons, the line-of-credit scheme can only be applied in selected countries and under substantial caution. The foreign exchange (FX) insurance scheme at minimum is a reallocation of risks between the central government and their public utilities. At most, this facility could be extended to public-private partnerships in countries that lack a robust long-term capital market. The major disadvantage of such a scheme would be the inability for any insurer (governments included) to predict the probability and magnitude of currency devaluations based on historical data alone. For this reason, private insurers have not taken up this risk in the past.

As indicated, some central governments have a policy to address currency risks of foreign currency-denominated debt passed on to sectoral agencies. The logical step would be to set up a special-purpose facility to manage the activity. Because there is no assurance that the set interest rate premium would be sufficient to cover the pooled risks, some IFI backstop may also be necessary to provide short-term liquidity relief. As such, proper study would be needed to determine adequate capitalization and risk factors at different devaluation scenarios. Also, governments would need to set policy on whether such facilities should be extended to private foreign currency-denominated debt raised by concessionaires. Again, governments should not view this as a public versus private debate, but rather use this as a means to create greater financial stability and to leverage more private financing to the water and sanitation sector.

Finally, the allocation matrix sees some kind of crisis resolution strategy and mechanism being established at the central government level to manage the financial consequences of catastrophic devaluations. As it has been strongly endorsed for the financial sector because of the potential for sudden and sharp collapse, a similar resolution strategy needs to be developed for water utilities and other infrastructure services. While the collapse of infrastructure institutions is normally not as sudden as it is for financial institutions, the absence of financial restructuring of utilities can severely undermine the overall health of the economy, halt investment, and retard recovery programs. The absence of a resolution mechanism for the utility sectors in Argentina, for example, has been a key obstacle to the sustained economic recovery of that country. Similarly in the Philippines, the WSS sector in Metro Manila is in financial turmoil because of delays in dealing squarely with the ballooning debt of the Metropolitan Waterworks and Sewerage System (MWSS) following the devaluation of the peso. A financial crisis resolution strategy would establish a

predesignated agency that can act swiftly and with appropriate powers to undertake the necessary financial remedies, specify clear objectives and principles for resolving the financial difficulty of utilities, and establish clearly assigned principles for rapid achievement of political consensus.

Before closing the discussion of risk mitigation, there is a need to underscore again the importance of local currency financing in attempting to improve the financial stability of utilities in developing countries. With that, much more work is needed in developing local markets, perhaps starting with the greater use of partial credit guarantees and creation of refinancing facilities where local banks cannot provide the maturities needed to maintain tariffs at affordable levels. Such facilities would insure the lender or issuer of debt that an existing obligation will be paid under the principal payment guarantee (which can be structured to be callable in year x or at the final maturity or refinanced, thus allowing the lender to convert a short-term loan into one with a longer maturity-and-amortization schedule or extend the maturity of bullet payment bonds).

Changing the Approach to Meet the Needs of a New Market

The discussion so far points to a very different market and type of transaction, involving private equity sponsors and lenders for small-scale projects. PPP transactions are likely to be smaller and not necessarily confined to leading metropolitan areas, to involve local operators and lenders, and to share responsibilities for raising financing between public and private sources.

Given this changing market, the IFIs need to materially expand their approach in delivering guarantee products by becoming more wholesale—rather than retail—providers. This would mean developing more guarantee facilities where the IFIs are perhaps the underwriters of guarantees and enhancements issued by participating local banks or other financial institutions. Operations would then focus more on the design and implementation of such mechanisms and programs. Case-by-case traditional transactions can continue to take place based on market demand.

In addition, some sectoral policy and regulatory consideration should be given to focusing more on the enactments of reforms in parallel with pursuing operations on a regulation-by-contract basis (in the absence of a standing and well-functioning legal and regulatory framework during the transitory period). For example, IFIs could wrap a partial risk guarantee for a pool of projects covering a regulatory framework, rather than approaching each transaction on a case-by-case basis. Conceptually, this may mean underwriting a specified amount of guarantees that could be issued by participating local financial institutions around compliance with the framework.

The leveraging impact to such an approach could be significant—much more so than approaching guarantees on a case-by-case basis. Smaller transactions and those in remote areas can ride on the coattails of larger transactions without the need to explicitly purchase a guarantee. As to WSS projects, local governments and their agencies tend to have tariff-setting authority in decentralized public administrations.¹¹ Realistically, regulatory risk cover needs to be structured for each municipality to that extent. This would also reinforce the desire of both lenders and sponsors to have IFIs engaged as “honest brokers” because a breach for nonperformance to a regulatory framework would trigger a guarantee call.

¹¹ This depends on the degree to which regulatory authority is decentralized, as in many WSS projects local governments/agencies tend to retain. Despite many other guidelines could be provided through national regulation, including tariff-setting formulas that would need to be adhered by local municipalities.

Proposed Financing and Risk Allocation Framework for Water Investments

Based on the above, governments that have not yet privatized should explore options for establishing a viable framework for financing and sustaining water investments. Such a framework should be premised on full cost recovery because it is key to sustainability, management performance, and accountability of the various stakeholders. It must also be based on structuring the financing and operating arrangements so that traditional stakeholders such as the water utilities and various government agencies are provided with the appropriate incentives to sustain water investments in the long term. This means that each involved stakeholder must be designated precise responsibilities and roles, such that accountability for nonperformance is clearly identifiable and can be traced back to the appropriate source. The framework must also be based on enforceable contracts with remedies.

Table 3 lays out the various elements of a framework for allocating risks to various parties on WSS sector investments. The proposed framework acknowledges practical limits on what can be realistically achieved by governments within their existing environments and would involve a wide range of policy changes, particularly in terms of roles and responsibilities of key stakeholders. But more fundamentally, it calls for the development of enforceable commercial agreements between parties,¹² irrespective of whether they are public or private. Breach-of-contract guarantees would then become particularly useful.

Through this approach, the various risks related to the planning, design, building, operating, and financing of water investments would be equitably allocated, and recourse must be provided to affected parties very similar to what is done in contractual arrangements entirely between private parties. The allocation of the various risks should be done on the principle that those parties that can best manage and mitigate the risk should in fact be the ones to take up that risk for a tangible or even intangible price.

At the same time, an expansion of water investments requires the development of long-term institutional capacity. As such, the framework needs to involve institutions that would ultimately become the appropriate stakeholders for sustaining investments in the sector (that is, involving banks instead of direct on-lending by the ministry of finance).

In summary, the framework incorporates the following main components. The scope for risk mitigation instruments within such framework is shown in Figure 7 below.

- Intermediation by local banks. Involving local banks that operate under commercial principles brings in a significant element of governance that normally does not exist in traditional public financing between national and sectoral agencies. Public or private, there is generally more respect for the financial sustainability of banks among government officials. Such sustainability is also supported by strict bank supervision guidelines. Likewise, local banks can play a more significant role in the financing of water infrastructure by participating as lenders and guarantors. This would mean that the financial institutions would assume the full credit risks of water projects and accordingly charge an interest rate that reflects the credit exposure being assumed while taking up such risks. Banks with extensive branch networks would be particularly

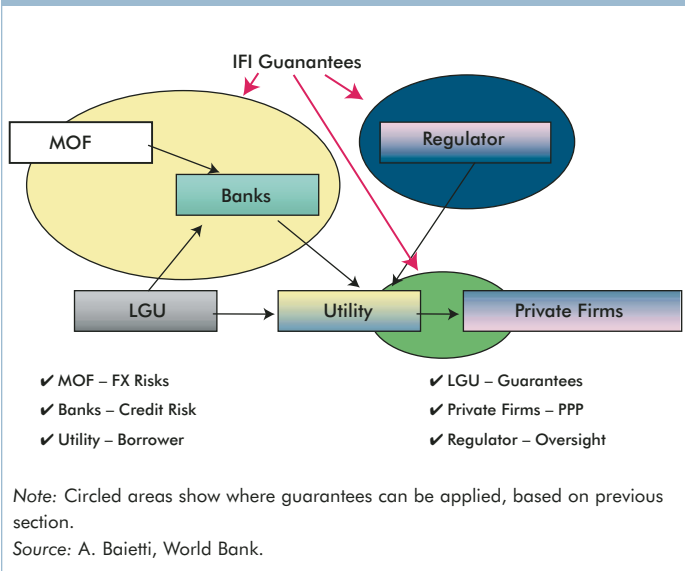
¹² The execution of enforceable agreements requires the establishment of an entity that can legally undertake such agreements and that can be held liable for their breach. As such, utilities that are part of a municipal department would need to establish their own legal identity as a precondition to entering into enforceable agreements.

Table 3: Elements of a Workable Framework for Water Supply and Sanitation Investments

Element	Traditional Approaches	End Goal	Realistic Target
System Design & Planning	Supply-driven, with substantial national or local oversight.	Demand-driven, with community consultations on affordability and willingness to pay.	Delegation to local level, with community consultations.
Construction Risk	Government agencies assume responsibility for the construction of systems.	Construction should be competitively contracted to private firms.	Private firms should compete for bids.
Operation & Commercial Risk	Very little accountability for operating performance because too many parties make decisions that affect the viability of the utility. As such, responsibility is diffused.	Operations should be transferred to professionally managed utilities or private contractors that take on the full commercial risk of the operation under a defined regulated environment.	Utilities need to have full autonomy in their operational and commercial activities. This requires a clear incentive or penalty framework that will apply equally to all service providers, whether public or private.
Equity Financing	Most equity for utilities is sourced from the national or local governments and from donor grants, without the expectation of generating a return on these contributions.	With an entirely private system, equity would be sourced from private sponsors or capital markets, with the expectation of a return.	For public utilities, local governments should be main sources of equity financing. National government and donors should continue their support. A return should be expected and retained to leverage new investments financing. Hybrid schemes can allow for sourcing of private equity.
Subsidies	Household consumers generally subsidized by commercial and industrial consumers. Operational subsidies from treasury.	Users should pay for their fair share of the full cost of services.	Specific and targeted subsidies to poor communities and some level of cross-subsidies among consumer classes.
Sources of Debt Financing	Mostly through public sources and donor on-lending.	Private finance markets.	Through public sources and donor on-lending and private commercial lending under government or donor credit guarantees (liquidity risk mitigation).
Liquidity Risk			
Currency Risks	Ministry of finance (MOF) will typically absorb the currency risk, but without a proper pricing methodology.	Ideally, some type of market-based hedge instruments would be available for taking cross-currency risk.	MOF is in the best position to take up currency risks, but with proper pricing and management.
On-Lending Vehicle	Direct subloans to utilities from MOF.	Private banks should be taking up the credit risks.	State banks can begin to take up credit risk on water sector lending. (If such state owned banks are commercialized, there is no reason that they have more capacity to take on borrower risks of noncreditworthy utilities; PCG is the instrument that would allow the sharing of credit risks between lenders and the guarantor.)
Borrower Credit Risk			
Debt-Service Responsibility	Currently, many utilities are responsible for debt service; however, usually unclear what happens in case of default.	The creditworthy utility, public or private.	Utilities with the guarantee from the local municipality.
Debt Pricing	Subsidized.	Market-based.	Markup or cost-based pricing. (Quasi-market-based to avoid the crowding out commercial lenders; affordability issue should be addressed with subsidies.)
Tenor of Debt	If sourced through private channels, it is usually short-term, typically less than 5 years.	Development of capital markets such that access to long-term debt financing can be secured.	Leverage Official Development Assistance (ODA) long-term financing and guaranteed loans for as much as 20 years. Make most use of equity sources from private sponsors.

Source: A. Baietti, World Bank.

Figure 7: Scope of Guarantees within a Risk Allocation Framework for Water Investments



important because these would enable greater customer coverage into remote areas, as well as more cost-effective marketing and loan administration. As indicated in many countries, long-term financing may not be available, and sources of funding, primarily debt, would have to be mobilized through on-lending of funds from Official Development Assistance (ODA), including IFI lending. Over time, such financing can be blended with locally sourced financing, which could be backed by guarantees on refinancing or other enhancements.

- Local governments as guarantors. With decentralization occurring in many countries, local governments become the de facto owners of public utilities. Often, however, the objectives and priorities of elected local officials appear to be at odds with the objectives for the utilities' financial sustainability. As such, besides the role as the owner and raising counterpart funding for water investments, this decentralized framework also calls on local governments to participate as guarantors on loans

extended to utilities by the financial institutions. In this way, local government would be confronting tradeoffs through financial sanctions if their policies may interfere with the financial sustainability of the utility. Moreover, having local governments as guarantors, local banks would be more prone to take the credit risk on water investments because of the ability to intercept central transfer to local governments. But again, guarantee agreements with local governments must also be binding and enforceable. As indicated, IFI partial risk guarantees on the regulatory and legal framework could be utilized for this purpose.

- MOF on-lends in local currency. As a matter of financial prudence, subsovereign water utilities should not be subjected to assume the risks of foreign exchange rate fluctuations because such risks should be, in principle, passed on to consumers eventually and the central government is better suited for this role of managing the exchange rate risk in many countries. However, in line with the principles of cost recovery, the MOF would charge a markup for the related risks and appropriately manage its exposure in this area. The concept of an FX insurance fund, as described above, can be set to professionally manage this exposure.
- Private firms as operators or equity investors. Private firms can enter into the market in a number of different PPP scenarios, depending on various factors, including financial sustainability levels and perception of risk. In certain conditions where poor operational performance by the existing public utility has been proven, the government may opt to competitively bid for private contractors to manage existing operations and unserved areas for new water supply service. Depending on the type of contract, private operators may be contributing to the financing of investments.

BIBLIOGRAPHY

- Asian Development Bank. 2002. *Catalyzing Private Investments across Asia and the Pacific*. Asian Development Bank, Manila, Philippines.
- Baietti, Aldo. 2001. "Private Infrastructure in East Asia: Lessons Learned in the Aftermath of the Crisis." World Bank Technical Paper 501. World Bank, Washington, D.C.
- Camdessus, Michel, and James Winpenny. 2003. *Financing Water for All*. Report of the World Panel on Financing Water Infrastructure. World Water Council and Global Water Partnership, Stockholm, Sweden.
- Gray, Phil, and Timothy Irwin. 2003a. "Exchange Rate Risk: Allocating Exchange Rate Risks in Private Sector Infrastructure Projects." Private Sector and Infrastructure Network Viewpoint 266. World Bank, Washington, D.C.
- . 2003b. "Exchange Rate Risk: Reviewing the Record for Private Infrastructure Contracts." Private Sector and Infrastructure Network Viewpoint 262. World Bank, Washington, D.C.
- Harris, Clive. 2003. "Private Participation in Infrastructure in Developing Countries: Trends, Impacts, and Policy Lessons." World Bank Group Working Paper 5. World Bank, Washington D.C.
- Harris, Clive, and Jan Janssens. 2004. "Public and Private Roles in Water Supply and Sanitation Services." Operational Guidance for World Bank Group Staff. World Bank, Water Supply and Sanitation Sector Board, Washington, D.C.
- Hoelscher, David S., and Marc Quinn. 2003. "Managing Systemic Bank Crises." Occasional Paper 224. International Monetary Fund, Washington D.C.
- Matsukawa, Tomoko, Robert Sheppard, and Joseph Wright. 2003. "Foreign Exchange Risk Mitigation for Power and Water Projects in Developing Countries." Energy and Mining Sector Board Discussion Paper 9. World Bank, Washington, D.C.
- Mehta, Meera. 2003. "Meeting the Infrastructure Financing Challenge for Water Supply and Sanitation: Incentives to Promote Reforms, Leverage Resources, and Improve Targeting." World Bank, Water and Sanitation Program, Washington, D.C.
- PricewaterhouseCoopers. 2003. "Comparative Review of IFI Risk Mitigation Instruments and Direct Subsovereign Lending." PricewaterhouseCoopers, Washington, D.C.
- Van Ginneken, Meike, Ross Tyler and David Tagg. 2004. "Can the Principles of Franchising be Used to Improve Water Supply and Sanitation Services? - A Preliminary Analysis." World Bank, Water Supply and Sanitation Sector Board, Bank Netherlands Water Partnership, Washington, D.C. Available on line at: http://www.worldbank.org/watsan/pdf/WSS_Franchise.pdf

ANNEX 1

OVERVIEW OF RISK MITIGATION INSTRUMENTS AVAILABLE THROUGH IFIS

While risk mitigation instruments have been available for several decades in emerging markets, it was not until the mid- to late 1990s that IFIs began to introduce a broader range of instruments and to develop programs for promoting their wider use. These instruments have been designed to address the need for noncommercial, political risk mitigation products by lenders or by equity investors contemplating investment in emerging markets. In principle, these products mitigate risks that are typically associated with the political, legal, regulatory, contractual, and social environment of a country (that is, risks that investors have limited or no ability to control).

The risk mitigation products offered by the IFIs provide three important benefits for lenders, investors, and participating countries and projects by:

Opening markets to potential investment. The ability of investors to access these instruments at reasonable cost has expanded investor and lender interest in emerging market infrastructure investment. For many investors, credit enhancement through political risk insurance coverage is a prerequisite for considering investment opportunities.

Enhancing creditworthiness, thereby lowering the cost of capital. The effective use of these products enhances project creditworthiness, thereby lowering the cost of capital and, ultimately, the tariff structure needed to service debt and provide acceptable returns on investment.

Providing access to honest broker services. IFIs are generally considered impartial parties to a transaction from both the investor and country perspectives. IFIs, by virtue of their preferred-creditor status with countries and their participation in projects, provide investors with confidence that in the event of a debt-service curtailment, IFIs would be available to provide critical dispute resolution support.

The range of noncommercial risks and the products developed and offered by the IFIs to cover them can be generally classified into four categories:¹³

- “Traditional” Political Risks
- Contractual and Regulatory Risks
- Credit Risks
- Foreign Exchange Risks

Figure 8 provides an overview of the risks faced by an infrastructure project at various stages of its life cycle.

IFIs have traditionally played a critical role in sector and regulatory reform and in preparing projects for potential private participation. Guarantees can be used to bolster confidence in these reform efforts because they are likely to have a catalytic effect, thereby encouraging further investment in the sector.

The risks covered by these instruments, their use by IFIs, and their utility in the WSS sector are described in more detail below.

¹³ IFIs have been broadening the coverage of their risk instruments; therefore, the categorization is a convenient—but not rigid—division of instrument coverage.

Figure 8: Risk and the Project Cash Flow Structure

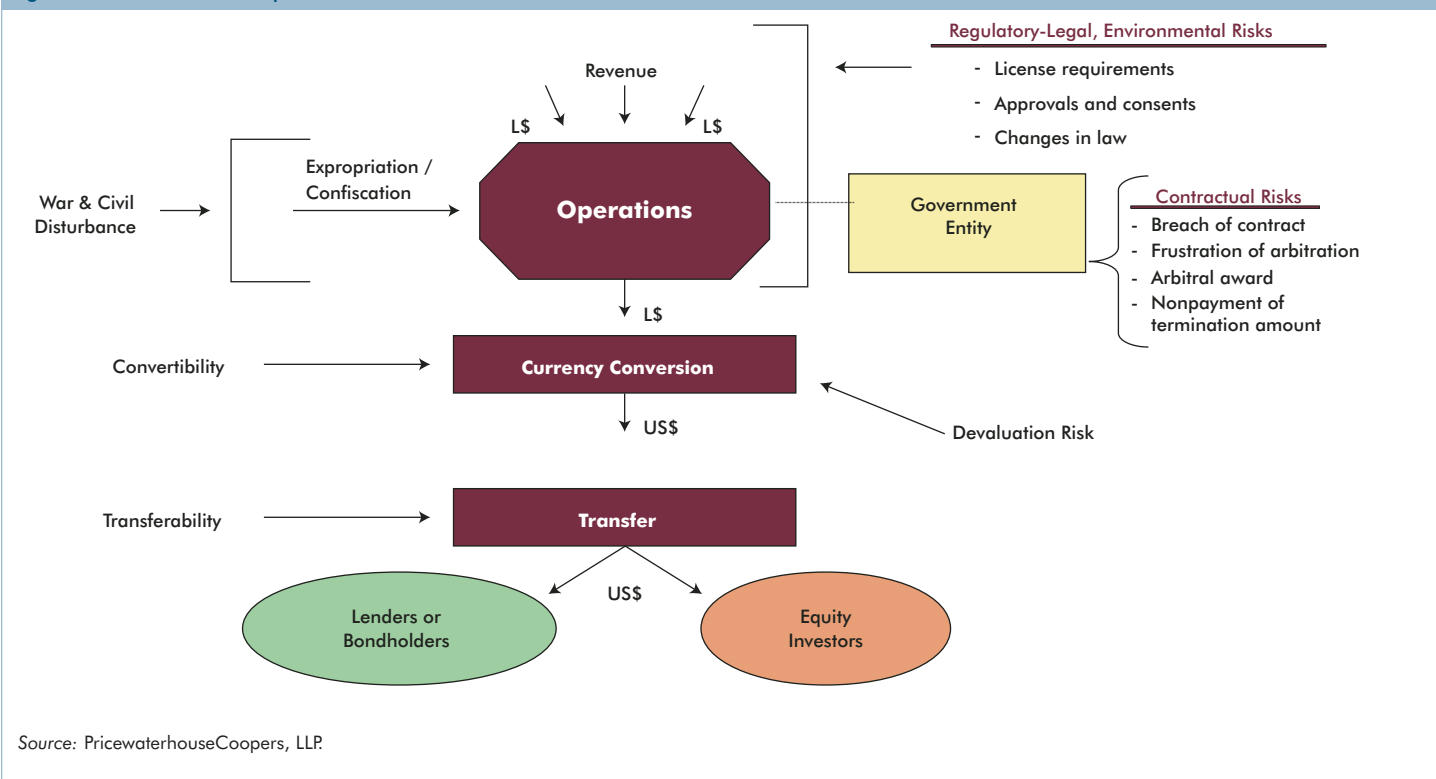
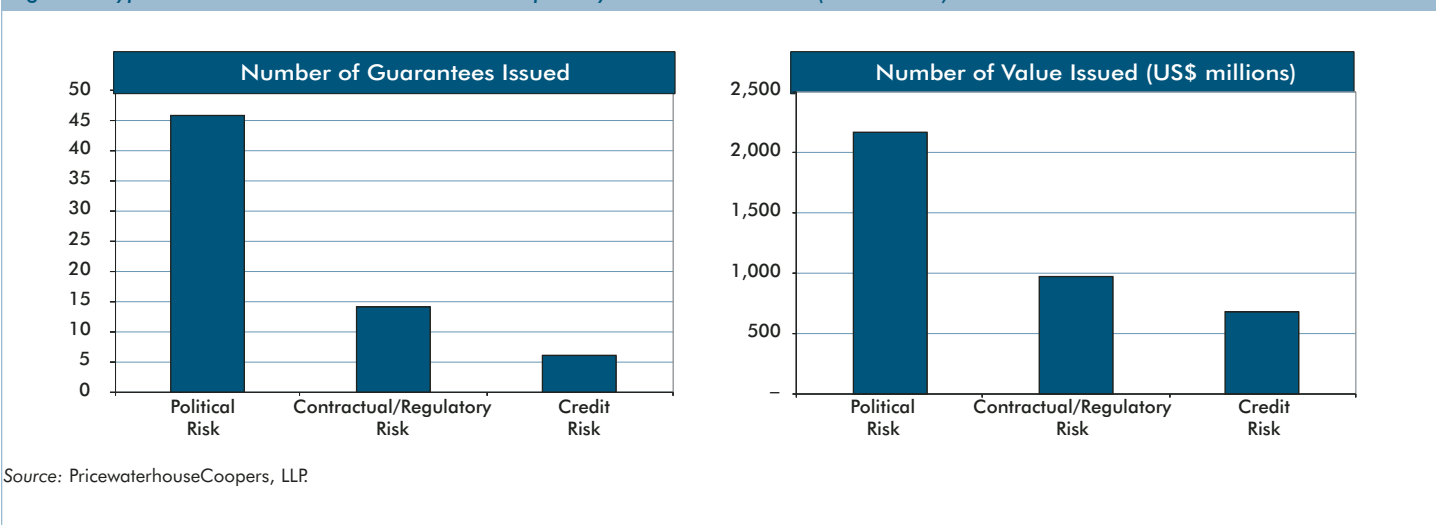


Figure 9: Types of Guarantees for Infrastructure Projects by Number and Value (2001–2003)



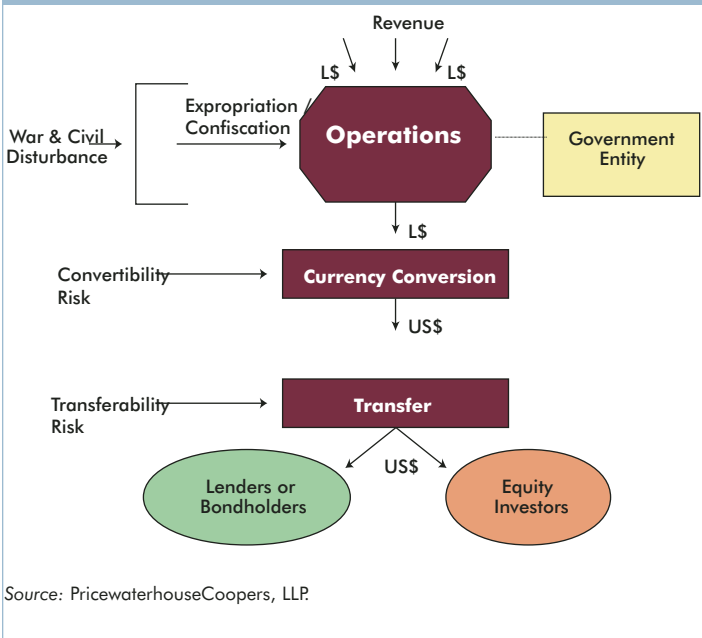
“Traditional” Political Risk Instruments

Traditional political risk instruments have developed a healthy track record and acceptance in the bank and capital markets. Introduced in the 1960s, these instruments have established a claims-processing and payment history that has been widely acknowledged as meeting the minimum investment criteria of investors and lenders. Specifically, these instruments provide coverage against risks arising from:

War and civil disturbance
 Expropriation and confiscation
 Currency convertibility and transferability

Terrorism coverage has been added recently by some institutions.

Figure 10: Risks Impact on a Typical Project



The use of traditional political risk instruments far outweighed use of other available instruments, both by number and by value (see Figure 9). Figure 10 shows these risks as they impact a typical project.

Using Standard & Poor's (S&P) country ratings¹⁴ as a proxy for the stability and transparency of an investment regime, the distribution of guarantees issued to investment- and non-investment-grade countries was reviewed. It was found that IFIs were providing cover almost exclusively in non-investment-grade countries (see Figure 10). In fact, during 2001–2003, no traditional political risk guarantees were issued in investment-grade countries by any of the IFIs, and nearly 50 percent of the covers written were issued in C-range rated or nonrated countries. The data suggest that traditional political risk instruments, which have been designed to cover political risks in uncertain markets, are serving this purpose to some extent.

Application in WSS Sector

Despite the success of the traditional political risk instruments in the market, they have rarely been used in the WSS sector. Since 2001, only two guarantees were issued to water sector projects. The first was provided by MIGA to investors in the Guayaquil concession. The second was provided by IsDB to investors in the Port Sudan Desalination Facility.

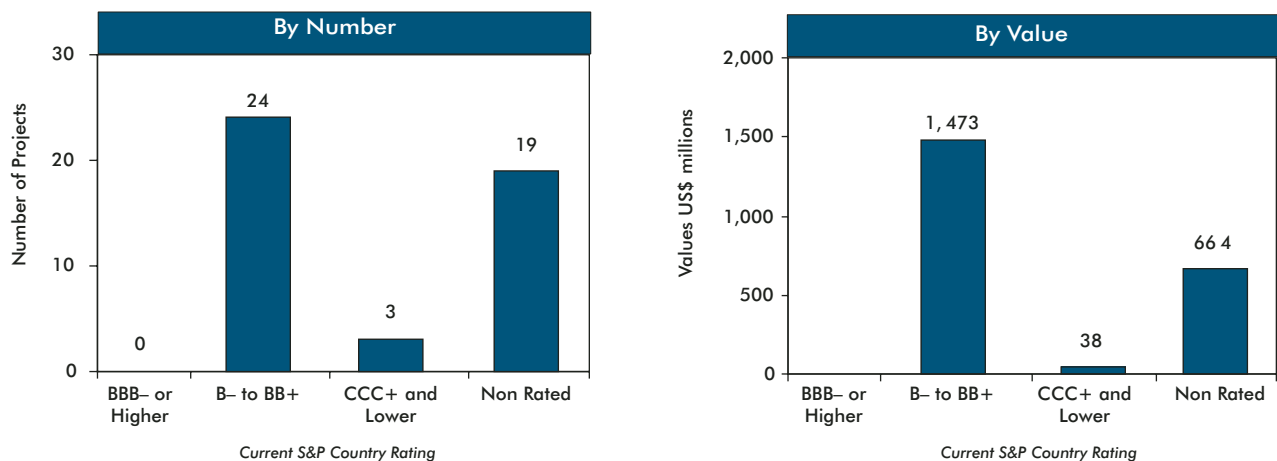
The limited use of traditional political risk instruments in the water sector (when compared with their much larger use for other sectors) is generally attributed by IFIs to the limited supply of bankable projects.

Contractual and Regulatory Risk Instruments

In view of the number of projects that failed or were renegotiated because of regulatory capture and contract disputes, IFIs began to introduce guarantee coverages to address these risks. By nature, such coverage is more complex to write than traditional political risk cover because it relies on the legal documentation underlying the specific transaction and the regulatory undertakings the government has given. Contractual and regulatory risk coverages offered by IFIs include coverage against breach of contract, changes in law, license requirements, approvals and consents, obstruction in the process of arbitration, arbitral award following a covered default, and nonpayment of a termination amount.

¹⁴ Standard & Poor's sovereign ratings as of August 2003 and at the time the guarantee was issued were reviewed. Only three countries experienced substantial downgrades during the study period: Argentina, Brazil, and Ecuador. The ratings reflected in the figures are as of August 2003.

Figure 11: Traditional Political Risk Coverage and Country Rating



Source: PricewaterhouseCoopers, LLP.

Events that would trigger a call on the guarantee must be clearly defined while writing these guarantees. In most cases, the dispute resolution remedies specified in the contract or regulatory documents have to be exhausted before receipt of payment from the guarantor.¹⁵

Because of the specialized nature of these coverages, they have until recently been offered as a customizable menu of options for addressing specific project requirements. As familiarity with these coverages has increased within IFIs and (to a lesser extent) the investment community, many of the above-specified risks are now being covered under a generic breach-of-contract policy.

Figure 12 depicts in simplified form where these risks are faced by investors.

Application in WSS Sector

In many respects, contractual and regulatory risk coverage is ideally suited to water sector investments because WSS projects are characterized by complex, multiparty agreements and evolving regulatory frameworks. Nevertheless, only one WSS sector project since 2001 has taken advantage of these instruments, thus demonstrating sponsor lack of familiarity and limitations on productizing these instruments for increased project application.

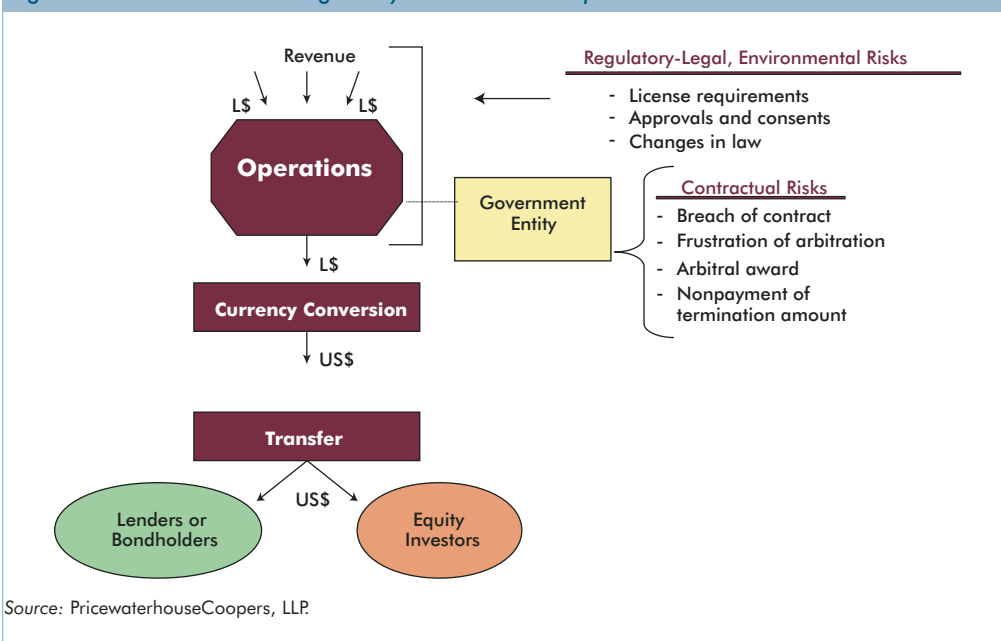
Credit Risk Instruments

Credit risk instruments provide coverage specifically for lenders or bondholders. They do not cover equity. The Asian Development Bank's (ADB's) definition of partial credit guarantees (which follows) applies to most of IFI credit guarantee products.

"Partial credit guarantees (PCGs) are designed to cover that portion of the debt service that falls due beyond the normal tenure of loans available from commercial lenders. They are generally

¹⁵ However, in response to market concerns, a number of IFIs will now provide payment against a guarantee at the time of proof of legitimate claim, thereby enabling debt service to continue while the dispute is going through the resolution process.

Figure 12: Contractual and Regulatory Risks and the Project Cash Flow Structure



Source: PricewaterhouseCoopers, LLP.

used for projects that need long-term funds to be financially viable. PCGs cover all events of nonpayment of the guaranteed obligation. In that sense, PCGs are comprehensive guarantees of principal and/or interest for those maturities that cannot be obtained from commercial lenders without credit enhancement. PCG cover is particularly useful for projects in DMCs [developing member countries] with restricted access to the financial markets, but which are considered fundamentally creditworthy and sound by ADB.”¹⁶

Some institutions’ coverages apply only to the latter part of the loan duration, other institutions cover a

portion of debt service throughout the life of the loan, while still others provide a hybrid of the two. Most IFIs limit their coverage to a percentage of the total amount borrowed (thus the term “partial” credit guarantee) to reduce exposure to commercial risks covered by such comprehensive products.

As Figure 13 shows, these instruments can cover all events of default, from political risks to commercial risks. These guarantees can be issued for both local and foreign currency borrowings. Their ability to credit-enhance a local borrowing is emerging as a significant area of focus for many of the IFIs in promoting WSS investment.

Application in WSS Sector

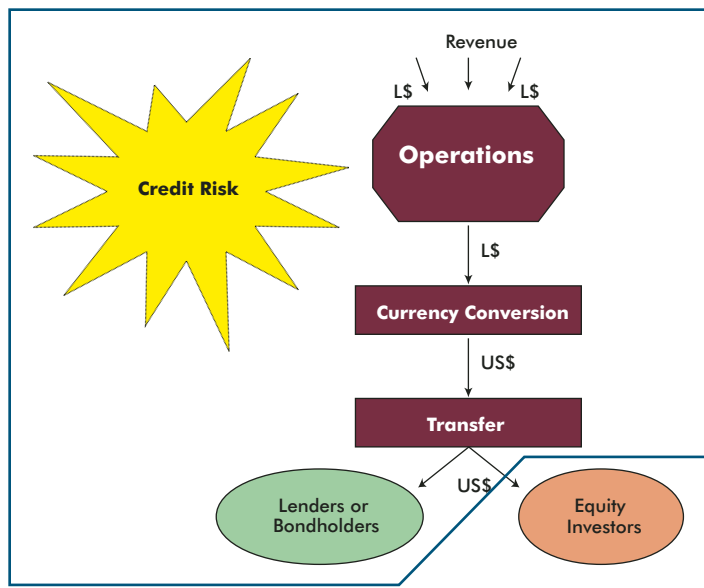
Credit risk instruments are well suited for WSS sector investments. When structured properly, they have mobilized domestic capital, reduced foreign exchange risk, and backed subsovereign borrowers. However, given that they underwrite bank loans and bonds, they require the presence in the deal of reasonably sound financial institutions. Given that they also cover commercial risks, IFIs are required to develop the core competencies to conduct a full project due diligence, including off-taker credit quality and debt-service sustainability. When used in combination with risk instruments that can cover investor equity, credit risk instruments offer guarantees with a significant ability to mobilize capital. For instance, the IFC has made rapid and successful use of the partial credit guarantee in two WSS projects, one in Mexico, a BBB investment-grade country, and one in Colombia, a BB rated country.

Foreign Exchange Risk

In the wake of the Asian, Russian, and Argentinean financial crises, devaluation risk has perhaps become one of the foremost concerns of investors in emerging market infrastructure. Currency

16 ADB’s Private Sector Operations, “Catalyzing Private Investments across Asia and the Pacific,” February 2002; see also http://www.adb.org/Documents/Brochures/Private_Sector/2002/default.asp.

Figure 13: Credit Risk and the Project Cash Flow



Source: PricewaterhouseCoopers, LLP.

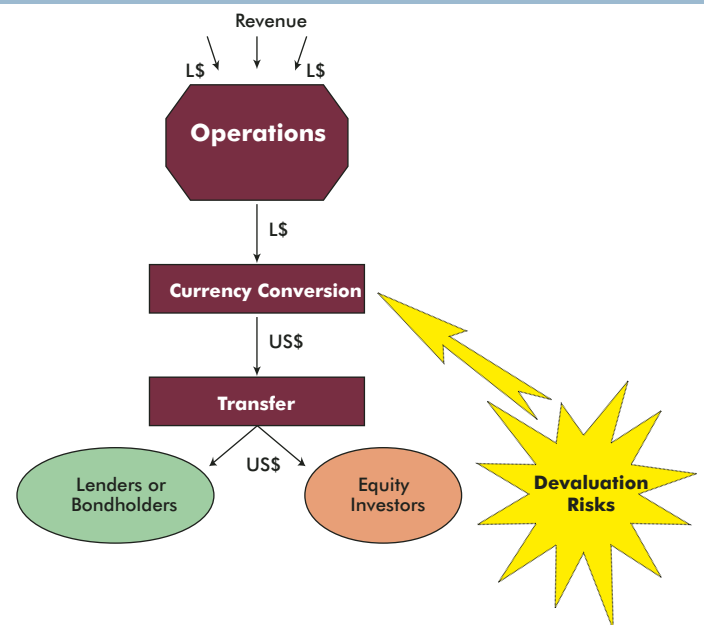
crises have demonstrated the limits of contractual agreements, where (despite provisions to the contrary) currency devaluation could not be offset by commensurate tariff increases. In many instances, such tariff increases were politically and socially infeasible to effect.

In times of such crises, tariffs may become insufficient to meet costs of operations and maintenance, let alone to continue to meet debt-service requirements and generate returns on invested capital. Capital investment programs are therefore suspended, and investors, lenders, and governments enter into extensive and tedious renegotiation of contracts—or exit from their contracts altogether. Figure 14 shows the effect of currency devaluation on debt service and returns on equity.

While no meaningful foreign exchange risk coverage exists today either in the commercial markets or among the IFIs for most emerging market currencies, IFIs have reported their interest in exploring in two specific areas (that is, options for local currency financing, and specialized foreign

exchange cover such as devaluation backstop facilities) to address such risk. However, such ideas are still in the conceptual phase, with many issues still needing substantive analysis.

Figure 14: Foreign Exchange Risk and the Project Cash Flow



Source: PricewaterhouseCoopers, LLP.

ANNEX 2

USE OF WORLD BANK GUARANTEES IN SUPPORT OF OUTPUT-BASED AID SCHEMES

The term “output-based aid (OBA)” involves a subsidy payment through external assistance sources, which aims at ensuring that specified outputs from a private service provider are obtained against payments from governments and donors (public sources). This is in contrast to traditional Bank lending, which provides for construction or “input” finance, rather than disbursed against specified preagreed outputs.

OBA schemes can help mobilize private finance for initial investment outlays for projects. The private sector would consider such schemes as a far more reliable source of remuneration than payments undertakings of governments, particularly in countries that have limited budgetary resources, weak budget management, or complex budget release procedures. Subsidies can be programmed either for a short transition period or for a longer term, depending on the varying nature of the projects and objectives for which the OBA scheme is introduced. In either case, external assistance agencies (including the Bank) would not normally commit themselves to indefinite subsidy support, but would expect these payments to be either phased out (the transition model) or to be replaced after a period of time by domestic budgetary resources (the long-term subsidy model).

If a private infrastructure service provider depends (fully or partially) on subsidy payments for its revenue, its ability to mobilize private capital may be constrained by the perceived risks associated with receiving such payments from government budgetary sources or whether governments would be able to honor their commitments for the duration of the project. In such instances, World Bank partial risk guarantees could be utilized in support of OBA schemes (OBA guarantees) to backstop government contractual payment obligations once IDA credits or other donor funds have been exhausted and recourse to government subsidy payments commences.

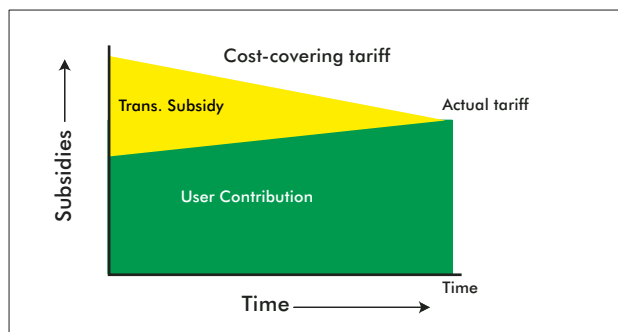
In addition, in OBA schemes with partial cost recovery through user fees, the contractual subsidy payment by governments (funded by IDA and donor credits) may not be sufficient to allay investor concerns about the remaining portion that would be raised through user fees. This would be particularly true in countries that have poor track records in honoring contracts. In such cases, a World Bank partial risk guarantee (PRG) could also be used to backstop government policy and regulatory undertakings, in addition to any government payment support. A guarantee structure for such a project could thus include two aspects of risk mitigation: (a) breach of government payment obligations for subsidies and (b) nonfulfillment of policy and regulatory undertakings related to the project’s income from user fees.

Governments can best mitigate investors’ perceptions of political risk by developing a good payment track record. In the interim, however, partial risk guarantees may be needed for a limited period to allow governments time to build up such a credibility in this regard. Given the Bank’s unique relationship with its member countries and their governments, it is better equipped than the private sector to backstop certain government-related risks, thereby reinforcing the incentives for governments to comply with their payment and performance undertakings under an OBA scheme, through the Bank’s counterguarantee from governments.

Transitional Subsidies

OBA guarantee schemes can support either transitional or long-term subsidies. Transitional subsidies are provided to private operators where cost-recovery tariffs cannot be implemented

Figure 15: Transition Subsidies



Source: World Bank.

from the outset, but need to be phased in gradually. During this transitional period, the private operator would be required to increase efficiency and reduce costs so that tariffs could rise to a level that corresponds to the costs of efficient service provision and at the same time is sustainable without the need for subsidies. Payments for this transitional subsidy could be financed for a period of five to six years from an IDA credit or from other donors. At the end of this period, the subsidy would then be financed directly by government, backstopped by an IDA partial risk guarantee (PRG), as shown in the Figure 15.

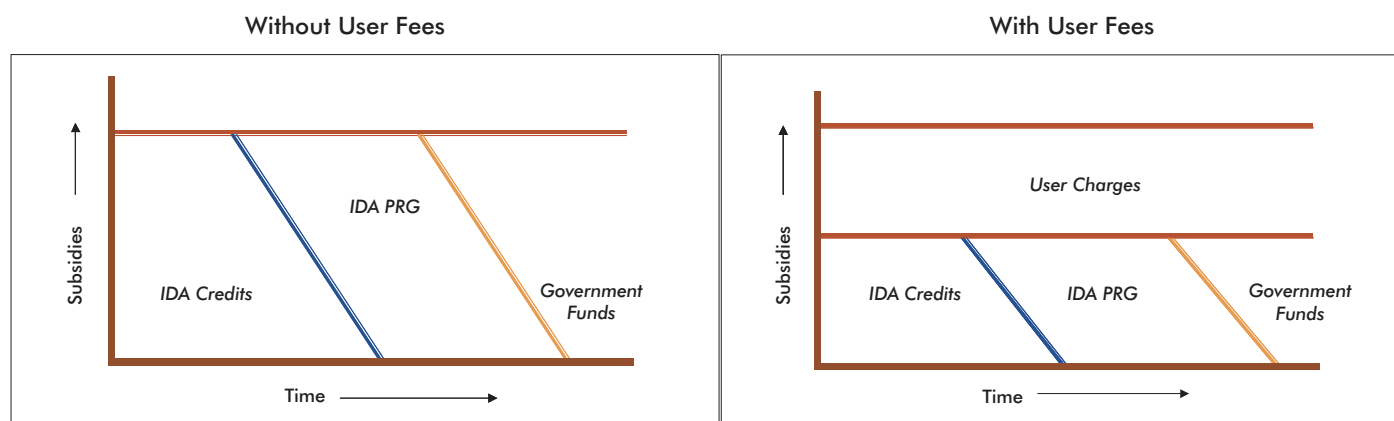
Long-Term Subsidies

In projects where the subsidies are needed for a long-term period (for example, for reasons of externalities or affordability), PRGs may also be required to support the obligations of the government beyond the IDA or donor funding period (see Figure 16). This could apply in both cases where OBA payments are the provider’s only revenue source (for example, in performance-based road rehabilitation and maintenance schemes, shadow toll roads, or health services based on voucher distribution to target groups), as well as where OBA payments supplement user fees (for example, toll roads, water supply schemes, or power distribution). If the private sector is not willing to assume any portion of the government’s credit risk, an IDA credit or donor funding could finance the OBA payments during an initial period to help establish the mechanism and to ensure a reliable payment stream. In this way, once a credit track record has been established for the government, the PRG could fall away, and OBA payments could continue to be made from the government budgetary resources.

Multisector Subsidy Facility

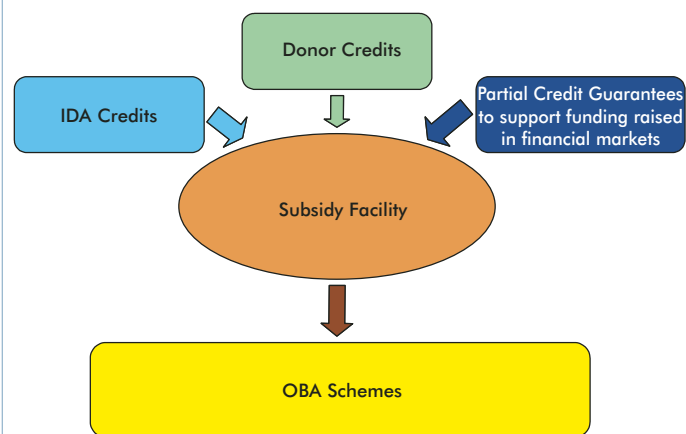
Wholesale OBA facilities can also be established in instances where there is need to raise funds to support several smaller-size projects where the transaction costs may not justify separate schemes. Such a facility could be funded through IDA credits and government’s own funds and cofinanced

Figure 16: Long-Term Subsidy without User Fees Long-Term Subsidy with User Fees



Source: World Bank.

Figure 17: Multisector Subsidy Facility for OBA Schemes



Source: World Bank.

from donor funds (see Figure 17). The government could also utilize the Bank's partial credit guarantees to raise private funding from the capital markets or from commercial banks. The credit guarantee could then help to extend the term and lower the cost of borrowings for governments.

An OBA subsidy facility could facilitate the provision of transitional or long-term subsidies under various OBA schemes in different sectors, but would be particularly relevant for the funding of long-term OBA schemes such as new telephone, power, and water connections in rural areas. Under such schemes, small amounts of subsidy payments are normally required to fund ongoing support to targeted categories of consumers.

While IDA and other donor sources would initially fund a facility, disbursements into the facility would allow it to finance streams of subsidy payments beyond the short disbursement period of IDA and other donor credits. These subsidy flows

could also be supplemented by government funds mobilized from the market (with the support of IDA partial credits), from levies and user charges from existing operations, or from other governmental revenue sources. In such cases, partial risk guarantee support could also be provided to backstop any government commitments relating to the transfer of funds (that is, levies and taxes) into an OBA facility. The guarantees would discontinue once the facility has gained a track record of successful management and a steady source of funding from sector levies or taxes.

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