7

Innovative Approaches to Municipal Infrastructure Financing

The four case studies presented in previous chapters underscore the growing financing requirements of sub-national governments. This section considers some of the market-based financing initiatives that have been undertaken by sub-national entities in emerging markets and developing countries to finance municipal infrastructure and public services. It first sets the context for market-based financing and discusses the salient issues relevant for a change in financing approaches. The chapter then goes on to discuss different financing mechanisms that have proven successful across developing countries.

Introduction to market-based financing of sub-national infrastructure

The rapid urbanisation and globalisation of cities, combined with functional decentralisation, have increased the pressure on local governments' conventional sources of revenues from taxes and transfers. In addition to a reformed fiscal decentralisation framework, which includes higher predictability and transparency in the allocation of intergovernmental transfers, several sub-national governments have initiated revenue enhancement projects aimed at increasing the taxable base, tax rates and improving tax administration and collection efficiency. Revenue mobilisation strategies, such as voluntary contributions from the local population and charging for some municipal services that have been historically provided free of charge, have succeeded to varying degrees in closing the revenue expenditure gap.

However, since local taxes and charges cannot be expanded infinitely, most local governments are now seeking alternate forms of financing their fiscal expenditure responsibilities. In particular, investments for the maintenance and construction of urban infrastructure require high volumes of long-term finance. Sub-national governments of North America and Western Europe hold a long-standing record of harnessing long-tenor market capital for urban infrastructure, although they adopt different models. For example, North America has historically relied on municipal bonds; Western Europe has developed its home-grown development banks; and the United Kingdom is well known for its private financing initiatives (PFIs), where the

government contracts with the private sector to deliver specific infrastructure investments and services.

Similarly, governments in several emerging market countries are gradually embracing the idea of sub-national entities accessing private finance for investments in public infrastructure and services. It is important that the policies to foster sustainable municipal finance markets are supported by a robust regulatory framework that ensures prudent borrowing, accountability and financial discipline. In many countries, the traditional thesis of 'local government borrowing being irresponsible' has now been turned on its head to permit 'responsible' local borrowing, within the enabling environment and fiscal decentralisation framework prescribed by the federal government.

Recent policies to enable municipalities to raise market-based finance have been justified on several grounds, including:

- Recognition that public and donor finances are insufficient to meet the needs to build new infrastructure, or to repair and refurbish existing infrastructure,
- 'Intergenerational equity' – where the 'lumpy' costs of infrastructure investments should be spread over the useful life of the asset, and serviced through a regular stream of municipal income and project revenues resulting from the investment and
- Exposing a city's development financing, where viable, to the rigours of 'market discipline', and thereby mobilising domestic savings for long-term growth-oriented infrastructure needs.

However, establishing sustainable markets to enable municipal borrowing have numerous challenges. Most often, the credit and capital markets in developing countries are neither efficient nor deep enough in intermediating savings from institutional and individual savers to fund projects. Therefore, sub-national governments in emerging market countries are frequently attempting to access market finance through hybrid models, some of which include elements of credit enhancement or grant-based technical assistance.

Some of the principal approaches that have been adopted to access alternate private financing for infrastructure investments at the sub-national level include:

- Borrowing from development banks and financial institutions,
- Direct borrowing from capital markets, e.g. by issuing local authority bonds,
- Establishing specialised municipal intermediaries or funds to 'crowd-in' private capital for municipal infrastructure and
- Soliciting private sector investment through various forms of public–private partnerships (PPP).

Each of these financing models is discussed in turn below, along with some relevant case studies on their successful implementation. These illustrations are by no means exhaustive, and simply seek to demonstrate some of the viable alternatives to access market finance for sub-national infrastructure investments. Furthermore, there is a degree of overlap amongst these options. For example, a development bank or municipal intermediary may access funds through the capital markets, or a PPP project may be financed by the private operator through borrowing from local financial institutions.

Borrowing from development banks and financial institutions

Western Europe heralded the practice of establishing municipal banks and financial institutions to mobilise long-term savings and government contributions for municipal infrastructure needs. In the context of developing countries, some municipalities may have borrowed from banks to meet their working capital requirements. However, borrowing larger sums for long-gestation capital investment projects is more difficult. This is because banking regulations limit the banks' ability to lend for long tenors, since their deposit liabilities are short-term and volatile. Furthermore, most banks lack the expertise to evaluate the risks of a municipal finance investment. Therefore, they either refuse to lend, or charge exorbitant interest rates while demanding significant amounts of collateral to provide credit for municipal investments. Moreover, other potential sources of long-term credit, such as mutual funds, insurance and pension funds, are still nascent in several developing countries.

Despite these constraints, some developing countries have established development banks or non-banking financial institutions to provide long-term credit for infrastructure projects, both at the national and sub-national levels. Some of these institutions also provide guarantees and other credit enhancements to infrastructure project lenders. Two examples of development financial institutions are described below:

- Infrastructure Development Finance Company (IDFC), India: a non-banking financial company that primarily offers senior debt for promoting infrastructure projects in India.
- The Development Bank of Southern Africa (DBSA): offers loans, grants and technical assistance to public and private entities with the aim to promote infrastructure development and overall socio-economic growth of South Africa and the Southern Africa Development Community (SADC) region.

Infrastructure Development Finance Company (IDFC), India

IDFC is a non-banking financial institution established in 1997 to offer private financing for infrastructure projects in India, in addition to providing specialist

advisory services. The institution was originally sponsored by the Government of India and its financial institutions such as the Industrial Development Bank of India (IDBI). However, currently, a majority of IDFC's equity is held by other shareholders, including foreign institutional investors, banks and insurance companies, mutual funds and corporates. As of March 2007, IDFC's paid-in capital was 11.3 billion Indian rupees (Rs).

IDFC primarily offers senior debt for infrastructure projects (85.6 per cent of its outstanding disbursements in 2006), although in certain cases it also provides subordinated debt and equity capital. IDFC has also provided some contingent finance products such as financial and performance guarantees, and risk participation guarantees that are fully secured by security interests in the project's assets. Furthermore, IDFC offers take-out financing by 'taking over' the outstanding project loans from commercial banks and other financial intermediaries after a certain period (typically five years). This helps to extend the maturity of the loans to infrastructure projects.

As of March 2006, IDFC had approved financial assistance to 162 projects aggregating over Rs175 billion. Table 7.1 below presents the approved financing in 2005 and 2006 across the main sectors.

Table 7.1. Size of IDFC's portfolio for its key focus sectors in 2005 and 2006 in Indian rupees (Rs, millions)

Sector	*2005*	*2006*
Energy	Rs20,790 (15 projects)	Rs33,390 (34 projects)
Transport	Rs18,882 (15 projects)	Rs35,060 (24 projects)
Information and Communications Technology (ICT)	Rs13,305 (8 projects)	Rs16,700 (8 projects)

Source: IDFC

The Development Bank of Southern Africa (DBSA)

The Development Bank of Southern Africa (DBSA) is a leading development finance institution, whose purpose is to accelerate sustainable socio-economic development by funding physical, social and economic infrastructure in South Africa and the SADC region. In addition to being a financier for infrastructure projects, it also provides advisory support to develop the overall institutional, financial, technical and knowledge capacity for development. In recognition of the capacity constraints of the municipalities, the DBSA established a Development Fund in 2001 as a Section 21 Company. The mission of the fund is to provide grants and technical assistance to municipalities for infrastructure project implementation.

The DBSA is a self-funding institution and raises funds from domestic and international capital markets, institutional investors and bilateral and multilateral development finance institutions. The bank's capital as at 31 March 2006 stood at 13.2 billion South African Rand (R), comprising predominantly accumulated retained earnings of R8.5 billion. In addition, the South African government has a shareholding of R4.8 billion callable capital. Total assets as at 31 March 2006 stood at R26.5 billion.[1]

The DBSA has provided loans and grants (technical assistance) for infrastructure projects (to both public and private clients), spanning across municipal infrastructure, water and sanitation, transport, healthcare, education, agriculture etc. To qualify for a loan, the project needs to meet DBSA's investment policy criteria. Table 7.2, below, sets out a selection of its lending and technical assistance operations in South Africa in 2005/06.

Table 7.2. Selection of DBSA projects, 2005/06 in R[2]

Client	*Project description*	*Amount (R)*
Nelson Mandela Metropolitan Municipality	Technical and financial assistance for the Vision 2020 priority projects and the implementation of the municipal infrastructure development programme	800 million (loan) 85,000 (Grant)
Chris Hani District Municipality	Upgrading of sanitation in the whole of the municipal area	10 million (loan)
Ukhahlamba District Municipality	Restoration of water supply and sanitation services	1.5 million (loan)
Bethelsdorp Investment Holdings (Pty) Ltd	Procurement of equipment and material for a hand weaving enterprise	3.5 million (loan)
Alfred Nzo District Municipality	Upgrading of bulk sewerage and reticulation and road works	25 million (loan)
Ndlambe Municipality	Implementation of phase 3 of the municipal infrastructure programme	10 million (loan)
Mafube Municipality	Provision of infrastructure for the extension of municipal services delivery	8.6 million (loan)
Board of Bloemfontein Water	Implementation of the Bloemfontein Water capital programme	14.4 million (loan)
Blue Hills College (Pty) Ltd	Upgrading of infrastructure and provision of additional facilities and equipment for Further Education and Training	4.6 million (loan)
Lesedi Municipality	Building of a new switching station and upgrading of existing switching stations	5 million (loan)

Further to its loan portfolio, DBSA also underwrites guarantees and provides credit enhancements for projects and clients to attract better financing terms and conditions. Finally, it partners with international development and finance institutions to enhance integrated economic development and growth in South Africa and the SADC region.

Direct borrowing from capital markets – municipal bonds

The municipal bond market in the United States is the world's most sophisticated, in terms of the depth and nature of its long-term financing and in terms of the cash-flow functions it provides for municipalities across sectors of urban development. A major feature of US municipal bonds is the tax-free status of their interest payments, which helped attract wealthy individual savers in addition to institutional investors.

At its core, a municipal bond is a debt obligation issued by a sub-national borrower, with the undertaking to repay the bond principal with interest at a specified payment schedule. There may be several variants of municipal bonds developed using ingenious financial engineering. However, the two most common categories of bonds are revenue and general obligation (GO) bonds. As the names suggest, revenue bonds are serviced by the revenues of the particular investment, for example, toll roads. Typically, these are 'limited obligations' and do not have recourse to the municipality's revenues or assets. On the other hand, GO bonds are serviced from the general revenues – taxes and other income – of the municipality. Because of their nature, revenue bonds typically finance 'bankable' projects that have some charging mechanisms for cost recovery, while GO bonds may be used for investments that are not revenue generating.

The sections below provide case studies on the issue of GO and revenue bonds. They go on to present two cases on pooled financing mechanisms – a more ingenious bond issue used successfully by small and medium-sized municipalities in South India to raise market-finance for infrastructure projects like water and sanitation.

General obligation bonds

In the case of a GO bond, the debt is secured through the unconditional credit of the borrower, in this case the sub-national government. The local government uses its full set of revenue sources – own-source revenues and transfers – to service the outstanding debt and interest. Often, a portion of the general revenues of the municipality is 'ring fenced' in a dedicated account to ensure the timely servicing of the bonds, for example, through an escrow mechanism.

Long-term bond issue of the City of Johannesburg

Johannesburg, South Africa's largest city with a population of 3.2 million, is the country's main business centre. The city provides the full range of municipal services, ranging from power transmission to waste management. It operates a balanced budget with revenues primarily from power, water and sewerage tariffs, and property and business taxes. Johannesburg was seeking to access capital markets through issuing a GO bond with the objectives to:

- extend the maturity of its existing debt to better match its long-term assets,
- finance long-term infrastructure projects,
- refinance existing high-cost bank debt and
- diversify its funding sources away from exclusive bank lending.

The city sought long-term funding beyond 10 years, but faced a constraint that it could not issue bonds beyond six or seven years at an acceptable price without credit enhancement. The IFC assisted in structuring the transaction and provided the necessary credit enhancement in form of a partial credit guarantee equally shared with the Development Bank of South Africa. As a result, Johannesburg managed to issue a R1 billion (US$53 million), 11.90 per cent bond in June 2004, which matures in 2016 and amortises over the last three years in six semi-annual payments. The guarantee, sized at 40 per cent of the principal outstanding, can be used to repay up to the full amount of principal and interest, subject to guarantee limits, on any given payment date if there are insufficient funds for a particular period. Through the credit enhancement mechanisms, the bonds were rated AA- by Fitch Ratings, three levels above the city's stand alone rating of A-. The bond issue was oversubscribed 2.3 times.[3]

Revenue bonds

With a revenue bond, the pledge for debt repayment is limited to a specific source of project revenues, for example, fees from water utilities or a toll road. The borrower can either be the local government, a special fund or entity, or a utility company providing municipal services.

Revenue bond issue by Madurai Municipal Corporation, India

Madurai Corporation, with the assistance of the Tamil Nadu Urban Development Fund (TNUDF),[4] issued the first revenue bond in India based on ring-fenced project revenue streams. Funds were raised to refinance the construction cost of the 27 kilometre Madurai Inner Ring Road, inaugurated in 2000, which aimed at decongesting the city of heavy commercial vehicular traffic. The project cost of 440 million Indian rupees (Rs) was initially funded jointly by a loan of Rs305 from TNUDF and a grant of Rs130 million from Government of Tamil Nadu. After construction

was completed and following a year of operation, Madurai Corporation chose to refinance the TNUDF borrowing by sourcing market funds at cheaper cost.

The annual interest rate for the TNUDF loan was at 15.5 per cent, while the rate for long-term government bonds had fallen to 10.3 per cent. Consequently, with TNUDF assistance, Madurai Corporation refined its loan through a Structured Credit Obligation on private placement worth Rs304 million (US$23 million) and priced at 12.25 per cent for a 10-year tenure. The debt was to be serviced solely from toll collections, ring fenced from other revenues of the corporation by a no-lien escrow account. Lenders would have recourse to project revenues only. The bond issue was backed by a credit enhancement and structured payment mechanisms that required the maintenance of a bond service fund equivalent to one year's principal and interest payments as collateral throughout the life of the bonds. This support helped Madurai Corporation to achieve a rating of AA+ for the bond issue. Investors included mainly commercial banks (70.5 per cent), the sponsors of TNUDF and insurance companies.[5]

The fact that the refinancing was structured after the road was operational with toll revenues accruing reduced potential construction risks. If the bond had been issued against the faith of Madurai Corporation's finances, the rating would have been downgraded, as its revenues did not permit sufficient borrowing capacity. TNUDF, having absorbed the initial development risk of potential cost and time overruns, enhanced the attractiveness of the Madurai bond. As at the time of writing, toll collections have afforded a moderate surplus in the escrow account after interest payment.[6]

Pooled financing bonds

Large municipalities with a strong economic base and predictable revenue streams and/or with 'bankable' project opportunities can raise finance from capital markets through municipal bond issues as described above. However, this may not be the case for small and medium-sized municipalities that are financially constrained and cannot develop projects that are commercially tenable (for example, water and sanitation projects in small towns). Transaction expenses like bond issuance fees, underwriting and credit rating charges involved in capital market access would constitute a high proportion of project costs for these smaller municipalities. Therefore, lack of credit worthiness and limited affordability of smaller municipalities constrains their access to capital markets.

In this context, an innovative approach to tap market finance is that of 'pooled financing'. Pooled financing entails a number of municipalities and projects being combined together for financing, so as to improve cost effectiveness and to share the risks involved. This improves their credit worthiness (which was otherwise proving to be a limiting factor on a standalone basis), and thereby ensures the

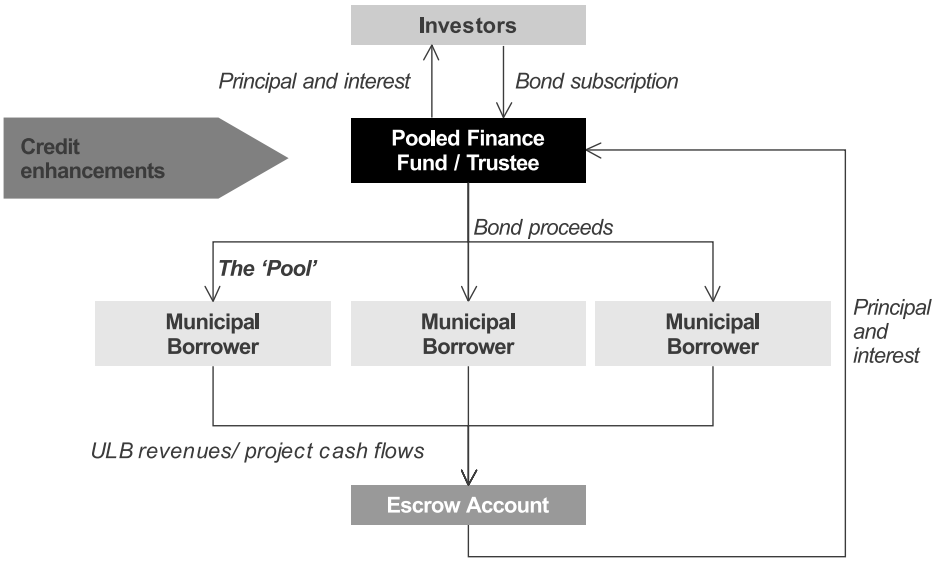

Figure 7.1. Pooled financing

inclusion of weaker municipalities and relatively small but essential projects. See figure 7.1 for an illustrative pooled finance structure.

There have been many cases of pooled financing in the US, where the federal government established state revolving funds and bond banks. These are municipal intermediaries that pool the borrowing needs of multiple smaller local entities that are unable to individually access capital markets.[7]

The first case of successful pooled financing in the developing world is the case of the Water and Sanitation Pooled Fund (WSPF) in the state of Tamil Nadu in India in 2002. Another recent example in 2006 has been the case of financing water projects in the Bangalore municipalities (in the state of Karnataka, India). We present a brief case study on each of these below.

Water and Sanitation Pooled Fund in Tamil Nadu, India[8]

The Water and Sanitation Pooled Fund (WSPF) is a special purpose vehicle instituted by the Government of Tamil Nadu in August 2002. It was incorporated as a trust with a small contribution of 10,000 Indian rupees (Rs) from the Tamil Nadu government. The fund was entrusted to the management of the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), a majority privately held asset-management company with the Government of Tamil Nadu holding an equity stake as well. It proposed to aggregate common infrastructure needs of a judicious mix of financially strong and weak urban local bodies (ULBs) in Tamil Nadu, and to

achieve economies of scale for small city projects that cannot individually access capital markets.

The shortlisted portfolio included water supply augmentation schemes for 13 municipalities and town *panchayats* (small to medium-sized ULBs), and an underground drainage project for Madurai Corporation (a larger ULB). The new connections were projected to increase daily per capita water supply for beneficiaries by 30–40 per cent over current baseline availability, although still below the state norm of 90 litres. The promoters of the WSPF cherry picked projects that were nearly commissioned, so that the funds could be deployed immediately (most of these projects were fully or nearly completed and initially financed by the TNUDF).

Pooling the water and sanitation requirements of 13 municipalities and town *panchayat*s, WSPF mobilised capital market finances through an unsecured structured debt obligation for Rs304.1 million in December 2002. Privately placed at a competitive rate of 9.2 per cent, it was subscribed for by commercial banks and provident funds. The full subscription is important to note given that the WSPF bond income was taxable (as compared to comparable issues in the US, which were tax free). The bond proceeds were lent back to the 13 ULBs in the pool at 9.2 per cent per annum, resulting in substantial savings compared to their individual borrowing rate of 12 per cent.

Some notable features of the bond issue are as follows:

- This was truly a long-tenor municipal infrastructure bond, being issued for 15 years.
- The structured financing was enriched with put and call options for 10 years. The options provided a safety net to investors who may wish to divest their holding before maturity, thereby increasing bond liquidity.

In order to bolster market confidence, the debt had multiple layers of credit enhancements:

- The first level was a no-lien escrow account, established by the 13 ULBs on their revenues, including property and other tax collections, non-tax receipts and state devolutions. In order to avoid maturity mismatches in revenue and repayment profiles, each ULB had to transfer one-tenth of its annual debt service to a separate fixed deposit account, which had precedence over other commitments. The cumulative deposits were then transferred to the WSPF account to service bond holders. Any shortfall in monthly deposits was to be covered by future accrued state devolutions to the ULBs.
- A bond service fund of Rs69 million was created and invested in low-risk liquid securities.
- The USAID Development Credit Authority (DCA) provided a guarantee for 50 per cent of the principal amount, which would diminish annually as

instalments got repaid. The Tamil Nadu government agreed to bear the remaining 50 per cent of the principal, 100 per cent of the interest and a one-time utilisation fee for the USAID guarantee.

As a result, the enhanced pooled debt instrument secured a dual 'high safety' credit rating from Fitch Ratings and the Indian Credit Rating Agency.

Karnataka Water and Sanitation Pooled Fund in Bangalore, India[9]

The city of Bangalore in India is the rapidly growing IT hub of the country. Growth in the sector has led to a considerable rise on the city's population, resulting in many people moving to the suburbs. However, this growth in population has not been matched with an increased supply of crucial municipal services such as water and sanitation. As a result, the Government of Karnataka embarked on a programme to provide for the increasing demand for drinking water in the suburbs of Bangalore.

Across eight municipalities, Rs6.6 billion worth of aggregated projects were identified for financing, including water and sewerage components at Rs3.4 billion and Rs3.2 billion respectively. Of this, it was proposed that Rs1 billion be raised without Government of Karnataka guarantee under a pooled finance framework with credit enhancements.

The Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC), a state-level financial intermediary,[10] developed the physical and financial standards for the pool of projects to be included in the bond transaction. A debt fund called the Karnataka Water and Sanitation Pooled Fund (KWSPF) was established (managed by KUIDFC, an asset management company) to access the capital market by bond issue on behalf of the participating ULBs. The KWSPF borrowed from the market and on-lent the proceeds to the ULBs to construct the facilities.

The main security for the debt is a charge on receivables of the participating ULBs, to be escrowed in a water project account (WPA), with structured payment mechanisms to be monitored by a trustee. More specifically, a dedicated WPA will be maintained by each participating local body. An amount equivalent to one-and-a-half times annual debt service payments of market borrowing will be transferred to this account from the ULBs' general revenues (such as property tax revenues, other own sources and state devolutions, if necessary) and annual operating grants from the state government for the debt servicing. From the WPA, the necessary amount will be transferred to KWSPF for debt servicing prior to the due date of payment. It is important to note that the debt servicing towards market borrowings has seniority over repayments towards any other current and future debt mobilised by ULBs.

Similar to the Tamil Nadu WSPF and in addition to the WPA, the Karnataka pooled financed bond transaction is backed by a number of credit enhancements:

- The first layer of credit enhancement is the creation of a bond service fund (BSF). The BSF is set up at the state level for the pool of participating ULBs with Rs25.5 million. The BSF will be administered by the KUIDFC.[11]
- The second layer is the unrestricted ability of the trustee to intercept cash transfers from higher levels of government to the municipality.

A partial credit guarantee (50 per cent) by the USAID DCA provides the third level of credit enhancement, i.e. the DCA guarantee is not called upon unless the first two layers fail.[12]

Specialised municipal intermediaries

In recent years, several sub-national governments have set up specialised financial intermediaries or funds to develop Greenfield infrastructure projects. These funds have often been instituted (and in some cases, part financed) under the auspices of projects funded by the World Bank and other donors. Broadly, there are two types of such intermediaries:

- Municipal funds and facilities that provide funded products – debt and/or equity.
- Facilities that offer contingent products – guarantees or insurance.

Each of these is illustrated below, with successful case studies from developing countries.

Intermediaries offering funded products

This section presents case studies on specialised financial institutions and vehicles that have been set up to provide long-term debt and/or equity to promote infrastructure development and crowd in private investment at the municipal level. Examples include:

- Local Development Investment Funds (LDIFs) in Vietnam: fully owned by the provincial governments of Vietnam, to help mobilise private sector financing and attract private sector participation in urban infrastructure.
- Paraná State Urban Development Fund (FDU) in Brazil: publicly owned fund to lend to municipalities and municipal utilities to finance urban development.
- Infrastructure Finance Corporation Limited (INCA) in South Africa: a privately owned and operated infrastructure debt fund, which provides long-term fixed interest loans to South African municipalities.

Local Development Investment Funds (LDIFs), Vietnam

Given the growing demand for infrastructure development and the consequent need to mobilise sufficient resources, the Government of Vietnam has decentralised responsibilities to improve and develop municipal infrastructure to the provincial governments. In this context, the Local Development Investment Funds (LDIFs) were established as an operational and legal structure for the provincial governments to invest in infrastructure, and to mobilise capital and enter into contracts with the private sector. The key objectives of the LDIFs are to:

- support a conducive legal and operational framework at the provincial level to develop municipal infrastructure and services,
- attract private sources of financing, equity and debt capital, for developmental infrastructure and
- enter into contracts and various forms of public–private partnerships to increase private sector participation in infrastructure development.

The LDIFs are established by the charters of the respective Provincial People's Committees (PPCs) that provide each fund's equity capital and wholly own them. The total provincial government investment channelled through LDIFs increased by approximately 65 per cent from 2002 to 2004. In 2004, the total operating capital of LDIFs in Vietnam was approximately US$300 million. In parallel, LDIF lending increased by approximately 20 times between 1997 and 2004, and the LDIF activities have expanded from simple loans to the establishment of joint stock companies engaged in infrastructure development.

The Ho Chi Minh City Infrastructure Fund for Urban Development (HIFU) was the first LDIF established in June 1996. It has the most diversified operations among existing LDIFs and has the largest portfolio of infrastructure investments. Its equity investments include, among others:

- 25 per cent equity contribution to the Tan Phu Trung Industrial Park in Ho Chi Minh City,
- 16 per cent equity contribution to the first domestically funded water BOO project in Vietnam – the Thu Duc Water BOO Corporation and
- 25 per cent equity contribution to the Saigon Medical Investment Joint Stock Company.

In addition, HIFU founded the Ho Chi Minh City Infrastructure Investment Joint Stock Company in December 2001, to act as an operating concessionaire of transport projects in Ho Chi Minh City and develop other revenue-backed municipal infrastructure PPP projects. HIFU has also provided debt financing to various projects across the transport, water, industrial parks, health and education sectors.

Since 1996, and given HIFU's track record, 13 other provincial governments have established LDIFs with the approval and support of the Government of Vietnam. The four most active LDIFs were all incorporated in the last decade and are entrusted with broadly similar mandates as presented above. In addition to the chartered capital contributed by the PPC, LDIFs mobilise loan capital from domestic banks and state-owned enterprises. The most active LDIFs are making progress in bringing different PPP models, including more sophisticated contracting mechanisms (BOO, BOT etc.) to Vietnam.

Paraná State Urban Development Fund (FDU) and PARANACIDADE, Brazil[13]

Paraná State Urban Development Fund (FDU) was created as a revolving fund within the Government of Paraná in December 1998. It is financed by the public budget from the federal and state governments, a loan from the Inter American Development Bank (IADB) and retained earnings from its operations. The size of the fund in 2001 was US$311 million. It is expected that the total assets of the fund will be US$1 billion by 2015.

FDU's objective is to lend to the municipalities of Paraná as well as to special utility companies (water, sewerage and electricity) by financing urban development plans, programmes and projects. FDU is not allowed to lend to private entities. The interest rates applicable to municipalities and utility companies vary depending on the programme. However, FDU's interest rates have been highly subsidised.

PARANACIDADE was created in June 1996 as a non-profit autonomous social service agency, which by law operates as a private sector entity. One of its roles is to manage the FDU. PARANACIDADE keeps separate accounting on an accrual basis for FDU and PARANACIDADE, including producing the consolidated accounts of both.

FDU has stringent criteria to qualify and in relation to debt servicing for its borrowers. Municipalities are required to commit their receipt of transfer from the state government to the debt services to FDU. FDU does not require any other guarantee from the state government. In the loan agreement, municipalities accept that the state government intercepts the debt service payment from their transfer of the state value-added tax share. In case of lending to utility companies, their revenue streams are hedged for the debt services. FDU has been able to maintain a 100 per cent loan recovery rate and has no provision for doubtful debt.

In addition to financing the construction of physical infrastructure, FDU has also contributed significantly to the improvement of financial and fiscal management of the municipalities and utility companies.

Infrastructure Finance Corporation Limited (INCA), South Africa

Infrastructure Finance Corporation Limited, trading as INCA, is an infrastructure debt fund established in 1996 in South Africa. INCA was established in response to the South African government's call for increased private sector involvement in infrastructure funding and is the only debt fund in the country that is a 100 per cent privately owned and operated.

It provides long-term infrastructure loan funding, with a focus on municipal infrastructure. Typical borrowers include municipalities, water boards and other statutory institutions in the public sector. Six metropolitan municipalities in South Africa account for 50 per cent of INCA's total advances.

INCA provides fixed and/or floating rate finance for terms from one to 20 years. Its main funding is, however, of long-term fixed-interest loans. In addition, it also provides financing of movable assets, as well as institutional capacity building and re-engineering advice.

The main funding sources it draws on are local and international market funds, raised through a series of INCA bond issues and long-term loans extended to the corporation by international financial institutions.

Intermediaries offering contingent providers

Intermediaries that offer funded products primarily help to address the liquidity gap in terms of either the quantum or tenor of finance available for infrastructure projects. In contrast, contingent financier vehicles offer second-tier financial support or risk mitigation products that either help to extend the tenor of existing debt for infrastructure or to provide guarantees that can mitigate the risk of default. Therefore, these vehicles typically enhance the credit worthiness of the investment and increase the market confidence in lending to infrastructure projects. They generally cover those risks that private financiers perceive to be excessive or cannot or will not take.

This section presents case studies of specialised financial institutions and vehicles that have been set up to provide contingent products, i.e. guarantees, insurance or re-financing arrangements, to promote infrastructure development and crowd in private investment at the municipal level. Examples include:

- The Local Government Unit Guarantee Corporation (LGUGC) in the Philippines: a privately owned corporation (national private and donor funding), which provides credit guarantees to financial institutions that lend to local government units in the Philippines.
- FINDETER in Columbia: Financed by the central and regional governments in the country, it provides second-tier financing by re-discounting or re-financing bank loans to local governments.

In addition, several multilateral and bilateral development banks and agencies also offer specific risk mitigation products for sub-national infrastructure financing. For instance, the European Bank for Reconstruction and Development (EBRD) and the World Bank/International Finance Corporation have created municipal finance units and provide partial credit guarantee support to selected sub-sovereign governments or entities based on their own credit.[14]

Local Government Unit Guarantee Corporation (LGUGC), Philippines

The Local Government Unit Guarantee Corporation (LGUGC) was set up in March 1998 and is a private financial credit guarantee institution. It is owned by the Bankers Association of the Philippines (38 per cent), the Development Bank of the Philippines (37 per cent) and the Asian Development Bank (25 per cent). LGUGC has a co-guarantee agreement with USAID, which effectively expands the corporation's capacity to cover infrastructure projects for local government units (LGUs) and other entities in the Philippines.

The primary goal of LGUGC is to make private financial resources available to creditworthy LGUs in the Philippines through its insurance/credit guarantee. Borrowers include first- and second-class cities and provinces, first-class municipalities and other developing LGUs. This remit has been extended to water districts, electric co-operatives, renewable energy technology providers, and state universities and colleges.

LGUGC's credit enhancement facilitates the entry of LGUs with infrastructure development projects into the capital market. In addition to the key municipal infrastructure sectors, the LGUGC also extends guarantees to agribusiness and food production, public utilities, and the tourism, housing, education and health sectors.

LGUGC guarantees loans (i.e. provides credit guarantees) obtained by local government units from partner financial institutions[15] as well as bonds underwritten by PFIs and floated in the capital market.[16] Loans may be guaranteed up to 85 per cent of principal and interest subject to interest rate cap and bonds are guaranteed 100 per cent of principal and interest subject to interest rate cap. The guarantee fee is a function of the underlying borrower and project risks, and as such the fees may range from 1–2 per cent p.a.

Figure 7.2 below describes the structure of the guarantee system operational by LGUGC (taking the specific case of loans only).

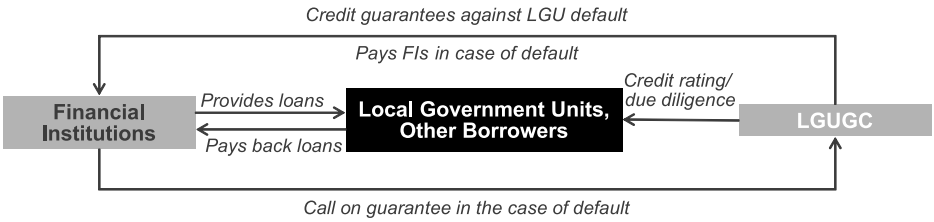

Figure 7.2. LGUGC guarantee system

The LGUGC follows several procedures to ensure financial prudence:

- The provision of a guarantee is backed by collateral of the assignment of project revenues and assets and the internal revenue allotment. For other borrowers, there is an assignment of a reserve fund created from the monthly gross revenues of the borrower. Assets offered as collateral must be insured with an LGUGC accredited insurance company.
- Guarantees are extended based on a minimum acceptable credit rating to be determined by LGUGC. LGUGC implements an internal LGU credit screening and rating system (LCSRS), which adopts internationally accepted standards fit for due diligence requirements of private financial institutions as well as individual investors.

The management of LGUGC allows a buffer in its leverage ratio. In the absence of a default track record, LGUGC currently applies a 'guide' gearing or leverage ratio of 10 times its guarantee fund or a prudential limit of 10:1. This translates to a maximum outstanding guarantee of 4 billion Philippine peso (P), given LGUGC's current guarantee fund of P420 million.

Financiera de Desarrollo Territorial (FINDETER), Columbia

FINDETER is one of the successful second-tier financial institutions lending to subnational entities without a sovereign guarantee. It was established as a financial institution in 1989, supervised by Columbia's banking regulators. Eighty-six per cent of its shareholding is held by the Ministry of Finance and 14 per cent by regional governments. The fund size is US$1 billion, including its lending portfolio since 1990. The objectives of the fund are to support:

- long-term infrastructure loan funding,
- financing of movable assets,
- institutional capacity building, and
- financial re-engineering and advice.

Being a second-tier lender, FINDETER does not lend directly to municipal borrowers, but rediscounts bank loans to local borrowers. Specifically, qualified banks that provide long-term loans to sub-national agencies can borrow from FINDETER up to 85 per cent of the loan value with the same maturity (up to 12 years, with up to three years of grace). Commercial banks participating in the FINDETER programme must make loans at a maximum margin of 2.5 per cent over Colombia's standardised index of the competitive cost of capital.

From 2000 to 2002, Colombia's macro-economic and municipal finance crisis disrupted demand for infrastructure loans and the performance of FINDETER. However, FINDETER retained its financial strength (triple A local rating by Duff and Phelps) largely because of its structure as a second-tier finance institution, which avoided the losses of the banks that had lent directly to municipalities and urban service providers. Since 2002, the gradual recovery of overall economy and municipal finances have led to a sharp expansion in FINDETER lending – 33 per cent in real terms in 2003. By June 2003, about 71 per cent of FINDETER's loans had a tenor of at least eight years. By 2003, it had also acquired a fairly diversified portfolio of projects across sectors, as shown in table 7.3.[17] The end borrowers, in addition to municipalities, include water and sewerage companies, public and private education entities, housing entities, energy service companies and communications companies, amongst others.

Table 7.3. FINDETER loan portfolio by sector (2003)

Sector	*Percentage lending*
Transport	30.2%
Water and sanitation	24.8%
Schools	12.4%
Debt management	11.4%
Telecom	6.5%
Health	5.3%
Shopping centres	4.2%
Others	5.2%

7.5 Public–private partnerships

There are many differing views on defining the characteristics of public–private partnerships (PPPs) – based on the extent of private sector involvement and financing of public services. Broadly, PPPs are defined as risk-sharing relationships between the public and private sectors based on a shared aspiration to bring about a particular public policy outcome. PPPs can be understood along a spectrum ranging from simple service contracts awarded to the private operator, right up to joint ventures and full privatisations.

Typically, the public sector is the purchaser of services, let on a short-, medium- or long-term contract. Depending on the nature and specifications of the contract, the private sector is generally the provider of services and shares risk in terms of delivery (costs and benefits). In some cases, the private sector is also responsible for financing – for example, in the case of private financing initiatives (PFI) in the UK, or joint ventures between the public and private sectors.

It is much more challenging to execute PPPs for municipal services, given the affordability and non-bankability issues of these projects. Therefore, most successful sub-national PPPs have been of the former category – where the private operator is contracted for only the provision of defined municipal services (often subject to specified performance criteria), and the public sector is responsible for financing investments and owns the assets.

Three successful examples of ongoing PPPs at city level are presented in the sections below. These include the:

- Bogotá TransMilenio bus system concession contract,
- Lahore composting plant BOT and
- Senegal urban water sector concession.

Bogotá TransMilenio bus system concession contract[18]

Bogotá, the capital of Colombia, has a population of about seven million. In December 2000, the city, with the participation of private operators, inaugurated a new urban bus transport system. The objective was to reduce traffic congestion and to make public transport more equitable, reliable and secure. The first two phases have been implemented successfully and TransMilenio carries 1.3 million passengers on average each weekday.

Cost and features of the bus system

The TransMilenio is operated like a rail-based system, but is much more cost effective. The system's infrastructure provides for exclusive bus lanes based on the Curitaba model designed for trunk line services, roads for feeder buses, stations and complementary facilities. Stations on the trunk lines are closed facilities at an average distance of 500 metres from each other. While some buses stop at all stations, others operate express routes. When it is fully developed in 2016, TransMilenio will serve five million passengers per day along 388 kilometres of main lines on 22 corridors.

The bus system's cost is US$5 million per kilometre, which includes dramatic improvement of the public pedestrian space around the system, including sidewalks, plazas and the like, while the cost for metro systems reaches US$100 million per kilometre.

PPP structure and funding

Design, planning and investment in infrastructure were carried out by public institutions.[19] The infrastructure was jointly funded by the national government, a loan from the World Bank, the City of Bogotá, as well as stakeholders from the transport sector. Bogotá committed revenues from a 20 per cent gasoline sales surcharge for the construction cost.

The bus system is fully operated by private providers, which are consortia of local transport companies associated with national and international investors that own the buses and hire drivers and maintenance personnel.[20] The operation further includes fare collection concessionaires and control centre providers. Concessions for bus operation are awarded through open bidding processes and payment is related to the number of route kilometres served by each operator. The compensation scheme was redesigned so that private operators' primary incentive was to offer a high-quality service and not to deliver the highest number of passengers.

The operation of the system itself is funded entirely by fare collection and no subsidies are provided. Money collected through smart cards is deposited in a trust fund, from which the operators are paid according to the rules set forth in the concession contracts. Strict conditions are provided for all private operators in the concession contracts, and they are required to cover risks and losses. For oversight of operations and work issues, the system established a new public company, TransMilenio SA, funded through ticket sales.

Results and critical success factors

The evaluations of the project have been positive. The project resulted in a 32 per cent saving in travel time, pollution levels dropped sharply and accident fatalities were reduced by 93 per cent. Overall, the success of TransMilenio is attributed to a various factors, including:

- *Municipal leadership:* An important factor has been the city government's strong leadership with careful design, planning and implementation. A long-term vision and strategy, supported by awareness campaigns, helped to foster behavioural change among citizens.
- *The establishment of a good management company:* A new public company, known as TransMilenio SA, was created to be responsible for operations and issues of expansion and maintenance.
- *Implementation of the right incentive mechanisms:* Adequate incentives were considered for all stakeholders and built into every phase of the project. This includes issues of competition in the market, fare design and collection, safety features, drivers' working conditions, effective oversight institutions, penalties and bonuses built into the contracts etc.

- *Policy, technical and administrative expertise at the local government level:* The municipal team for the project was able to skilfully develop contracts and legal arrangements, and could also adopt state-of-the-art technologies to run the system. The connection of the bus system with the existing road transport system (feeder buses) is considered a key success factor.
- *Effective financial design and equitable pricing:* Financial sustainability was a key principle from the project's start. An efficient single-fare pricing system was designed to cover full operational costs. The ticket price was approximately US$0.55 in 2007. The fixed fare is based on cross-subsidising by passengers travelling long/short distances. This was deemed to be socially equitable, because the poor normally have to travel longer distances from their residences to the city centre.

With the overall success of the system, the local government is committed to its further expansion in the coming years, and aims to eventually make the TransMilenio accessible within 500 metres for 80 per cent of the population.

Lahore composting plant BOT[21]

In Pakistan, local government laws have in-built provisions enabling local governments to enter into PPPs.

Pakistan's first composting plant has been set up in Lahore in the province of Punjab, with financial assistance from a Belgian multinational company on a BOT basis for 25 years. The operation of the plant has been awarded to the SAIF Group, which is a diversified group of companies active in telecommunications, energy, textiles, cement, food processing, software and consultancy. The Punjab Bank is the main financier of the plant.

The plant is expected to transform around 20 per cent of the city's waste – i.e. around 1,000 tonnes of garbage – into 250 tonnes of organic fertiliser every day. There are plans to expand the capacity of the plant in the future. The 37.5 acre plant was built on land owned by the Solid Waste Management Department (SWMD) and cost 250 million Pakistan rupees (PRs). The private operator will operate the plant for 25 years, during which time it will give 10 per cent of its gross profits to the SWMD on an annual basis. The City District Government of Lahore (CDGL) plans to contribute 10 per cent of the revenue generated by the SWMD to its social welfare scheme.

The project is expected to be transferred to CDGL after the BOT period. This is the first PPP municipal project in Pakistan to take place on such a large scale in the area of municipal solid waste recycling. CDGL has granted an exclusive right to Lahore Compost Limited to receive 500–1,000 tonnes of municipal solid waste per day from different towns. The collection and transportation of the solid waste to the plant is the responsibility of CDGL.

Overall, CDGL considers the project a success and is planning to replicate the model for further waste disposal plants.

Senegal – Urban Water Sector Concession[22]

In 1995, more than half of Senegal's population lived in urban areas. Water shortages in Dakar were chronic and sanitation facilities barely existed. Only 54 per cent of the urban population had access to safe water. The Senegalese government embarked on a reform project to extend water and wastewater services. The objective of the project was to attract a private operator to improve service delivery and provide efficient water and wastewater services. Donors provided US$230 million in funding (inducing a US$100 million International Development Association credit) to the government of Senegal for implementation of its reform plans.[23]

The core of the initial reform was to establish three main sector institutions linked through a web of contracts. The three main actors were the Ministere de l'Hydraulique, a newly created state asset-holding company and a private operator. The government's main interest was to keep control over the assets and establish long-term financial viability of the system. The government decided to operate the sector under an affermage contract,[24] and the contractual framework was as follows:

- The asset-holding company was awarded a 30-year concession to manage the sector, with a contract outlining investment obligations.
- A 10-year affermage contract between all three actors, governing the operation of the system, was put in place. In addition, as an annex to the affermage contract, a performance contract outlined the specific responsibilities of the private operator.

The private operator signed the contracts in 1996. The PSP arrangement has been governed by the following key terms:

- The private operator is responsible for running the existing network, including maintenance of the infrastructure at its own cost. There are no ongoing operating subsidies.[25] Capital investments for the expansion of the system remain the responsibility of the state asset-holding company.
- The operator's remuneration is based on the amount of water produced and sold, creating an incentive to serve as many customers as possible while reducing water losses.
- The performance contract covers issues of reasonable price increases, expansion of services, the efficiency and effectiveness of technical management (reduced leakage), as well as financial management (collection and billing efficiency).

- An increasing block tariff structure was implemented, with social tariffs (a subsidised first block tariff for consumption under 10 cubic metres per month) for affordability reasons.

Results and success factors

As of 2007, the company produces and distributes drinking water for 54 towns in Senegal, serving 3.7 million people. Three million live in Dakar. Overall, the access to water services rose from 74–81 per cent in 1996 to about 98 per cent of the urban population in 2006. Water losses from leakages dropped and sanitation improved in urban areas. Tariff collection reached 98 per cent and tariff increases for consumers were kept to an annual average of 3 per cent – equal to inflation.

The affermage contract has been found an effective instrument to allow public resources and donor finance to leverage substantial private financing, while avoiding the major investment obligations and risks inherent in a concession contract.[26]

Overall, some critical success factors of the PSP arrangement were:

- The government took ownership of the reform process, and established a climate of trust and co-operation among the key stakeholders. A key part of confidence building was to keep the state asset-holding company institutionally autonomous.
- Sector investments were planned in parallel to operational reforms and investments were implemented in a timely manner.
- Long-term financial viability was achieved through increased efficiency and effectiveness. Revenues became sufficient to fully finance all operations, including debt service. This was achieved through gradual annual tariff increases that matched improvements in the quality of service. Tariff increases were accompanied by public awareness campaigns.
- To avoid conflicting interests of the asset-holding and operating companies, a high degree of clarity on asset holding and O&M responsibility was needed. It was recommended that fixed assets would be owned by the state asset-holding company and the operating equipment, comprising all moveable assets, be owned by the privately run operating company.
- The design of the affermage contract recognised the need to allocate sufficient, specific resources to finance increased access to piped water supply for the poor. As a result, a national fund was created to allow the private operator to subsidise social connections. Social connections were provided free,[27] while a connection fee was charged for ordinary connections of wealthier households. To facilitate collection and payments, the private operator set up a decentralised and computerised system of payment booths.

Notes

1. *International Investor* (2007).
2. Projects 2005/06, http://www.dbsa.org/Projects/Documents/DBSA%20projects%20report.pdf [accessed 25 March 2009].
3. IFC (2004).
4. Venkatachalam (2005); Freire et al (2004).
5. Ibid.
6. Venkatachalam (2005).
7. El-Daher (1997).
8. Venkatachalam (2005).
9. USAID FIRE Project (2003).
10. KUIDFC is a government entity. Its assets are majority-owned by the government and its management is majority controlled by the government.
11. The Government of Karnataka authorises KUIDFC to provide the up-front contribution required for the BSF from its own sources or government identified sources. KUIDFC, on behalf of the KWSPF and the Government of Karnataka, shall apply to the Government of India Pooled Finance Development Fund (PFDF) for part reimbursement of the BSF.
12. For the balance 50 per cent of principal and the interest component, availability of a backup guarantee from Indian financial institution(s) will be explored.
13. Suzuki (2001). Please note that we have been unable to source recent information in English on the activities of the FDU.
14. Public Private Infrastructure Advisory Facility (2006).
15. Accredited Bankers Association of Philippines (BAP) member bank and/or its subsidiary(ies).
16. The 1991 Local Government Code provides that LGUs can only issue bonds for revenue-generating and self-liquidating projects. However, LGUGC will entertain guarantee applications for non-revenue generating projects for direct loan transactions on a credit risk-sharing basis with the PFIs.
17. 'FINDETER, a model Municipal Development Fund', Presentation at the World Bank, April 2004.
18. www.TransMilenio.gov.co [accessed 26 March 2009]; Institute for Global Environmental Studies (2003); Fernholz (2005).
19. These include institutions such as the Bogotá Mayor's Office, the Secretary of Transit and Transportation and the Institute of Urban Development.
20. Main lines are operated by four companies and feeder buses are operated by three companies.
21. Meetings with the *Nazim* (Mayor) of Lahore and the Punjab provincial government.
22. United Nations (2005); IRIN Africa (2007).
23. World Bank (2006f).

24. Under an affermage contract, the private operator is paid a fee that is a part of the tariffs collected and this covers the costs of running the system. The remaining tariffs are remitted to the government to pay for any investments. The affermage contract differs from a concession in this respect; in the latter the operator retains 100 per cent of consumer tariffs and is accountable for covering costs and making investments.
25. The private operator is obliged to renew a minimum of 14,000 metres and 6,000 connections per year and has to meet the World Health Organization (WHO) standards for water quality. The total obligations mean that the operator, over the 10-year contract, had to invest approximately US$20 million.
26. World Bank (2004b).
27. In 2003, the private operator calculated that free water installations for poor users accounted for 85 per cent of new water connections.