

# **Creative Financing of Urban Infrastructure in India through Market-based Financing and Public-Private Partnership Options<sup>1</sup>**

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## *Abstract*

*Rapid urbanization has increased the demand for urban infrastructure in India. Since public funds for these services are inadequate. Urban organizations have to look for alternative sources for financing their infrastructure needs. Accessing capital markets and PPP have emerged as viable options to finance urban infrastructure. In 1998, the Ahmedabad Municipal Corporation issued India's first municipal bond without state guarantee to finance a water supply and sewerage project. To boost the municipal bond market, the GOI decided to provide tax-free status to municipal bonds. Only financially strong, large municipal corporations are in a position to directly access capital markets. To help small and medium local bodies to access the market Government of India introduced the concept of pooled financing. The Indo-US FIRE project helped the State Governments of Tamil Nadu and Karnataka issue municipal bonds by pooling municipalities. Based on the success of these two issues, the Government of India introduced a scheme for a Pooled Finance Development Fund that will support small- and medium-sized local bodies to access capital markets. Credit rating of a bond issue provides investors with an independent third-party evaluation of the credit strength or weakness of a particular issue. Over 80 urban local bodies in the country have either obtained a credit rating or are in the process of obtaining one. Several ULBs and utility organizations have issued bonds and have so far mobilized over Rs.12,000 million through taxable bonds, tax-free bonds and pooled financing. A number of PPP options have emerged and these include: service contracts; performance-based service contract; joint sector company to implement and finance the project; a management contract for operations and maintenance; and construction cum build-operate-transfer contract. Thus, market access and PPP are important innovations in the financing of urban infrastructure in the country.*

## **Background**

The urban population in India is 285 million (Census 2001) and is likely to be twice its present level by 2030. . Rapid urbanization has increased the demand for urban services. The Steering Committee on Urban Development for Eleventh Five Year Plan of India (2007-2012), has estimated that total fund requirement for implementation of the Plan target in respect to urban water supply, sewerage and sanitation, drainage and solid waste management is Rs. 12,702 billion<sup>4</sup>. The 74<sup>th</sup> Constitutional Amendment gave urban local bodies (ULBs) the responsibility to provide these services. The sources of revenue devolved to ULBs are, however, not sufficient and still depend on higher levels of government. Traditionally, urban infrastructure has been financed mainly through budgetary allocations. Other financing has come from financial institutions like Housing and Urban Development Corporation and limited investments by the ULBs themselves through their internal resources. Financial resources from all these sources, however, fall far short of the urban sector's estimated investment requirements. Since public funds for these services are inadequate, ULBs have to look for alternative sources for financing their infrastructure costs. Market-based financing and Public-Private Partnership (PPP) have emerged as a viable alternative to finance infrastructure investments. This paper describes the development of this new market-based urban infrastructure financing system, emerging PPP options in India and draws certain conclusions.

## **Market-Based Financing System**

Since 1994, the Indo-US Financial Institution Reform and Expansion (FIRE-D) project<sup>5</sup> is working with national, state and local governments in India to develop a market-based bond market. Several ULBs and utility organizations have issued bonds that so far have mobilized over Rs.12,249 million through taxable bonds, tax-free bonds and pooled financing (Table 1).

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<sup>4</sup> 1US\$=Rs. 40.

<sup>5</sup> The project is funded by the United States Agency of International Development.

Table 1: Municipal Bonds in India

S. No.	Type of Bond	Amount (Rs. in Million)
1.	Taxable bonds	4,450
2.	Tax-free bonds	6,495
3.	Pooled finance	1,304
	TOTAL	12,249

### Credit Rating

Rating agencies provide investors with an independent third-party evaluation of the credit strength or weakness of a particular bond issue. In the India context, rating agencies do not rate cities or countries, rather they rate the creditworthiness of a particular debt offering, essentially addressing the ability and willingness of a government issuer to pay its debts. Ratings of local governments establish a transparent credit record, and a reference framework for current and future performance of local finances and debt management. In addition to providing an initial rating of a bond offering, agencies continue to monitor the capacity of the issuer to make timely payments of principal and interest throughout the term of a bond. This continued monitoring throughout the life of a bond issue is important to the effective operation of a secondary market in local bonds. In ranking a local government's debt offering, rating agencies construct a general framework for evaluation that includes legal and administrative framework, economic base of service area, municipal finances, existing operations, management capacity, project viability, financial structuring, etc. In 1995, the FIRE-D project supported the Credit Rating Information Services of India Limited (CRISIL) to develop a methodology for carrying out municipal credit ratings based on careful study of ULBs in India and international experience. Ahmedabad was the first city where this methodology was applied in India. In February 1996, Ahmedabad received a rating from CRISIL for a bond offering. This was the first rating received by a municipal bond offering in India. The municipal credit rating system has come to be regarded by India's private financial community as a solid indicator of a city's performance and competitiveness. In the last 12 years, four rating agencies have provided ratings for municipal and municipal enterprise bond offerings. Subsequently, the process of credit rating of ULBs' has gained wide acceptance with more than forty towns and cities seeking credit rating from one of the accredited credit rating agencies in the country.. The Ministry of Urban Development launched an initiative for the institutional credit rating of 47 ULBs by the Security and Exchange Borad of India (SEBI) certified agencies namely. The credit rating initiative is envisaged to contribute towards improved financial management of ULBs and financing urban infrastructure projects.

### Taxable Municipal Bonds

The Government of India (GOI), recognizing infrastructure's key role in the process of economic development, set up the Expert Group on the Commercialization of Infrastructure, often known as the Rakesh Mohan Committee, in 1994. The Committee recommended private sector participation in urban infrastructure development and accessing capital markets through issuing municipal bonds.

The Ahmedabad Municipal Corporation (AMC) was the first ULB to access the capital market in January 1998. It issued Rs.1,000 million in bonds to partially finance a Rs.4,390 million water supply and sewerage project. This was a remarkable achievement since it was the first<sup>6</sup> municipal bond issued in India without a state guarantee and represented the first step toward a fully market-based system of local government finance. The AMC had previously instituted significant fiscal and management reforms, including improved tax collection, computerization of its accounting system, strengthening of AMC's workforce and financial management, and development of a comprehensive capital improvement program. Due to these measures, AMC was able to turn around its financial position from a cash deficit municipal corporation to achieve a closing cash surplus of Rs.2,140 million by March

<sup>6</sup> The Bangalore Municipal Corporation was the first municipal corporation to issue a municipal bond of Rs.125 crore with a state guarantee in 1997.

1999. These reforms laid the necessary groundwork for AMC's bond issue and the successful implementation of the water supply and sewerage project.

The Indo-US FIRE-D project's partnership with AMC began in 1994 with the preparation of an urban environmental workbook and an environmental risk assessment. Information provided by these studies served as the basis for formulating an Ahmedabad Corporate Plan. In this exercise, the FIRE-D project assisted AMC to carry out financial analyses and to prepare an affordable investment plan. The plan, which was prepared in association with IL&FS, assisted AMC in the development of the Ahmedabad water supply and sewerage project. In addition, the FIRE-D project sponsored and facilitated participation of AMC staff and elected leaders in a number of training programs and study tours to build capacity to undertake and sustain reforms. Since 1994, the FIRE-D project's multifaceted assistance has played a vital role in the development of the City's water supply and sewerage system and subsequent bond issues.

The debt market in India for municipal securities has grown considerably since the issuance of Ahmedabad bonds. Since 1998, other cities that have accessed the capital markets through municipal bonds without state government guarantee include Nashik, Nagpur, Ludhiana, and Madurai (Table 2). In most cases, bond proceeds have been used to fund water and sewerage schemes or road projects. India's city governments have thus mobilized about Rs.4,450 million from the domestic capital market through taxable municipal bonds.

It is significant to note that most of the municipal bonds issued so far have been without a government guarantee. The success of these issues demonstrated that local governments can access the capital market to finance the efficient delivery of civic services. The ability of municipalities to take advantage of these opportunities, however, depends on their presenting themselves as viable financial entities. ULBs must demonstrate creditworthiness and obtain an investment grade credit rating. This forces them to improve their revenue base by introducing reforms, including improved cost recovery and financial management, as well as better management of service delivery systems. Another prerequisite for issuing municipal bonds is development of commercially viable projects, projects that can recover full costs, including the cost of debt service.

Table 2: Taxable Municipal Bonds in India

City	Amount (in Rs. Million)	Placement	Guarantee	Annual Interest	Escrow	Purpose	Rating
Bangalore (1997)	1,250	Private	State Govt.	13%	State Government grants and property tax	City roads/street drains	A- (SO)
Ahmedabad (1998)	1,000	Public & Private	No	14%	Octroi from 10 octroi collection points	WS&S project	AA- (SO)
Ludhiana (1999)	100	Private	No	13.5% to 14%	Water & Sewerage taxes and charges	WS&S Project	LAA- (SO)
Nagpur (2001)	500	Private	No	13%	Property tax and water charges	WS project	LAA- (SO)
Nashik (1999)	1,000	Private	No	14.75%	Octroi from four collection points	WS&S project	AA- (SO)
Indore (2000)	100	Private	State Government	13.0%	Grants/property tax	Improvement of city roads	A (SO)
Madurai (2001)	300	Private	No	12.25%	Toll tax collection	City road project	LA+(SO)
Visakhapatnam (2004)	200	Private	No	7.75%	Property tax	Water supply project	AA-(SO)
<b>TOTAL</b>	<b>4,450</b>						

## Tax-Free Municipal Bonds

The Indian Income Tax Act provides tax preferences for investments in infrastructure projects. These provisions, however, have not been generally available for financing municipal infrastructure. To boost the municipal bond market, the Government of India decided to provide tax-free status to municipal bonds. The GOI issued guidelines for issue of tax-free municipal bonds in February 2001. These guidelines stipulate eligible issuers, use of funds, essential pre-conditions, maturing period, buy-back, nature of issue and tax benefits, ceiling amount for a project, compulsory credit rating, and external monitoring of the tax-free municipal bond. Creating tax incentives for municipal securities provided a national government subsidy for ULB bond offerings by substantially reducing the interest cost of financing local infrastructure projects. Tax-free status provided an incentive to local governments to improve their fiscal management sufficient to meet the demands of the investment community.

Ahmedabad was the first municipal corporation in India to issue tax-free municipal bonds for water and sewerage projects. In April 2002, AMC issued a tax-free 10-year bond with an annual interest rate of 9.00 percent. The bond issue amount was Rs.1,000 million. The Municipal Corporation of Hyderabad also issued a tax-free municipal bond in May 2002 for Rs.825 million. The MCH thus became the second city to issue tax-free municipal bonds. The money raised by MCH through municipal bonds was used for providing urban infrastructure in the city especially in slums. The tenure of the bond was seven years with a rate of interest of 8.50 percent. Table 3 below presents a list of organizations, projects and amounts of tax-free municipal bonds issued to date.

Table 3: Tax-Free Municipal Bonds in India

City Government	Projects	Amount of Tax-free Municipal Bond (Rs. million)
Ahmedabad Municipal Corporation (2002)	Water supply and sewerage project	1,000
Hyderabad Municipal Corporation (2003)	Road construction and widening	825
Nashik Municipal Corporation (2002)	Underground sewerage scheme and stormwater drainage system	500
Visakhapatnam Municipal Corporation (2004)	Water supply system	500
Hyderabad Metropolitan Water Supply and Sewerage Board (2003)	Drinking water project	500
Ahmedabad Municipal Corporation (2004)	Water supply project, stormwater drainage project, road project, bridges and flyovers	580
Chennai Metropolitan Water Supply & Sewerage Board (2003)	Chennai water supply augmentation project	420
Chennai Metropolitan Water Supply & Sewerage Board (2005)	Chennai water supply project	500
Chennai Municipal Corporation (2005)	Roads	458
Ahmedabad Municipal Corporation (2005)	Roads and water supply	1,000
Nagpur (2007)	Nagpur water supply and sewerage project	212
<b>TOTAL</b>		<b>6,495</b>

## Pooled Financing

Only financially strong, large municipal corporations are in a position to directly access capital markets. Most small and medium ULBs are not able to directly access capital markets on the strength of their own balance sheets. Also, the cost of the transaction is another barrier. In the United States and elsewhere, small local bodies pool their

resources and jointly access the capital market. The FIRE-D project developed a similar vehicle for India's ULBs that enables capital investments to be pooled under one borrowing umbrella. Based on this model, the Governments of Tamil Nadu and Karnataka issued municipal bonds by pooling municipalities.

In 2003, the Tamil Nadu Urban Development Fund issued a bond by pooling 14 municipalities for commercially viable water and sewerage infrastructure projects. A special purpose vehicle, the Water and Sanitation Pooled Fund (WSPF), was set up to issue the municipal bonds. The FIRE-D project supported the efforts of WSPF to structure a Rs.304 million bond issue whose proceeds financed small water and sanitation projects in the 14 small ULBs. The Trust vehicle enabled the local bodies to participate in the capital market without increasing the contingent liabilities of the state and to channelize private financial resources into infrastructure investments. This was the first municipal pooled issue. It had a fifteen-year maturity and an annual interest rate of 9.20 percent. While the bonds were unsecured, a multi-layered credit enhancement mechanism was set up. The ULBs agreed to set apart monthly payments equal to one-ninth of their annual payments into escrow accounts and transfer the same during the tenth month into the WSPF's escrow account. Besides the strong escrow mechanism and government intercept, a key to the bond's success was that all the pooled projects demonstrated strong collection of user charges and/or fixed upfront contribution from citizens. USAID provided a backup guarantee of 50 percent of the bond's principal through the Development Credit Authority (DCA) mechanism. The issue demonstrated a successful model of pooled financing in India. It threw open the possibility of enabling smaller and medium municipalities to access capital market funds at competitive rates.

Subsequently, the Government of Karnataka used the concept of pooled financing to raise debt from investors for the Greater Bangalore Water Supply and Sewerage Project. This project covers eight municipal towns around Bangalore and has a total project cost of Rs.6,000 million. A debt fund called the Karnataka Water and Sanitation Pooled Fund (KWSPF) was established under the Indian Trust Act to access the capital market by issuing a bond on behalf of the participating ULBs. The KWSPF was created as the intermediary between the local municipalities and the capital market. The KWSPF borrowed from the market and on-lends to the ULBs at terms determined by the KWSPF. During June 2005, the KWSPF successfully floated Rs.1,000 million tax-free municipal bonds at an annual interest rate of 5.95 percent. The tax-free status of the bonds greatly enhanced the terms on which the ULBs were to repay the loans, which in turn elevated the confidence of the investors. USAID under its DCA program provided a guarantee of up to 50 percent of the principal amount of market borrowing. It is felt that the tax-free status of the bonds and the DCA guarantee lowered the interest rate by about 1.5-2.0 percent per year compared to similar credit enhancement structures and helped to extend the bond's tenure to 15 years. The GBWASP will provide water supply to 1.5 million people residing in about 300,000 households, including some 60,000 urban poor households in 250 wards in the eight ULBs, which as of December 2006 have been merged with the Bangalore Municipal Corporation.

The success of the pooled finance model as demonstrated in the States of Tamil Nadu and Karnataka subsequently led GOI to create a central fund that enables capital investments to be pooled under one state borrowing umbrella. The objective is to provide a cost-effective and efficient approach for smaller- and medium-sized ULBs and to reduce the cost of borrowing. MOUD formulated the Pooled Finance Development Fund (PFDF) Guidelines to help small- and medium-sized ULBs access market funds for their infrastructure projects and to encourage municipalities undertake fiscal, financial and institutional reforms required to create efficient and equitable urban centers. The PFDF Guidelines call for states to create their own pooled financing entities. The scheme is meant to provide credit enhancement grants to facilitate market borrowings through a pooled financing mechanism on behalf of identified ULBs for investment in urban infrastructure projects.

### **Public-Private Partnership Options**

As a response to an insufficient provision of basic urban services and a lack of access to finance and other resources by ULBs that aim to increase access to these services, a number of PPP options have emerged. These include: service contracts; performance-based service contract; joint sector company to implement and finance the project; a management contract for operations and maintenance (O&M); and construction cum build-operate-transfer (BOT) contract.

It is pertinent to mention already at the beginning that the Government of India has designed PPP guidelines to sensitize state governments and urban local bodies to the policy and procedural issues that need to be addressed so as to reform urban water supply and sewerage issues. The new PPP guidelines advocate the changed approach and can drive and sustain comprehensive reform of urban water and sanitation services. This approach will also strengthen the role of urban organizations to provide the urban services more effectively and support the decentralization objective of the Government. In this improved environment, public-private participation models for provisioning of various services would also become feasible. Features of the PPP options are presented below.

Service Contract: The Chennai Metropolitan Water Supply and Sewerage Board have made a significant advance in use of service contracts for PPP in O&M of water supply and sewerage systems in the city. Out of the 119 city sewerage pumping stations 70 have, so far, been given to private contractors for operation and maintenance. The system is working very well which has resulted in an increase in the contract period from one to three years. The Board has also given service contracts for O&M of two sewage treatment plants for a period of three years.

Performance-Based Service Contract: In the Navi Mumbai Municipal Corporation (local body for a planned new city close to Mumbai), core municipal services are managed by the private sector on a labor contract basis. Of the forty-two contracts in operation, nineteen performance-based service (PBS) contracts were prepared for managing the water distribution system and one PBS contract for the transmission system. The basis for repackaging the contracts was to increase the efficient operation of the system, and take specific steps to: maximize the water that is billed; reduce leakages in the system; detect illegal use of water; and take similar steps to minimize the consumption of power. The scope of work included: system operations; operations based on schedule of rates; water audit; energy audit; repairs and maintenance, and advice. The PBS contract envisaged provision of services for 3 years with annual performance reviews.

Operator Consultant: As part of the World Bank funded Karnataka Urban Water Supply Improvement Project, demonstration zones have been identified in the three cities Belgaum, Gulbarga, Hubli-Dharwad and entrusted on a performance based contract to a Private Operator Consultant for carrying out water supply improvements in the zones with the prime objective of demonstrating provision of 24/7 water supply. The scope of the contract is to undertake detailed technical investigations of the present water supply in the Demo Zones and prepare a detailed investment plan and undertake the rehabilitation of the distribution zonal assets, provide operations, maintenance, and customer services at agreed levels of service.

Management Contract: Jamshedpur Utilities and Services Company (JUSCO) a wholly owned subsidiary of the Tata Steels was formed in 2003 to provide and maintain urban services in the city. This private company provides very good urban services including power to its 7 lac population. It has a management contract for O&M of water supply and sewerage services for Jamshedpur city.

Joint Sector Company: This option is adopted in Tiruppr water supply project. Tiruppur city in the State of Tamil Nadu had a population of 3,500,000 in 2001. The city produces more than 75 percent of the country's knitwear exports. Realizing the need for an improved water supply to survive in a highly competitive international market, the Tiruppur Exporters Association supported by the state and local government decided to involve the private sector in meeting the water demand. As a result, a public limited company with private sector participation, the New Tiruppur Area Development Corporation, was formed to implement the project. When operational, the water project will supply 185 million liters of water per day and serve nearly 1,000 textile units and residents in Tiruppur and its surrounding areas. The project was implemented on BOT basis. The Project will recover the total project cost along with realizing reasonable returns through user charges. The estimated cost of the project is Rs. 10,500 million.

Construction-cum-BOT Contract: Alandur Sewerage Project had a construction contract for 120 KM sewage collection system; whereas, the treatment plant of 24 MLD is with a BOT contract. The total cost of the project is Rs. 340 million. The operator is expected to make capital investment for the treatment plant and recover it over a period of 14 years. The local body will recover the costs through a combination of sewerage tax, sewerage charge, connection charge, general revenues and state government support.

There are several PPP projects in solid waste management. Various ULBs are now taking help from private sector to develop water supply projects in PPP mode and some of these initiatives in Latur, Nagpur, Mysore, Madurai, Mandvi, etc. are now at different stages of project development and implementation.

The initial focus of new investments on PPP of water supply projects was on provision of bulk supply. However, BOT projects often did not address problems of existing water supply and sanitation systems such as high unaccounted for water, high expenditure on energy and low cost recovery. The focus is slowly shifting to improved management of existing systems. It may be mentioned here that most of PPP projects in water supply sector are in pilot stages. Most of them are not citywide, water supply tariff in India are low, base data of existing water supply systems are missing and capacity of private operators is also inadequate. Unless these issues are taken care it will not be possible to undertake PPP projects in urban water supply and sanitation sector.

### **Linkages with JNNURM**

Acknowledging the critical role of cities in the country's current economic context, GOI launched in December 2005 a flagship program, called Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The program aims at providing incentives to cities to undertake institutional, structural and fiscal reforms at state and local levels to improve service delivery systems, boost local economic performance and enhance quality of life.

JNNURM has two overarching goals, one relate to provision of urban infrastructure and second reduction of poverty in cities. Through this program, GOI is providing investment follow up for cities undertaking comprehensive reform. The JNNURM will disburse a total of at least Rs.1,000 billion over a seven-year period (2005-12). Of this, Rs. 500 billion will be contributed by GOI and another Rs. 500 billion will be contributed by states and ULBs. States and ULBs accessing the JNNURM must complete a total of 22 reforms, some mandatory and some optional, during the seven-year period (2005-12). The mandatory and optional reforms of states/ULBs under the JNNURM include decentralization of urban governance and empowering urban local bodies, introduction of improved accounting systems, improved revenue base, reform of rent control acts, delivery of services to poor, etc. The JNNURM encourages ULBs to access market-based financing and PPP for urban infrastructure projects that are funded by the Mission. The FIRE-D project assisted Nagpur and Thane Municipal Corporations to prepare financial and resource mobilization plans to fund their local contributions to projects identified under JNNURM. The Nagpur Municipal Corporation issued Rs.212 million municipal bond in March 2007 to fund a WSS project under JNNURM. The Thane Municipal Corporation is expected to access the market for a Rs.1,000 million bond to fund its local contribution for a sewerage project under JNNURM. PPP options were have been approved for 22 projects under JNNURM and most of them are for solid waste management in cities.

### **Conclusion**

Great progress has been made in developing the policy and legal framework for local governments to access the capital market to finance urban infrastructure. However, to routinely access capital markets or invite private sector, ULBs will have to have the capacity to develop commercially viable projects. The most critical factor for obtaining market finance will be a healthy municipal revenue base. A market-based approach to financing urban infrastructure linked with JNNURM will further strengthen ULBs and help achieve the decentralization objective of the 74th Constitutional Amendment. Thus, market-based financing is an important innovation for urban infrastructure in the country.

As far as PPP options for urban infrastructure are concerned, the entire notion of developing and implementing projects in a commercial format is a relatively new trend in India. These project require considerable efforts in evolving project documentation, developing institutional arrangements for project structures, securing approvals and clearances from stakeholders, financial structuring, selecting a contractor, operator or concessionaire and ensuring overall financial closure. A wide range of actors have to be involved in all these processes, and consistent coordination is necessary. In addition there is a constant need for the sponsor to pursue project related activities to mitigate and minimize risks. Both capacity and legitimacy are required to perform these roles.



Photo 1: Raska Water Supply Scheme in Ahmedabad constructed using municipal bond in the city.



Photo 2: The Union Finance Minister of India issuing Pooled Finance Bonds in Bangalore



Photo 3: Water Supply for a Low-Income Settlement in Bangalore



Photo 4: Community Toilet in a Low-Income Settlement in Sangali



Photo 5: Solid Waste Treatment Plant Through PPP in Ahmedabad

