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MUNICIPAL BOND SYSTEM IN THE USA

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INTRODUCTION·

With the new economic policy and the ongoing financial sector reforms in the country, there is a growing realization of the need to enhance investments in the infrastructure sector and improve social sector provisions While the recent budget has provided a variety of incentives in this regard, the issue of deteriorating urban environment has not received adequate policy attention.

In the past, urban environmental infrastructure like water, sewerage and solid waste management has been considered as a public service One of the main constraints in improving the quality of urban infrastructure has been inadequate resources along with low capacity of urban local bodies to absorb financially viable debt. This reflects the low level equilibrium trap in which the urban authorities are trapped today, as evident by a low level of resources for urban infrastructure resulting in a low level of services, leading to low willingness to pay for these services and hence, low cost recovery The low cost recovery limits the rate of returns on these investments and, therefore, they get viewed as social investments. The low return on environmental infrastructure and the prevailing problems of municipal finance make it difficult to mobilize additional resources for these critical investments

On the other hand, with the onset of financial reforms, tremendous opportunities exist for tapping the capital market. However, due to the poor fiscal conditions of the local bodies and past inefficiencies, market image of the urban infrastructure sector is one of high risks and inadequate returns. It may, however, be argued that the turnaround of municipal and other service authorities can itself be aided by creating greater opportunities for them to access commercial resources. This will provide incentives and a healthy competition among urban local bodies to improve their market image This may be done through a variety of institutional arrangements such as direct municipal borrowing for larger financially healthier authorities, borrowing by special purpose service enterprises or indirect access through appropriate financial intermediaries and various other arrangements for attracting direct private investment. These options need to be assessed in view of the available international experience and the potential and constraints existing in the Indian context

One of the only countries in the world, where the use of capital markets to finance investments in urban infrastructure has a long history spanning over a century is, the United States of America While it is true that the Indian context is very different, it would be useful to draw lessons from this rich experience in evolving a municipal credit policy for Indian

cities. This paper attempts to do this by focusing on the broad dimensions of the US bond market and specifically identifying the nature of government support which has helped in its development Based on these, the last section also identifies the major issues for developing a municipal bond system in India

US MUNICIPAL BOND MARKET:

The US municipal bond market has provided access to debt financing for state and local government entities for over a century and a half The size of the market is large even relative to the corporate securities During the 15 year period from 1970, the dollar volume of municipal debt issued was about double the issuance of corporate debt during the same period (Lamb and Rappaport, 1987, p 3) The combined volume of new issues of long-term municipal securities was to the tune of $456 billion during the years 1993 and 1994 The total outstanding volume of debt is estimated at $988 billion with over 1.5 million different securities (McGoldrick, 1995 and Fabozzi et al 1995). Out of an estimated 83000 local government or municipal entities, over 50000 have issued municipal securities In addition, several thousand public revenue authorities are also issuers of municipal bonds The growth of municipal debt from 1980 to 1994 has been at an annual compounding rate of 7 5 percent per annum (Wong, 1995).

Legal Foundation of Bond Finance: It is important to realize that the legal foundation of municipal borrowing through bonds is dictated by the US constitution. 'The ability to incur debt, forms of debt and methods of repayment are clearly defined by the constitution of each of the fifty states' (Wong, 1995). Legal interpretations are expressed in the detailed governmental codes. For the general obligation bonds, as described below, the power to levy taxes to repay the indebtedness are prescribed. In practical terms, the municipalities must levy taxes upon its citizens at such rates or amounts sufficient to pay the debt service (Wong, 1995)

Interestingly, however, the debt incurred through issuance of revenue bonds is not considered as indebtedness within the meaning of constitutional provisions The authority for these is derived from the *'special fund doctrine'* As the debt servicing is done through a special fund, the issue of protection of the taxpayers from an extreme tax burden for debt repayment, does not arise. This fund is generally realized from direct user charges for specific services During the eighties, as discussed below, a large proportion of the revenue bonds in any case were issued by public revenue authorities.

Another important aspect of the legislative concerns of the municipal bond system relates to the tax exemption available for interest income from municipal bonds As we discuss in greater detail later, this was derived from judicial decisions based on the notion of *'intergovernmental tax immunity'* However, more recent judgements have overruled this

interpretation, and therefore, constitutional protection is not available for tax exemption any more.

It must also be recognized that besides the legislative basis for municipal borrowing, 'there is a strong history of populism and local sovereignty in the U S that has (also) encouraged municipal finance' (McGoldrick, 1995) In general the American public prefers to take local decisions on provision and maintenance of city infrastructure, rather than be dictated by the state or federal governments in this regard

Issuers of Municipal Bonds: Interestingly the term municipal bonds in the US is a generic one, and refers to securities issued by state, county and city governments as well as a variety of special assessment districts and public revenue authorities In fact, the share of city governments in total debt issuance is about 20 percent Over the years, the share of public revenue authorities in total debt issuance has increased dramatically and stood at 52 percent in 1989 (Refer Table 1). These authorities often span across geographical areas which cross several political boundaries They finance, construct and deliver a variety of public projects and services, including public power, water and waste water, housing, hospitals, solid waste management, etc. They provide the necessary structure which enables greater efficiency in service provision, easier revision in tariff levels as required and the operations are taken out of direct political control

Type of Bonds: There are essentially two main types of bonds, which are distinguished on the basis of 'how the repayment is secured' Over the years there has been a significant shift in the type of bonds issued, with the revenue bonds becoming far more popular

General Obligation Bonds: These are issued by an elected local authority and are backed by its *'full faith and credit'* with all its taxing powers. Thus, all legally permitted taxing and general revenues of the local authorities can be used for debt servicing. In most states there is a limit on the total issuance of such bonds. In addition, the issue requires a thorough assessment of the debt carrying capacity of the local authority based on factors such as the annual debt servicing ratio, tax collection efficiency, quality of the authority's financial management and the current and projected health of the jurisdiction's economic and tax base Proceeds from these bonds are used largely for projects with lower returns like health, education, recreation, streets, public buildings and general governance.

Revenue Bonds: These essentially rely on specified sources of revenue from facilities or services which are financed from the bond proceeds Revenue bonds generally carry strong covenants regarding rate setting to meet the debt service coverage requirements A variety of special revenues streams and covenants for rates and debt service reserve are a part of the revenue bond indenture Generally, subsequent revenue bonds by the same authority are issued at parity with the earlier outstanding issues. They are treated as non- guaranteed

Table 1
Municipal Borrowing by Type of Issuer and Type of Bonds
(Percent to total dollar value of long-term new issue security at par)

	1970	1989
Issuer:		
States	26.8	9.3
Counties	9.3	8.6
Municipalities	21 7	19 6
School Districts	11.7	6.7
Special Districts	5 9	4 0
Statutory (Public Revenue) Authorities	24 6	51.8
Total	100.0	100 0
Type of Bonds:		
General Obligation bonds	65.7	29 9
Revenue bonds	33.3	70 1
Total	100.0	100 0
Total volume of long term new issue security (in billion $)	18.1	122.5

Source Based on Public Securities Association (1991), p 57 and p 17

Table 2
Indebtedness of State and Local Governments, 1987-88
By type of issuers and issues

Issuer agency/govt	General Obligation Bonds	Revenue Bonds	Total	Share in total issues		
				GO Bonds	Revenue Bonds	Total
State	24.7	75.3	100 0 (275 4)	32 3	39.3	37 3
County	28 6	71.4	100 0 (100 2)	13 6	13 5	13 6
Municipal	32.6	67.4	100 0 (184 9)	28 6	23 6	25 0
Special Dis Public Revenue Authority	9 9	90.1	100 0 (135 0)	6 3	23 0	18 3
Other	92.9	7.1	100 0 (43 7)	19 2	0.6	5 9
Total	28.6	71.4	100.0 (739.2)	100.0	100.0	100.0

Source: Mikesell (1992), p.403
Note· Figures in the parenthesis are total outstanding debt in $ billion

debt and, therefore, not included in the statutory limits on local borrowing. These bonds have been more commonly issued by special public revenue authorities, backed by the specific service linked revenue streams [1] Some, however, use specially pledged taxes like sales or

[1] One of the commonly used revenue authorities are the Special Assessment Districts (SADs) There are two types of SADs found in the US. The first is not a separate governmental entity and are established primarily for financing infrastructure which provides special benefits "The term special refers to the fact that the district is used to finance infrastructure that provides primarily local or special benefits to a small group of people or property rather than general benefits to a whole city, community, or region " Such special districts may be established for new development areas or for improvement or renewal in existing areas The second type SADs are separate government entities established to provide a single or 'special' service It has its own governing body and is distinguished from city governments only to the extent that they provide only limited services Examples include water and sewer districts, transit districts and school districts (Snyder and Stegman, 1989)

fuel tax. In the initial years, some revenue bonds were provided an additional guarantee from city government, backed up by its general taxing powers These were referred as 'double barreled' bonds and were especially used for projects which have community-wide benefits such as water and sewerage systems

Over the last two to three decades, the share of debt mobilized through revenue bonds has increased considerably Of the total debt, over 70 percent is non-guaranteed or essentially through the revenue bond route and its share has grown considerably over the years (Refer Table 1). This has been largely due to the setting up of many public revenue authorities Another reason for this is that unlike general obligation bonds, no voter referendum is necessary for revenue bonds These bonds had also been extensively used for financing private sector provision of facilities and industrial development However, this particular usage is now restricted, at least for bonds with tax exempt status The Tax Reform Act of 1986, put limits on the share of bond proceeds which may be used to finance non-governmental entities However, this is still possible for certain public services like water and sewerage facilities

Use of Bond Proceeds: The total volume of municipal bonds issuance in the US is very large, with the dollar volumes being twice that of corporate debt during the eighties The uses of bond proceeds are quite varied, and different for state versus local governments Table 2 illustrates this clearly. Among local authorities, utilities constitute almost one-fourth of the total debt, with water services accounting for 12 2 percent for city governments However, for state governments, the share is much higher for education and health related borrowing. Revenue bonds are used only for those facilities and services which have the possibility of defined user services and charges. For example, in 1992, the total new issuance for infrastructure was estimated at $34.2 billion through revenue bonds. The share of usual municipal environmental infrastructure including water, sewerage and solid waste management is around 30 percent (Department of Transportation, 1993). However, of the total municipal debt issued in 1993 and 1994, about 9 to 12 percent was for water and sewerage facilities. (Refer Table 4). A large proportion of the primary debt issues are also used for refinancing, influenced especially by the falling interest rate environment For example, in 1993, of the total $338 billion[2] of municipal debt issued, as much as $195 billion (56 7 percent) was for refinancing. This was mainly due to the interest rates hitting a 20 year low As evident from Table 4, the situation changed in 1994, with the Federal government's efforts to increase the rates as the total issuance dropped from $292 billion in 1993 to $164 billion in 1994

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2 In 1993, $291 9 billion was issued as long term debt (as reported in Table 4), and another $ 46 9 billion was issued as short term debt, totalling to $ 388 8 billion (Wong, 1995)

Table 3
Purpose of Long Term Debt of State and Local Governments in USA
(Percentage to total outstanding debt in 1987)

Purpose	Issuing Authority		
	State	Total Local*	City Govt.
Utilities	**5.7**	**23.7**	**25.1**
Water	0.3	NA	12.2
Sewerage	1.2		2 9
Electricity	3.0		9 5
Transit	1.2		0 5
Other	**94.3**	**76.3**	**74.9**
Education	15 5	9.9	2 2
Hospitals	11 0	NA	NA
Highways	7.2	NA	NA
Total	100.0	100.0	100.0
Value in Billions of $	**264.1**	**438.8**	**175.5**

Source· Based on Mikesell (1991), p 404
Note: * Total local also includes, besides city government special and school districts and other townships

During the sixties and seventies, a variant of revenue bonds commonly referred to as 'Industrial Development Bonds', became quite popular. Under these, bond proceeds were used to finance non-governmental or private sector activity largely for facilities meant for general economic development. The facilities were in most cases leased to private parties and the lease payments were used for debt servicing. It is thus also referred as 'on-behalf-of' debt. Interestingly, an analysis of available evidence suggests that these bonds were more likely to have problems related to delayed payments. In any case, severe restrictions on their tax exempt status have now been placed on these bonds under the 1986 Tax Reform Act

Process of Issuance of Municipal Bonds: The process of issuing municipal bonds and the related services and regulatory requirements have developed over the years in the US In the primary market, the process may be distinguished in three stages, namely, pre-sale, sale and closing of bond issuance A variety of actors are involved in this process as illustrated in Table 5. Their roles vary at different stages and depending on the complexity of bond

Table 4
Purpose of Primary Market Bond Issues
(Long Term Bonds)

Purpose	Municipal Bond Volume			
	($ Billions in Par Value)		Percentage to Total	
	1993	1994	1993	1994
Electric Power	28.132	6 423	9 6	3 9
Environment Facilities	12 125	8 915	4 2	5 4
Water and Sewer Utilities	37 169	15 142	12 7	9 2
Education	47.838	29 712	16 4	18 1
Healthcare	31.964	16 021	10 9	9 7
Public Facilities	16 623	8.146	5 7	5 0
Housing	14 761	15.645	5 1	9 5
Industrial Development	8.369	7.162	2 9	4 4
Transportation	28.467	14 500	9 7	8 8
Other Capital Facilities	66.569	42.761	22.8	26 0
Total	292.017	164.427	100.00	100 00
No. of Issues*	18110	14653		
Credit Enhancement				
Insurance	107.897	60 230	36.9	36 6
Line Of Credit	11 776	8.724	4.0	5 3

Source The Bond Buyer, as reported in Wong (1995)
* Number of issues also includes short term bonds

structures and whether the bonds are issued through a competitive bid, sold through negotiation or privately placed. Figure 1 also illustrates these relationships

Pre-Sale Stage: The pre-sale stage of the bond issuance is the longest period, lasting anywhere from 1 to 5 years, depending on the size and complexity of the issue It includes internal project planning and approvals (1- 3 years), obtaining credit rating and enhancement

(3-6 months), preparation of official statement (2-4 months) and other documentation and the structuring and marketing of the bond issue (2-4 months), (Price, 1994). During the pre-sale stage, the issuer is dependent to a great extent on the professional services provided by different consultants, especially, the bond counsel, financial advisor and other analysts for market assessment etc. With their help the issuer will be able to determine the volume of bond financing required, follow the proper legal procedures for bond issuance (announcement, referendum, etc.), develop the preliminary official statement and decide on the structuring and design of bond issues. This would also include details of whether the bonds will be issued through a competitive bid, sold through negotiation or privately placed. In either case, rating for the bond issue and any credit enhancement arrangements are also worked out It is necessary that the appropriate orders for the covenants built into the bond indentures are also issued. The legal validity and applicability of these covenants will also need to be ascertained by the bond counsel. Duration of the pre-sale stage can vary considerably, being very short for simple and commonly used structures, but running into years when complex institutional and credit enhancement structure are necessary It is necessary to prepare a *preliminary official statement*[3] at this stage which gives details of the issue as well as the issuer. The preliminary official statement is a draft document which provides a complete and accurate written account which gives adequate information for the investor to make an informed investment decision It must also contain a bond counsel's opinion on the legality of the issue.

Sale Stage: During the actual sale stage, the schedule of activity is well defined. The period generally is very short, not exceeding three to four weeks. The bond issue can be privately placed or offered through a public issue. Private placement is not very common and is used only for small local issues. In a public offering, the issue is usually underwritten by investment bankers or bond departments of commercial banks In many of the states it is mandatory for general obligation bonds to be issued through a competitive bid. Under this process, the issuer invites bids competitively in a time bound framework and selects the lowest bid. On the other hand, in a negotiated sale, the issuer deals directly with a lead underwriter, who may also then be the financial advisor. Many of the state and local governments require that a competitive bid is announced in a recognized financial publication. The preliminary official statement (POS) and an *offering circular* (which is largely used for marketing) are made available to all interested investors and sent to potential underwriters (in a competitive bid), rating agencies and perhaps major institutional investors before the scheduled sale. POS remains a draft document and is 'subject to amendment and completion at the time of, and subsequent to sale and prior to the delivery of the final version ' In addition to the official statement, there are also reports from rating agencies which may be availed of by the underwriters and investors Over the last few years, the market efficiency has increased considerably. The underwriters' gross spreads, which were

[3] Refer Table A3 for contents of a typical Official Statement

in the region of 3 percent have now been reduced to around 75 basis points (Wong, 1995).

Closing of Issue: Once the sale is completed, the results are published in the recognized financial press The underwriters then also give the necessary information for preparation of the Final Official Statement (FOS) In a negotiated sale, this also includes information concerning the underwriting spread, fees for distribution and initial offering prices After the sale, there is also systematic recording of related information. The main basis for this is through a CUSIP number which is accorded to each unique issue (numbering over 1.5 million now). The CUSIP Service Bureau keeps the copies of official statements legal opinion, etc. In addition, several data base information services have information for issues larger than $1 million. *Bond Buyer* a private firm also acts as a repository of all related publications for issues above $1 million Finally, the rating agencies also review the ratings of bonds throughout the life of the issue

Security Structures for Municipal Bonds: The security for government obligation bonds essentially comes from full faith and credit of the issuing government and is thus backed up its taxing powers as well as other revenues. On the other hand, as we noted above, revenue bonds represent limited liability and are thus not considered public debt of the government Over the years, several security measures have been commonly used for revenue bonds, as discussed below.

Source of Payment or Pledge of Revenues: The main underlying basis of a revenue bond is that only a specific identified stream of revenues, and not the full faith and credit of the borrower, is used as a security. For this to be acceptable, the specific source of payment needs to be very clearly identified, its legality needs to be ascertained and its reliability and adequacy also have to be rigorously assessed Further, In most cases some extent of overcollateralization of revenues is used. For example, it is common to have a debt service coverage ratio (after paying for operations and past debt servicing charges) of 1.10 to 1.25.

The type of revenues which are actually used in this regard vary considerably across different sectors and agencies. For example, for water and sewerage, while it is generally the user charges which are used, these can also be further supported by other streams like tax increments resulting from property improvements or capacity allocation charges. In the US, there are also examples of debt service surcharges on water or sewerage user charges which have been approved on a prospective basis for new bond issues.[4] The important

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[4] For example, in New York, a For-Profit investor owned water utility, the Shorewood water Corporation, introduced a debt service surcharge on customer water bills This was explicitly permitted by the New York State Public Service Commission, who were also the water utility rate regulators This permission was obtained in advance of the bond sale, so that the Corporation was able to demonstrate to potential lenders that it had the legal authority to collect sufficient revenues to repay the bonds

Figure 1

STRUCTURE OF US MUNICIPAL DEBT MARKET

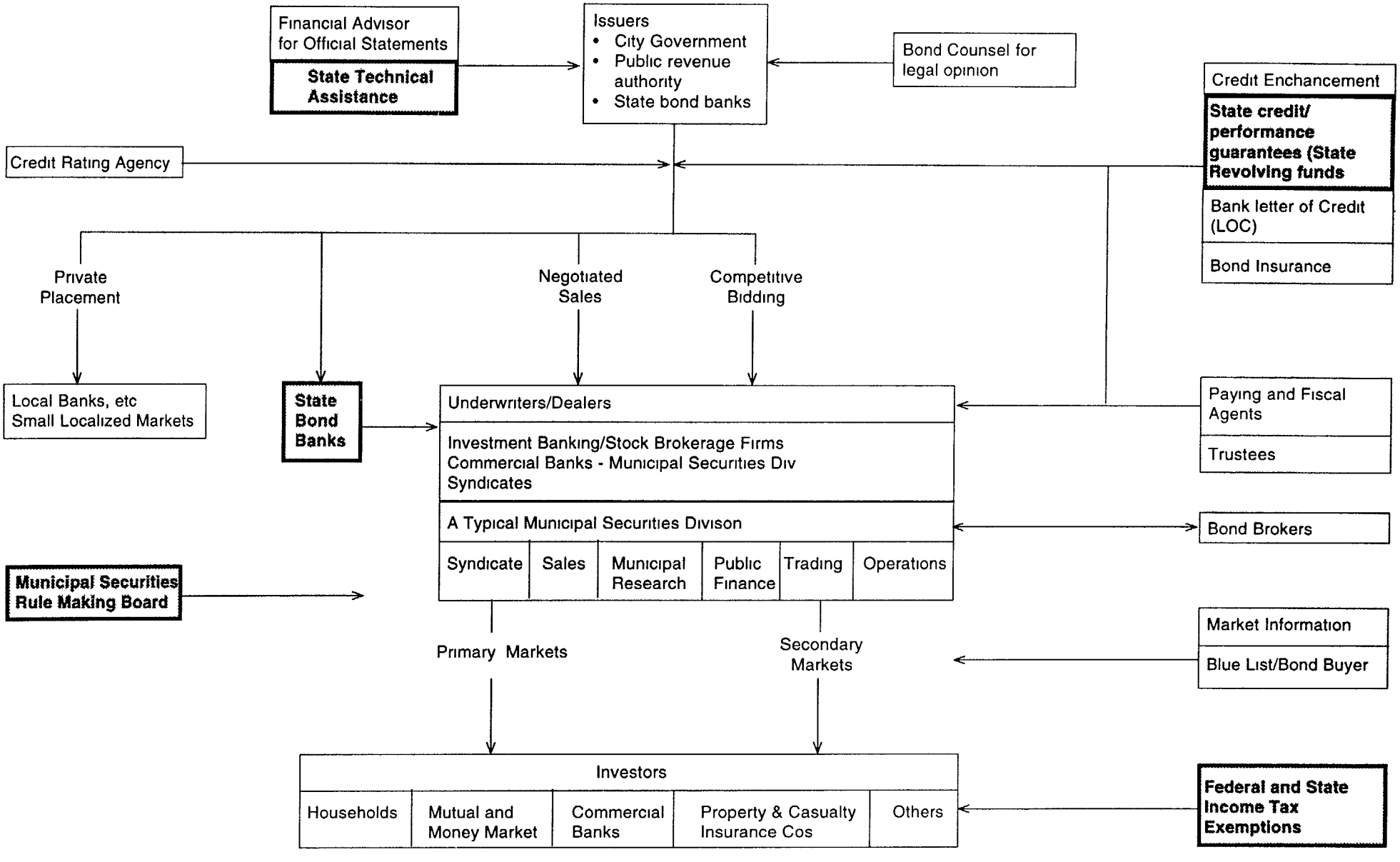

Table 5
Characteristics of Main Actors in the US Municipal Bond Market

Actor	Main role	Characteristics
Municipal Government	Issuer	Issues GO bonds and revenue bonds through municipal enterprises
Public Revenue Authority	Issuer	Issues revenue bonds for specific services like water, sewerage, housing, schools, etc
Consultants For Professional Services	Financial Advisor	Provides consulting services to the issuers for preparation of official statements giving financial details and issue characteristics
	Bond Counsels	Gives opinion on the legal validity of bond issues and tax exempt status
	Engineers and Market Analysts	To provide the issuer with feasibility studies and engineering reports
Dealers	Underwriting Secondary markets	Underwrite bond issues either through negotiated sales or competitive bids Securities firms or special divisions of commercial banks, form syndicates for large issues Market makers for secondary markets
Credit Rating Agencies	Credit rating of municipal bond issues	A few established credit rating agencies with well developed and market accepted credit rating systems Also provide information about the bond market on an ongoing basis
Paying Agents	Collection and payment of principal and interest due	Place/firm where principal and interest for debt servicing of municipal bonds are payable Usually a designated bank or the office of the treasurer of the issuer
Investors	Invest in municipal bonds	Main investors include households, property and casualty insurance firms, and commercial banks Main incentive for investors is the tax exempt status of municipal securities
Bond Insurance Agencies	Provide credit enhancement through bond insurance	Four main insurance firms provide bond insurance to about 25 percent of total issues to help improve credit rating

aspects here relate to both the legal power of the issuer to charge or receive these revenues on a continuing basis and, especially for user charges, the reliability of market trends assumed in projecting future revenues

An additional consideration which is important here is to ensure that the revenue streams

Table 6
Municipal Bond Volumes by Type of Offering, 1985

Type of Offering	General Obligation Bonds	Revenue Bonds	Total
Dollar Value:			
Competitive	45 3	6 2	16 2
Negotiated	54 2	91.1	81 7
Private Placement	0.5	2.7	2 1
Total	100.0	100 0	100 0
(In Millions of dollars)	53.3	155 5	20 8
Issues:			
Competitive	76.8	11 4	36 4
Negotiated	31.2	80 7	58 7
Total	100.0	100.0	100 0
(Number of Issues)	4344	5450	9794

Source. ICMA - MIS Report, Vol 19, No 6, 1982

which are pledged do not legally have other priority claims. For example, if the conservancy taxes are pledged for a new sewerage facility, these may already be subject to debt servicing of earlier outstanding debt or to meet expenses for solid waste removal. Interestingly, even under the recent revisions in Bankruptcy legislation, is held that the special revenues pledged to bond holders can not be reached by the general creditors of a municipality. The recent Amendment thus 'appears to insulate and segregate so-called 'special revenues' that secure local government municipal revenue bonds in the event that the issuing municipality should file for bankruptcy' (Fabozzi et.al., 1995, pp.172-173) [5]

Flow of Funds Structure: The second important aspect of the security structure relates to the order and timing of revenue flows through various accounting heads[6] of the issuer The Bond

[5] Interestingly, during the period 1980 to 1994, as many as 105 different authorities with outstanding municipal bonds had filed for bankruptcy under the Chapter 9 of the Bankruptcy Reform Act of 1978

[6] In the US, most issuers of municipal bonds have a set of funds specified to which the order of revenue flows is specified. For example, these include debt service fund, maintenance fund, debt service

Resolution generally clearly sets forth the order in which the revenues generated by the enterprise will be allocated to various purposes Basically the revenues are first used to pay for operations. After this, the flow of revenues to different funds needs to be specified. This first necessitates a clear and explicit definition of different funds which are envisaged as a part of the security structure. In the US municipal bond structures, the flow of revenues generally is first for operations and regular maintenance, followed by debt service, debt service reserve fund, repair and replacement fund, depreciation or any other designated funds Besides the order of flow, timing is also important as more frequent deposits provide greater assurance and comfort to the investor. It may be also possible to distinguish between senior and subordinate debt to enhance the credit quality of the former. As the senior securities have the first claim on the cash-flow and assets, this is also akin to overcollateralization

The debt service reserve fund generally has sufficient funds to cover annual debt service charges, with often a debt service coverage covenant also applying to this fund. It helps to ensure timely payments and does not cover total default. The debt service reserve fund may be capitalized, either from the bond proceeds themselves (though this adds to the total cost of funds) or from the previous reserves of the issuer (this would add to the total borrowing requirements by reducing the share of issuer equity) As we discuss later, in many of the states in USA, state level bond banks or revolving facilities use the state or federal capital grants for creating such a debt reserve fund. Such arrangements help to leverage the limited grant funds manifold

The actual flow of funds generally found in most municipal revenue bond structures is illustrated in Figure 2. This represents a net revenue concept, where the operating expenditures have the first priority on revenue incomes. However, in some cases a gross revenue flow concept has also been used. This, however, is not really advisable as it is unlikely that future revenue incomes can be sustained without incurring the necessary operating expenses

Rate, or User Charge, Covenants. As the critical underlying feature of a revenue bond is the assumption of an adequate stream of revenues through a set of user charges, investor concern will be the greatest for this purpose. Thus, an important covenant in all revenue bonds is for maintaining the rates and charges at levels which ensure that net revenues are adequate for debt servicing, generally with a coverage ratio of 1.1 to 1.25 .

Additional-Bonds Test: Another important covenant relates to an additional bonds test which "prohibits an issuer from issuing parity bonds unless certain coverage requirements with respect to outstanding and new debt are met." The test may be applied to historical or future

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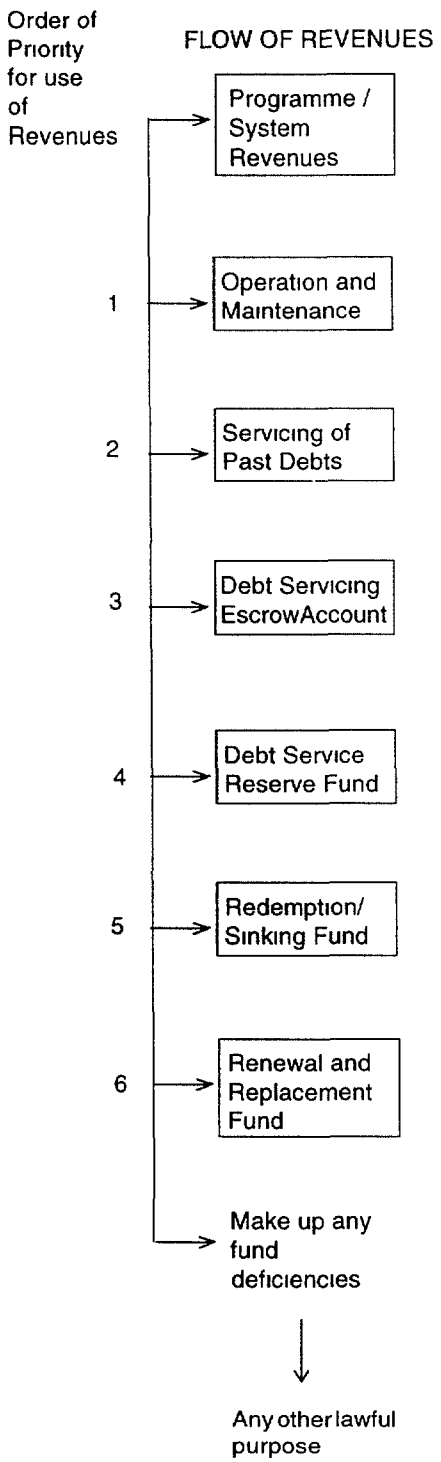
reserve fund, etc

Figure 2

ILLUSTRATIVE FLOW OF FUNDS FOR REVENUE BONDS



projected revenues, though the former are preferred by the rating agencies. In case of the latter, the coverage requirements may be enhanced

Other Related Covenants In addition to the above more commonly used measures, additional covenants have also been used in specific cases These may cover aspects like, requirement to operate and maintain the facility and to provide casualty insurance, list of permitted investments for pledged funds, retention and allocation of surpluses after meeting the specified flow of funds as above, etc

Credit Rating and Enhancement: Most of the municipal bond issues are rated by standard credit rating agencies. There are five leading agencies of which the two prominent ones of Standard and Poor's and Moody's command a very high market share The rating analysis essentially focuses on the questions, 'i) what has the debtor pledged to pay and ii) what is the probability that he can fulfill this pledge " The analysis differs considerably for the General obligation bonds and Revenue Bonds For the former, emphasis is on three important factors relating to a) economic base of the city/region, b) social and political conditions and c) local government debt and financial management, as well as budgeting and accounting procedures Credit analysis of the revenue bonds focuses on a) an economic analysis of demand for services (with the nature of analysis varying for each service), b) service costs and operating efficiency, c) financial analysis of the issuing authority and d) legal protection and safeguards for the investor.

Credit quality may be enhanced for a better rating through additional credit enhancement which generally come with a price tag.[7] In the US, this is generally done either through bond insurance or a bank's letter of credit (LOC).[8] With the problems in the banking industry, the shift is now towards a greater use of bond insurance.[9] Such insurance essentially provides for timely payments of debt servicing in case the borrower is unable to do so Premiums for such bond insurance depend on quality, length, size and type of issue, generally ranging from 0.10 to 1.0 percent of the issue's total principal and interest [10] The

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7 It needs to be pointed out that some of the measures discussed above in security structures, like debt service reserve, additional bonds test, etc themselves can be considered as credit enhancement measures

8 As we discuss later, many state governments also provide credit enhancement, especially for the smaller municipal authorities. In the US, credit enhancement for residential Mortgage backed security is also provided through mortgage insurance. This covers loan loss on a limited basis, ranging on the basis of underlying asset quality Besides the federal agencies like Fannie Mae, there are also private MBS linked insurance now available.

9 Bond insurance is also commonly referred to as financial guarantee

10 The insurance premiums on most bond insurance programs are paid at the outset However, financial guarantees are sometimes also available on an annual payment basis, with the cost being in the range of 10 to 75 basis points

market for bond insurance is growing, with over 40 percent of the long term issues being insured by 1994 from only 3 percent in 1980. By pooling default risk, new-issue insurance helps to improve the ratings and therefore, interest cost and market range for the bond issues It also becomes easier for the investors to assess the credit quality without any detailed analysis The insurance industry in the US comprises of five leading companies and another four smaller ones. Each firm has a 'AAA" rating and uses stringent credit analysis for all issues They sometimes work with the borrowers or issue managers to enhance credit quality of specific issues.

Importance of bond insurance in the US increased considerably following the two major defaults on municipal bonds, one by New York City in 1975 and, second by the Washington Public Power Supply System (WPPSS) in 1983 The New York City default occurred due to financial difficulties. Even for the WPPSS default which was apparently on legal grounds, as the courts ruled that "the participants were not authorized to enter into the supply contracts and thus had no legal obligation to make the payments", the underlying reason was financial problems (PSA, 1990).

Investors in the Bond Market: The investor base for municipal bonds is directly linked to their tax exempt status The extent of exemption makes them more attractive investments for those in the higher tax brackets. The main investor groups include households, mutual and money market funds, commercial banks and property and casualty insurance companies. Pension funds, despite their long term sources, are not major investors as they already enjoy a tax exempt status. Over the years, the importance of households directly, and through mutual funds, has increased considerably, mainly due to changes in tax benefits for other investors, especially commercial banks (refer Table 7) Interest of individual investors is maintained by not only the tax benefits, but also the possibility of liquidity in case of need. This is ensured by a secondary market in these bonds, as we discuss below. This shift in investor profile has led the municipal issuers to explore structures which bolster retail demand. For example, Pierce et.al. (1989) describe the municipal mini bonds which have been used in recent years for this purpose. As they point out besides the potential market expansion, the mini bonds, which are largely bought by local residents, also help to generate greater awareness regarding the need for and the process of financing local investments The positive public relations which result may make it easier to introduce the necessary rate revisions. Further with a good design, the minibonds can also help reduce the issuance costs for municipal bonds.

<u>Size of Bond Issues</u>: Another important feature of the municipal bond industry, especially as contrasted with corporate securities, is that it largely consists of smaller issues. For example, the Public Securities Association of the USA estimated that 'from 1980 to 1988, an average of about 22 percent of municipal bond issues were for $1 million or less and that, on average, 62 percent of all issues were for $5 million or less.' At the same time, the bulk

of the dollar volume of these securities was concentrated in larger issues, ranging between $100 million to $200 million. Revenue bonds tend to be of a larger size with a median size of around $ 10 million as compared to the $ 3 million median size for general obligation bonds (Refer Table A2).

Table 7
Investor Profile for Municipal (state and local) Securities

Investor	Percentage to total Investments		
	1980	**1987**	**1994**
Households	24 8	38 0	64 0
Mutual and Money Market Funds	1.8	20 8	31.0
Commercial Banks	42.6	16 5	8 0
Property and Casualty Insurance Companies	22 9	19 1	14 0
Others	7.9	15.6	3.0
Total	100.0	100.0	100.0

Source: Based on Mikesell (1991), p.424. for 1980 and 1987 and Wong (1995) for 1994.

Secondary Market in Municipal Bonds: There is a thriving secondary market in these bonds which is estimated to be two to three times the volume traded in the primary markets While no detailed statistics are available, "the *Blue List* published by Standard and Poor's Corporation contains daily listing of over 16000 to 17000 municipal bonds, with an average daily par volume of over $1.8 billion in 1994 (Wong,1995). Interestingly, despite its size, almost no secondary trading in municipal bonds is done on any stock exchange Nor is there a computerized market place designed to capture at least a significant number of the trades (PSA, 1990). The secondary market is, however, supported by securities dealers and dealer brokers through market making. All trading is done 'over-the-counter'. Very recently, from 1994, "a few major debt issuers such as California and New York City have begun listing some of their outstanding municipal bonds on the New York Bond Exchange (a sub-set of the New York Stock Exchange) to provide secondary market information to individual investor" (Wong, 1995).

An important factor in the growth of the secondary market to very large volumes has

been due to the technological changes, both due to the advent of the personal computers and telecommunication networks which have aided efficiency in developing bond transactions and adding contemporaneity and transparency in pricing. The traders are able to know the consensus bid and ask prices and size and price of the last filled order. Tracking of price movement is now possible in minutes for a large number of individual securities (Wong, 1995). Over the years, market development has been supported by market information as evident by the Blue List and Bond Buyer among others, which are published on a regular basis.

NATURE OF GOVERNMENT SUPPORT FOR BOND MARKET IN THE US:

While a large number of private sector actors are involved in the US bond market, it is equally important to emphasize the governmental role in this process, as highlighted in Figure 1. The government role is evident in a variety of fiscal, regulatory measures as well as technical assistance. Some of the important ones are discussed below

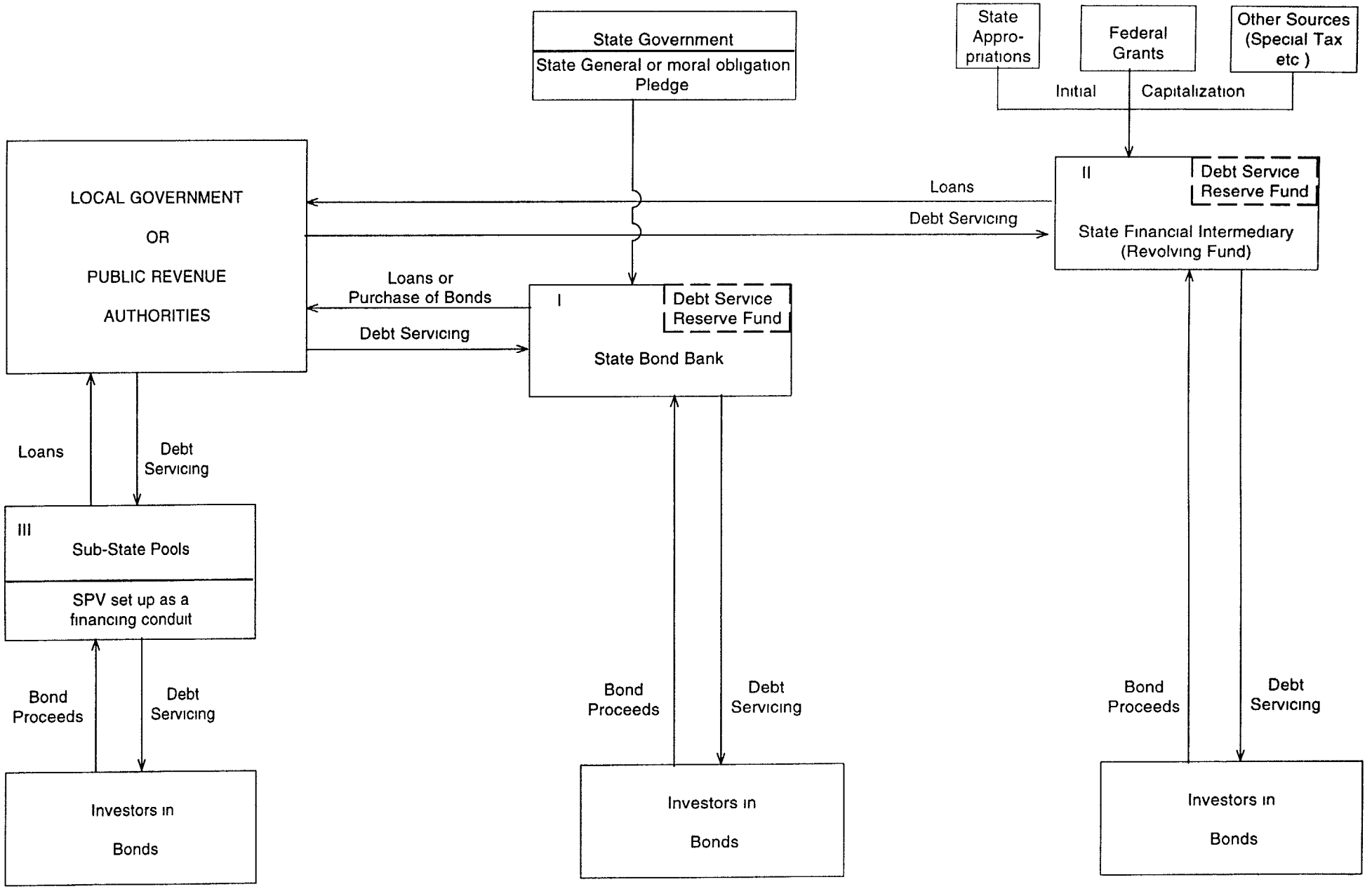
Income Tax Exemption Probably the most important government support to the municipal bond system comes through tax exemption for income earned on municipal securities Tax exemption helps to attract a range of investor groups who benefit from it. The tax exempt yield are comparable to taxable yields which are 2 to 5 percent higher depending on the tax bracket and yield rate. Municipal authorities are also able to mobilize funds at lower costs.

Interestingly, however, the basis for this exemption is not related to attracting investors but to the doctrine of '*intergovernmental tax immunity*' and the independence of the local authorities under the federal system of government In 1895, the Supreme Court ruled that "interest on municipal securities was not subject to federal income taxation because a tax on interest would impossibly burden state government and interfere with its power to borrow money." However, in the Sixteenth Amendment to the US Constitution in 1913, Congress was given the powers to "lay and collect taxes on income, *from whatever source derived*" Despite the wording, the intent of this legislation was not to tax the income from municipal securities and it has continued to enjoy some protection.

Over the last eight decades, there has been an ongoing debate concerning the federal restrictions on municipal securities with several attempts by the Congress to remove the protection of municipal securities from federal income tax. Over the past few years, two significant restrictions on tax exempt status have been put on arbitrage income and private activity bonds. Under the 1986 Tax Reform Act, the law clearly distinguishes between '*public purpose and tax exempt*' and '*private purpose and taxable*' type of debt While certain private activity bonds still receive a tax exempt status, there is an annual limit on such bonds for tax exemption to the extent of the greater value between $50 per capita or $150 million state cap (Mikesell, 1991). More significantly, however, another landmark Supreme Court

Figure 3

STATE LEVEL CREDIT POOLING ARRANGEMENTS IN THE US



ruling in 1988 overruled the earlier constitutional protection of municipal bond interest Thus, tax exemption for municipal bonds does not come from constitutional protection any more and will be dependent on the "political dynamics of the federal legislative process"

The rising concern with income tax exemptions for the US municipal bonds is due to at least three factors. First is that the tax exemption of these securities inhibits innovative attempts at attracting private investment in this infrastructure, even in the user fee supported public enterprises such as water districts. Especially following the 1896 tax reforms, private investment would find it difficult to compete with the tax exempt rates This could of course be resolved by extending the tax exempt status to public purpose infrastructure like water, especially when the prices are governed by public regulation For example, in the State of New Jersey, it is possible to issue tax exempt debt for investor owned water utilities as long as the rates are either set or approved by a governmental body like the New Jersey Board of Public utilities (EPA, 1993) Proposals to support such measures have been debated in the Congress also. There are many others who have argued for total removal of tax exempt status. It is estimated that the tax exempt status on municipal bonds probably cost the federal exchequer about $25.8 billion in 1993.[11] Other proposals also include taxable bonds especially for upgradation of infrastructure, where the federal government would reimburse the local governments for the interest difference, spread out over the life of the renovations [12]

The second reason for concern has been that major resource pools like the pension funds are not being tapped as these do not benefit from the tax exemption and, therefore, do not favor these low interest securities. Innovative measures have been suggested for this also, so that the pension funds can also be enticed into the municipal bond market (McGoldrick, 1995, p.26). The third area of concern has been that the tax exemption has led to inefficiencies in the municipal bond market due to the market segmentation and making these securities highly complex.

Credit Pooling Arrangements: Another form of state assistance has been in terms of a variety of supports for pooling credit of smaller, and often weaker, municipalities. The two main types of arrangements found in many US states are the State Bond Banks and State Revolving Funds. In addition, many local authorities also pool their bonds to maximize the scale economies, even without any explicit state supports

State Bond Banks In a number of states, state level bond banks have emerged to support the borrowing by smaller (and weaker) municipalities who otherwise find it difficult to tap the capital market directly A bond bank is essentially a state sponsored intermediary which

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11 Based on a 1994 report by the Congressional Budget Office, as reported in McGoldrock (1995).

12 A proposal by the E. Regan of the Levy Institute as reported by McGoldrick, 1995

borrows from the capital market, (often with some state credit enhancement support as discussed later) and then onlends to participating local governments by purchasing their bonds. These may be blind pools when specific projects have not been identified. In this case the rating of bond will depend on the strength of the Bond Bank itself. Alternatively, several issues may be identified and the bonds issued specifically for these. In some states, bond bank securities are backed by the state government. By pooling debt in this manner, significant savings can be made through reduction in marketing costs and reduced spreads due to higher ratings and larger issue size (ICMA, 1983) In addition, a much wider investor coverage becomes possible. In all states, which have bond banks, local authorities are also free to tap the market directly. Many of the larger authorities in fact can usually do as well, or better, with their own bond issues (Johnson, 1995)

State Revolving Funds (SRF): State Revolving Funds are similar to the bond banks, except that they are often at least partially capitalized by specific allocations by the state governments or through the federal capital grants The SRFs are used to either provide direct loans to local authorities or to refinance their debt Further, they are also used to provide guarantee to local bond issues, purchase insurance for these, to provide an interest rate buy-downs (funding the difference between the market rates on bonds and the 'affordable rates') or to fund a debt service reserve to enhance the quality of their credit. Many of the SRFs also use the capital grants to leverage further borrowing from the market to considerably augment the total SRF funds. Specific SRFs for water and sewerage systems have been formed under the 1987 Clean Water Act, whereby the Congress authorized $8.4 billion to capitalize the SRF program with a 20 percent match by the state government, through grants or bond issues. States with greater fund needs have been aggressive with their SRFs. For example, some states have even started to securitise their loans to local or revenue authorities for further resource mobilization, as has been done by the Ohio Water Development Authority (US Department of Transportation, 1993 and Peterson et.al. 1988). An additional measure used by many SRFs is to provide loans at blended interest rates by using the capitalization grants and the income from the debt service reserve fund for this purpose

Sub-state Credit Pools: In many of the US states, regional associations, state municipal leagues and other groups have created pooled loan programmes in order to lower the costs of issuing bonds and enhance market access for themselves These also make it possible for the participating agencies to take advantage of new, more versatile financing techniques, which would be difficult to support for single small agencies. In several states, such municipal associations have acted as pool organizers. They mainly support a team of experts who can structure the pooled financing and at times also set up a special purpose entity to issue bonds and to serve as a conduit to bring the municipal issues to market There is generally no cross liability across municipal authorities as each is responsible only for debt servicing of its own loan. Other credit enhancement measures like insurance, however, are generally jointly purchased. Each borrowing agency is charged its pro-rata share of the costs

of issuance and insurance A variant of the sub-state credit pool is also the use of special assessment districts for issuing municipal bonds. In this, a facility is provided across several political jurisdictions by declaring a special assessment district

State Level Technical Support: Besides enhancing the ability of smaller local authorities to access bond financing, state bond banks and other state level agencies also provide valuable technical assistance to authorities. These services include feasibility studies preparation of an official statement which accompanies a bond issue and contains financial details of the project as well as details of the bond offering, and a legal opinion on the issue. In the state of North Carolina, even the sale of municipal bonds is done by a state level agency This agency, formed in 1931, conducts the sale of all bonds for municipal and county governments and local special districts. This arrangement enables close supervision of local funding plans, technical assistance to local authorities and appropriate grouping of issues to maximize savings.

State Credit Enhancements: These enhancements for the municipal bonds essentially help to improve their credit rating and reduce borrowing costs. While market initiatives are more common for such credit enhancements, as evident from the growth of bond insurance and bank LOCs, state initiatives have also been useful, especially for smaller authorities. State guarantees have taken many forms, ranging from a state insurance fund in which the local authorities make premium payments, to (in rare cases) the full faith and credit backing of a state government (Mikesell, 1991) The most common has, however, been the use of a debt service reserve fund (DSRF), which is either funded by the State government, or its replenishment, if necessary, is guaranteed by it. In the latter case, the state agrees to make-up any shortfall in the reserve fund resulting from the default or delay in repayment of a loan. This is often done with a state-aid intercept mechanism whereby the state transfers to local authorities are diverted to loan repayments in case of a default.[13] The DSRF is often overcollaterlized in case such a pledge or moral obligation from the state government is not available. The interest earnings from such an overcollateralized reserve fund is used to subsidize the loans to local governments which in turn lowers the borrowers' financial burden and financial risk (Fabozzi et.al , 1995, p 341).

Government Regulatory Role: Until the late seventies, the municipal securities industry was exempted from the Securities Act of 1933 and 1934 which regulated other securities markets However, in 1975, separate legislation was passed by the Congress, under which the Municipal Securities Rule Making Board (MSRB) was formed as an independent self-regulatory organization The MSRB is composed of industry and public members and writes

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13 In this arrangement, timing problems is an important consideration in the determination of the credit enhancing quality For example, the loan repayment schedule has to be related tot eh state aid disbursement schedule. Without this, it is likely that loan repayment becomes due after all the state aid disbursement has already taken place (Fabozzi et al , 1995, p 316).

rules governing municipal bond market activities. Dealers and brokers must register with the MSRB and the Securities Exchange Commission (SEC) to deal in municipal securities. The MSRB has largely focused on the adequacy of voluntary disclosure practices, mechanisms for storage and retrieval of municipal securities disclosure documentation and related information (PSA, 1990). There is also a Government Accounting Standards Board (GASB) which sets the standards for municipal accounting From the perspective of US municipal bond system, the fund accounting approach is of great relevance to investors and underwriters, as it provides a mechanism to segregate the revenues, expenditures, and assets of a project or service for which bonds have been issued from those of the government entity as a whole

SUMMARY:

With the recent worldwide trend in decentralization, there has been considerable interest in the municipal bond system for financing urban infrastructure requirements. This paper has reviewed the US experience highlighting the key features which will have relevance in the context of India and other developing countries

The USA has the most well developed municipal bond system in the world with a primary market volume of over $292 billion in 1993 and the total outstanding municipal debt nearing almost a trillion dollars. In the US, the last two decades have seen a tremendous growth in the use of revenue bonds, as opposed to general obligation bonds with their share increasing from one-third in 1970 to over 70 percent by 1994. The key features of municipal bonds in the US system are as follows;

i. Legal foundation for the GO debt issued by the local entities in the US is based on the US constitution. 'The ability to incur debt, forms of debt and methods of repayment are clearly defined by the constitution of each of the fifty states' (Wong, 1995). Legal interpretations are expressed in the detailed governmental codes However, the debt issued through revenue bonds is not considered as indebtedness within the meaning of constitutional provisions, but its authority is derived from the "special fund doctrine" under the US Constitution The question of a potential levy of a very high level of taxes does not arise, since the fund for servicing revenue bonds is largely realized from direct user charges for specific services.

ii A large proportion of revenue bonds are issued by a variety of public revenue authorities including municipal enterprises, water and sewer utilities, special assessment districts, business improvement districts, etc. which are able to corporatize the service delivery and set the rates for user charges at appropriate levels more easily

iii Over the years, acceptable security structures have emerged, which are based on the

pledge of defined revenue streams. The revenue streams generally include user charges, debt service surcharge on user charges, tax increments due to infrastructure investments or even assigned taxes or revenues from the state or federal governments Additional measures to enhance the credit quality include,

A flow of funds structure giving the order of priority for the use revenues
. A debt service reserve fund
overcollateraliztion of cash-flows with a debt service coverage ratio of 1 1 to 1 25
Rate or user charge covenants,
. Additional bonds test to ensure seniority of debt

Use of credit rating is common for most municipal bonds Additional credit enhancement is available through bond insurance from private companies to provide financial guarantee By 1994, almost 40 percent of the new issue volume of municipal bonds was insured.

The municipal bond market is well developed The two main participants, besides the issuers and investors include the dealers and bond counsels. Dealers are largely investment banking firms or special municipal divisions in commercial banks , who underwrite, trade and sell municipal bonds There were 770 registered dealers and 262 financial advisors by 1994 (Wong, 1995). The second important group is of the bond counsels who opine on the legality and validity of bond issues.

iv. The investor base for municipal bonds is directly linked to their tax exempt status. The extent of exemption makes them more attractive investments for those in the higher tax brackets. The main investor groups include households, mutual and money market funds, commercial banks and property and casualty insurance companies. Pension funds, despite their long term sources, are not major investors as they already enjoy a tax exempt status. Over the years, the importance of households directly, and through mutual funds, has increased considerably, mainly due to changes in tax benefits, which have reduced their appeal for other investors, especially commercial banks

v. Many innovative arrangements like State Bond Banks and Revolving Funds in different states to support the market access for smaller and weaker municipal authorities or for specific sectors like sewerage, through financial intermediation, provision of financial guarantees, etc

vi Regulation of the municipal bond industry is done by the Municipal Securities Rule Making Board, a self-regulatory organization as well the Securities Exchange Commission (SEC). Further in many states, Public Utility Commissions help to regulate the service standards and tariff rates by both public and private utilities

The US experience outlined above, highlights the tremendous possibilities which exist for integrating the infrastructure finance system with the capital market. However, it also highlights the importance of bond structures based on adequate tariffs and rate covenants as well as the market systems which have developed over the years. It is clear that the infrastructure finance system in India will need to be revamped in many ways It may also require changes in legal and institutional structures for borrowing and service delivery Government support will be also necessary for capacity building and appropriate incentives for developing a more viable infrastructure finance system which is both efficient and equitable in the allocation of resources.

Table A1
Contents of Official Statement for Water Revenue Bond

Plan of Financing	
Estimated Sources and Uses of Funds	
Details of Bonds	
Form and Denominations	
Redemption	
Transfer and Exchanges	
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Source of Payment	
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Debt Service Reserve Account	
Rate Covenants	
Allocation of Revenues	
Additional Bonds Tests	
Subordinated Indebtedness	
Escrow Funds	
Details of Fund	
Verification Agent	
Debt Service Requirements	
The Waterworks System	
General Description	
Management and personnel	
Service Area and Customers	
Billing and Enhancement	
Rate Setting Procedure	
Rates and Charges	
Environmental Matters	
Water Division Financial Information	
Management Discussion of Operations	
Operating Projections	
The Project	
General	
Specific Technical Details of the Proposals	
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Appendix B	Engineering and Financial Feasibility Report
Appendix C	Information concerning the City
Appendix D	Audited Financial Statements of the Water Division
Appendix E	Form of the Bond Insurance Policy
Appendix F	Form of Opinion of Bond counsel

Source City of St Louis (1994)

Table A2
Municipal Bond Issues by Type and Size, 1985.
(Percent to total volume or number of issues)

Ranges of Issue Size ('000 dollars)	General Obligation Bonds		Revenue Bonds		Total Issues	
	% Volume	% Number	% Volume	% Number	% Volume	% Number
0-499	0 2	11 3	0 0	2 0	0 1	6 1
500-999	0 7	11 0	0 1	3 0	0 2	6 5
1000-2499	3 1	22 6	0 6	11 0	1 3	16 1
2500-4999	5 2	18 3	1 7	13 6	2 6	15 7
5000-9999	8 6	15 0	4 9	19 4	5 8	17 5
10000-24999	15 5	12 3	13 0	23 4	13 6	18 5
25000-49999	11 4	4 1	15 8	12 9	14 7	9 0
50000-99999	14 9	2 7	18 5	7 8	17 6	5 6
>99999	40 4	2 6	45 4	6 9	44 1	5 0
All Issues	100 0	100 0	100 0	100 0	100 0	100 0
Total dollar value in $ millions or number of issues	53 31	4344	155 52	5450	208 83	9794

Source Public Securities Association, based on ICMA (1987)

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THE FIRE(D) PROJECT

The objective of the Indo-US Financial Institutions Reform and Expansion (FIRE) project, funded by the U S. Agency for International Development (USAID), is to support the Government of India in its efforts to strengthen domestic capital markets to enable them to serve as efficient sources of development finance One of the components of the FIRE project seeks to expand the debt market through the financing of commercially viable urban environmental infrastructure projects, defined as those which result in the provision of affordable urban services on a full cost-recovery basis by their sponsoring municipal corporations and authorities This Debt Market/Infrastructure component, (FIRE-D), is under the auspices of the Union Ministry of Urban Affairs and Employment with USAID support targeted to the National Institute of Urban Affairs (NIUA), the Housing and Urban Development Corporation Limited (HUDCO) and the Infrastructure Leasing and Financial Services Limited (IL&FS) as well as to selected local entities

The FIRE-D Project is designed to foster the development of a commercially viable infrastructure finance system by channelling USAID Housing Guaranty (HG) funds to selected demonstration cities and states to assist in the financing of urban environmental infrastructure projects HUDCO and IL&FS, acting as financial intermediaries, make loans to selected municipal corporations, state boards and authorities and private enterprises which have formed partnerships with municipal entities Eligible projects include water supply, sanitation, solid waste management, and integrated area development schemes NIUA acts as the advocate for policy change and the coordinator for delivery of technical assistance and training directed at the development of local government capacity in the areas of identification, development and management of commercially viable urban environmental infrastructure projects, pricing and cost recovery for urban services, and financial management systems to support accessing of capital markets It is expected that the participating institutions will be able to replicate the policy changes and project development initiatives beyond the demonstration states and municipalities to other areas throughout India

This USAID-funded program will make available up to $125 million from US capital markets in loans, combined with grant funds for management support, technical assistance and training Loan guarantees must be matched with capital investment raised in the Indian debt market through FIRF's creation of innovative financial instruments.

Technical assistance, training and research support is provided by a consortium of US firms led by Community Consulting International (CCI) in association with Technical Support Services (TSS) Principal partners in the consortium include the Wall Street investment banking firm of Grigsby Branford and Company (GB&C) and the Government Finance Officers Association (GFOA) of the USA and Canada

For more information on the FIRE(D) Project, contact the project office at the address mentioned above

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