

Research Study Series
Number 59

FINANCING URBAN INFRASTRUCTURE IN INDIA

59-1 to 106

Prepared for the Urban Sector Profile Project of the
Asian Development Bank, Manila, Philippines

ADB TA No.2098-IND
Contract No. COCS/95-291

National Institute of Urban Affairs
New Delhi, India
March, 1997

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PREFACE

Urbanisation is intricately linked with the process of economic development. The moderate pace of urban growth in India is likely to accelerate as a consequence of the rapid growth of the national economy in the recent past and the envisaged growth rate of seven percent in the Ninth Five Year Plan (1997-2002). At present, the urban areas contribute nearly 47 per cent to the Gross Domestic Product. The share of urban areas to the national economy will have to be higher to sustain the high growth rate of the national economy.

The high productivity of urban areas is, however, constrained by severe infrastructure deficiencies. The civic infrastructure related to water supply, sanitation and solid waste management is inadequate to cater to the present urban population. Roads, public transport and telecommunication facilities are unable to cope with the existing demand. The increased population and economic activities in urban areas would further aggravate the infrastructure crisis and hamper productivity of urban areas.

Investment in urban infrastructure is essential not only to meet the basic needs of urban population, but also to promote efficiency and economic growth in urban areas. The estimated level of investment required to augment the basic infrastructure in urban areas is Rs. 400 billion during 1991-2001 and Rs. 435 billion during 2001-2011. However, the present flow of resources to this sector is estimated to be Rs. 160 billion during 1991-2001. The resource gap of infrastructure investment needs to be bridged by higher budgetary allocations, increased assistance from external support agencies and greater private sector financing of urban infrastructure.

There are several constraints that urban local governments face in accessing funds for urban infrastructure. With liberalisation of the financial sector, public finance institutions are also required to mobilise resources from the capital market. However, municipal governments and infrastructure agencies are unable to mobilise finances without explicit support and guarantee of the state government. These institutions are also highly regulated in their practices by the state governments. With low tariff fixation by the state governments, these agencies are often unable to recover even the operation and maintenance costs.

This study on financing of urban infrastructure was undertaken within the context of the macro-economic policy reforms and decentralisation. Since 1991, India has witnessed a series of reforms in trade, finance and industrial policy. The constitution (Seventy-Fourth) Amendment, Act, 1992 on Municipalities has ushered in an era of democratic urban governance in India. The municipalities now have a larger domain of functional and financial responsibilities.

Within the framework of liberalisation and decentralisation, many important initiatives are being taken at the national and state level to increase infrastructure investments. The central

government schemes for Mega Cities and for Small and Medium Towns is structured to leverage soft loan with commercial borrowing. At the state level, Municipal Development Fund has been set up in Tamil Nadu to operate on commercial format and a similar fund is likely to be set up in Maharashtra. As indicated in this study, many city governments for instance Visakhapatnam, have evolved a pricing structure for water that provides adequate surpluses. It is expected that the Ninth Five Year Plan will provide additionality of funds for urban infrastructure as well as promote leveraging mechanisms to attract private and institutional funds to the urban infrastructure sector.

This study on financing urban infrastructure in India provides an overview of the present situation in India, examines the current modalities of funding, the institutional arrangements for provision and maintenance of urban infrastructure and the pricing and cost recovery mechanisms adopted in various parts of the country. In addition to a national overview, the study provides detailed case studies of four cities.

We acknowledge the cooperation and help of a large number of officials of our case study cities. The following officers have extended excellent support and we are particularly grateful to them. They are: The Municipal Commissioners of Aurangabad, Bangalore, Mangalore and Visakhapatnam, officers of CIDCO Aurangabad, MIDC Aurangabad, collectors of Visakhapatnam and Mangalore districts, officers of Karnataka Urban Water Supply and Drainage Board, Bangalore Water Supply and Sewerage Board, Mangalore Port Trust, Visakhapatnam Port Trust and officers of the urban development authorities at Bangalore, Mangalore and Visakhapatnam.

At the Institute, Dr. Pushpa Pathak, Associate Professor has worked diligently to coordinate the study as well as the work done by the research team. We are grateful to the Ministry of Urban Affairs and Employment, Government of India and the Asian Development Bank for their support. We hope that the policy directions emerging from the study related to, creation of municipal development fund and intermediaries, emerging direct municipal access to capital market, fiscal reforms to increase the flow of finances, strengthening the resource base of local agencies and capacity building will be used by both the Government of India and the Asian Development Bank to formulate future programmes for the urban sector.

March 1997

Dinesh Mehta
Director (NIUA)

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ABBREVIATIONS

ADB	Asian Development Bank
AMC	Aurangabad Municipal Corporation
ARV	Annual Rateable Value
BCC	Bangalore City Corporation
BDA	Bangalore Development Authority
BMA	Bangalore Metropolitan Area
BMRDA	Bangalore Metropolitan Regional Development Authority
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BT	Bituminous Top Roads
BWSSB	Bangalore Water Supply and Sewerage Board
CC	Cement Concrete Roads
CIDCO	City and Industrial Development Corporation
DRC	Development Rights Certificates
FIRE	Financial Institutions Reform and Expansion
FSI	Floor Space Index
HUDCO	Housing and Urban Development Corporation
IDSMT	Integrated Development of Small and Medium Towns
K & C	Krishna and Cauvery
KCDC	Karnataka Compost Development Corporation
KL	Kilo Litre

KUIDFC	Karnataka Urban Infrastructure Development Finance Corporation
KUWSDB	Karnataka Urban Water Supply and Drainage Board
LIC	Life Insurance Corporation
LPCD	Litres Per Capita per Day
MCC	Mangalore City Corporation
MDF	Municipal Development Fund
MDI	Municipal Development Intermediaries
MIDC	Maharashtra Industrial Development Corporation
MLD	Million Litres Per Day
MoU	Memorandum of Understanding
MUDA	Mangalore Urban Development Authority
MWSSB	Maharashtra Water Supply and Sewerage Board
NIPFP	National Institute of Public Finance and Policy
NIUA	National Institute of Urban Affairs
NRV	Net Rateable Value
NSS	National Sample Survey
NTADCL	New Tirupur Area Development Corporation Limited
O & M	Operation and Maintenance
ODA-UK	Overseas Development Administration of United Kingdom
OECD	Overseas Economic Cooperation Fund of Japan
ORG	Operations Research Group
PCI	Per Capita Investment
PWD	Public Works Department

RCC	Reinforced Cement Concrete
RMC	Rajkot Municipal Corporation
RMt	Running Meters
SEBI	Securities and Exchange Board of India
SFC	State Finance Commission
SLR	Statutory Liquidity Ratio
TADP	Tirupur Area Development Plan
TDR	Transferable Development Rights
UA	Urban Agglomeration
UK	United Kingdom
UNCHS	United Nations Centre for Human Settlements
USAID	United States Agency for International Development
VMC	Visakhapatnam Municipal Corporation
VPT	Visakhapatnam Port Trust
WBM	Water Bound Maccadum
WHO	World Health Organisation

EXECUTIVE SUMMARY

This study on 'Urban Infrastructure in India : Financing Inventory', is a part of the Urban Sector Profile Project sponsored by the Asian Development Bank, Manila, Philippines (ADB TA NO. 2098 IND). The primary objective of this study is to provide an overview of financing urban infrastructure in India. The detailed study design includes the following tasks : (i) prepare an inventory of available studies; (ii) prepare representative descriptions of urban finance by different types of local bodies; (iii) evaluate routine and innovative resources of finances; (iv) recommend rationalisation of existing major sources of finance, such as property tax and land sales; (v) evaluate the urban finance role of state and parastatal bodies; (vi) differentiate institutional finance by large and smaller urban areas; and (vii) evaluate the extent and mode of private sector participation.

The present study of financing urban infrastructure in India is undertaken within the context of the on-going macro-economic reform and decentralisation efforts. The current moderate pace of urbanisation is likely to be accelerated as a consequence of rapid growth in the national economy. The increased urban population and growth of economic activities will lead to greater demand for urban infrastructure. Inability of municipal governments to maintain and augment the urban infrastructure will have critical impact on the productivity of urban centres. Alternative institutional and financing arrangements need to be evolved to ensure that infrastructure availability in urban centres is maintained and improved.

The study includes a national overview as well as case studies of selected cities. The national overview provides the aggregate perspective on urbanisation trends, the level of urban infrastructure services, the institutional arrangement and financing mechanisms. The national overview is supplemented by detailed case studies of four cities, namely, Bangalore, Visakhapatnam, Aurangabad and Mangalore.

MAJOR CONCLUSIONS

The major conclusions based on the macro-level inventory of financing urban infrastructure and the city level experiences in the provision of urban services which have important lessons for the state and national level policy formulation as well as for local level efforts to augment urban infrastructure have been stated in the following paragraphs.

1. With about 217 million urban inhabitants in 1991, which accounted for approximately 26 per cent of the country's population, India is relatively less urbanised than even several developing countries. However, the moderate pace of urban growth recorded in the 1980s is likely to be accelerated as a consequence of the expected rapid growth of the national economy in the post-liberalisation era. If the present growth

trends in the national economy are not altered, India's urban population can be projected to be about 365 million in 2001 and 530 million in 2011.

There are wide regional variations in the level and pace of urbanisation at the state level. Significant variation is also observed in the population growth rate of cities of various sizes. Amongst the four case cities for instance, both Bangalore with a population of about four million and Mangalore with a population of less than half a million have recorded a relatively lower population growth rate of about 40 per cent during 1981-91. During the same decade, Visakhapatnam with about one million population and Aurangabad with about half a million population have experienced exceptionally high growth rates of about 75 per cent and 87 per cent respectively.

2. The analysis of data on access to basic services over time indicates that, in general, service levels in India's urban areas are improving but these continue to be well below the desired norms. Also, the quantity and quality of urban services is far from satisfactory. For instance, although about 82 per cent of the country's urban population is reported to have access to safe drinking water, there are severe deficiencies with regard to the quantity of water available to urban residents. About 46 per cent of urban households have water sealed toilets, but only 28 per cent of the urban households are connected to the public sewerage system. Though nearly 300 urban centers have a sewerage system, only 70 of these have sewerage treatment facility. Only 60 per cent garbage is being collected by municipal authorities in the urban areas of India. There is, thus, a major lacuna in the provision of urban services, despite major efforts made in the recent years. Each of the case study city presents a similar urban situation with regard to the levels of basic civic services.

The water supply level in each of the four case study cities is lower than the WHO norm of 135 lpcd. In the city of Bangalore and Visakhapatnam, the water supplied is 100 lpcd and 95 lpcd respectively while in Aurangabad it is 129 lpcd and in Mangalore it is 126 lpcd. In terms of population coverage, in the city of Mangalore 95 per cent of the population has access to water supply, whereas in Visakhapatnam only 80 per cent of the population is covered.

Among the four cities, Bangalore and Aurangabad have an extensive underground sewerage system which covers nearly 90 per cent of the city area. In Mangalore, the underground system covers only 40 per cent of the area, whereas in Visakhapatnam, the sewerage system covers only 10 per cent of the area. Except for Visakhapatnam, which does not have any treatment plant, the other three cities have only primary treatment facilities. Though, the present capacity of these treatment facilities is adequate, these will need to be augmented when water supply situation improves.

The quantum of solid waste generated in a city is directly proportional to its population size and the nature of economic activities. Management of solid waste in bigger cities involves greater efforts. In case of Bangalore, the amount of solid waste generated is 1800 tonnes per day, but the city government collects and disposes only two-thirds of it. The smaller city of Aurangabad generates only 175 tonnes of solid waste every day and manages to collect and dispose 86 per cent of the wastes. All the four cities dump the collected wastes in designated land fill sites. However, in Bangalore and Aurangabad some of the waste is composted.

3. Under the present municipal legislations, municipal governments are responsible for providing civic amenities, such as, water supply, sewerage, drainage, solid waste management, street cleaning and lighting and maintenance of public parks and playgrounds. However, there are different types of institutional arrangements for urban water supply, which includes multi-agency involvement in source development, conveyance, storage and filtration, distribution network construction and operation and maintenance. The four case study cities represents four institutional arrangements which are most commonly prevalent in India. In Bangalore, the entire water supply and sewerage system is the responsibility of a metropolitan parastatal agency, namely, BWSSB. In Mangalore, the source development and bulk water supply is undertaken by a state level agency, KUWSDB, while the distribution is done by the city corporation. In Aurangabad, bulk water is supplied by a state level agency, MWSSB, but the distribution is undertaken by the city corporation and city level office of MIDC. In Visakhapatnam, the city government is responsible for all the stages of water supply provision, from source development to distribution and operation and maintenance.

4. In general, there has been an acceptance of the policy of privatisation of municipal services as a strategy to meet the growing demand for urban infrastructure. Private participation in urban land development and housing has been prevalent for a long time. But, private initiatives in the provision of urban civic services are very few, and limited mostly to sub-contracted road construction, maintenance and repairs and in solid waste management. Of late, public-private partnership is emerging as a more acceptable form of privatisation of urban services.

Amongst the four case study cities, there are major initiatives of private sector involvement only in Bangalore. The BWSSB has signed a memorandum of understanding with a private international company for the proposed water supply project under BOOT arrangement. It has also engaged a domestic private company for the O & M of one sewage treatment plant for a period of five years, beginning 1994.

5. Urban infrastructure provision in India has severe deficiencies with regard to the coverage of population as well as the level and quality of services. The investment required to augment the present level of supply is estimated to be Rs. 398 billion for 1991-2001 and Rs. 435 billion for the decade 2001-2011, if average technology is used and urban population growth is between the high and low projections. At present, the total flow of resources through budgetary allocation as well as institutional finance and external aid is estimated to be Rs. 16,080 million per annum, which is far short of the required annual investment of Rs. 39,800 million for urban civic services. The internal resources of municipal governments and infrastructure agencies are not sufficient to bridge the estimated resource gap of Rs. 23,726 million per annum until 2001.

6. Municipal governments are the third tier of governments and have been assigned taxation powers by their respective state governments. Municipal governments are also empowered to raise revenues through non-tax sources like user charges, fees and rents on properties. These own sources of tax and non-tax revenues have accounted for a large proportion of municipal receipts. However, the rate of growth in own sources of revenues have not kept pace with the total expenditure, especially in states where octroi is not levied by municipal governments. Municipalities, in these states, have become more dependent on transfers, that is grants and shared taxes from the state government. In states where octroi is levied, the municipal governments are able to raise over 90 per cent of the total expenditure through own sources, whereas in non-octroi states only about 60 per cent of expenditure is met through own sources. In the own sources of municipal revenues, there is a noticeable shift towards non-tax revenues. This is largely because of the lack of buoyancy in traditional tax sources like property tax and increasing emphasis on rationalising and recovery of user charges for water supply.

The per capita municipal revenue receipts range from Rs. 349 in Mangalore to Rs. 486 in Bangalore, whereas the per capita revenue expenditure ranges between Rs. 212 in Aurangabad to Rs. 394 in Bangalore. The share of own resources is the highest in Aurangabad at 84 per cent of total receipts. This is largely due to octroi which accounts for 56 per cent of municipal receipts. The city of Visakhapatnam has a share of own revenues of 55 per cent, of which a major amount of 33 per cent is received through user charges on water. The share of own resources is 50 per cent in Bangalore. Mangalore generates only 40 per cent of its revenue receipts through taxes and user charges and depends largely on the shared taxes and grants from the state government to meet its budgetary requirements. Both in Bangalore and Mangalore, property tax collection is the major source of municipal revenue generation.

The general overview of municipal finances in India suggests a poor state of finances. But, among the four case study cities, only the city of Mangalore shows a

revenue deficit of 11 per cent. The other cities have revenue surpluses ranging from 19 per cent of the total revenue receipts in Bangalore to 42 per cent in Visakhapatnam. However, if debt servicing component of these municipal corporations is added in their recurring expenditure their surplus is most likely to be substantially lowered or it may even amount to a revenue deficit situation.

7. In general, taxes are more predominant instruments of cost recovery of urban services. For services such as sewerage, solid waste and street lighting, taxes are levied on rateable value of property. However, fixation of these tax rates is not determined by the actual cost of providing these services. Also, legal disputes and consequent delays associated with property tax assessment and collection adversely affect the recovery of service tax receipts. Most cities receive a share in the motor vehicle tax from the states as the major resource for road maintenance, which has no relationship with the number of vehicles in each city. User charges are levied for sewerage in a few cities and for water in almost all the cities. Large number of cities levy a user charge for water in addition to water tax. There is an increasing tendency to resort to levying consumption related user charges for water and also to revise water rates. Except Mangalore, all the case study cities have revised their water rates in the recent years after a gap of a long period. The current water rates charged in the four case study cities vary a great deal.

8. The revenues generated by municipal corporations and infrastructure agencies through taxes and user charges are not adequate to meet even the O & M cost of various services in most cities. Amongst the four case study cities, Visakhapatnam is an exception, where a revenue surplus of Rs. 1.80 per KL on water and of Rs.0.77 per KL on sewerage was recorded in 1993-94. The remaining case study cities reveal a deficit situation in the water supply sector, despite the recent initiative of water rate revisions in Bangalore and Aurangabad.

POLICY DIRECTIONS

A number of new initiatives have been taken in India to augment resources for the urban sector. The national government's role in policy making is crucial and it has taken a number of important steps. These include enactment of the Constitution (Seventy Fourth) Amendment Act, restructuring of the national infrastructure programmes and policy formulation for infrastructure finance. Through many state government initiatives, Municipal Development Funds are being established in Tamil Nadu, Maharashtra and in other states. At the local level, the city of Ahmedabad has been rated by a credit rating agency for issue of municipal bonds. These national, state and local initiatives are indicative of current efforts in the country to augment finances for urban development.

The recent initiatives taken at the national, state and local level are aimed toward enhancing flow of funds for urban infrastructure within the broader framework of macro-economic reforms. However, the initiatives indicated above, are sporadic and have faced severe difficulties in implementation in absence of a clear policy framework. There is a need to establish a range of financing mechanisms that can provide funds on a sustained basis for urban infrastructure. This would require concerted efforts of the national, state and local governments to undertake adequate reforms of the current practices. Municipal governments and infrastructure agencies will have to improve their efficiency through better management practices and accountability to ensure that full cost of services is recovered and that subsidies, if any, are targeted and transparent. These reforms can be brought about by the following recommended actions.

Creation of Municipal Development Fund and Intermediaries:

Promotion of MDFs and MDIs have facilitated leveraging of grant funds with loan funds and thus have reduced the overall cost of borrowed funds to the municipalities. These funds have also enhanced the capacity of local governments and financial intermediaries to tap the domestic capital markets.

Experiences of MDF in developing countries suggest that there is a significant improvement in resource utilisation at local level, rationalisation of flow of central and state grants to local bodies and an improvement in collection of revenues of local bodies.

Encouraging Direct Municipal Access to Capital Market:

Municipal bonds, issued by state governments, infrastructure agencies and local governments, have been used for over a century to finance local infrastructure in the U.S.A. In many countries in Latin America and now in South-East Asia, municipalities have been raising funds through bond issues.

To enable all municipal governments, statutory authorities and other agencies to raise finances in the capital market for urban infrastructure, suitable changes in the Local Authorities Loan Act will have to be made with regard to the ceilings prescribed in the Act and with regard to the nature of securities.

State governments also need to consider provision of enabling legislation that grant borrowing powers to the municipal authorities and other public agencies, without a guarantee by the state government. Such provisions would enable local authorities to access capital market funds for commercially viable projects.

Fiscal Reforms to Increase Flow of Finances:

Institutional and private sector finances to the urban infrastructure sector will increase only if some fiscal reforms are undertaken. At present, all public borrowings are regulated. The state governments are reluctant to pass on their allocations of public borrowings to lower level of governments in the form of guaranteed borrowings. Efforts are needed to move away from such sovereign guarantee debts to project recourse debts of local authorities. Suitable procedural changes under Securities and Exchange Board of India (SEBI) guidelines will be required for municipal debt instruments. Such instruments will require tax exemption and may have to be declared as public securities under the SLR requirements of the financial institutions. Infrastructure projects would also require some fiscal concessions to private sector like accelerated depreciation of physical assets and tax exemptions or moratorium on taxes for initial few years, to increase commercial viability.

Infrastructure finance institutions in India would require some initial support. These institutions will need access to long term finances from insurance and pension funds, as well as international donor agencies resources. Participation of commercial financial institutions in the state level financial intermediaries like municipal development funds will also be necessary to bring fiscal discipline among public borrowing agencies.

Strengthening Resource Base of Local Agencies:

The level of municipal tax revenues are determined by the local economic base and its relationship with various tax bases. With stronger links between these, taxation would yield higher revenues in a buoyant urban economy. Improving revenue efficiency to capture the full fiscal capacity of local agencies is also critical. At present, less than half of the potential revenues are actually collected by the municipal governments. The poor collection efficiencies and lack of periodic revision in the tax assessment procedures have been largely responsible for their poor financial status. Some of the recommendations in this regard are listed below:

- a. Property taxation needs to be delinked from the standard rents prescribed under Rent Control Laws. Suitable amendments in the Rent Control and municipal legislations would be necessary. A floor area based valuation system for the purpose of property tax would eliminate the present anomalies of discriminatory and arbitrary assessment of properties and enhance yields.

- b. The present mechanism of sharing of state level taxes with municipalities and state transfers of grant-in-aid need to be rationalised. Municipal share in stamp duties, motor vehicle tax, entertainment tax and professional tax should be enhanced. Also, there should be a system of informing the local bodies the amount of grants and taxes allocated to them in the beginning of the financial year, rather than at the end of financial year as is the present practice. This will facilitate local bodies to plan their activities and expenditures for the whole year. It is expected that the recommendations of the State Finance Commissions will take care of some of these issues which will lead to more rational and greater flow of resources to urban local bodies.
- c. Municipal governments and infrastructure agencies need to adopt a combination of rational pricing, enhanced efficiency and improved management practices in order to reduce the gap between their revenues and expenditure on services. An attempt should be made to levy user charges on all exclusionary services for full cost recovery. However, the cost of institutional and managerial inefficiencies should not be loaded on the user charges.
- d. The local agencies should adopt a strategy of multiple instruments of cost recovery and phased long-term approach for recovering the current costs and past deficits. This means that the cost of services should be distributed over as many instruments as possible and a manifold spurt in tariffs in one go should be avoided to make it more acceptable to the consumers of the service.
- e. A system of in-built periodic revisions of tariffs should be evolved to avoid going through lengthy procedure of tariff fixation and approval from higher levels of government. For instance, indexing of water tariffs with electricity rates and linking of sewerage charges as percentage share with water rates.

Capacity Building of Local Agencies

With increased functional responsibilities and emerging fiscal necessities, the local governments and agencies will need to demonstrate adequate capacity for efficiency in use of resources, ensure proper debt servicing and develop skills to negotiate satisfactory arrangements with private sector firms. Such capacity building programme would include:

- a. Awareness building among elected representatives, which is crucial as decisions regarding tariff revisions for full cost recovery will need to be taken by them. They will have to be made aware that in the absence of such decisions, finances from institutions and private sector will not be forthcoming.
- b. Accounting practices of municipal governments will have to undergo a drastic change to reflect the true cost of service provision and ensure transparency in the revenue stream of specific infrastructure projects. Introduction of such practices are crucial as financial institutions and potential bond investors would need to assess the credit worthiness of local agencies.
- c. Improvement in technical and managerial capacities would help reduce the current leakages and misallocation of resources.

I. INTRODUCTION

Liberalisation of macro-economic policies and decentralisation of government have been the two most common features of development policies of most countries in the world in the past decade. It is of interest to note the world wide acceptance of these policies, inspite of the wide differences in countries' economic, political and administrative structure. Some scholars attribute this phenomenon to the increasing influence that bilateral and multi-lateral donor agencies have had on the developing countries. Others argue that in the wake of new international economic order, and post-fordist mode of production, it becomes imperative for countries to adopt market friendly economic policies and attract foreign direct investment.

Within the perspective of global convergence of macro-economic policies aimed at structural adjustment, decentralisation policies of developing nations also need to be viewed as its integral part. Decentralisation, viewed as delegation, devolution or privatisation, is in consonance with market friendly economic policies. The simultaneous emergence of liberal economic policies and decentralisation efforts have a far reaching influence on urban governments. Throughout the world, urban governments face a narrow financial base and an increasing mis-match between their functions and financial resources. In a changing macro-economic policy regime, increasing mobility of capital and ensuing globalisation result in competition among cities and nations for more investment and jobs. Decentralisation programmes, on the other hand give local governments more responsibilities and greater accountability for the welfare of their residents, often without a commensurate increase in their fiscal powers. The urban local governments in developing countries are thus confronted with not only the problem of coping with increasing demand for urban infrastructure services as a result of growing population and economic activities, but also building up sufficient financial, technical and managerial capacities to carry out these tasks without any help from the higher levels of the government.

Since August 1991, Indian Government has embarked upon a major reform of its macro-economic policies aimed at restoring macro-economic stability, integration with the global economy and increasing economic efficiency. It included policy measures to encourage greater private sector participation, disinvestment in state-owned enterprises, deregulation of industries, liberalisation of trade and foreign investment, changes in the financial sector and reforms in fiscal policies. It is expected that these policies will accelerate the pace of economic growth and lead to a higher rate of urban population growth. At the same time, the process of decentralisation was initiated through enactment of a constitutional amendment to create a third tier of local government within a federal structure. The Constitution (Seventy Fourth) Amendment Act 1992

was enacted to empower urban local governments with greater functional responsibilities and fiscal powers to enable them to function as a true local government.

This study on 'Urban Infrastructure in India : Financing Inventory', is a part of the Urban Sector Profile Project sponsored by the Asian Development Bank, Manila, Philippines (ADB TA No. 2098 IND). The primary objective of this study is to provide an overview of financing urban infrastructure in India. The detailed study design includes the following tasks : (i) prepare an inventory of available studies; (ii) prepare representative descriptions of urban finance by different types of local bodies; (iii) evaluate routine and innovative resources of finances; (iv) recommend rationalisation of existing major sources of finance, such as property tax and land sales; (v) evaluate the urban finance role of state and parastatal bodies; (vi) differentiate institutional finance by large and smaller urban areas; and (vii) evaluate the extent and mode of private sector participation.

The present study of financing urban infrastructure in India is undertaken within the context of the on-going macro-economic reform and decentralisation efforts. The current moderate pace of urbanisation is likely to be accelerated as a consequence of rapid growth in the national economy. The increased urban population and growth of economic activities will lead to greater demand for urban infrastructure. Inability of municipal governments to maintain and augment the urban infrastructure will have a critical impact on the productivity of urban centres. Alternative institutional and financing arrangements need to be evolved to ensure that infrastructure availability in urban centres is maintained and improved.

The study includes a national overview as well as case studies of selected cities. The national overview provides the aggregate perspective on urbanisation trends, the level of urban infrastructure services, the institutional arrangement and financing mechanisms.

The national overview is supplemented by detailed case studies of four cities, namely, Bangalore, Visakhapatnam, Aurangabad and Mangalore. The four cities of different population size have recorded a population growth rate that was higher than the average urban population growth rate of the country in 1981-91 (Table 1.1). Each of these cities is an important industrial and commercial centre and has a regional as well as national market. The four case study cities were also selected to represent distinct institutional arrangements prevalent in the country. In the city of Visakhapatnam, the municipal government is the only institution involved in provision of all urban infrastructure services and through an appropriate pricing mechanism, the city government is able to finance all the infrastructure services. In Bangalore, parastatal agencies are responsible for water supply, sewerage and land development, while the municipal government is responsible for other remaining services. In Mangalore, the municipal government purchases bulk water from a parastatal agency but operates and maintains the water distribution system along with other municipal functions. In Aurangabad, besides the municipal government,

other land development agencies, City and Industrial Development Corporation (CIDCO) and Maharashtra Industrial Development Corporation (MIDC) are active in township development. These case studies provide detailed account of the institutional arrangement, municipal finances as well as the pricing and cost recovery of major civic services.

Table 1.1

Population and Growth Rate of Case Study Cities

Urban Agglomerations	Population (1991)	Decadal Population Growth Rate (%)			
		1951-61	1961-71	1971-81	1981-91
Bangalore	4,130,288	53.49	37.88	75.56	41.36
Visakhapatnam	1,057,118	95.47	72.10	66.08	75.13
Aurangabad	592,709	46.62	69.14	91.48	87.11
Mangalore	426,341	50.32	26.89	37.05	39.29

Source: (i) Census of India, General Population Tables, Part II(A), 1981.
(ii) Census of India, Final Population Totals, Paper 1 of 1992.

The study is organised in twelve chapters. Chapter II describes the trends of urbanisation, components of urban growth and regional distribution of urban population. It also provides projections of urban population for the next two decades.

Chapter III describes the status of urban infrastructure related to water supply, sewerage, solid wastes and roads. The information is collated from various sources to provide national aggregates as well as state-wise differentials in the availability of various urban services.

The institutional arrangements for delivery of urban services are described in chapter IV. This chapter also provides the extent and mode of private sector participation in delivery of urban services.

The financing of urban infrastructure is described in Chapter V. The financial resource requirements are compared with the existing flow of resources from the national and state budgets, financial institutions and multilateral/bilateral donor agencies.

Chapter VI on the status of municipal finance reviews the capacity of local governments to finance urban infrastructure. The trends in own revenue sources, both tax and non-tax revenues, are analysed and municipal dependence on inter-governmental transfers is assessed.

The prevalent mechanisms for pricing and cost recovery of urban services are described in Chapter VII. It includes the current practices and instruments of capital cost as well as operation and maintenance cost recovery.

Chapters VIII to XI deal with each of the four case study cities. The case studies focus on the institutional arrangement, level of municipal services, municipal finance and pricing and cost recovery of urban services at the city level.

The final chapter presents the major conclusions and provides the policy directions for urban infrastructure finance that emerge from the study. It describes the issues related to direct access of municipal governments to the capital market and the role of financial intermediary, such as a Municipal Development Fund. The key policy areas related to local institutions' capacity building and creation of an enabling legal as well as fiscal environment for enhancing investments in urban infrastructure are also discussed.

II. URBANISATION IN INDIA

TRENDS IN URBANISATION

According to the 1991 census, India had a total population of 846 million, which makes India the second largest country in the world, in terms of population size after China. India's urban population of 217.61 million in 1991 alone is greater than the total population of many countries, both developed and developing. However, with about 26 per cent of the country's population living in urban areas, India is relatively less urbanised than several developing countries. In fact, India ranked 58th in terms of the level of urbanisation or percentage of urban to total population in 1991 amongst 83 low and lower-middle-income countries (The World Bank, 1993). A few developing countries which had higher levels of urbanisation than India were Pakistan (33%), Nigeria (36%), Philippines (43%), and Egypt (47%).

Temporal analysis of trends in urbanisation in India has to be undertaken keeping in mind the adoption of a more restrictive definition of urban areas in 1961, which resulted in declassification of 810 towns of 1951 and a significant decline in urban population growth rate during 1951-61 (Table 2.1). Although some of the declassified towns of 1961 were reclassified as new towns in 1971, the net increase in the number of new towns, exclusive of declassified towns between 1961 and 1971, was not very large, that is, a net gain of 225 towns. There were 2,590 towns and urban agglomerations in India in 1971. With a significant net increase of 788 towns between 1971 and 1981, the number of towns and urban agglomerations became 3,378. In 1991, the number of towns and urban agglomerations was 3,768 indicating a comparatively smaller net increase of 390 towns between 1981 and 1991. The proportion of urban to total population in India was 17.97 per cent in 1961, which increased by 1.08 per cent points during 1961-71, by 1.72 per cent points during 1971-81 and by 1.02 per cent points during 1981-91 to reach 25.71 per cent in 1991. High decadal population growth rate of 38.23 per cent was recorded in 1961-71. But the fastest urban population growth rate of 46.14 per cent was attained in the decade 1971-81. The urban population growth rate declined sharply by 10 per cent points to become 36.47 per cent in 1981-91.

Table 2.1
Trend of Urbanisation in India

Census years	Total population	Urban population	No. of towns/ UAs	Percentage of urban population to total population	Decadal urban growth rate (%)	Tempo of urbanisation (per cent per year)		
						Annual exponential growth rate	Annual gain in percentage of urban population	Annual rate of gain in percentage of urban population
1901	238 396 327	25 851 873	1 827	10.84	0.00	0.00	0.00	0.00
1911	252 093 390	25 941 633	1 815	10.29	0.35	0.03	-0.06	-0.51
1921	251 321 213	28 086 167	1 949	11.18	8.27	0.79	0.09	0.86
1931	278 977 238	33 455 989	2 072	11.99	19.12	1.75	0.08	0.72
1941	318 660 580	44 153 297	2 250	13.86	31.97	2.77	0.19	1.56
1951	361 088 090	62 443 709	2 843	17.29	41.42	3.47	0.34	2.47
1961	439 234 771	78 936 603	2 365	17.97	26.41	2.34	0.07	0.41
1971	548 159 652	109 113 977	2 590	19.91	38.23	3.21	0.19	1.08
1981	683 329 097	159 462 547	3 378	23.34	46.14	3.83	0.34	1.72
1991	846 302 688	217 611 012	3 768	25.71	36.47	3.09	0.24	1.02

Source: Census of India, 1991, Paper I of 1992, Vol. II, Final Population Totals.

Note: (i) Includes projected population of Assam in 1981.
(ii) Includes projected population of Jammu & Kashmir in 1991.

This slowing down of the pace of urbanisation in India has been a matter of intense debate amongst scholars. Some scholars attribute this phenomena to under-enumeration of urban population while others present a wide range of plausible explanations. Prime amongst these explanations are a decline in the volume of rural-urban migration, identification of relatively fewer new towns and increasing concentration of population in the rural area adjacent to large urban centres (Premi, 1991; and Krishan, 1993). The decline in the rate of natural increase of urban population has been ruled out as one of the explanatory factors for lower urban growth rate as it has remained more or less constant during the two decades. The average annual natural increase rate of urban population per thousand persons was 19.3 in 1971-80 and 19.5 in 1981-90 as per the Sample Registration System of India (Table 2.2). The exact estimates of population residing in rural areas on the periphery of large urban centres is not available. Therefore, it is not possible to assess the impact of this factor on the decline in India's urban population growth. But increasingly larger number of people, particularly new in-migrants, are opting to reside in peripheral rural areas and commute to the nearby large cities to work owing to the high cost of living and high levels of congestion and pollution prevailing in the cities. The case of Delhi supports this observation, as rural areas of the Union Territory of Delhi experienced about 100

per cent higher growth rate than that of the metropolis of Delhi during 1981-91. Other cities, such as, Hyderabad, Pune, Bhopal, Jaipur and Chandigarh have also recorded a sizeable in-migration in the peripheral villages (Krishan, 1993).

Table 2.2

**Average Annual Birth Rate, Death Rate and
Rate of Natural Increase per 1000 persons in India,
1971-80 and 1981-90**

Period	Rate	Urban	Rural
1971-80	Birth rate	28.5	35.8
	Death rate	9.2	15.8
	Rate of natural increase	19.3	20.0
1981-90	Birth rate	27.1	34.1
	Death rate	7.6	12.5
	Rate of natural increase	19.5	21.6

- Source:
- (i). For 1971-80, Census of India, 1991, Paper-2 of 1991, Provisional Population Totals: Rural-Urban Distribution.
 - (ii). For 1981-90, Sample Registration Bulletin, Volume 29, No.1, January, 1995, Registrar General of India, New Delhi.

According to our estimate of components of urban growth, the volume of net rural-urban migration, natural increase of inter-censal migrants and changes in municipal boundaries together was 17.98 million in 1971-81 and 13.38 million in 1981-91 (Table 2.3). The proportion of these components put together decreased from 36.06 per cent to 23.70 per cent during the same period. Assuming that the share of natural increase of inter-censal migrants and changes in municipal boundaries did not change drastically, it can be stated that the contribution of rural-urban migration in India's urban growth declined between 1971-81 and 1981-91, both in absolute and proportionate terms. This seems to be the major factor in slowing down the pace of urbanisation in India.

The relatively smaller contribution of net reclassification of new towns is another reason for slower urban population growth rate in the 1980s. The net increase in the number of classified towns in 1981-91 was about half of that recorded in 1971-81. The proportionate share of new towns declined from 18.77 per cent in 1971-81 to 17.54 per cent in 1981-91. On the other hand, the contribution of natural increase in India's urban population growth rate became significantly larger during this period, both in absolute and proportionate terms. The share of

Table 2.3

**All India Components of Urban Growth,
1971-81 and 1981-91**

Components	Population (million)		Per cent share	
	1971-81	1981-91	1971-81	1981-91
Absolute increase	49.86	56.45	100.00	100.00
Natural increase	22.52	33.17	45.17	58.76
Net reclassification of new towns	9.36	9.90	18.77	17.54
Net rural-urban migration, natural increase of inter-censal migrants and changes in municipal boundaries (residual)	17.98	13.38	36.06	23.70

Note: (i) 1971-81 estimates are made excluding Assam, 1981-91 estimates are made excluding Assam and Jammu & Kashmir.

(ii) Based on final population results of 1971 and 1981 Censuses and provisional results of 1991 Census.

natural increase in India's population growth was 45.17 per cent in 1971-81 and 58.76 per cent in 1981-91.

The 1981-91 estimates of components of urban growth will be refined after all the relevant data of 1991 is made available by the Census. One of the adjustments necessary to be made is excluding the number of out-migrants from the base year's population figures for avoiding over-estimation in the natural increase component of urban growth. The contribution of expansion in municipal boundaries also needs to be calculated separately. However, such modifications are unlikely to alter the broad trends presented here significantly (Pathak and Mehta, 1995a).

REGIONAL POPULATION DISTRIBUTION AND PATTERNS OF URBAN GROWTH

The regional distribution of population in 1991 reveals that there is wide variation in the population size of Indian states and union territories (Table 2.4). The states with the largest population size are Uttar Pradesh (139.11 million), Bihar (86.37 million), Maharashtra (78.94 million), West Bengal (68.08 million), Madhya Pradesh (66.18 million), Andhra Pradesh (66.50 million), and Tamil Nadu (55.86 million). On the other hand, there are much smaller states with a population of less than a million, namely, Arunachal Pradesh (0.86 million), Mizoram (0.69 million), and Sikkim (0.41 million). All these small states happen to be located in the north-

eastern region of the country. Similar variations are observed in the regional distribution of urban population. Maharashtra (30.54 million) and Uttar Pradesh (27.61 million) have the highest concentration of urban population, and these two states together account for about 27 per cent of the country's total urban population.

Considering the percentage of urban to total population, however, it is found that some of the smaller states have observed a high level of urbanisation. For instance, Mizoram (46.10%) and Goa (41.01%) have recorded the highest level of urbanisation in 1991. Amongst the major states which have experienced high levels of urbanisation are Maharashtra (38.69%), Gujarat (34.49%), Tamil Nadu (34.15%), and Karnataka (30.92%). Major states showing the lowest levels of urbanisation are Assam (11.10%), Bihar (13.14%), and Orissa (13.38%). It is evident from this data that western and southern India, in general, is more urbanised than eastern India.

As stated earlier, the national urban population growth rate has declined significantly between 1971-81 and 1981-91. The general downward trend in urban population growth rate is reflected at the state level as well (Table 2.5). Only smaller states in the north-east with relatively lower levels of urbanisation have experienced high urban growth rate during 1981-91. These include Arunachal Pradesh (167.04%), Mizoram (161.01%), and Tripura (86.96%). The states which observed a higher urban growth rate in 1981-91 against the general trend are Kerala (from 37.64% to 60.97%), Himachal Pradesh (from 34.76% to 37.80%), and Assam (from 38.25% to 39.58%). Sikkim is the only state which has experienced a negative urban population growth rate, that is from a high growth rate of 159.73 per cent in 1971-81 to -27.56 per cent in 1981-91. One of the possible reasons for such a growth pattern is prolonged political agitation which may have caused out-migration of large numbers of urban population, either to other regions of India or to the neighbouring countries of Nepal and Bhutan (Pathak and Mehta, 1995b).

Table 2.4

Total and Urban Population of States and Union Territories, 1981 and 1991

India/States/Union Territories	1981			1991		
	Total population (million)	Urban population (million)	Urban population as percentage of total pop.	Total population (million)	Urban population (million)	Urban population as percentage of total population
INDIA	683.33	159.46	23.34	846.30	217.61	25.71
States						
Andhra Pradesh	53.55	12.49	23.32	66.50	17.88	26.89
Arunachal Pradesh	0.63	0.04	6.56	0.86	0.11	12.80
Assam	18.04	1.78	9.88	22.41	2.48	11.10
Bihar	69.91	8.72	12.47	86.37	11.35	13.14
Goa	1.01	0.32	32.03	1.17	0.48	41.01
Gujarat	34.08	10.60	31.10	41.31	14.25	34.49
Haryana	12.92	2.83	21.88	16.46	4.05	24.63
Himachal Pradesh	4.28	0.33	7.61	5.71	0.45	8.69
Jammu & Kashmir	5.99	1.26	21.05	7.72	1.84	23.83
Karnataka	37.14	10.73	28.89	44.98	13.91	30.92
Kerala	25.45	4.77	18.74	29.10	7.68	26.39
Madhya Pradesh	52.18	10.59	20.29	66.18	15.34	23.18
Maharashtra	62.78	21.99	35.03	78.94	30.54	38.69
Manipur	1.42	0.38	26.42	1.84	0.51	27.52
Meghalaya	1.34	0.24	18.07	1.77	0.33	18.60
Mizoram	0.49	0.12	24.67	0.69	0.32	46.10
Nagaland	0.77	0.12	15.52	1.21	0.21	17.21
Orissa	26.37	3.11	11.79	31.66	4.23	13.38
Punjab	16.79	4.65	27.68	20.28	6.00	29.55
Rajasthan	34.26	7.21	21.05	44.00	10.01	22.88
Sikkim	0.32	0.05	16.15	0.41	0.04	9.10
Tamil Nadu	48.41	15.95	32.95	55.86	19.08	34.15
Tripura	2.05	0.23	10.99	2.76	0.42	15.29
Uttar Pradesh	110.86	19.90	17.95	139.11	27.61	19.84
West Bengal	54.58	14.45	26.47	68.08	18.71	27.48
Union Territories						
Andaman & Nicobar Islands	0.19	0.05	26.30	0.28	0.07	26.71
Chandigarh	0.45	0.42	93.63	0.64	0.58	89.69
Dadra & Nagar Haveli	0.10	0.01	6.67	0.14	0.01	8.47
Daman & Diu	0.08	0.03	36.75	0.10	0.05	46.80
Delhi	6.22	5.77	92.73	9.42	8.47	89.93
Lakshadweep	0.04	0.02	46.28	0.05	0.03	56.31
Pondicherry	0.60	0.32	52.28	0.81	0.52	64.00

Source: (i) Census of India, 1991, Paper I, Vol. I, Final Population Totals.; (ii) Census of India, 1981.

Note: Includes projected population of Assam in 1981 and Jammu & Kashmir in 1991.

Table 2.5

Decadal Urban Population Growth Rate,
1971-81 and 1981-91

India/States/ Union Territories	1971-81 Decadal Growth Rate (%)	1981-91 Decadal Growth Rate (%)
INDIA	46.14	36.47
States		
Andhra Pradesh	48.62	43.24
Arunachal Pradesh	139.63	167.04
Assam	38.25	39.58
Bihar	54.76	30.21
Goa	58.82	48.63
Gujarat	41.42	34.38
Haryana	59.47	43.41
Himachal Pradesh	34.76	37.80
Jammu & Kashmir	46.86	45.94
Karnataka	50.65	29.62
Kerala	37.64	60.97
Madhya Pradesh	56.03	44.89
Maharashtra	39.99	38.87
Manipur	165.36	34.67
Meghalaya	63.98	36.76
Mizoram	222.61	161.01
Nagaland	133.95	73.18
Orissa	68.54	36.16
Punjab	44.51	28.95
Rajasthan	58.69	39.62
Sikkim	159.73	-27.56
Tamil Nadu	27.98	19.60
Tripura	38.93	86.96
Uttar Pradesh	60.62	38.73
West Bengal	31.73	29.49
Union Territories		
Andaman & Nicobar Islands	89.31	51.02
Chandigarh	81.52	36.18
Dadra & Nagar Haveli	0.00	69.58
Daman & Diu	23.34	63.81
Delhi	58.16	46.87
Lakshadweep	0.00	56.28
Pondicherry	59.39	63.58

Source: (i) Census of India, 1991, Paper I, Vol. I, Final Population Totals.
(ii) Census of India, 1981.

Note: Includes projected population of Assam in 1981 and Jammu & Kashmir in 1991.

POPULATION SIZE AND CONCENTRATION OF URBAN POPULATION

The Census of India classifies towns and urban agglomerations in six broad population size class categories: Class I 100,000+; Class II 50,000-99,999; Class III 20,000-49,999; Class IV 10,000-19,999; Class V 5,000-9,999 and Class VI less than 5,000. Class I settlements are further broken down into urban centres with population of 100,000 and more called 'cities' and urban centres with population of 1,000,000 and more known as metropolises.

In 1991, there were 300 class I cities, 345 class II towns, 944 class III towns, 1,171 class IV towns, 739 class V towns and 198 class VI towns in India (Table 2.6). Class I cities together accounted for nearly 65 per cent of India's urban population. In 1981, 218 Class I cities claimed a share of about 60 per cent of the country's urban population. The increasing concentration of urban population in the highest size class category is a result of both significant population growth of the existing cities, and high population growth of smaller urban centres leading to their inter-class mobility. On the other hand, the number as well as population share of smaller towns of class V and VI categories has declined between 1981 and 1991. This is caused by an upward mobility of some towns and relatively smaller addition of new towns to these categories.

Table 2.6

Number and Population of Towns and Urban Agglomerations
by Broad Size Class Categories, India, 1981-91

Size class/Population	1981			1991		
	Number	Population (million)	Percentage of population to total urban population	Number	Population (million)	Percentage of population to total urban population
I 100,000+	218	95.33	60.45	300	14.07	64.91
II 50,000-99,999	270	18.19	11.54	345	23.63	10.95
III 20,000-49,999	743	22.56	14.31	944	28.69	13.30
IV 10,000-19,999	1 059	15.01	9.52	1 171	17.07	7.91
V 5,000-9,999	758	5.74	3.64	739	5.65	2.62
VI Less than 5,000	253	0.85	0.54	198	0.66	0.31
Total	3 301	157.68	100.00	3 697	215.77	100.00

Source: (i) Census of India, 1981.
(ii) Census of India, 1991, Functional Classification of Urban Agglomeration/Towns of India.

Note: Excludes figures for Assam in 1981 and Jammu & Kashmir in 1991.

The number of metropolitan centres, or cities with population of one million and above in India has been growing rapidly. There were 9 metropolises in 1971, 12 in 1981 and 23 in 1991 (Table 2.7). If the same trend continues, there will be about 45 metropolises in India by the year 2001. The total population of 23 metropolises of 1991 was about 71 million, which was one-third of the total urban population of the country. The four largest metropolises, namely, Bombay, Calcutta, Delhi and Madras, alone accounted for nearly one-fifth of India's urban

Table 2.7

Urban Agglomerations/Cities having Population of more than a million
in 1971, 1981 and 1991 arranged in descending order of their 1991 Population

Rank in 1991	City	1971		1981		1991	
		Population	Percentage to total urban population	Population	Percentage to total urban population	Population	Percentage to total urban population
1	Greater Bombay	5 970 575	5.47	8 243 405	5.17	12 596 243	5.79
2	Calcutta	7 420 300	6.80	9 194 018	5.77	11 021 918	5.06
3	Delhi	3 647 023	3.34	5 729 283	3.59	8 419 084	3.87
4	Madras	3 169 930	2.91	4 289 347	2.69	5 421 985	2.49
5	Hyderabad	1 796 339	1.65	2 545 836	1.60	4 344 437	2.00
6	Bangalore	1 664 208	1.53	2 921 751	1.83	4 130 288	1.90
7	Ahmedabad	1 752 414	1.61	2 548 057	1.60	3 312 216	1.52
8	Pune	1 135 034	1.04	1 686 109	1.06	2 493 987	1.15
9	Kanpur	1 275 242	1.17	1 639 064	1.03	2 029 889	0.93
10	Nagpur	930 459	0.85	1 302 066	0.82	1 664 006	0.76
11	Lucknow	813 982	0.75	1 007 604	0.63	1 669 204	0.77
12	Surat	493 001	0.45	913 806	0.57	1 518 950	0.70
13	Jaipur	636 768	0.58	1 015 160	0.64	1 518 235	0.70
14	Kochi	505 838	0.46	685 836	0.43	1 140 605	0.52
15	Coimbatore	736 203	0.67	920 355	0.58	1 100 746	0.51
16	Vadodara	467 487	0.43	744 881	0.47	1 126 824	0.52
17	Indore	560 936	0.51	829 327	0.52	1 109 056	0.51
18	Patna	551 210	0.51	918 903	0.58	1 099 647	0.51
19	Madurai	711 501	0.65	907 732	0.57	1 085 914	0.50
20	Bhopal	384 859	0.35	671 018	0.42	1 062 771	0.49
21	Visakhapatnam	363 467	0.33	603 630	0.38	1 057 118	0.49
22	Varanasi	635 175	0.58	797 162	0.50	1 030 863	0.47
23	Ludhiana	401 176	0.37	607 052	0.38	1 042 740	0.48
	Total	36 023 127	33.01	50 721 402	31.81	70 996 726	32.63

Source: Census of India, Paper-I, Vol.I and II, Final Population Totals, 1991.

population. However, the share of these four cities' population has been more or less the same in all the three Census years. Also, the fast addition of new metropolitan centres indicates 'dispersal of concentration', implying that high concentration of population is also taking place in several cities, other than in the four largest metropolises. This is possible, as the population growth rate of the larger metropolises is slowing down while the growth rate of smaller cities is being accelerated. However, the four largest cities of Bombay, Calcutta, Delhi and Madras which attained the population of more than five million in 1991 are known as 'mega cities' and they continue to occupy a special place in the national economy.

In terms of population size, Calcutta was the largest city in India until 1981. In 1991, Bombay took this position. The percentage share of population of the largest city in India's urban population was 6.80 per cent in 1971, 5.77 per cent in 1981, and 5.79 per cent in 1991. Also, the difference between the population size of the largest and the second largest cities has not been very large. These are indicators of low primacy existing at the national level.

URBAN POPULATION PROJECTIONS

As stated earlier in this section, the urban population of India was 217.61 million and the percentage of urban to total population was 25.71 per cent in the year 1991. Various urban population projections attempted in the 1980's assumed that India's urban population will continue to grow, at least at the same rate as recorded during the decade 1971-81 (NIUA, 1988). However, the decline in urban growth rate between 1981-91 not only came as a surprise to most scholars and policy makers, it also led to scaling down of urban population projections for the subsequent years. Although almost all the available projections have been made taking into consideration the lower urban population growth rate of about 36 per cent recorded during 1981-91, most urban population projections predict that the urban population growth rate will be about 40 per cent during the next two decades, that is until 2011.

According to one of the population projections adjusted to 1981-91 growth trends, India's total population will be 1,006 million, urban population will be 307 million and percentage of urban to total population will be 30.5 per cent by the year 2001 (Table 2.8). The urban population is expected to increase to 426 million by the year 2011, which will account for 36.6 per cent of India's total population.

It is important to note here that if the impact of macro-economic policies adopted in 1991 is also taken into consideration, the urban population projection will have to be modified once again. The new industrial and trade liberalisation policies are expected to accelerate the pace of industrial and economic growth in general. This will also mean higher rate of urban population growth in the 1990's, as against the slower pace of urban population growth of the 1980's. These policies will also influence the spatial pattern of urban growth. Larger cities with

better infrastructure will attract most of the investments causing greater concentration of economic activities and urban population than observed in the previous decade (Mehta and Pathak, 1994). If the present trends in the Indian economy are not altered, India's urban population is likely to grow at the rate of 40-45 per cent between 1991-2001 and at the further accelerated rate of 45-50 per cent between 2001 and 2011. This means that India's urban population can be projected to be approximately 365 million in 2001 and 530 million in 2011. Rapid growth of urban population will also lead to India attaining a higher level of urbanisation than projected so far. According to these revised urban population projections, India's level of urbanisation is expected to be about 36 per cent in 2001 and about 46 per cent in 2011.

It is also predicted that along with structural transformation of the Indian economy there will be structural changes in the pattern of urbanisation as well. On the one hand, there will be greater concentration of urban population in larger cities, due to rural-urban as well as urban-urban migration from smaller towns. On the other hand, many new towns of relatively smaller sizes will emerge in response to the changing market conditions. In both cases, with the faster pace of urbanisation the magnitude of rural-urban migration in India is likely to increase between 1991 and 2011.

Table 2.8

Urban Population Projection, India 1996-2011

Year	Projected population (million)		Percentage of urban to total population
	Total	Urban	
1991-1996	925	257	27.8
1996-2001	1 006	307 (365)	30.5 (36.3)
2001-2006	1 086	364	33.5
2006-2011	1 164	426 (530)	36.6 (45.5)

Source: Tata Services Limited, Statistical Outline of India, 1994-95, Department of Economics and Statistics, Bombay.

Note: Figures in parentheses are authors' estimates.

III. STATUS OF URBAN INFRASTRUCTURE

Urbanisation is generally perceived as a determinant as well as a consequence of economic development. Current as well as historical evidences suggest higher levels of urbanisation in countries with high per capita incomes and high growth rate of the national economy. Contribution of urban areas in the national economy is quite significant. In India, the share of urban areas in Net Domestic Product was estimated to be 37.7 per cent in 1971 and 41.1 per cent in 1981. It is estimated that this share would rise to over 50 per cent by the year 2011 (Hashim, 1995).

High productivity of urban areas is, however, contingent upon availability and quality of infrastructure services. Urban economic activities depend on infrastructure such as power, telecommunications, roads, water supply and mass transportation. The urban living environment is affected by sanitation, solid waste management and provision of social services for health, education and recreation. Poor quality or inadequate levels of services compel the enterprises and residents to provide for these services on their own. Internalisation of these services in the cost of production or costs of living affects the competitiveness of an urban centre and forces the economic enterprises and residents to locate away from the city. Poor infrastructure also affects the productivity of firms and workers adversely. Conversely, appropriate public investments in infrastructure enhances productivity and employment, and leads to an increase in the income levels of urban residents. Infrastructure like roads and mass transportation have a far reaching impact on spatial patterns of growth within an urban area. Such investments can guide urban development in specific directions. Improved environmental conditions in urban areas due to better solid waste management, drainage and sanitation facilities enhance the quality of life in urban areas and make it more competitive in attracting global investments.

Urban centres in India present a grim picture with regard to availability of basic infrastructure (Table 3.1). At the aggregate level, 21 per cent of the urban population is living in squatter settlements, where access to basic services is extremely poor. Although 82 per cent of the urban population is reported to have access to safe drinking water, there are severe deficiencies with regard to quantity of water available to urban residents. Nearly 46 per cent of urban households have water sealed toilets, but only 28 per cent of the urban households are connected to the public sewerage system. Though nearly 300 urban centres have a sewerage system, only 70 of these have sewage treatment facilities. Only 60 per cent of the garbage is being collected by municipal authorities in the urban areas of India. There is, thus, a major lacuna in the provision of urban infrastructure and services, despite major efforts in the past. The situation of key urban civic services and improvements that have taken place over time has been described in detail in the subsequent paragraphs.

Table 3.1

All India Urban Infrastructure Availability, Key Indicators, 1991

Base data for urban areas (million)	
Population	217
Number of households*	39
Number of dwelling units*	38
Number of built permanent materials	28
Number of shanties/informal housing	N.A.
Estimated squatter population**	46
Number of households having access to safe drinking water	32
Population served by public standpipes	N.A.
Number of households with water sealed toilets	18
Kilometres of urban road ***	180,000
Population served with domestic solid waste collection	N.A.
Number of vehicles registered (1991-92, All India) **	23
Indicators	
Urban population as a percentage of total population	26
Percentage of population squatting	21
Number of households per dwelling unit	1.03
Percentage of population having access to safe drinking water	82
Percentage of households connected to public sewers	28
Kilometres of urban roads per 100,000 urban population	83
Percentage of solid waste collected	60
Annual household income at 50th percentile - Urban (in Rs.)	30,000
Persons per vehicle	9.43

Source: Census of India, 1991, Paper 2 of 1993, Housing and Amenities, New Delhi.

Note: * Excludes figures for Assam, Jammu & Kashmir, Goa and Daman and Diu.
 ** National Institute of Urban Affairs, Handbook of Urban Statistics, 1995, New Delhi.
 *** National Steering Committee, India, Draft Final National Report for the Second UNCHS HABITAT II Conference, New Delhi, January, 1996.

URBAN WATER SUPPLY AND SANITATION

It is possible to analyse the trends in the availability of water supply and sanitation using the Housing and Amenities tables of the Census of India and the National Sample Survey Organisation. The decadal population census collects information on availability of basic amenities like water supply, toilet and electricity as a part of its houselisting operation. According to the census information, there has been some improvement in access to basic services of urban population. Table 3.2 indicates that the percentage of households having safe drinking water increased from 74 per cent in 1981 to 81 per cent in 1991. Similarly, the number of urban households having toilet facility increased from 58 per cent in 1981 to 64 per cent in 1991. These figures on toilet facility are quite different from the official statistics used by the Planning Commission in the Eighth Five Year Plan document, where it is stated that 48 per cent of urban population had access to safe sanitation. This discrepancy in data is largely due to the inclusion of service toilet facility in the census statistics. The number of households with electricity in urban areas also went up from 63 per cent in 1981 to 76 per cent in 1991.

Table 3.2

**Percentage of Urban Households having Safe Drinking Water,
Toilet Facility and Electricity in India, 1981 and 1991**

Facility	Percentage of households	
	1981	1991
Safe drinking water	75.08*	81.38**
	74.13#	81.59#
Toilet facility	58.20*	63.90**
	57.44#	63.58#
Electricity	62.51*	75.78**
	61.60	75.93#

Source : Housing and Amenities, Census of India, 1991, Series-1, paper 2 of 1993.

Note : # Excludes figures for Assam and Jammu & Kashmir.
* Excludes figures for Assam.
** Excludes figures for Jammu & Kashmir.

Across the various states and union territories in the country, a wide variation is observed in the access to basic services (Table 3.3). In the states of Maharashtra, Punjab, Haryana and Himachal Pradesh, over 90 per cent of urban households have safe drinking water facility, while in Kerala only 39 per cent of households have this facility. Over the period 1981-91, there has been a decline or near stagnancy in access to safe drinking water in Gujarat, Kerala, Meghalaya,

Nagaland, Andaman and Nicobar Islands and Chandigarh. On the other hand, significant improvements have taken place in the states of Andhra Pradesh, Bihar, Goa, Karnataka, Madhya Pradesh, Orissa, Sikkim and Uttar Pradesh.

Over 75 per cent of urban households in the states of Assam, Arunachal Pradesh, Meghalaya, Nagaland, Sikkim, Tripura and West Bengal, have toilet facility, whereas in Orissa only 49 per cent of households have this facility. The improvement in toilet facilities has been remarkable in most states, especially in Kerala, Meghalaya, Mizoram and Sikkim during the period 1981-91.

In terms of the proportion of households having access to electricity, the all-India figure shows a significant improvement from about 63 per cent in 1981 to more than 75 per cent in 1991. During the year 1991, the states of Arunachal Pradesh, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Maharashtra, Meghalaya, Mizoram, Punjab, Rajasthan, Sikkim, Tamil Nadu and Tripura lie above the national average.

Table 3.3

Percentage of Households having Safe-Drinking Water, Toilet Facility and Electricity in Urban Areas of States and Union Territories of India, 1981 and 1991

India/States/ UTs	Safe drinking water		Toilet facility		Electricity	
	1981	1991	1981	1991	1981	1991
India	75.08*	81.38**	58.20	63.90*	62.51*	75.78**
India@	74.13	81.59	57.44	63.58	61.60	75.93
Andhra Pradesh	63.27	73.82	44.07	54.60	52.22	73.31
Arunachal Pradesh	87.93	88.20	64.56	75.05	64.26	80.96
Assam	N.A.	64.07	N.A.	86.06	N.A.	63.21
Bihar	65.36	73.39	52.95	56.54	50.09	58.77
Goa	52.31	61.71	49.51	55.82	69.97	88.77
Gujarat	86.78	87.23	60.11	65.71	74.40	82.96
Haryana	90.72	93.18	58.09	64.25	82.22	89.13
Himachal Pradesh	89.56	91.93	55.12	59.98	89.36	96.24
Jammu & Kashmir	86.67	N.A.	64.54	N.A.	92.18	N.A.

Karnataka	74.40	81.38	53.28	62.52	61.98	76.27
Kerala	39.72	38.62	59.14	72.66	54.57	67.65
Madhya Pradesh	66.65	79.45	52.73	53.00	56.42	72.52
Maharashtra	85.56	90.50	59.37	64.45	70.53	86.07
Manipur	38.71	52.10	62.69	70.16	48.32	75.45
Meghalaya	74.40	75.42	70.15	85.69	59.59	83.04
Mizoram	8.79	19.88	24.52	84.44	50.06	85.50
Nagaland	57.18	45.47	65.25	75.10	58.43	75.58
Orissa	51.33	62.83	41.88	49.27	51.74	62.11
Punjab	91.13	94.24	64.75	73.23	85.44	94.60
Rajasthan	78.65	86.51	56.48	62.27	63.67	76.67
Sikkim	71.93	92.95	53.15	77.69	71.80	92.37
Tamil Nadu	69.44	74.17	51.27	57.47	61.59	76.80
Tripura	67.92	71.12	95.67	96.32	92.10	80.43
Uttar Pradesh	73.23	85.78	62.06	66.54	54.61	67.76
West Bengal	79.78	86.23	77.74	78.75	57.86	70.19
Union Territories						
Andaman & Nicobar Islands	91.95	90.91	70.90	65.72	78.22	90.55
Chandigarh	99.39	97.68	78.53	79.77	85.48	85.48
Dadar & Nagar Haveli	54.35	90.97	42.83	65.14	67.66	87.57
Daman & Diu	67.04	86.76	42.93	45.75	85.89	95.46
Delhi	94.91	96.24	68.02	66.64	74.94	81.38
Lakshadweep	3.65	18.79	31.62	64.65	96.35	99.11
Pondicherry	84.18	86.05	41.54	50.02	58.11	71.71

Source : Housing and Amenities, Census of India, 1991, Series 1, Paper 2 of 1993.

Note : @ Excludes figures for Assam and Jammu & Kashmir.
* Excludes figures for Assam.
** Excludes figures for Jammu & Kashmir.

AVAILABILITY OF DRINKING WATER AND TOILET FACILITY BY SIZE-CLASS OF TOWNS

An analysis of household amenities by size-class of towns has been recently presented in a paper by Kundu (1996). This information is presented below in Table 3.4. It is apparent that the access to water supply and sanitation is much better in larger cities. However, during the decade 1981-91, there has been a remarkable improvement in the access to drinking water in smaller towns. The situation with regard to sanitation, however, does not indicate any substantial improvement in smaller towns.

Table 3.4

Percentage of Households with Amenities by Size-Class of Towns, 1981 and 1991

Population	Drinking water		Toilet	
	1981	1991	1981	1991
500,000 +	73.21	86.14	62.80	77.69
300,000 - 500,000	61.46	77.28	44.87	63.92
100,000 - 300,000	71.34	81.00	46.98	63.08
50,000 - 99,999	70.33	79.17	51.90	57.58
20,000 - 49,999	65.37	75.45	45.42	49.56
10,000 - 19,999	61.75	73.84	40.23	43.08
5,000 - 9,999	56.43	72.18	37.93	38.75
Less than 5,000	56.62	78.59	39.63	47.44
All Urban	75.36	81.84	58.00	66.43

Source : Based on Kundu (1996), Table 7A, 7B.

Table 3.5 below reveals that while the proportion of households without any toilet facilities has reduced marginally, there has also been an improvement in the nature of service. The percentage of households with flush toilets and toilets connected to septic tank has gone up and there has been a decline in service latrines.

Table 3.5

Percentage of Urban Households Classified by Nature of Sanitation Facility, 1983 and 1988-89

Nature of sanitation facility	Percentage households	
	1983	1988-89
Flush system	20.13	26.95
Septic tank	20.67	25.87
Service latrine	18.06	11.74
Others	4.30	4.21
No toilet facility	36.81	31.06

Source: National Sample Survey, as quoted in Kundu (1996).

SOLID WASTE MANAGEMENT

Municipal governments in India are responsible for ensuring collection and safe disposal of solid wastes generated within their jurisdiction.

The statistics regarding the performance of municipalities of solid waste management are available only from some study reports. Most of these estimates are based on information provided by municipal authorities. As Table 3.6 indicates, the collection efficiency in a few large cities is reported to be over 90 per cent. However, in the smaller towns, the collection efficiency is around 50 per cent.

Table 3.6

Solid Waste Management Levels of Service in Selected Towns of India

Town	Population (1981)	Solid waste per day (Tonnes)		Collection efficiency (%)
		Generated	Collected	
Bombay	8,227,332	3200	3100	96.9
Madras	4,276,635	1819	1637	90.0
Bangalore	2,913,537	1800	1225	68.1
Ahmedabad	2,515,195	1200	1050	90.0
Kanpur	1,688,424	2142	1500	70.0

Pune	1,685,300	1000	700	70.0
Lucknow	1,006,538	600	500	83.3
Total		11761	9742	82.8
Coimbatore	917,155	175	113	64.6
Madurai	904,362	310	160	51.6
Indore	827,071	120	100	83.3
Baroda	744,043	321	193	60.0
Cochin	685,686	230	120	52.2
Bhopal	672,329	321	300	93.5
Tiruchi	607,815	130	60	46.2
Calicut	546,060	200	75	37.5
Meerut	538,461	120	70	58.3
Hubli-Dharwad	526,493	75	60	80.0
Trivandrum	519,766	120	75	62.5
Salem	515,021	130	25	19.2
Mysore	476,446	204	122	60.0
Thane	388,577	350	200	57.1
Jamnagar	317,037	149	89	60.0
Gulbarga	218,621	10	8	80.0
Sambalpur	162,190	60	36	60.0
Total		3025	1806	59.0
Anand	83,185	34	17	50.0
Nalol	69,794	16	8	50.0
Bhuj	69,730	27	14	50.0
Baripada	52,992	30	28	93.3
Panvel	37,026	6	4	66.7
Khopoli	32,108	6	3	50.0
Koraput	31,644	11	6	50.0
Dehgam	24,817	9	4	44.4
Melunedbad	22,297	9	4	44.4
Total		148	88	59.5

Source : Operations Research Group (1989) : Study on "Delivery and Financing of Urban Services", Baroda.

Recent statistics reported in popular magazines of India indicate a worsening of collection efficiency in major Indian cities. Table 3.7 provides details on the management of garbage in some selected cities of India.

Table 3.7

Garbage Management in Selected Cities of India

Cities	Garbage generated (tonnes per day)	Garbage cleared (tonnes per day)	Clearing efficiency(%)
Delhi	3880	2420	62.37
Calcutta	3500	3150	90.00
Bombay	5800	5000	86.20
Bangalore	2130	1800	84.50
Madras	2675	2140	80.00
Lucknow	1500	1000	66.66
Patna	1000	300	30.00
Ahmedabad	1500	1200	80.00
Surat	1250	1000	80.00

Source : Computed from the data obtained from India Today, October 31, 1994.

In most cities, solid waste is collected from bins and transported to dump sites at the periphery of the city. The indiscriminate dumping of waste in the nearest available low lying area often causes damage to the soil. Very few cities practice scientific methods of sanitary landfill or convert the waste into compost or energy. This is largely due to the fact that solid waste is not separated prior to collection. The physical characteristics of solid wastes collected by municipalities is not readily suitable to be recycled into compost or energy. Table 3.8 gives an account of the physical characteristics of solid waste in a few cities of India.

Table 3.8

Physical Characteristics of Solid Waste in Selected Cities of India

Physical Characteristics	Calcutta	Delhi	Nagpur	Bangalore	Bombay
Paper	3.18	6.29	1.88	4.00	10.00
Plastics	0.65	0.85	1.35	2.00	2.00
Metals	0.66	1.21	1.33	-	3.60
Glass	0.38	0.57	1.34	1.00	0.20
Ash & Earth	34.00	36.00	41.42	15.00	45.60
Total Compostable	47.00	35.00	34.81	78.00	40.00

Source : Urban and Industrial Energy Group, Ministry of Non-Conventional Energy Sources (1996): Conference of Mayors and Municipal Commissioners on "Adoption of Renewable Energy Technologies as Means of Improving Waste Management Practices", Background Information, Delhi.

The major problem of municipal solid waste relates to the mixing up of hospital and toxic industrial waste with other wastes. Although, major hospitals by law are required to incinerate their wastes, they often dispose their waste in municipal bins. The industries are also required to dispose off their toxic waste through prescribed procedures, but they often do not practice them. These wastes create a serious health hazard in urban areas. However, after the plague outbreak in Surat in 1994, there has been a greater concern at the national level regarding the status of urban solid waste in the country.

IV. INSTITUTIONAL ARRANGEMENT FOR URBAN INFRASTRUCTURE

The Constitution (73rd and 74th Amendment) Acts of 1992 are aimed at creation of a third-tier of government for rural and urban areas through democratic decentralisation. In a federal country like India, the state governments have been devolved functional responsibilities and fiscal powers by specific provisions in the constitution. These amendments to create a third-tier of government in India assume crucial importance as these will affect the centre-state and state-local government relations. The Constitution (Seventy Fourth) Amendment Act, 1992 on Municipalities introduced some significant changes in the system of municipal governance in India. Specification of the territory of municipalities, constitution of ward committees involving community groups, reservation of one-third of seats for women, ensuring adequate representation of other backward classes, mandating regularity of elections and limited control of state governments for dissolution are among the salient features of this legislation (National Institute of Urban Affairs, 1994a; and Times Research Foundation, 1996).

As regards functional devolution, planning for economic development and social justice has been identified as the major responsibility of the municipal government in the 74th Amendment under its Article 243W. It also refers to the newly inserted Twelfth Schedule in the Constitution which lists the following functions:

1. Urban planning including town planning.
2. Regulation of land-use and construction of buildings.
3. Planning for economic and social development.
4. Roads and bridges.
5. Water supply for domestic, industrial and commercial purposes.
6. Public health, sanitation conservancy and solid waste management.
7. Fire services.
8. Urban forestry, protection of the environment and promotion of ecological aspects.
9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded.
10. Slum improvement and upgradation.
11. Urban poverty alleviation.
12. Provision of urban amenities and facilities such as parks, gardens, playgrounds.
13. Promotion of cultural, educational and aesthetic aspects.
14. Burials and burial grounds; cremations, cremation grounds and electric crematoriums.
15. Cattle pounds; prevention of cruelty to animals.
16. Vital statistics including registration of births and deaths.
17. Public amenities including street lighting, parking lots, bus stops and public conveniences.
18. Regulation of slaughter houses and tanneries.

However, the provisions of Article 243W are not mandatory, but it is left to the state governments to decide as to which functions it may devolve on a municipality. This is because, unlike the functional jurisdiction of states, which are prescribed in the constitution, the functions of the local bodies are derived from the responsibilities which are delegated by the states through legislation or executive decisions.

The Constitution (Seventy Fourth) Amendment Act, 1992 also envisages a major shift in the fiscal domain of the municipal governments through establishment of State Finance Commissions in each state. As per the Article 243Y, the State Finance Commissions are expected to review the financial position of municipalities and make recommendations with regard to principles which would govern:

- a. the distribution between duties, tolls and fees leviable by the state, which may be divided between them and the allocation between the municipalities at all levels of their respective shares of such proceeds;
- b. the determination of the taxes, duties, tolls and fees which may be assigned to, or appropriated by the municipalities.
- c. the grant-in-aid to the municipalities from the consolidated fund of the state.

The State Finance Commissions, established by various state governments are expected to submit their reports shortly. The fiscal domain of municipalities is expected to change significantly, if the recommendations of the state finance commissions are accepted. However, till such time, the present managements are likely to continue.

PRESENT INSTITUTIONAL ARRANGEMENTS

Studies of amendments to the state municipal laws in conformity with the Constitutional requirements suggest that only marginal changes that were regarded as mandatory by the state governments have been carried out. As regards functional responsibilities, most legislations have continued with the existing provisions which include many functions listed in the Twelfth Schedule. A few states have taken some initiatives to selectively include a few additional functions. However, none of the state governments have given adequate attention to the requisite changes in the institutional arrangements for urban infrastructure and the role of municipal governments *vis a vis* those of the parastatal agencies.

Under the present municipal legislations, most municipal governments are required to provide many infrastructure and related services, in addition to their other assigned functions of provision of social services and regulating developmental activities. In spite of many differences

across the states about the range of functions that municipal governments are required to carry out, it is possible to identify a number of services that are common to most state municipal legislations. These services include: (i) provision of water supply; (ii) sanitation and waste water management; (iii) solid waste management; (iv) drainage; and (v) streets and street lights.

Municipal governments are assisted by parastatal agencies, operating either at the state level or at metropolitan level to carry out functions related to water supply. The arrangements for provision of water supply in Indian cities is described below. All other services listed above are usually provided by the municipal governments. The level of service and the quality of these services are largely dependent on the aggregate resource base of municipalities, as these services are financed by revenues from municipal taxation.

Institutional Arrangements for Water Supply

Water supply is a very important service not only because of its being a basic need, but it is also politically the most sensitive local service. Water is considered a common property resource and there are competing demands from agriculture, industry and urban domestic sector. Surface water sources are also often beyond the administrative limits of municipal governments. Thus, the source development is often undertaken by specialised agencies with the multiple objectives of power generation, irrigation and urban water supply needs. On the other hand, in regions that are well endowed with ground water resources, municipal governments are able to carry out capital works without major resource allocations. For these reasons, the range of institutional arrangement prevalent in India for urban water supply is most varied.

At one extreme, the municipal government is responsible for both capital investments as well as operations and maintenance. At the other extreme, in a few states, a state government agency is responsible for urban water supply. The more common mode is the one in which a parastatal agency carries out capital work and supplies bulk water to municipal governments for distribution within the city. Corresponding to these institutional arrangements, there exists a variety of financial arrangements for financing capital investments and operations of urban water supply schemes (Table 4.1).

Table 4.1

Typology of Institutional Arrangement for Urban Water Supply

Serial No.	Activities				
	Source development	Conveyance	Storage reservoir/ Filtration plant	Distribution network	Operation & maintenance
1.	Municipal Government				
2.	State Department		Municipal government		
3.	State department	Parastatal agency	Municipal government		
4.	Metropolitan Agency				
5.	State department or Agency				

Other Services

Other services like public transport, traffic management, low cost housing, slum upgradation and flood control are provided by the state government departments or agencies. A few city governments (e.g. Bombay and Ahmedabad) have been involved in operating public transport facilities. However, in most cities, the State Transport Undertakings provide these services. Traffic management is undertaken by the state traffic police cells in cities, but capital investments in traffic management, that is, construction of grade separators and installation of traffic signals are undertaken by municipal governments. Public housing programmes in Indian cities are carried out by State Housing Boards or State Slum Improvement Boards. Slum upgradation programmes are often undertaken by municipal governments under specific national programmes (Table 4.2 and 4.3).

Table 4.2
Responsible Agencies for Capital Investment in Urban Infrastructure

Infrastructure	Capital Investment					
	Local Government		State Government		Private Sector	
	Local authorities	Metropolitan authorities	Ministry or department	Corporation or Bureau	Formal	Non-formal
Water supply	*	*	*	*	**	*
Waste water management	*	*			**	*
Sanitation	*	*		*		*
Solid waste management	*				**	
Urban drainage	*					
Flood control			*			
Traffic management	*		*			
Public transport			*	*		*
Roads	*	*	*		**	
Slum upgrading	*	*		*		
Low-income housing		*		*		*

Note: * Current Practice.
** Recent Initiatives.

Table 4.3

**Responsible Agencies for Urban Infrastructure
Operation and Maintenance**

Infrastructure	Operations and Maintenance					
	Local Government		State Government		Private Sector	
	Local authorities	Metropolitan authorities	Ministry or department	Corporation or Bureau	Formal	Non-formal
Water supply	*	*		*	**	*
Waste water management	*	*		*		*
Sanitation	*	*		*		*
Solid waste management	*					*
Urban drainage	*					
Flood control			*			
Traffic management	*					
Public transport			*	*		*
Roads	*	*	*		**	
Slum upgrading	*					*
Low-income housing						*

Note: * Current Practice.
** Recent Initiatives.

ROLE OF URBAN DEVELOPMENT AUTHORITIES

Capital investments in infrastructure provision, particularly water supply, drainage and roads, is often undertaken by development agencies. Urban Development Authorities have been constituted by the state governments for larger urban centres. In addition to preparation of land-use plans and forming zoning/building regulations, these development authorities also take up land development and housing projects. Infrastructure services in these newly developed areas are provided by the development authorities and its capital investments are financed through sale of developed land or housing. These developed areas are subsequently brought within the jurisdiction of municipal governments and they take up the responsibility of operating and maintaining these services.

This division of responsibilities of micro-level infrastructure provision by development agencies and its operation by municipal governments has certain advantages. In this arrangement, the capital costs of infrastructure provision is recovered through sale of land or housing and only the operations and maintenance costs need to be financed through taxation or user charges. However, such area development projects often do not take into account the costs of trunk infrastructure as these are provided by other parastatal agencies or the municipal governments. The capital cost recovery through land development, in such cases, is only partial. An exception to this common practice in India is the case of City and Industrial Development Corporation (CIDCO). National Institute of Urban Affairs (NIUA) has documented the procedure adopted by CIDCO in determining its break-even price of land (NIUA, 1994b). This procedure takes into account the present value of all past and future expenditure on trunk infrastructure.

In the wake of the current liberal economic policies and the Constitutional (Seventy Fourth) Amendment Act, 1992, the role of urban development authorities and other parastatal organisations will undergo a major change. With reduced budgetary support from the state governments, these parastatal agencies will have to raise funds from financial institutions and capital markets. This will require greater commercialisation of their operations. With increased powers and responsibilities of local governments envisaged under the decentralisation programme, the development authorities will have to be restructured as service agencies to provide contractual services to municipalities and may have to compete with private sector agencies in land development and infrastructure provision.

PRIVATE SECTOR INVOLVEMENT IN URBAN INFRASTRUCTURE

The level and quality of urban infrastructural service provision by public agency depends on its financial, technical and managerial capacities. Given the poor state of finances of municipal governments in India, they are unable to maintain these services at the present level and augment them to meet the growing needs.

Privatisation of municipal services is promoted as a strategy to meet the growing demand for urban infrastructure and services. It is often contended that municipal services that are exclusionary in nature, that is, those which can be provided only on payment of user charges, can be delivered more efficiently and effectively by the private sector. The private sector has the advantages of greater efficiency of resource utilisation. This may be negated by the unwillingness of private sector to provide necessary but unprofitable services. It is also feared that the privately provided service will price out the poor.

Table 4.4

Management Contracts for Services in Indian Cities, 1993

Services/Tasks	City
<u>Sanitation and Public health:</u>	
* Conservancy/drain cleaning/sanitation/maintenance of STP	Guwahati, Bangalore, Jodhpur, New Bombay, Ludhiana
* Construction and maintenance of toilets	Faridabad, Delhi, Hubli-Dharwad, Aurangabad, Kalyan, Jaipur
* Mosquito control	Cochin
<u>Solid Waste Management:</u>	
* Garbage collection/disposal/street cleaning	Guwahati, Ahmedabad, Rajkot, Baroda, Bangalore, Cochin, Bombay, Pune, Jalandhar, Amritsar, Ludhiana, Jaipur
* Compost plant, solid waste conversion	Baroda, Kalyan
<u>Roads and Streets:</u>	
* Road construction	Ahmedabad, Cochin
* Road maintenance	Bangalore, Cochin, Jaipur
* Street lighting	Ranchi, Rajkot, Faridabad, Jodhpur, New Bombay
<u>Water Supply:</u>	
* Maintenance of water supply system	New Bombay
<u>Tax Collection etc.:</u>	
* Collection of entry tax, other local taxes/charges	Guwahati, New Bombay
* Parking lots/collection of charges	Guwahati, Pune
<u>Gardens and Parks etc.:</u>	
* Development and maintenance of garden parks/playgrounds/sports complex/swimming pool/planetarium/traffic islands	Rajkot, Baroda, Bombay, Faridabad, Hubli-Dharwad, Bangalore, Cochin, Ranchi, Aurangabad, New Bombay, Kalyan, Pune, Amritsar, Ludhiana, Jalandhar, Jaipur
* Social forestry, tree planting	Baroda, Rajkot
<u>Others:</u>	
* Bus/terminus/shelter	Ranchi, Cochin
* Ward security	Ahmedabad, Rajkot
* Market development	Ahmedabad, Kalyan
* Maintenance of vehicles	Rajkot
* Land development	Faridabad
* Maintenance of libraries, etc.	Faridabad
* Milk market	Hubli-Dharwad

Source: Mehta, 1993a.

Private sector can be involved in provision and maintenance of infrastructure and services in a number of ways. Some of the common forms of public-private partnerships are Build-Operate-Transfer (BOT) and its variants, Build-Own-Operate (BOO), Contracting Out, Franchising, Leasing etc. In India, the municipal entities have been using contracting out more often while BOT options are increasingly being explored (Table 4.4). However, there are some key considerations that are important to keep in mind when involving the private sector in basic services. There can be "natural monopolies", such as in water supply sector, where a single supplier would be able to carry out the activity most efficiently. This could lead to a monopoly situation and to that extent it would be advantageous if the public sector provided the service. There are also "merit goods", goods and services that society considers to have special merit but that might be produced in insufficient quantity if left to private markets, such as health and education. These services would be better provided by the government itself or it could subsidise provision by the private market.

The Indian government's initiative on privatisation has been gradual and selective. There has been some divestiture of equity in public sector enterprises. In power, telecom and transport sector, explicit policies have been laid down for private sector participation and many domestic and international firms have begun operating in these sectors. In the urban infrastructure sector, there has been, in general, an acceptance of the policy of privatisation of municipal services, but it is left to the state and local governments to initiate these programmes.

Private participation in land development and housing has been prevalent for a number of years. The Government had taken a conscious decision to change its role from being a provider of housing to being a facilitator thus encouraging private participation in housing. Privatisation in infrastructure, such as water supply, drainage, solid waste management and mass transport has been slow but is increasingly being considered by the various government agencies. In these sectors it is the public-private partnerships that are more appropriate and have been adopted by many local governments. In the Indian situation where the users consist of a large number of poor, public-private partnerships rather than divestiture is considered an appropriate solution. Therefore, contracting out of some activities within the service is more acceptable as is evident in a large number of Indian cities (NIUA, 1995a; Mehta, 1993a; and NIUA, 1994b).

In all these contracting arrangements, the municipal governments save nearly 15 to 70 per cent of the cost of service provision (Table 4.5 and 4.6). Tax collection, particularly octroi tax collection, is increasingly being privatised. The tax yields, under such arrangements, are two to three times higher than what the municipal authorities could collect.

Many state municipal legislations have enabling provisions which allow privatisation of municipal services. Yet, the extent of privatisation is limited. In many cities, the private sector entrepreneurs are not available to take up contractual work. City governments are also not well

prepared for developing proper contract agreements and deciding on terms of the contract with respect to pricing, monitoring and evaluation. However, with proper capacity building efforts at the local level, privatisation of municipal services can become widespread.

This section reviews such partnerships in different sectors in the Indian context and also discusses the emerging approaches.

Table 4.5

**Financial Benefits from Using Private Sector
New Bombay, (1992-93)**

<p>Maintenance of water distribution system:</p> <p>CIDCO's cost</p> <p>Private contractor's cost</p> <p>Net saving</p>	<p>Rs. 600 per day</p> <p>Rs. 175 per day</p> <p>Rs. 425 per day</p>
<p>Solid Waste Management</p> <p>CIDCO's cost</p> <p>Private contractor's cost</p> <p>Net saving</p>	<p>Rs. 99.0 lakhs/year</p> <p>Rs. 42.6 lakhs/year</p> <p>Rs. 56.4 lakhs/year</p>

Source: CIDCO.

Table 4.6

Cost Savings due to Privatisation of Municipal Services in Rajkot

Services	Extent of Privatisation (%)	Original Costs (Rs '000)	Cost Savings (Rs '000)	Estimated cost savings as % of the original cost
Street lighting	33	1486	297	20.0
Solid waste collection	5	1697	261	15.4
Solid waste transport	70	18720	4320	23.1
Cleaning of public toilets	58	1116	717	67.7
Gardens	18	864	630	72.9

Source: Mehta, 1993.

Land Development and Housing

This is one area where the government is increasingly playing a facilitator's role and is encouraging private participation. Many different arrangements are prevalent in land development and housing.

One way in which private developers provide infrastructure in the area they develop is through Development Exactions. The development exactions require a developer to provide on-site infrastructure as a pre-condition to development approval by public agency. The costs are ultimately passed on to home buyers. Such development exactions are defined in the local town planning legislation or building code under sub-division regulations. The developer, according to the existing regulations in most cities, is required to provide on-site infrastructure including roads, drainage, water and sanitation, and provide land for public facilities like school, parks and playgrounds. Examples of such participation by private developers can be found in most large cities where private developers have developed housing colonies either within the city or just on the outskirts of the city.

Land adjustment methods, known as Town Planning Schemes are used in various parts of India and are well known in the states of Gujarat and Maharashtra. Under the Town Planning

Legislation, upto 30 per cent of the town planning scheme area is taken for roads and public facilities. In Gujarat, provisions exist for reservation of upto ten per cent of land for housing the urban poor. A betterment levy of upto 50 per cent of the incremental value of the plot is charged to each plot owner, to part finance the infrastructure costs. Betterment levy captures the increased capitalisation of land due to public infrastructure. The Town Planning Legislation is framed in such a way that it provides private land for public facilities without recourse to land acquisitions, and without paying any cash compensation to land owners.

One of the most common forms of involving private associations of residents to participate in the provision of housing is through Cooperative Housing Societies. In this form the public agency sells land, with off-site services provided, to housing societies, who in turn collect plot and construction costs from the members of the Society. This method of developing housing localities is very popular in the states of Gujarat and Maharashtra. It is also increasingly being used in other states of the country.

Public agencies often provide serviced land to plot holders so that houses could be constructed on the plots by the owners through Sites and Services Schemes. In these schemes the public agency sells plots to private individuals and provides on-site and off-site infrastructure. The infrastructure costs incurred by the public agency is built into the price of land and is paid for by the purchasers of the plot.

The City and Industrial Development Corporation of Maharashtra Ltd. (CIDCO) and Bombay Municipal Corporation have developed certain innovative methods of land acquisition to facilitate land development. These include transferable development rights (TDR) and development rights certificates (DRC). These are being implemented in some of the townships being developed by the agency. In TDR the owner (or lessee) of a plot of land which is reserved for public purpose is eligible for the award of transferable development rights in the form of floor space index (FSI) equal to the gross area of the reserved plot to be surrendered. Such FSI is made available to the land owner in the form of a development rights certificate, which is a negotiable instrument and which can be used by the owner or transferred to other persons. It is thus expected that land would be forthcoming from owners more willingly in this arrangement as the developmental rights of the land will be still available with the owner, to be used or traded in the market.

The CIDCO has used innovative public-private partnerships in developing land and housing colonies in the areas being developed by it. For instance, in New Bombay, CIDCO has used private architects and professionals to design, construct and manage housing development. Instead of using its own staff members to design and construct housing, which is the practice with most development agencies, CIDCO's new approach of using private architects and engineers

helps to cut down its own expenses of employing staff and also helps in bringing new designs into the normally monotonous designs of the public agency provided housing.

Another approach adopted by CIDCO is earmarking bulk land of 3 hectares each for construction of housing to prequalified builders/developers. Out of this land, 35 per cent of the area is earmarked for construction of CIDCO's houses with given specifications. In the remaining 65 per cent of the area the private builder constructs houses of his choice including the construction of neighbourhood shopping and other social amenities as per the layout approved by CIDCO and which the builder can directly sell to clients of his choice. The land will be allotted to pre-qualified builders on the basis of competitive bidding. In this approach CIDCO pays for its portion of houses on 35 per cent plot at a fixed sum per tenement to the builder.

Water Supply

Water supply is a sector in which examples of privatisation are the least although it is increasingly being considered. Examples exist of private sector involvement in maintenance through management contracts. The CIDCO has been using private contractors in the operation and maintenance of water supply in New Bombay as well as in other townships being developed by it, such as New Aurangabad, Waluj and Vasai-Virar. In New Bombay, private contractors have been used in maintenance and repair of pipelines, meter reading, billing and collection. In Varanasi and Lucknow, private contractors are being used for operation and maintenance of some of the tubewells in the city. This has proved to be cost effective as adding staff to the public agency is three times as expensive.

Other forms of privatisation in the water supply sector are also being considered in some of the Indian cities. In Tirupur, a small town near Coimbatore, a water supply scheme with an estimated cost of Rs. 2530 million has been proposed as a public-private partnership project. The New Tirupur Area Development Corporation Limited (NTADCL) is a special purpose entity created to implement the comprehensive Tirupur Area Development Plan (TADP) of which the water supply scheme is the main component. The scheme will be funded by NTADCL through debt and equity. A BOT operator will construct and operate the water supply scheme and after a stipulated period transfer the system back to the public agency. This will be the first water supply scheme to be developed through a public-private partnership arrangement. The work on this scheme is likely to start by the end of 1996.

In Hyderabad, a water supply augmentation scheme is being contemplated using a BOT arrangement. The BOT operator is expected to provide water at bulk rate to Hyderabad metro water authority. An announcement for bids has been made and responses have been received. A final decision, however, is yet to be taken.

Visakhapatnam has proposed a water supply augmentation project to draw water from Godavari River. This project is expected to cost Rs. 1890 million (1994 prices) of which Rs. 1000 million will be contributed by industries in the city. The remaining funds will come from the state public sector agencies, local governments in the area as well as from the State Government.

In Madras and Bombay a few private industries have put up waste water treatment plants to recycle water for industrial use. The Bombay Municipal Corporation is now charging for this recycled water also.

The unmet demands for municipal services has also developed an informal market for private services. This market is best described as 'uncontestable' market, because the demand for private sector services exist only in a situation of scarcity. Private provision of water through tankers is an example of such a market. Table 4.7 presents the differences in the price levels of water provided by private tankers and public agencies. Such high price differentials can not be sustained for the entire market. However, existence of such a water market is indicative of the upper levels of affordability of municipal services.

Table 4.7

Comparative Charges for Water

City	Prices (Rs./kl) charged by	
	Private tankers	Local Authority
Delhi	45	0.35
Madras	60	0.18
Surat	40	0.28
Solapur	35	0.05

Source: HUDCO (1985), Report of the Sub-Group on Commercialisation of Urban Infrastructure projects, New Delhi.

Solid Waste Management

Privatisation of solid waste management service in municipal bodies has been most widely accepted and used. Until recently, contracting out was the most prevalent form of public-private partnership arrangement adopted in most cities. Sweeping and collection, and transportation of waste from selected areas in many cities has been given to private contractors mostly on annual basis. As stated earlier, the local governments have been able to achieve significant cost savings by using private contractors.

Public-private arrangements such as BOT are increasingly being considered for generating energy from waste. In many Indian states efforts are being made to enter into MoU with private firms to convert municipal waste into compost or generate energy from waste.

In the city of Pune in Maharashtra, the city Corporation has already entered into an agreement with a private company to generate gas and power from municipal waste. The company has already put a pilot plant in the city. In Andhra Pradesh, in the city of Vijayawada the Municipal Corporation has entered into MoU with private companies for two separate projects - one using pelletisation technology and the other using cellrich technology for dealing with municipal waste. Landfill gas based power projects for three cities is also being considered. In Kerala, the Cochin Municipal Corporation has entered into a MoU with a private company to produce power from municipal waste. In Madhya Pradesh, the State Government has initiated preparation of projects of waste to energy in seven cities. In Haryana too, the State Government has constituted a Committee and has invited proposals on waste to energy projects in seven cities. Similar efforts are on in the states of Punjab and West Bengal. In Madras too, a private company has been engaged to produce energy from waste. In Bangalore and Ahmedabad pelletisation plants have been in existence for a few years which make fuel pellets from municipal waste. These plants have also been set up as public-private partnership ventures.

Roads

Road construction and maintenance is an activity in which local governments have been using private contractors for a long time. However, what is new is the use of BOT arrangement in the form of toll roads in various Indian cities.

The Rao-Pithampur link road was the first major privatisation effort in the surface transport sector in India. Pithampur is an industrial estate and a major growth centre in the state of Madhya Pradesh and is located close to the city of Indore. The 11.5 kms. toll road links Rao village and Pithampur Industrial Estate which was opened to traffic in November 1993. This toll road is a success story as the collections from toll have been so good that the road may be

transferred back to the government much earlier than envisaged as the promoter 'Infrastructure Leasing and Financial Services' is expected to be able to recover costs in eight years instead of the originally envisaged fifteen years.

Other toll roads are also being proposed in a number of cities in the country. Examples are the Panvel Bypass, the Airoli Bridge in Maharashtra, the Delhi-Noida Bridge, etc. The Jaisingpur Bypass in Maharashtra, which is a toll road, is also being constructed using private funds under BOT arrangement.

DOMESTIC CAPITAL MARKET

The domestic capital market has broadened in India since 1991. The size of new capital issues increased from Rs. 135 billion in 1991-92 to Rs. 323 billion in 1993-94. The stock market capitalisation was estimated to be Rs. 3984 billion in 1993-94. A major cause of this increase was the buoyancy in equity markets. Nearly 76 per cent of the new capital issues in 1993-94 were equity based (Mehta, 1995).

The debt market in India has also grown significantly with the volume of outstanding debts rising from Rs. 903 billion in 1986 to Rs. 2716 billion in 1994. However, a large portion of this debt is due to government borrowings in the open market. Of the new bond issues of Rs. 450 billion in 1994, the share of private sector bonds was 20 per cent, while share of government sector bonds was nearly 60 per cent. The debt market in India is thus dominated by government and public securities and comprises largely of small to medium term investments. The government borrowing in the open market has also crowded out private sector and other public institution borrowing. Short-run liquidity crisis has also pushed up the coupon rates on debt instruments to an all time high of 17 per cent with yield to maturity of over 20 per cent.

Under these market conditions, financing of urban infrastructure projects that have a long pay back period seems difficult. Very few infrastructure projects in India have taken recourse to market borrowing so far. However, with increasing integration of the financial markets in India, the required funds for infrastructure projects will have to be mobilised from the capital market.

The direct access to capital market has some advantages. If a local authority is perceived as a good credit risk by the market, its borrowing in the form of bonds can be the least expensive form of credit. In a well developed capital market, the local authority can choose its timings of the issue based on its own need rather than be dependent on governments at higher level or other institutions. However, urban local authorities and governments in India are not perceived as a good credit risk. Many urban governments have no credit history, or a poor credit history of non-payment of government loans. Under such circumstances, it is difficult to attract private and

corporate investors to subscribe to infrastructure bond issues. There are, however, many forms of credit enhancements that can be provided by the intermediary institutions, like bond banks, refinancing facilities and back-stop credit guarantee by specialised finance institutions.

For a financing system based on local direct access to capital markets, several prerequisites have to be met. Firstly, the investors must have sufficient information about the creditworthiness of the debt issuing agencies. In countries where municipal bonds are issued frequently, several credit rating agencies are available to rate the debt instrument. Secondly, there should be a large base of investment capital pool that seek a long-term investment in infrastructure bonds. In India, the corporate debt instruments are typically for upto seven years, while government debt instruments are for ten years. A municipal debt instrument of longer tenure may be unacceptable in the Indian capital market. But, if a strong secondary debt market develops, the investors would be willing to hold long-term bonds. Some fiscal incentives, like tax exemptions on interest and exemption from capital gains tax on bond trading will enable development of a Municipal bond market in India.

V. FINANCIAL RESOURCE REQUIREMENTS AND FLOWS

FINANCIAL RESOURCE REQUIREMENT

Accurate estimates of financial resource requirements for urban infrastructure are difficult to arrive at. The costs of desired service levels are dependent on a number of factors such as the technology used, topography and geology of the urban area, past investments in a particular service, the size of population and the geographical area to be covered. Despite these difficulties, various efforts have been made in India to evolve supply norms and standards of urban infrastructure and compute average per capita costs (See NIUA, 1995b for a review of these). The recommended physical norms of infrastructure services are given in the enclosed table (Table 5.1).

Table 5.1

Minimum Physical Standards of Services

Service	Sector	Minimum levels of services to be obtained in the next 5 years		Remarks
		Population/Area target	Service level target	
I. Water supply	Urban	<ul style="list-style-type: none"> • 100% population to be covered. 	<ul style="list-style-type: none"> • Piped water supply with sewerage: 150* lpcd • Piped water supply without sewerage: 70* lpcd • 40 lpcd with spot sources/standposts (* Including wastage of water - roughly 20%) 	<ul style="list-style-type: none"> • Public stand posts in the low income settlements. • One source for 20 families within a walking distance of 100 metres.
	Rural	<ul style="list-style-type: none"> • 100% population to be covered including 'No Source' hard core problem villages in some states. 	<ul style="list-style-type: none"> • 40 lpcd of safe drinking water. • Additional 30 lpcd in drought prone areas for cattle needs. 	<ul style="list-style-type: none"> • One hand pump/spot source for 250 persons within a walking distance of 1.6 km. or elevation difference of 100 mt. in hilly areas, to be relaxed as per field conditions applicable to arid, semi-arid and hilly areas.
II. Sanitation/ Sewerage	Urban	<ul style="list-style-type: none"> • 100% city area to be covered by sewerage system with treatment facilities in large urban centres. • Low cost sanitation methods for other urban areas. 	<ul style="list-style-type: none"> • <u>Large city</u>: Full coverage by sewerage with treatment. • <u>Medium town</u>: Public sewers with partial coverage by septic tanks. • <u>Small town</u>: Low cost sanitation methods. 	<ul style="list-style-type: none"> • In low income areas of large cities, community latrines may be provided.
	Rural	<ul style="list-style-type: none"> • All households to be provided access to safe sanitation. • Elimination of manual scavenging by using low cost sanitary methods. 	<ul style="list-style-type: none"> • Low cost sanitary methods of disposal:- Sanitary latrines of different models may be used such as round concrete plate with lining (single pit), square brick/concrete plate with/without lining (single pit with provision of double pit), etc. 	

III. Solid waste collection and disposal	Urban	<ul style="list-style-type: none"> All the solid waste generated should be collected and disposed. 	<ul style="list-style-type: none"> 100% collection of generated waste, with its proper disposal. Hazardous wastes such as hospital wastes must be incinerated in all cases. Whereas mechanised composting and incineration is recommended for large urban centres, sanitary land fill method of disposal may be used in small and medium towns. 	Keeping in view the refuse generation level and its composition, each local body should determine the requirements of collection bins/ collection centres, kind of transport vehicles to be used, staff deployment for various activities, type of treatment to be given to the collected wastes, etc.
	Rural	<ul style="list-style-type: none"> All the solid waste generated should be collected and disposed. 	<ul style="list-style-type: none"> Composting or bio-gas generation from organic waste. 	
IV. Primary education	Urban and Rural Both	<ul style="list-style-type: none"> Fulfillment of national goal of universalisation of elementary education for children upto 14 years of age. 	<ul style="list-style-type: none"> Provision of primary school in all areas of the country as per the following guidelines: <ul style="list-style-type: none"> At least three reasonably large all weather rooms with teaching material At least one teacher per class room/section One primary school for every 3000-4000 population, Area: 3 acres; seats/school: 300-400 	In order to improve enrolments at the upper primary stage specially for girls, the walking distance of school should normally be 2 kms. In case of primary schools, this standard is 1 km.
V. Primary health care	Urban & Rural Both	<ul style="list-style-type: none"> Fulfillment of national goal of health for all by 2000 AD. 	<ul style="list-style-type: none"> One PHC for 20,000 - 30,000 population. One sub-centre for 3000-5000 population. One community health centre for one lakh population. 	Primary health care has been accepted as the main instrument for achieving the goal of 'Health for All'.

Source: NIUA (1995b), Working Group report on Norms and Expenditure for Infrastructure, prepared for the Fourth National Seminar of State Finance Commissions, New Delhi, November, 1995.

For estimation of financial requirements of urban infrastructure, these physical norms have to be converted into financial norms. The Task Force on Housing and Urban Development had attempted to evolve per capita investment norms for various urban civic services in 1983. These are presented in Table 5.2.

Table 5.2**Estimates of Per Capita Investment Norms, at 1995 Prices**

(in Rs.)

Nature of service	Low	High
Water supply		
a. Surface system	742	1022
b. Ground water	584	876
Sewerage/Sanitation		
a. Water borne sewerage	1022	1460
b. Septic tank	584	657
c. Pit latrines	350	438
Solid waste disposal	73	117
Storm water drains	219	292
Roads	584	175
Street lights	175	876
Average costs	2366	3260

Source: Planning Commission (1983), Task Force on Housing and Urban Development, Vol. II, Financing Urban Development, Government of India.

Note: The Planning Commission (1983) norms are updated to 1995 prices.

The aggregate incremental investment requirements for urban infrastructure sector in India is computed by using the per capita investment norms and projected urban population. The straight line method has projected urban population at 307 million in 2001 and 426 million in 2011 (Table 5.4). The authors estimate that owing to the persistence of high rate of growth of the economy and the likely investments that will take place in and around the urban centres, the urban population will be much higher at 365 million in 2001 and 530 million in 2011.

The required incremental investment for various urban services for the decades 1991-2001 and 2001-2011 are given in Table 5.3. While the required aggregate incremental investment in infrastructure arrived at on the basis of low and high population projections is given in Table 5.4. The range of required investments during the decade 1991-2001 is Rs. 250 billion to Rs. 583 billion. On an average, if average technology is used and if urban population growth is between the high and low projections, the investment requirements will be Rs. 398 billion for 1991-2001 and Rs. 435 billion for the decade 2001-2011.

Table 5.3**Required Incremental Investment for Various Urban Infrastructure Services**

Nature of services	Incremental Investments at 1995 prices (in billion Rs.)			
	1991-2001		2001-2011	
	Low	High	Low	High
Water supply	70.2	165.1	92.7	184.0
Sewerage	68.2	149.9	91.2	165.0
Solid waste	7.6	34.8	10.2	22.7
Storm water drains	23.2	50.2	30.6	56.6
Roads	64.8	152.3	81.7	169.8
Street lights	15.6	30.4	24.5	33.9
Total	249.6	588.7	330.9	632.0

Note: Calculations are based on per capita investment (PCI) norms of Table 5.2. The lower estimates refer to lower PCI norms and low urban population projections, while high estimates refer to higher PCI norms and high urban population projections.

Table 5.4**Required Aggregate Incremental Investment in Infrastructure at 1995 prices**

Year	Urban population (million)		Incremental Investments (in billion Rs.)			
	Low	High	For low population projection		For high population projection	
			Low	High	Low	High
1991	217	217	-	-	-	-
2001	307	365	250	348	411	583
2011	426	530	331	388	390	632

Note: The incremental requirements for the decade 1991-2001 also include an additional 17.5 per cent costs of meeting the present deficiencies related to water supply and sanitation by 2001. The PCI norms of Table 5.2 are used to compute additional investments for the decade 2001-2011.

AGGREGATE FINANCIAL FLOWS FOR URBAN INFRASTRUCTURE

Financing of urban infrastructure in India is through budgetary allocations of central, state and local governments, grants and loans from multilateral or bilateral agencies or through institutional lending. The allocations of plan funds are a major source of financing of urban infrastructure. Institutional funding of urban infrastructure is through Life Insurance Corporation (LIC) and Housing and Urban Development Corporation (HUDCO). Some grant and loan funds are also provided from multilateral and bilateral agencies. The details of the finance from all these sources is described below.

Plan Funds

The central and state budget allocations are indicated in the Five Year Plans. For example, the aggregate outlay for the Eighth Five Year Plan on urban water supply and sanitation was Rs.2,630 million in the central plan and Rs.54,942 million in the state plans. Table 5.5 provides the expected expenditure under various plan schemes for the first four years of the Eighth Plan period. The total expenditure under central plan is Rs.1,957 million, and under state plan it is Rs. 39,659 million.

In addition, under the head of urban development, the central plan provides infrastructure funds through the Integrated Development of Small and Medium Towns (IDSMT) programme and the recently introduced Mega City Project. A provision of Rs.1,450 million was made during 1992-97 for the IDSMT programme and approximately Rs. 800 million has been released during 1992-96. Under the Mega City Project, five mega cities of Calcutta, Bombay, Madras, Hyderabad and Bangalore have been selected. The scheme was launched in 1993 with a total outlay of Rs.7,000 million, of which Rs.2,285 has been released by the central government during 1993-96 for projects in the five cities.

On the whole, the central government during the past four years has provided Rs.1,957 million for water supply and sanitation, Rs. 800 million for IDSMT and Rs. 2,285 million for Mega City projects. Thus, a total release of Rs. 5,043 million in four years or Rs.1,261 million per year has been provided by the central government. The states have, on an average, provided Rs. 9,914 million each year during the period 1992-96 for urban water supply and sanitation.

Table 5.5

Water Supply and Sanitation - Outlays and Expenditure for Eighth Plan

(in million Rs.)

Scheme	Eighth Plan (1992-97)	At current prices					
		1992-93	1993-94	1994-95		1995-96	1992-96
	Agreed outlay	Actual expenditure	Actual expenditure	Outlay	Anticipated expenditure	Approved outlay	Total
A. State and UTs Plan 1. Urban water supply and sanitation	54942	8944	9942	14767	13874	16840	39659
B. Central Plan 1. Ministry of Urban Affairs and Employment a. Centrally sponsored urban low-cost sanitation scheme for liberation of scavengers	1500	216	258	258	250	278	744
b. Centrally sponsored accelerated urban water supply programme for small towns with population less than 20,000	500	-	117	160	173	200	373
c. Other schemes	630	44	187	146	630	165	840
Sub-total (Central Plan)	2630	260	562	564	1053	643	1957
Grand total (A+B)	57572	9204	10504	15331	14927	17483	41616

Source: Housing and Urban Division, Planning Commission, New Delhi.

Domestic Institutional Lending

The two domestic financial institutions providing finances for urban infrastructure are Life Insurance Corporation (LIC) and Housing and Urban Development Corporation (HUDCO). The LIC was formed in 1956 when life insurance business was nationalised in India. The Section 276 of the Insurance Act requires that 25 per cent of its investible surplus be invested in public undertakings or for infrastructure like water, drainage, housing, power and transport. It has advanced Rs.12,561 million so far for urban water supply and sewerage schemes and the outstanding loans of LIC were Rs.8,165 million in March 1995. During the three year period, 1992-95, LIC has advanced Rs.2,664 million or Rs. 888 million per year (Table 5.6).

HUDCO, established in 1971, has had its principal focus on housing finance. Its infrastructure window began financing urban infrastructure projects since 1991. It has so far released Rs. 13,871 million for infrastructure projects. During the four year period, 1992-96, it has released Rs. 11,188 million, or on an average, Rs. 2,797 million each year.

Table 5.6

Institutional Finances for Urban Infrastructure

(in million Rs.)

Year	Loan Releases/Disbursement	
	LIC	HUDCO
1992-93	1030	1377
1993-94	814	1492
1994-95	820	3414
1995-96	-NA-	4905
Total	2664	11188

Source: LIC: Annual Reports 1992-93, 1993-94, 1994-95.
HUDCO: Urban Infrastructure Wing Release Details, Report No.3, 31 March 1996.

External Aid for Urban Development Projects

Several state governments have been implementing externally aided projects with the assistance of multilateral or bilateral agencies. The World Bank has provided significant finances for urban development projects related to sites and services, transport, low cost sanitation, water supply, sewerage and slum upgradation.

Table 5.7 provides details of the World Bank assisted urban development projects. The annual flow of funds from the World Bank has been Rs.1,856 million for all the state urban projects, of which nearly 60 per cent, or Rs.1,114 million is estimated to be for urban infrastructure projects.

Table 5.7

World Bank Assisted Urban Development Projects

(in million Rs.)

Name of the Project	Project cost		Date of commencement	Closing date	Cumulative expenditure upto March, 1995	Annual flow of funds
	Original	Revised				
Bombay Urban Development Project	2823	5544	9/85	9/94	4358 (upto 30.9.94)	484
Gujarat Urban Development Project	1652	2080	11/85	12/94	1485 (upto 30.9.94)	165
Uttar Pradesh Urban Development Project	2461	3461	2/88	3/95	2638	376
Tamil Nadu Urban Development Project	6325	6325	3/88	3/95	5862	831
Total	-	-	-	-	14343	1856

Source: Planning Commission, Annual Plan 1995-96, Government of India, New Delhi.

In addition, the Overseas Development Administration of the Government of UK (ODA-UK) has taken up slum improvement projects in the states of Andhra Pradesh, Madhya Pradesh and West Bengal. Two projects in the cities of Cuttack (Orissa) and Cochin (Kerala) have also been recently initiated. The total expenditure by ODA-UK on these projects was Rs. 1,616 million during 1990-95 or Rs. 323 million per year. Under this programme, nearly 30 per cent or Rs. 107 million per year was estimated to be spent on providing infrastructure in slum areas.

Table 5.8 summarises the flow of finances for urban infrastructure in India. Of the total annual flow of Rs. 16,080 million, nearly 70 per cent is due to the budgetary allocations of the state and central governments. The share of domestic institutional lending is 23 per cent, while external aid accounts only for 8 per cent of total annual flow. This annual flow of funds is far short of the required investment of Rs. 39,800 million per year in urban infrastructure. The internal resources of municipal governments and infrastructure agencies are not sufficient to bridge the resource gap of Rs. 23,720 million per annum until 2001.

Table 5.8

Flow of Funds for Urban Infrastructure in India

Source/Agency	Estimated annual funds (in million Rs.)
<u>Plan Funds</u>	
Central- Water Supply and Sanitation	489
Urban Development	771
State - Water Supply and Sanitation	9914
	11174 (69.5%)
<u>Institutional</u>	
LIC	888
HUDCO	2797
	3685 (22.9%)
<u>External</u>	
World Bank	1114
ODA-UK	107
	1221 (7.6%)
Total Annual Flow	16080

Table 5.9

**Estimated Financial Needs of Operation and Maintenance
of Municipal Services, at 1995 prices**

(in billion Rs.)

Year	Requirement	Internal Resource Generation	Estimated gap for O & M
1991	53.94	45.12	8.82
1995	293.07	244.94	48.13
2001	729.44	545.28	184.16

Source: NIUA, 1995b.

Note: These estimates of O & M requirements are based on Zakaria Committee norms.

In addition to the investment gap, there is also likely to be a gap in meeting the operations and maintenance requirements, if the present pricing policies and municipal tax rates continue to prevail. NIUA (1995b) estimated an annual gap of Rs. 8.82 billion at 1995 prices in the year 1991 itself. The cumulative deficits of operations and maintenance is likely to mount to Rs. 184 billion by the year 2001 (Table 5.9).

VI. STATUS OF MUNICIPAL FINANCE

Municipal Governments in India have been in existence for many years. The first municipal corporation was created by a Royal Charter in Madras in 1688. There are now 3253 municipal bodies in India. These are classified into four categories, namely, municipal corporations, municipalities (municipal councils, boards and committees), town area committees and notified area committees. The Municipal Corporations and Municipalities are fully representative bodies, while the notified area committees and town area committees are either fully or partially nominated bodies. Under the recent Constitution (74th) Amendment, the latter two categories of towns will be designated as municipalities or Nagar Panchayats with elected bodies.

Until the amendments in state legislations, which were made in May 1994, municipal authorities were organised on the basis of the 'ultra vires' principle and the state governments were free to extend or control the functional sphere through executive decisions without an amendment to the legislative provisions.

Among all urban local governments, municipal corporations are distinguished as the ones enjoying a greater degree of fiscal autonomy and functions. Although the specific fiscal and functional powers vary across the states, these local governments have larger populations, a more diversified economic base, and deal with the state governments directly. On the other hand, municipalities have less autonomy, smaller jurisdiction and have to deal with the state governments through the Directorate of Municipalities or through the collector of a district. These local bodies are subjected to detailed supervisory control and guidance by the state governments (Mehta, 1996).

RESOURCE STRUCTURE

Municipal governments derive resources from tax and non-tax sources. They also receive funds from the state governments as grant-in-aid or as a share in taxes collected by the state government. The various sources of tax, non-tax and transfer revenues are listed in Table 6.1.

Table 6.1

Major Sources of Income for Municipal Bodies in India

Source	Components
I. Internal (own) sources	
Taxes	Property taxes; tax on vehicles, animals, trade and callings and professions: theater/show tax; tax on advertisement, boats, etc.
Non-tax Revenue	Rents from municipal assets, income from municipal undertakings; user charges, fee and fines; income from municipal investments; etc.
II. External sources	
Grant-in-aid	General purpose, specific purpose; and grants in lieu of taxes
Shared taxes	Entertainment tax; motor vehicle tax; land revenue, stamp duties, profession tax, etc.

Source: Municipal Acts of various states.

There is little variation among the states in the matter of taxation powers entrusted to municipalities. However, significant variations exist across states in the application of the tax powers and the rate structure of taxes. The levy of octroi (tax on goods and commodities) in some states and its absence in others is one such example. Property tax though levied in all the states, varies considerably in terms of rates, valuation, assessment procedures, and exemptions.

Trends in Municipal Finance

The resource base of municipal bodies in India is extremely small in aggregate terms. The share of municipal expenditure in the total public sector expenditure in India, declined from nearly 8 per cent in 1960-61 to 4.5 per cent in 1977-78 and was estimated to be 3 per cent in 1986-87 (NIPFP, 1995). The revenues of municipalities were 2.87 per cent of the total government revenues in 1991-92 (Table 6.2). The high share of central and state government, relative to municipal governments suggest that the fiscal powers of urban local governments are extremely limited. The level of municipal resources, despite the various tax and non-tax sources of revenue described earlier, has also remained quite low in comparison with the level of revenues of the central and state governments.

This limited fiscal power has been a major reason for the present state of municipal finance. Various studies, eg. NIUA, 1983; NIUA, 1987; NIUA, 1989; NIUA, 1994; and NIPFP, 1995; have indicated a poor state of municipal finances. Some of the key results of these studies are reviewed here.

Table 6.2**Revenues of the Centre, States and Municipalities, 1991-92**

Level	Total revenue (in billion Rs.)	Per capita revenue (Rs.)
Centre	833.2 (61.41)	967
States	484.6 (35.72)	574
Municipalities	39.0 (2.87)	205
Total government revenue	1356.8 (100.00)	

Source: NIPFP, 1995.

Note: Figures in parentheses are percentages.

The revenue structure of municipalities in India is presented in Table 6.3. It shows that the relative share of own sources of revenues to transfer has declined. On the other hand, the share of tax revenues has increased while the share of non-tax revenues has declined substantially between 1960-61 and 1979-80.

Table 6.3**Revenue Structure of Municipal Finance in India**

(in million Rs.)

Source of revenue	Municipal revenue (at current prices)		
	1960-61	1974-75	1979-80
Own sources:			
Tax	371.11 (60.43)	1968.2 (63.19)	5836.9 (69.82)
Non-tax	148.3 (24.15)	475.7 (15.27)	669.3 (8.0)
Transfers	94.5 (15.39)	670.5 (21.52)	1852.3 (22.16)
Total	613.91 (100.00)	3114.4 (100.00)	8358.5 (100.00)

Source: NIUA, 1994.

Note: Figures in parentheses are percentages.

Table 6.4 provides information on few selected states in India for which more recent information is available. The trends in municipal finance in certain states are quite different from the aggregate national data presented in Table 6.2. The revenue income from own-sources of finances has risen rapidly in the states where municipalities levy octroi. In these states, over 90 per cent of the municipal expenditure is met by the own sources of revenue. However, in non-octroi states, the own sources of revenues have not kept pace with the total expenditure. In all the states, except Assam, the ratio of own source revenue to total expenditure has been declining. Municipalities in these states were able to meet most of their expenditure through their own sources in 1974-75 but have now become dependent on the state government transfers. The extent of such transfers is quite high in West Bengal.

Table 6.4
Trends in Municipal Finance in Selected States
(at Current Prices)

(in Rs.)

States	Per capita own source revenue			Per capita total revenue expenditure		
	1974-75	1979-80	1992-93	1974-75	1979-80	1992-93
Octroi states						
Gujarat	67.7	98.0	486.25	85.9 (78.81)	119.40 (82.08)	501.56 (96.95)
Maharashtra	103.4	149.0	775.80	107.2 (96.46)	131.4 (113.39)	877.2 (88.44)
Punjab	41.9	78.0	275.66	40.5 (103.46)	55.2 (141.30)	298.2 (92.44)
Non-octroi states						
Andhra Pradesh	37.3	38.0	89.55	28.3 (131.80)	53.9 (70.50)	163.26 (54.85)
Assam	13.7	11.0	43.75	18.5 (74.05)	20.0 (55.00)	59.57 (73.44)
Kerala	28.3	46.0	146.62	22.3 (126.91)	37.0 (124.32)	190.95 (76.78)
West Bengal	33.4	28.0	44.74	41.0 (81.46)	54.6 (51.28)	121.88 (36.71)

Source: NIPFP, 1995.

Note: Figures in parentheses indicate percentage of per capita own source revenue to per capita total revenue expenditure.

City Size and Municipal Revenues

Population of a city also indicates concentration of economic activities. The population size is thus a good proxy for economic base of the city. Recent information on municipal revenues by size class of municipalities is not available. The analysis available in NIUA (1987), shows wide variation in per capita income and expenditure across city sizes. These are likely to be borne out by recent data as well.

Table 6.5 shows that the per capita income has declined or stagnated for all sizes of municipal bodies between 1979-80 and 1983-84. While, the per capita incomes of metropolitan cities have remained nearly four times higher than the small towns, the expenditures have increased from two-and-a-half times to four times. The expenditures in smaller towns were at the same level as in the past, whereas in class-I cities and metropolitan cities, there has been a sharp increase.

Table 6.5

**Per Capita Income and Expenditure of Municipal Bodies
at Constant Prices, according to Size Class of Cities**

Size-Class	Income (Rs.)		Expenditure (Rs.)	
	1979-80	1983-84	1979-80	1983-84
Million +	166.5	162.8	107.0	156.6
100,000 - 1,000,000	83.0	83.2	66.9	82.8
50,000 - 100,000	65.2	64.4	51.3	66.6
20,000 - 50,000	48.6	47.1	41.8	47.7
Less than 20,000	46.0	44.6	42.0	46.4

Source: NIUA, 1987.

Composition of Revenue Income

Table 6.6 provides the shifts in composition of revenue incomes of municipalities in selected states. In octroi states, though the share of own sources of municipal revenues has increased, there is a noticeable shift towards greater receipts from non-tax sources. The share of non-tax receipts in Maharashtra has risen from 6.11 per cent in 1979-80 to 25.16 per cent in 1992-93. Similar trend is observed in non-octroi states, where despite the decrease in share of own resources, the share of non-tax revenues has increased. It appears that municipalities in India have placed a greater emphasis on user charges and other sources of income in recent years.

In the states where octroi either is abolished or not levied, property taxes constitute a major source of tax revenues (Table 6.7). Property tax receipts often include service taxes on water supply, drainage, sewerage, lighting, education, etc.

Though the property tax is the most important tax source of revenue particularly for the municipal bodies of non-octroi states, its yield is not very significant. This tax is not a buoyant source of revenue for the municipalities. It does not reflect the large scale escalation in the real estate prices that has occurred in urban areas.

Assessment of property tax and its enforcement has been a matter of debate in the country for a very long time. It suffers from the problems of narrow base, persistent under valuation, high tax rates, and poor collection efficiency. Property tax in India is levied on the basis of rateable value of the property. The rateable value is usually defined as the rental value which the property would fetch if it were rented out. In practice, however, the rateable value estimates are frozen due to rent control legislations which prescribe standard rents. The valuation is also often arbitrary and provides discretionary powers to the assessors.

A few states in India, notably Tamil Nadu and Andhra Pradesh, have rationalised their assessment procedures and many other states are moving towards valuation procedures that are simple and transparent. The property tax receipts are likely to increase as a result of these measures.

Besides property tax, octroi is an important source for urban local governments in Gujarat, Maharashtra and Punjab. In these states, octroi resources constitute more than 50 per cent of total own sources of revenues. However, despite the buoyancy and dominance of octroi in municipal revenues, it is one of the most debated local taxes in India.

Table 6.6
Composition of Revenue Income of Municipal Bodies in Selected States

States	1979-80						1992-93					
	Total income		Own sources		Transfers	Misc.	Total income	Own sources		Transfers	Misc.	
			Tax	Non-tax				Total own sources	Tax			Non-tax
Octroi states												
Gujarat	798.61 (100.00)	602.52 (75.45)	57.47 (7.20)	659.99 (82.64)	138.62 (17.36)	-	5980.96 (100.00)	4280.90 (71.58)	1068.28 (17.86)	5349.17 (89.44)	631.78 (10.56)	-
Maharashtra	2695.97 (100.00)	2258.60 (83.78)	164.71 (6.11)	2423.31 (89.89)	272.66 (10.11)	377.83 (2.57)	14692.50 (100.00)	9828.67 (66.90)	3696.05 (25.16)	13524.73 (92.05)	789.95 (5.38)	377.83 (2.57)
Punjab	149.58 (100.00)	133.77 (89.43)	12.36 (8.26)	146.13 (97.69)	3.45 (2.31)	29.22 (2.01)	1456.61 (100.00)	1056.34 (72.52)	207.11 (14.22)	1263.45 (86.74)	163.94 (11.25)	29.22 (2.01)
Non-octroi states												
Andhra Pradesh	532.93 (100.00)	268.69 (50.42)	46.43 (8.71)	315.12 (59.13)	217.81 (40.87)	64.66 (3.46)	1868.14 (100.00)	811.27 (43.43)	225.71 (12.08)	1036.98 (55.57)	766.50 (41.03)	64.66 (3.46)
Assam	38.69 (100.00)	13.36 (34.53)	4.34 (11.22)	17.70 (45.75)	20.99 (54.25)	8.94 (13.69)	65.29 (100.00)	26.66 (40.83)	20.06 (30.72)	46.71 (71.54)	9.63 (14.75)	8.94 (13.69)
Kerala	175.25 (100.00)	122.85 (70.10)	29.49 (16.83)	152.34 (86.93)	22.91 (13.07)	89.87 (10.50)	855.93 (100.00)	429.03 (50.12)	184.71 (21.58)	613.74 (71.70)	152.32 (17.80)	89.87 (10.50)
West Bengal	632.03 (100.00)	252.80 (40.00)	61.72 (9.77)	314.52 (49.76)	317.51 (50.24)	45.34 (8.72)	519.67 (100.00)	128.20 (24.67)	56.89 (10.85)	185.09 (35.62)	289.24 (55.66)	45.34 (8.72)

Source: NIUA and NIPFP data base.

Note: Percentages of total revenue income are given in parentheses.

Table 6.7

Composition of Municipal Taxes, 1992-93

(in million Rs.)

States	Total own resources	Property tax	Advertisement tax	Tax on vehicle boats and animals	Betterment levies	Profession tax	Trade and callings	Entertainment tax	Octroi	Show tax	Others
Non-octroi states											
Andhra Pradesh	1036.98	718.05 (69.24)	8.50 (0.82)	4.40 (0.42)	55.34 (5.34)						24.98 (2.41)
Assam	46.71	16.94 (36.27)	0.06 (0.13)	0.57 (1.22)	1.60 (3.43)	2.19 (4.69)	2.18 (4.67)	0.01 (0.02)			3.10 (6.64)
Kerala	613.74	227.45 (37.06)	2.85 (0.46)		0.01	27.77 (4.52)	1.29 (0.21)	167.84 (27.35)		0.74 (0.12)	1.06 (0.17)
West Bengal	185.09	120.63 (65.17)	0.17 (0.09)	1.03 (0.56)	2.56 (1.38)						3.82 (2.06)
Octroi states											
Gujarat	5349.17	1063.24 (19.88)		13.51 (0.25)				4.46 (0.08)	3170.21 (59.27)		29.49 (0.55)
Maharashtra	13524.73	2121.91 (16.21)	1.38 (0.01)	32.18 (0.24)	95.38 (0.71)	0.09	0.71 (0.01)	6.90 (0.05)	7470.93 (55.24)		29.20 (0.22)
Punjab	1263.45	127.43 (10.09)	4.01 (0.32)	0.52 (0.04)	3.97 (0.31)		0.24 (0.02)	3.10 (0.25)	909.11 (71.95)		7.95 (0.63)

Source: NIPFP data base.

Note: Figures given in parentheses are percentage to the total own sources which includes tax and non-tax revenues.

The transport sector has vehemently lobbied for abolition of octroi, on account of costs arising from loss of time and wastage of fuel due to delays at octroi collection points. There are also economic arguments for abolition of octroi on the ground that it is not a true local tax. It is argued that taxation of intermediate and capital goods entering the city has a cascading effect on the price of the final product. This final product is sold in the national market. The incidence of octroi is not only on the local resident but also on the consumers who reside outside the urban area. For these resources, it is argued that octroi can not be considered as a local tax and it should be abolished from the domain of the local governments' taxation powers.

Various national and state level committees in India have examined the issue of abolition of octroi. Many states, for instance, Madhya Pradesh, Karnataka, Uttar Pradesh, Himachal Pradesh, Delhi, have abolished octroi. However, alternative sources of buoyant local revenue have not been found. Unless an elastic and buoyant source like octroi is replaced by an appropriate alternative source, states of Gujarat, Maharashtra, Punjab and Haryana have decided to continue to permit levying of octroi by municipal governments.

Other local taxes like tax on advertisements, vehicles and animals, profession tax, tax on trade and callings, etc. do not contribute a significant amount. Entertainment tax, is an important source of municipal revenue in Kerala but in other states it contributes very little to the municipal revenues.

Fiscal Transfers

The state legislations devolve a number of functions related to provision of essential sources, regulation of building and economic activities and public health to municipal governments. Many of these functions are obligatory. State governments also assign other functions such as primary education, prevention health and poverty alleviation. However, the revenue generation capacity of municipal governments is not matched adequately with the functional responsibilities. Fiscal transfers from state to local governments are necessary to correct the functional and fiscal mis-matches.

Fiscal transfers comprising of grant-in-aid and shared taxes are an important source of revenue for municipal governments, especially in the non-octroi states. In Andhra Pradesh and West Bengal, such transfers account for more than 40 per cent of the municipal revenues. An important characteristic of the system of transfer in India is that there are large differences in the level of transfers among municipalities of the same state. For instance, Mathur (1996), shows that the lowest and the highest per capita grant of municipalities in West Bengal are Rs. 0.09 and Rs. 90.17.

Transfers through sharing of tax receipts account for approximately 15 per cent of total municipal revenue income. Transfers due to grants is about 18 per cent of municipal revenues (Mathur, 1996). The specific purpose grants are a dominant form of grants.

The taxes shared between the state government and municipalities include entertainment tax, motor vehicle tax, stamp duties, professional tax and entry tax. The mode of sharing of these taxes differ widely across states. In some states, entertainment taxes are allocated on the basis of actual receipts, while in others it is shared on the basis of population. Other taxes are not shared in any rational manner between cities in the same state.

General purpose grants are given to municipalities to meet the increases in administrative expenditure. Dearness Allowance grants are given by many states to enable municipal governments to meet the increasing wage bill. Octroi compensation grants are given in Karnataka, Uttar Pradesh and Madhya Pradesh. Grants in lieu of professional tax is given in Andhra Pradesh.

A systematic evaluation of the fiscal transfer between state and urban local governments has not been made. However, the studies of a few states suggest that the present system of transfer is ad-hoc and irregular. The local bodies often receive funds at the end of the financial year. This makes it impossible for the municipal bodies to realistically assess their total resources and plan their activities. "Absence of predictability and stability in the level of transfers is one of the most significant weaknesses of the existing transfer system in India" (Mathur, 1996).

The State Finance Commissions, constituted under the Constitution (Seventy Fourth) Amendment Act, 1992 are expected to make recommendations on the principles of transfers and rationalise the present ad-hoc system. It is likely that the SFC's recommendations will lead to reduction of the fiscal gap between the expenditure requirements and the available resources. The SFCs will also devote their attention to the issues of equity, i.e. ensuring that all urban local bodies have sufficient resources to provide basic minimum services. They will also relate the transfers to the fiscal capacity of municipality and the tax efficiency of municipalities. Through these recommendations, it is expected that the present structure of municipal revenues will improve significantly in the near future.

MUNICIPAL EXPENDITURE

Municipal governments in India are vested with a range of functions through the state legislature and other administrative orders. Expenditure to carry out these functions are to be met by the municipal governments through their own resources and specific-purpose grants. The main categories of functions common to all urban local bodies in India are:

- a) Water supply, sanitation, public health and conservancy
- b) Roads, bridges and street lights
- c) Provision of social facilities - parks, playgrounds, dispensaries, primary and pre-primary school
- d) Provision of measures for public safety and fire fighting
- e) Regulation and control of buildings and urban development.

In addition to the above, the Constitution (Seventy Fourth) Amendment Act, 1992 has also identified, "preparation of plans for economic development and social justice" as one of the major functions of the municipal government. It has also provided an illustrative list of eighteen functions, which go far beyond the above listed traditional functions.

Municipal governments are, however, constrained in discharging their obligatory functions due to a limited resource base. The low per capita receipts of municipal governments do not enable them to meet the minimum standards of services. On the whole, the status of municipal finance in India suggests that the present revenues are insufficient to meet the growing expenditure needs of urban areas. Improved financial management is required to increase efficiency in revenue collection and expenditure control. The present level of municipal expenditures are far below the norms suggested by the Zakaria Committee in 1964. For the municipal governments to reach these recommended expenditure norms, their revenue receipts will have to increase significantly. It is expected that the State Finance Commissions would examine the magnitude of municipal fiscal gap and recommend measures to augment municipal resources.

Municipal governments are legally required to have a balanced budget. The municipal expenditures are thus conditioned by the level of resources available. In the states where the municipal receipts are very low, the municipal expenditures are also low. These low expenditures have a crucial impact on the quality and nature of services provided by the municipality. Often, the repairs and maintenance of services is poor and the expenditure on capital works is postponed.

The trend of municipal expenditure suggests rapid growth in aggregate expenditures in relation to the receipts from our revenues. In 1974-75, the per capita revenue expenditures in most states were primarily met from own sources of municipal revenues. However, over time municipal governments have been unable to keep pace with the rapid rise in expenditures. The gap between per capita expenditure and own revenues has been rising in all the states, except Gujarat and Assam (Table 6.4).

The wide variations across the selected states in per capita expenditure also suggests the ability of municipal governments to deliver essential services. The low per capita expenditure of Rs.59 in Assam and Rs. 121 in West Bengal, is also reflected in the level of essential services. The access to safe drinking water is available to only 40 per cent of the urban population in Assam and to 59 per cent in West Bengal as against the national average of 84 per cent. Similarly, sanitation facilities are available to only 4 per cent of the urban population in Assam and 21 per cent in West Bengal as against the national average of 44 per cent. Municipalities in the states of Maharashtra and Gujarat spend a much higher amount than other municipalities in the country. Correspondingly, service levels in urban areas of these states are much better than in other states.

The pattern of municipal expenditure for municipalities of selected states in India is presented in Table 6.8. It is observed that general administration, public works and public health account for the bulk of municipal expenditure. Expenditure on public health includes conservancy, drainage and preventive health care. Public work expenditures refer to maintenance and widening of roads, bridges and maintenance as well as construction of municipal buildings. However, the accounting procedures adopted by municipalities do not distinguish between capital and revenue expenditure. It is also not possible to estimate the total outstanding debts and the debt service liabilities. If these were included, the pattern of municipal expenditure would change significantly.

Table 6.8

**Pattern of Expenditure on Services in the Municipalities
of Selected Indian States, 1992-93**

States	% of expenditure to the total revenue expenditure							
	Expenditure (Rs. in million)	General adminis- tration	Public health	Public safety	Public works	Educa- tion	Recrea- tional activities	Others
Octroi								
Maharashtra	10717.59	7.80	28.16	2.07	15.71	13.47	1.10	31.70
Punjab	1027.54	8.91	32.13	8.06	23.14	7.43	0.79	19.54
Non-octroi								
Andhra Pradesh	1753.26	31.69	16.71	4.96	23.91	11.11	1.21	10.42
Assam	54.49	27.80	23.29	3.90	27.22	0.61	0.27	16.91
Kerala	640.95	21.65	25.39	3.74	35.06	0.77	0.58	12.79
West Bengal	479.49	17.28	45.47	4.02	12.81	6.75	0.13	13.53

Source: NIPFP data base.

VII. PRICING AND COST RECOVERY OF URBAN SERVICES

Of late, there has been a major paradigm shift in thinking about provision of urban civic services, such as water supply, sewerage, solid waste disposal, road maintenance, street lighting and upkeep of public parks and playgrounds. It is no longer considered that these services have to be provided by the national or local authority as free public goods or as obligatory services offered in return of general taxes levied by the national or local governments. Increasingly, these services are being viewed as commodities which are to be provided on commercially viable terms, that is as goods for which a service charge or user fee has to be paid, at times in addition to the general taxes paid by urban inhabitants (Tee, 1995). The service charge or user fee is in the long-run expected to be adequate to meet the entire cost of supplying these services, that is both capital cost and operation and maintenance cost.

In most developing countries, the supply and financing of urban civic services is still highly subsidised by the state through grants and budgetary allocations. Most urban local bodies in these countries are also caught in a "low level equilibrium trap" in provision of these services. Low level of services provided at low tariffs, often fixed or approved by the state, for which the users are not willing to pay as they do not find the services satisfactory (Briscoe, 1993). As a result, there is not enough revenue generated even for operation and maintenance (O & M) of the services which further deteriorates the level and quality of services and restricts any improvement and/or expansion of the services. The widening resource gap resulting from the increasing cost of providing these services coupled with shrinking budgetary support for urban infrastructure has made it necessary that the revenue base of urban local bodies be strengthened through commercialisation of urban services.

The idea of commercialisation of urban services is becoming increasingly acceptable to planners and administrators in most developing countries (The World Bank, 1994). Commercialisation implies rate of return on investments that is commensurate with market rate of return. This calls for cost optimisation, rational pricing and efficient cost recovery. Cost recovery is the crux of commercialisation of urban services and it is essential for : (i) recovery of costs incurred by the agency/ies concerned with provision of these services, (ii) demand management and conservation of resources by making consumers more cautious, (iii) generating revenues for extending the services to meet the existing unmet demand as well as the increasing demand, and (iv) to ensure access to all user groups, particularly those who may have remained unserved if the supply was limited (HUDCO, 1995). There are, however, a whole range of unresolved issues concerning commercialisation of urban services which are the main cause of significant resistance to its practical application, both from political and consumer groups. For example, can user charges be levied on all urban services? Is full cost recovery possible through user charges alone? Does commercialisation mean doing away with equity considerations? What kind of pricing principles are best suited for reflecting the real cost of urban services? Will commercialisation lead to indiscriminate use of natural resources? Would it be politically

acceptable? Are people willing to pay tariffs which may have to be revised manifold to reflect real costs? Do the service providing agencies have the institutional capacity for dealing with changes associated with commercialisation? It is not possible to address all these issues within the purview of this study. This section will focus on the broad cost recovery mechanisms of urban civic services prevalent in India and on the general practice of pricing and cost recovery of urban water supply. An attempt will also be made to identify the key issues in pricing and cost recovery of urban services in India.

COST RECOVERY MECHANISMS

As stated earlier, it is being contended in the ongoing discourse on financing of urban infrastructure that service charges or user fee should be levied on all urban services to generate adequate resources for meeting the capital as well as O & M cost of providing these services. At the same time, it is also widely agreed that not all urban services are amenable to levying of user charges. In theory, it is possible to recover user charges of exclusionary services where the consumers are easily identified and the quantum of their consumption is measurable, such as, water supply, sewerage and public transport. In the case of non-exclusionary services popularly known as public goods meant for collective consumption, it is not possible to identify the users and levy a user charge or to exclude the non-payers. Such services are roads, street lights, drainage, solid waste collection and disposal and public parks and playgrounds. Cost of providing these services is generally recovered through grants, receipts from general taxation and surpluses, if any, from user charges on other services.

Urban local bodies in India are mandated to have a balanced budget. This implies that they are required to ensure full cost recovery of all the services provided by them. However, in reality, most urban local bodies fail to recover even the O & M cost of exclusionary services through user charges. This long-standing practice of partial cost recovery of urban services continues to be followed by most urban local bodies to this day. As a result, shift to full cost recovery practices has been found to be all the more difficult. The whole range of capital and O & M cost recovery mechanisms generally practiced in India will be discussed in the following paragraphs.

Capital Cost Recovery

In India, urban infrastructure is usually financed through budgetary allocations. Under such mode of financing, service charges and user fee are generally not perceived as major instruments of capital cost recovery suitable to meet the entire cost of establishing the production and distribution system. The capital cost recovery mechanisms are designed to meet only a fraction of the fixed capital cost. Often the service charges levied are meant to generate the additional capital cost required for extending the service to the individual consumers.

Land Based Instruments

Urban local bodies and other agencies responsible for urban infrastructure development, especially in the newly developed areas of the city, usually invest revenues generated from land-based sources for capital works. The predominant land-based revenue generation instruments adopted in India for laying down all types of urban infrastructure are development charge, betterment levy, sale of land and slum improvement cess on development charge or betterment levy (Table 7.1). Development charge, based on the unit area of land, is levied on new areas that are being developed by urban development authorities or city improvement trusts to recover the capital cost of land and infrastructure development. Often the rates prescribed in legislations have no bearing on the actual cost of development and the recovered amount is only a small proportion of the total capital investment. Many cities also levy a betterment charge through implementation of land readjustment under town planning schemes as observed for instance in Maharashtra and Gujarat. However, these schemes did not generate even one-tenth of the development cost, owing to long delays in finalising the schemes, estimating the notional increase in the market value of the developed land and in recovering the betterment charges (Mehta, 1996).

Urban local bodies also generate revenue for infrastructure development through sale of land. This is not a major source of capital financing as most urban local bodies in India do not have large chunks of saleable land within their jurisdiction and they are not able to acquire significant parcels of new land for this purpose as new land development function is now being performed by city development agencies and improvement trusts. The City and Industrial Development Corporation of Maharashtra has used revenues generated from land for urban infrastructure development in several new townships of the state. The development of New Bombay is a very successful example of using this instrument of capital cost recovery for urban infrastructure development (NIUA, 1994 b). Slum improvement cess is levied in some states in India to meet the capital cost of providing urban infrastructure in low-income areas of cities, as a means of cross-financing. For instance, in all the urban areas of Karnataka slum improvement cess of 1 per cent is levied on development charge applicable to all newly developing areas of the cities. But, these charges also meet only a part of the total cost of providing urban infrastructure in slum areas of various cities.

Table 7.1

Capital Cost Recovery Instruments

Infrastructure/Service	Instruments
All Services	<ul style="list-style-type: none"> o Development charge o Betterment levy o Sale of land o Slum improvement cess on development charge or betterment levy
Water Supply	<ul style="list-style-type: none"> o Tap application fee o Connection charges/deposits o Road cutting charges o Meter cost/deposit o Regularisation fee for unauthorised connections o Capital contribution from other agencies.
Sewerage	<ul style="list-style-type: none"> o Drainage cess on new buildings o Connection charges o Road cutting charges o Capital contribution from other agencies
Solid Waste	<ul style="list-style-type: none"> o None
Roads	<ul style="list-style-type: none"> o Capital contribution from other agencies.

Non-Land Based Instruments

Capital cost recovery for extending specific services such as water supply and sewerage in the already developed areas of cities occurs in a variety of ways. The major instruments of capital cost recovery for water supply are tap application fee, connection charges/deposits, road cutting charges, meter cost/deposit and regularisation of unauthorised connections. The common instruments of capital cost recovery for sewerage are one time drainage cess on new buildings, connection charges and road cutting charges. No specific capital cost recovery mechanisms are in practice for solid waste management and for construction of city roads. However, the amount of revenue generated from the above mentioned instruments for water supply and sewerage is nominal and is expected to meet a part of the additional cost of getting each consumer connected to the system rather than pay for the cost of the entire system.

There are some instances of capital contribution being provided for development of water supply, sewerage and roads by other agencies such as large private industries, port trusts, public sector undertakings and autonomous townships and village authorities located within or in the vicinity of urban agglomerations. In some cases it is a part of the property tax related contribution being given to the local government as practiced by a few port trusts in India. This is a regular source of cost recovery of urban infrastructure. In other cases it is voluntary participation of a few private industries and public sector undertakings in the development of cities, often for improvement of services frequently used by the contributing agencies. This is a sporadic and usually a project based capital financing of selected services. In addition, some urban local bodies and metropolitan and state level water and sewerage boards undertake deposit construction works on demand, in return of either a part or total capital financing by the agency concerned. In Bangalore, BWSSB has undertaken several works for extending water supply and sewerage lines to a number of private and public sector undertakings and has provided water supply facilities to nearby villages. At times, when the deposit construction is fully financed by other agencies the profit is invested in infrastructure development in other parts of the city. However, this is not a regular source of capital cost recovery of urban infrastructure development.

Cost Recovery of Operation and Maintenance Costs

As per the various Municipal Acts enacted in India since the early twentieth century, urban local bodies are empowered to recover the cost of providing basic municipal services, such as, water supply, sanitation, street lighting, garbage removal and fire fighting, through user charges and taxes. The key instruments of the O & M cost recovery currently in practice in India can be put in three broad categories, namely, consolidated service charge/tax, taxes for individual services linked to the property tax, and user charges (Table 7.2).

Table 7.2

Operation and Maintenance Cost Recovery Instruments

Infrastructure/Service	Instruments
All Services	o Consolidated service charge/tax
Water Supply	<ul style="list-style-type: none"> o Water tax o Water benefit tax o User charges o Meter testing/repairing/damage charges o Meter rentals o Disconnection and reconnection charges
Sewerage	<ul style="list-style-type: none"> o Drainage/sewerage tax o Drainage/sewerage cess on water o Drainage/sewerage benefit tax o Latrine tax o Septic tank cleaning charges o Sanitary inspection fee
Solid Waste	<ul style="list-style-type: none"> o Sanitation/scavenging/conservancy tax o Debris/rubble removal charge o Hospital waste cleaning charge
Roads	<ul style="list-style-type: none"> o Motor vehicle tax o Street lighting tax o Local road tax (Pathkar) o Local vehicle/wheel tax o Toll on vehicles and animals o Passenger tax o Parking fee

Consolidated tax for recovering the cost of all the urban services, combining house and service taxes, is levied in a few cities in India. Calcutta levies a consolidated house and service tax. In new cities developed by CIDCO in Maharashtra, a consolidated service charge is levied on floor area basis. The major limitations of consolidated service tax/charge are : (i) it is not conducive to recovery of charges in proportion to the consumption level, (ii) it is difficult to justify a uniform consolidated tax if any service is not provided in all parts of the city, such as underground sewerage system, (iii) new taxes can not be levied easily if a new service is provided or the existing service level is enhanced, and (iv) consolidated tax restricts reorganisation of the institutional set-up for providing various urban services by different entities as this will involve complicated transfer of a part of the taxes from urban local bodies to the other agencies (Vaidya and Ramchand, 1993).

Levy of specific taxes on property tax for various services is more predominant in India, such as, water tax, drainage and sewerage tax, conservancy tax, street lighting and local road tax. Some cities depend entirely on this type of taxation while others apply a combination of tax and user charges. Service tax as the only instrument of O & M cost recovery has several short-comings. Service tax rates are determined as a percentage of annual rateable value (ARV) of the property. There are several problems associated with the assessment of ARV and its periodic reassessment. When the basis for a tax is low, the total yield is also bound to be low. The present tax collection efficiency is also poor and as a result, the service tax collection is adversely affected. Legal disputes regarding assessment of ARV and the time taken to settle them, is a common problem faced by urban local bodies. Secondly, these service charges are levied irrespective of the consumption level. Thirdly, services are provided to all households even if they do not pay property tax. It is well known that only 30 to 40 per cent of the properties in various cities are assessed for property tax collection. This means that the urban local bodies provide various services without recovering any charges from the bulk of the consumers. Given these problems the service tax receipts are far below the O & M expenditure incurred by the local bodies. For these reasons, delinking of service charges from property tax and adoption of user charges wherever applicable is being strongly recommended.

As stated earlier, user charges or exact price paid in exchange of use of a service is being propagated as the most efficient cost recovery mechanism. Such user charges have a transparent link between the service providing entity and consumers, and hence, also enable better management of the service. However, only a few urban services are amenable to levying of user charges, namely, water supply, sewerage and transport. In India, user charges are most commonly adopted for recovering the O & M cost of water supply, often in addition to water tax. Some urban local bodies also levy a sewerage/drainage cess on water charges. This is practiced predominantly in those cities where the underground drainage system covers a major part of the city. In addition, urban local bodies recover other costs through instruments such as meter rentals, meter testing/repairing/damage charges, disconnection and reconnection charges, septic

tank cleaning charges, sanitary inspection fee, debris/rubble removal charges, hospital waste clearing charges and parking fees. Barring meter rentals and hospital waste clearing charge, these instruments largely help to recover incidental charges for which the consumers pay whenever they use the service. These charges also form a small proportion of the O & M cost recovery. But, generally the entire user charges collection is nowhere near the total cost of even the O & M let alone provide surplus for capital investment for extending the service to other consumers. Visakhapatnam is one of the few cities in India which has recorded surplus in its revenue account on water supply, which is used for financing capital works for extending the water supply service to new areas as well as for meeting the revenue deficits in the operation and maintenance of other municipal services.

PRICING AND COST RECOVERY OF WATER SUPPLY

Water supply is most amenable to user charges amongst all the municipal services. There is well developed literature on pricing of public utilities (see Crew and Kleindorfer, 1978; Munasinghe, 1979; Anas and Lee, 1988; Bahl and Linn, 1992; and Garn, 1994).

A number of empirical studies on pricing and cost recovery of urban water supply in India have also been conducted (for example, Sarma, 1991; Raghupathi, 1993; Mehta, 1993b and Bijlani and Gurnani, 1993). As stated earlier, the cost of urban water supply in India is recovered through taxation, user charges or through a combination of tax and user charges. Levying user charges for recovering the cost of water supply is widely practiced in cities of various sizes across the country. But, there is a wide variation in the pricing and the extent of cost recovery. The general practice of pricing and cost recovery of urban water supply will be briefly discussed in this section.

Accurate cost determination or accounting of all the expenditure incurred in providing a service is essential for fixing the tariff adequate for cost recovery. In India, the components of expenditure to be included in calculation of cost of water supply are specified in the Acts of state and metropolitan water and sewerage boards and in the guidelines of public health engineering departments. As per these acts, the following items of expenditure are generally taken into account for calculating cost of water: (i) expenses on operation and maintenance (salaries and wages, electricity bill, repairs, chemicals and other purchase, rents, fuel, etc.), (ii) debt service charges, (iii) depreciation, (iv) and royalty paid to the state for raw water drawls. Water tariffs fixed on the basis of such cost determination is expected to meet the entire O & M cost and at least a part of the capital cost of water supply. However, tariffs determined in this manner are largely aimed at recovering the historical costs rather than meeting the long-term incremental costs and increased investment needs of an expanding system. Moreover, these tariff fixation procedures have not been adhered to strictly owing to political interference. As a result, often the tariffs thus fixed have been lower than the rational price of water as a measure of providing

an essential service to the people at an affordable price. For the same reason, these prices have not been revised for a long time, and hence, the revenue generated is not adequate to meet even the current O & M cost of water supply in most cities.

Although water supply is amenable to user charges, the main source of revenue in a large number of cities in India is not user charge collection (Sarma, 1991). In cities where the municipal governments are incharge of water supply, water tax is commonly used for revenue generation, which is levied at the rate of 8-12 per cent of ARV of properties. In addition, a majority of these municipal governments levy a user charge on the consumption of water. Invariably, in large cities supply of water is through metered connections. But many of these cities also have unmetered system of supply in some parts. In small cities water metering is either non-existent or not very extensive. In cities where special entities such as water boards are responsible for water supply, water tax is generally not levied and user charge is the major source of revenue generation, predominantly collected through metered connections.

In many cities where water supply is not metered, a flat rate per tap is charged from the consumers. For example, in cities of Madhya Pradesh state, the water charge is Rs.5 per month while in the city of Visakhapatnam a fixed rate of Rs.40 per month per connection is charged. In a few cities the tap rate is varied by the diameter of supply pipe. In cities where the water supply is through metered connection, a user charge is levied based on the consumption of water. The minimum rate for domestic consumers can be anywhere between less than a rupee per KL to Rs.2 per KL. Many cities in India also follow differential pricing principle, by category of user as well as by consumption volumes, to capture the effective demand differentials of various consumers. The lowest water tariffs are applicable in the case of domestic consumers. Commercial and industrial establishments are typically charged five to ten times the domestic water tariffs. Many cities have adopted slab-rate system with life line rates, that is, a minimum quantum of water is provided at the lowest possible rate and the price per unit increases progressively in higher consumption brackets. Almost all cities provide water free of cost to the low-income population through standposts on equity consideration.

The major problem with the current pricing of water is that it is not sufficient even to recover the O & M costs. The following table indicates that except for one city, other cities are unable to recover its water supply costs (Table 7.3). In fact in some cases, the cost recovery through water revenue forms only a small fraction of the total O & M expenditure on water supply.

Table 7.3

Cost Recovery of Water Supply in Selected Cities, 1993-94

(in million Rs.)

City	Total revenue (tax+user charge)	Total O & M expenditure	Revenue deficit as per cent to total revenue
Delhi	688.7	800.0	16
Madras	66.3	509.1	667
Lucknow	73.8	181.7	146
Surat	23.8	80.0	236
Visakhapatnam	170.9	100.9	+40
Solapur	40.3	62.9	56
Raipur	13.2	18.1	37
Bhubaneshwar	18.4	21.8	18

Source: ORG (1995), "Interim Report on Financing Pricing and Cost Recovery - Water Supply and Sanitation Services", as quoted in HUDCO (1995), "Report of the Sub-Group on Commercialisation of Urban Infrastructure Projects".

The realisation that water tariffs which are much lower than the cost of providing water is the major constraint in low cost recovery has prompted an attitudinal change in the administrative and political circles. A few attempts have also been made to rationalise water tariffs. For example, Karnataka state has issued an order prescribing minimum rates to be charged by the state water supply and sewerage board as well as by urban local bodies so as to recover the cost of water supply at no loss no profit basis. However, many of the municipalities have not been able to revise the water rates accordingly as there was considerable local opposition to this proposal. On the other hand, BWSSB has revised its water rates by 20 per cent almost every year since 1991 in keeping with the escalating cost of procuring and supplying water. The enhanced availability of institutional finance is also helping rationalisation of water tariffs. For instance, those agencies which have taken loans from the Housing and Urban Development Corporation for water supply projects have significantly revised their water rates in order to meet the expected costs (Mehta, 1993b). However, the actual incidence of rationalising the water tariffs are few. The resistance to increase in price of water is still quite common, both from the political quarters and the consumers who have been accustomed to using free or highly subsidised service.

Other than low water tariffs, there are a number of cost recovery constraints which adversely affect the collection of levied water charges. The empirical studies of various cities in India indicate that major cost recovery related constraints are as follows : (i) frequent disputes pertaining to property tax assessment and consequent delays in collection; (ii) low extent of metering and meters often not working which means that the water charge is not related to the actual consumption; (iii) high level of leakages and unaccounted water which is in some cities as high as 30-40 per cent; (iv) inefficient billing pertaining to both monthly billing associated with high administrative cost and six monthly or yearly billing associated with poor cash flow as well as delays in sending the demand and receiving collections; (v) consumer not satisfied with the quantity and quality of the service often not willing to pay promptly; and (vi) disconnection penalty for non-payment of bills not being exercised very strictly.

KEY ISSUES IN PRICING AND COST RECOVERY OF URBAN SERVICES

The inability of local governments and infrastructure agencies to recover the full cost of services is due to many factors related to institutional, conceptual and managerial aspects (Mehta and Pathak, 1996).

The institutional factors relate to the lack of autonomy on the part of local governments and infrastructure agencies to levy appropriate water charges. Urban infrastructure services are generally considered as "social goods" and for equity considerations, the state governments prescribe the tariffs. Municipal governments have to seek the state government approval for all tariff revisions. This mismatch in functional responsibility and fiscal autonomy is responsible for inability of local governments to raise tariffs to the required level.

A second important institutional issue is of "stickiness" of the infrastructure prices. It is politically unacceptable to frequently revise user charges. Both the state governments and local governments use the arguments of un-affordability of the poor to justify continuation of the existing low tariffs. In a situation where municipal governments are subordinate to political control and interventions, it becomes difficult to adopt full cost recovery pricing of services.

There are also some conceptual issues related to determination of prices. At present, no realistic estimates of demand by different user groups are available. Also, proper studies have not been conducted for estimating the willingness to pay for a given level and quality of service. Estimates of long run marginal costs for major capacity expansions or short-run marginal costs during project cycle to reflect increases in costs of production and distribution are rarely undertaken. Such estimations are important as they would enable fixation of appropriate prices to reflect efficient allocations of resources. It would also be possible to estimate a differential price structure that adequately reflects the subsidies given to the poor as well as cross-subsidies that well accrue from the consumers who are willing to pay higher prices.

The managerial issues relate to the ability of local governments and infrastructure agencies to design, implement and operate the infrastructure projects. In designing of projects, cost-reducing technological alternatives are often not considered. The construction of projects are usually delayed and this adds significantly to the original cost estimates. The systems are operated below its design efficiency levels. The billing and collection procedures adopted also do not fully recover the outstanding dues from consumers. In a few cities, where private contractors have been engaged for this purpose, the operating costs have reduced by 30 per cent and collection of revenues have increased by about 40 per cent. This indicates the extent of inefficiencies that exist in the present management of urban infrastructure provision.

VIII. BANGALORE

Bangalore, the capital city of Karnataka state, is one of the rapidly growing metropolitan cities in India. With a population of about 4 million in 1991, it is the sixth largest city in the country (Table 8.1). The city is expected to have a population of over 7 million by the year 2011. The growth of Bangalore is largely due to its industrial activities. Many large scale public sector industries were located around Bangalore in the early fifties. This led to a rapid growth of small and medium scale industries around Bangalore. Given the specialised nature of these large public sector units and other private sector industries, the Bangalore region became a hub of electronic and other high-tech industrial activities. In the Eighties, the city was referred to as the 'Silicon valley of India', because of a large concentration of computer hardware and software firms.

Table 8.1

Profile of Bangalore

City/UA	Year	Civic Status	Population	Percentage decadal variation	Area in Km ²	Density per Km ²
1. Bangalore Urban Agglomeration	1951		786,343	-	-	-
	1961		1,206,961	+53.49	501.21	2408
	1971		1,664,208	+37.88	177.30	9386
	1981		2,921,751	+75.56	365.65	7990
	1991		4,130,288	+41.36	449.78	9183
2. Bangalore City*	1951	Municipal Corporation	778,977	-	-	-
	1961	"	1,141,107	+46.49	463.92	2460
	1971	"	1,540,741	+35.02	134.42	11462
	1981	"	2,476,355	+60.72	151.16	16382
	1991	"	2,660,088	+7.41	N.A..	N.A.

Source : Computed from :

- (i) Census of India, General Population Tables, Part II (A), 1981.
- (ii) Census of India, Final Population Totals, Paper 1 of 1992.

Note: * Formerly Bangalore City (c) and Trust Board Area were under Bangalore Development Authority.

INSTITUTIONAL ARRANGEMENT

A large number of institutions are responsible for provision and maintenance of infrastructural services in Bangalore city. The overall institutional framework is described in Table 8.2.

Table 8.2

Institutional Arrangements for Infrastructure in Bangalore

Infrastructure service and other related activities	Agency responsible for capital investments/ operations and maintenance
• Water supply	Bangalore Water Supply and Sewerage Board
• Sewerage	Bangalore Water Supply and Sewerage Board
• Solid waste	Bangalore City Corporation
• Storm water drains • Roads	Bangalore City Corporation
• Highways	Public Works Department
• Roads in new area	Bangalore Development Authority
• Maintenance/repair and construction in city area	Bangalore City Corporation
• Urban planning and infrastructure planning	Bangalore Metropolitan Regional Development Authority, Bangalore Development Authority
• Land development	Bangalore Development Authority
• Financing and monitoring of infrastructure investment	Karnataka Urban Infrastructure Development Finance Corporation

Bangalore Water Supply and Sewerage Board (BWSSB)

As per the provisions of the Bangalore Municipal Corporation Act, 1949, water supply in the city of Bangalore is the responsibility of the Bangalore City Corporation (BCC). However, until 1961, the Public Works Department (PWD) of the state government operated and maintained water supply in the city, whereas the City Corporation maintained the water distribution operations in the cantonment area. It was only from 1961 to 1964, that the City Corporation operated water supply system for the entire area under its jurisdiction.

With rapid growth of population in the city, the demand for water increased manifold. Augmenting the water supply from a perennial source such as river Cauvery, which is 98 kms. from Bangalore, required an organisation which could co-ordinate source development activities with the state level agencies, secure finances from multilateral agencies and liaison with Bangalore Development Authority (BDA) for infrastructure development in peripheral areas. The state government, in October 1964, constituted the Bangalore Water Supply and Sewerage Board (BWSSB) and transferred the water supply and sewerage responsibility of the Bangalore City Corporation to BWSSB. The Bangalore Water Supply and Sewerage Act, 1964, prescribes the general duties of BWSSB as "providing and improving the existing supply of water in Bangalore Metropolitan Area (BMA) and making adequate provision for the sewerage and disposal of sewerage in BMA."

Since 1964, BWSSB has executed three projects on river Cauvery to augment water supply to metropolitan Bangalore. The potential supply from the existing projects is 419.20 MLD. A Cauvery stage IV project is under construction to further augment the water supply.

The BWSSB also operates and maintains sewerage system and treatment facilities. The three sewerage treatment plants have secondary treatment facilities with a total capacity of 410 MLD. The city has adequate treatment facilities in the context of the present supply of water.

For both its water supply and sewerage projects, BWSSB, through the state government, has mobilised funds from the state government, financial institutions and through open market borrowings in the form of debentures. However, for both resource mobilisation and tariff revisions, it has to seek approval from the state government.

Recently, BWSSB has taken some initiative in order to partly privatise provision of water supply and sewerage in Bangalore. The BWSSB has signed a memorandum of understanding with an international company for the execution of the Cauvery Water Supply Scheme - Stage-IV- Phase I under BOOT scheme. The BWSSB also took a decision in April 1994, to privatise operation and maintenance of one sewage treatment plant at K & C Valley for a period of five years in order to minimise the expenditure in the maintenance cost.

Bangalore City Corporation (BCC)

The Bangalore City Corporation was constituted under a specific state legislation, the City of Bangalore Municipal Corporation Act, 1949. Under this legislation, a large number of infrastructure and service related functions were endowed to the city corporation. Due to a series of subsequent state legislations, many special purpose parastatal agencies were constituted. This has resulted in reduction of the functional domain of the municipal corporation.

At present, the Bangalore City Corporation has the following obligatory functions:-

- a) Public health
 - Provision of public toilets and water standposts
 - Refuse collection and disposal
 - Public vaccination and control of infectious diseases
 - Registration of births and deaths

- b) Public works
 - Construction and maintenance of streets
 - Construction of markets
 - Maintenance of parks and gardens

- c) Developmental works
 - Enforcing building regulation
 - Removal of encroachments

From the above list of functions, it is clear that the city corporation has a limited role to play in provision of infrastructural services. The city government provides public stand posts and community toilets in slum areas. The health department of the city government looks after sanitation in the city. On an average, 1800 tonnes of garbage is collected every day in the city by its 6400 sanitary workers. The garbage is transported to the dumping yards by trucks. The corporation owns 90 trucks and has contracted 67 additional trucks for transport of garbage. The BCC has involved private sector in solid waste services mainly for the newly developed localities. It has given out primary collection and transportation to private contractors in these localities and has been able to save 40 to 50 per cent of the cost that it would have incurred if it had provided the service on its own.

The engineering division of the corporation is responsible for construction of city roads, bridges, culverts, markets and maintenance of storm water drains. These activities are undertaken from the general revenues of the corporation. The BCC has developed a number of commercial complexes financed by HUDCO and its own funds. Now BCC is going into joint venture projects for constructing commercial complexes. The BCC will give land to private developers who will establish the commercial complex. After giving 40 per cent of the built up area to BCC the private developer can sell rest of the space in the complex. The BCC expects to generate Rs. 200 to 300 million from such sale. In addition, BCC will also generate revenues through taxes from such complexes.

Bangalore Development Authority (BDA)

The Bangalore Development Authority (BDA) was constituted under a state legislation, the Bangalore Development Authority Act, 1976. The legislation amalgamated the functions of

Bangalore City Planning Authority and the City Improvement Trust Board and both planning and developmental functions are entrusted to BDA.

The BDA's principal objective is to promote development of the Bangalore metropolitan area. Under its legislative powers, BDA prepares comprehensive development plan and regulates development.

Besides planning and regulatory work, BDA has been quite active in land development. Most of the plotted development and shelter projects are undertaken outside the municipal jurisdiction. The BDA acquires land, prepares layouts, constructs roads, and contracts out the water supply and sewerage construction to BWSSB. Since its inception, BDA has allotted 63,000 house sites and constructed 7,300 housing units. At present, BDA is undertaking plotted development on 117 acres of land that was acquired in 1993-94. The BDA also constructs commercial complexes in its layouts. After completion of the developmental works in its layout, BDA hands over the site to BCC for maintenance. In such layouts, property tax is collected by the city corporation as per the ARV fixed by BDA.

The BDA's resources are generated through sale of land. It is expected to sell its plots on 'no profit no loss' basis and thus its sale prices are far below the market price. In absence of any revenue surplus, BDA has to depend upon state government for grants and loans to finance its developmental activities.

The Bangalore Metropolitan Regional Development Authority (BMRDA) was constituted in 1985 to plan for a larger metropolitan region. This includes the spatial plans of BDA. The BDA is required, under the BMRDA Act, to obtain approval of BMRDA for its plan. The BMRDA is, however, only a planning agency and its current activity is limited to preparation of a development plan for the Bangalore metropolitan region.

In 1994, the state government constituted the Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC). The KUIDFC is envisioned as a financial intermediary to channel funds to infrastructure and development agencies in the state. As it is recently established, it lacks adequate staff. It currently operates from the premises of BMRDA and the existing staff members of BMRDA are also working for KUIDFC. The KUIDFC currently manages the urban project of Asian Development Bank (ADB) in Karnataka and the mega cities project of the central government for the city of Bangalore.

MUNICIPAL SERVICES

The city, once known as the garden city, with low rise single family detached housing units interspersed with lush greenery, is rapidly changing its character. The built environment

now consists of high rise buildings, and the green spaces have reduced considerably. The rapid growth of population and economic activities in Bangalore metropolitan region has had a significant impact on the civic infrastructure and services.

The present service levels of essential civic infrastructure is described below:

Water Supply

The water supply of Bangalore city depends upon two sources, i.e., the Arkavathi river (with reservoirs at Hessarghatta and Thippagondanahalli) and the Cauvery river. The capacity of Arkavathi source is 129.60 MLD. The supply from Cauvery including scheme I, II and III, is about 419.20 MLD. Thus, the total receipt from these two sources is 548.80 MLD (Table 8.3).

Table 8.3

Water Supply by Source

Sl.No.	Source of water	Supply in million litres per day
1.	Arkavathi River (a) Thippagondanahalli (b) Hessaraghatta	123.66 5.94
2.	Cauvery I,II & III Stages	419.20
3.	Total	548.80

Source : BWSSB (1995) : Performance Report, Bangalore.

Besides the above mentioned sources, the BWSSB operates 2133 borewells in the city to augment water. About 82 per cent of the total population in Bangalore city is covered by the public distribution system.

Table 8.4 presents the per capita availability of water in Bangalore, during 1951-94. It is obvious from the table that there was an increase in water supply from 48.15 LPCD to 90.00 LPCD during 1951-67. In the year 1982, there was a decline in water supply to 72 LPCD. In 1983, it again increased to 130 and gradually declined to 77 LPCD in 1992. After the commissioning of Cauvery III stage, the supply again increased to 90 LPCD in 1993 and to 100 LPCD in 1994. The supply is expected to increase upto 120 LPCD if the full capacity of Cauvery III stage is utilised. However, even with the enhanced per capita availability, it will still be lower than the national standard of 140 LPCD for Class I cities and international standard of 200 LPCD.

Table 8.4

Per Capita Consumption of Water, 1951-1994

Year	Litres per capita per day	Year	Litres per capita per day
1951	48.15	1987	101.00
1958	58.05	1988	95.00
1967	90.00	1989	90.00
1982	72.00	1990	84.00
1983	130.00	1991	80.00
1984	121.00	1992	77.00
1985	113.00	1993	90.00
1986	107.00	1994	100.00

Source: (i) BDA (1995) : Comprehensive Development Plan (Revised), Bangalore.
(ii) BWSSB Handbook of Statistics, 1993-94 and 1994-95, Bangalore.

Sewerage

Most of the area of the city is covered by a well designed underground sewerage system which is managed by BWSSB. About 230 sq. kms. area or 90 per cent of the developed area of the city is covered by sewerage system. Areas like slums and unauthorised colonies are not provided with sewerage facility. It is estimated that there are still nearly 1,15,000 houses in Bangalore, especially in slums, which do not have latrines.

The total length of sewerage lines laid was around 16.73 lakh RMT under maintenance and 85.91 thousand RMT under project. In order to clear the blockage occurred in the sewer lines, an adequate number of manholes, i.e., 75,050 were provided by the end of March 1990. These manholes with cast iron frameworks and covers, were provided on heavy traffic roads, small lanes and cross roads.

There are four valleys, viz., Vishabhavathi, Challaghatta, Koramangala and Hebbal, in Bangalore where sewage is drained. Under the Cauvery Water Supply Scheme Stage I, two primary treatment plants have been installed - one at Vishabhavathi Valley and the other at Koramangala and Challaghatta Valley.

The present treatment capacity of Vishabhavathi's treatment plant is 135 MLD. This treatment plant consists of four digestors, two clarifiers and twenty sludge drying beds. In order to test the effluents, a laboratory is attached to this plant. The capacity of another treatment plant at Koramangala and Challaghatta valleys is 170 MLD. This plant comprises of four digestors and twenty sludge drying beds.

During the Cauvery Water Supply Scheme Stage II, the treatment was proposed to be extended upto secondary stage, but it could not be executed. Under the Cauvery Water Supply Scheme Stage III, another plant, with a capacity of 60 MLD at Hebbal is under construction. Moreover, the existing capacity of the plant situated at Vishabhavathi is being increased upto 180 MLD. The capacity of another plant at Koramangala and Challaghatta Valleys are also being upgraded by providing secondary treatment facility. Thus, the total treatment capacity of the plants, including the plant at Hebbal, will become 458 MLD.

It is usually anticipated that 80 per cent of the water supply is likely to flow back as sewage into the sewerage system. The existing and standard level of water supply, sewage flow and treatment capacity of the plants are presented in Table 8.5. It may be seen from the table that the capacity of the primary treatment sewage plant is 52 million litres per day less than the standard level of water supply taken into consideration.

Table 8.5

**Existing and Standard Level of Water Supply,
Sewage Flow and Treatment Capacity**

Sl.No.	Indicators	Million litres per day	
		Existing level	Standard level
1.	Water supply	548	679
2.	Sewage flow @ 80% of water supply	438	543
3.	Capacity of the primary sewage treatment plant	458	543

Source : Bangalore Water Supply and Sewerage Board, Handbook of Statistics, 1993-94 and 1994-95.

Note : Standard level of water supply is estimated @ 140 lpcd against 1995 population.

Solid Waste Management

The rapid growth of urban population and haphazard development of Bangalore has led to an imbalance between the production of waste and the capacity of collection and disposal. As a result, a large number of its residents suffer from poor sanitation. The hospitals, nursing homes and hotels in the city produce a large quantity of urban waste which contributes enormously to the sanitation problem.

The urban solid waste generated by households in Bangalore city is about 1800 tonnes per day. It is expected that this quantity will go upto 3600 tonnes per day by 2001. The per capita generation of solid waste is around 0.50 kg. per day.

The existing system of garbage collection and disposal is not upto the mark. The solid waste is generally dumped in community bins provided on the road sides. The collection and transportation of solid waste to dumping yards or recycling plants is not done regularly and efficiently. The Bangalore corporation does not have enough financial, technical and managerial capacity to deal with the increasing solid waste problems. The corporation has 88 lorries, 8 compactors, one tractor and one dumper-placer. Besides these, the corporation does not have adequate number of sanitary workers. About 1200 posts of sanitary workers are vacant. Due to the poor financial performance, the corporation is unable to increase its collection and disposal capacity by adding modernised vehicles and equipments. As a result, only 68 per cent of the solid waste generated is collected.

Moreover, solid waste is not properly segregated and recycled to generate energy. The Centre for Environment has taken up a programme to generate energy from human excreta by connecting the toilets directly to bio gas plants.

The Karnataka Compost Development Corporation (KCDC) is working in the area of converting urban solid waste into compost manure. For this purpose, KCDC has adopted the aerobic decomposition windrow method in which the solid waste is converted into humus by mesophilic and thermophilic organisms.

Roads

The total length of roads in Bangalore city corporation area is 1924 kms. While the BCC looks after the operation and maintenance of roads in corporation limits, the BDA is responsible for road construction in the newly developing areas of the city. However, narrow roads in the core areas of the city and the absence of arterial road corridor have hampered the operation of transport network in Bangalore. The situation has further deteriorated with the steep rise in

ownership of private cars and two wheelers creating problems of congestion, accidents, parking and pollution.

MUNICIPAL FINANCE

The Bangalore city corporation is obligated to provide a range of services to its residents. The cost of provision of most of these services are met from municipal taxes and transfers. The aggregate revenue surpluses, if any, are used to finance various capital works in the city.

At the aggregate level, the city corporation has managed to generate revenue surpluses for the past three years. In the year 1991-92, the revenue receipts of BCC were Rs. 1,176 million, whereas its expenditure was Rs. 1,122 million. For the year 1993-94, the revenue income was Rs. 1,323 million while the expenditure was Rs. 1,072 million.

Revenue Receipts

The revenue incomes of BCC from internal and external sources have been given in Table 8.6. It shows that the internal sources of corporation finance comprising of tax and non-tax revenue, account for roughly 45-50 per cent of the total revenues of BCC. While the share of both tax and non-tax revenues have increased, the share of state transfers in the form of shared taxes has declined marginally. At current prices, the own source of revenues of Bangalore increased at an average annual rate of about 14 per cent. This is largely due to a significant increase in tax income from about Rs. 325 million in 1991-92 to over Rs. 440 million in 1993-94, registering an annual increase of nearly 18 per cent during the past three years. From the view point of financial and operational autonomy this can be seen as a positive trend in BCC finances.

Among the tax revenues, property tax, a tax on land and buildings, is the important tax source. The property tax incomes rose by 37 per cent in 1992-93 as a result of revision of the property tax rates. There were 276,000 assessed properties in the city in 1992-93. The total property tax demand from these properties was Rs. 637 million, while the collection was Rs. 442 million. There is a significant potential in the city to enhance property tax revenues by improving the collection efficiency and revising the assessment of rental values.

As the union government properties situated within the jurisdiction of an urban local body are exempt from payment of property tax as per Article 285 of the Indian Constitution, BCC collects a service charge on these properties at 75 per cent of the assessed rateable value. Similar provisions in the state exist for properties owned by the state government. The BCC's demand for service charges from state government properties in 1992-93 was Rs. 23 million, but it could collect only Rs. 9 million. It collected Rs. 3.4 million from central government as service

charges. If the central and state government properties are brought at par with other properties for property tax assessment, its revenues can be further enhanced.

Among the non-tax income sources, fees, fines and rents contribute a major share of the total non-tax incomes. The BCC collects various kinds of fees. It charges 2 per cent fee on registered stamp paper for all property transactions in Bangalore. Other fees include taxi and bus stand fees, parking fees, entrance fees of swimming pools and ground rent fees on advertisement board hoardings.

The BCC also constructs and maintains many markets in the city. The rental receipts from these properties contribute significantly to its non-tax income. The potential rental income from its markets is Rs. 40 million, but its collection in 1992-93 was only Rs. 18 million.

The ground rent on lands leased to petrol pumps, and other commercial ventures as well as from sites allotted for slum rehabilitation is potentially Rs. 4 million a year, but the collection in 1992-93 was only Rs. 0.66 million. The BCC has begun to privatise rent collection through auction of rental contracts and hopes to improve its collection. Table 8.6 shows that there has been a significant increase in collection of fees and fines in 1993-94.

The own sources of revenues of BCC, however, account for only half of its total receipts. The city corporation is dependent on the state government grants and shared tax revenues for half of its budget. A major grant from the state government is on account of octroi compensation. The octroi system was abolished in the year 1978 and since then compensatory grant is given by the state government. Octroi was the most buoyant revenue source for the city and the formula adopted by the state government does not reflect the buoyancy in this resource which existed before its abolition. The octroi compensation was increased annually at 5 per cent during 1979-80 to 1981-82. It was enhanced at 10 per cent per annum during 1982-83 to 1987-88. It is now being enhanced at 12.5 per cent per annum and the compensation in 1992-93 was Rs. 390 million.

Besides the octroi compensation grant, the city receives a share of taxes levied by the state government. These are entertainment tax, surcharge on stamp duty and motor vehicle tax. These shared taxes from state government provided Rs. 160 million in the year 1992-93.

The BCC also collects education cess, health cess, library cess and beggary cess on property tax on behalf of the state government. The rates at which these cesses are levied are: education cess (10% of property tax), health cess (15%), library cess and beggary cess (3% each). The BCC received Rs. 130 million in 1992-93 as collection charges for these cesses.

Table 8.6

Revenue Receipts of Bangalore City Corporation

(in million Rs.)

Heads of receipts	Year			Average annual growth rate (%)
	1991-92	1992-93	1993-94	
1. Own revenues				
a. Tax receipts				
i. Property tax	322.40	442.10	439.16	18.23
ii. Advertisement tax	2.51	4.58	2.04	13.51
Total tax receipts	324.91	446.68	441.20	18.13
b. Non-tax receipts				
i. Fee and fines	26.89	28.53	60.38	58.87
ii. Water charges	0.16	0.30	0.20	27.08
iii. Road cutting charges	14.13	10.79	15.40	9.61
iv. Other charges	19.72	23.22	25.75	14.32
v. Rent and other receipts	62.47	73.27	59.54	-0.73
Total non-tax receipts	123.37	136.09	161.27	14.41
c. Miscellaneous receipts				
	74.36	90.90	63.55	-3.92
Total own revenues	522.64	673.67	666.02	13.88
2. Transfers				
a. Shared taxes				
i. Entertainment tax	165.76	103.00	111.39	-14.86
ii. Surcharge on stamp duty	47.86	57.08	64.87	16.46
iii. Octroi compensation	336.34	389.20	347.98	2.56
iv. Cesses collected on behalf of government	89.86	130.30	118.96	18.15
v. Compensation received from government for motor vehicle tax, services tax, toll revenue and mileage cess	7.46	-	7.43	-
b. Specific purpose grant				
	5.89	15.46	6.47	52.16
Total transfers	653.17	695.04	657.10	6.41
Total receipts	1175.81	1368.71	1323.12	16.41
Per capita receipts (Rs.)	438.74	506.93	486.44	
Per capita receipts (at constant prices) (Rs.)	438.74	459.25	412.12	

Source: BCC, Revised Budget Estimates and Budget Estimates, 1992-93 and 1993-94, 1993-94 and 1994-95, 1994-95 and 1995-96.

Revenue Expenditure

The aggregate expenditure of BCC is lower than its receipts. Examination of expenditure pattern for three years, i.e, 1991-92, 1992-93 and 1993-94, suggests that while expenditure on most of the municipal activities has been increasing each year, the expenditure on public works, particularly roads and buildings has been quite erratic (Table 8.7). It is suspected that some of the capital works is shown as revenue expenditure under this head. The total expenditure on roads and buildings declined from Rs. 256 million in 1991-92 to Rs. 102 million in 1993-94. Similarly, water charges payable to BWSSB for public taps in the slum areas of Bangalore have also declined from Rs. 98 million in 1991-92 to Rs. 23 million in 1992-93.

At the aggregate level the city administration spends nearly one-third of its revenue on public health which includes charges for free water, sanitation and conservancy, drainage and medical services. It also spends about a third of its total expenditure on public works which includes maintenance of roads, street lights, parks and construction of bridges and roads.

The financial situation of BCC is quite sound, as it has managed to maintain a steady growth in its own sources of revenues. Though, at present, BCC is quite dependent on the grants and shared taxes from the state government to meet nearly half of its expenditure, this situation is likely to change if the recommendations of the Karnataka State Finance Commission (SFC) are accepted by the state government. The Karnataka SFC has recommended sharing of a total divisible pool of state revenues from sales tax, turnover tax, excise, motor vehicle tax, entertainment tax, and other own revenues of the state government from taxes and fees. The present ad-hoc system of revenue sharing is proposed to be replaced by a national system of weightages which takes into account the total population, area and a set of criteria related to backwardness. The devolution of the state revenues for BCC, under these guidelines, would reduce significantly from the present level of revenue transfers.

The SFC has also recommended transfer of water supply, sewerage, town planning and urban development to the municipal corporation. This is recommended to remove the dual control and reduce multiplicity of agencies that have proliferated in the state of Karnataka and have undermined the role of urban local bodies. However, the financial implications of such transfers to BCC may be adverse, as many agencies which have been providing services to the city, do not have a sound financial record and are supported through state budgets.

Table 8.7

Revenue Expenditure of Bangalore City Corporation

(in million Rs.)

Heads of expenditure	Year			Average annual growth rate (%)
	1991-92	1992-93	1993-94	
1. General administration and collection of revenue	89.64	94.93	103.42	7.42
2. Public health				
i. Water supply	98.21	78.57	22.51	-45.68
ii. Conservancy and sanitation	160.78	178.14	228.52	19.54
iii. Drainage and sewerage	21.72	33.92	20.63	8.50
iv. Medical services	64.83	72.67	84.50	14.19
v. Others	2.10	16.23	2.34	293.64
Total public health	347.64	379.53	358.50	1.82
3. Public Works				
i. Roads	199.94	270.22	79.45	-17.73
ii. Bridges, culverts and causeways	12.19	11.97	13.77	6.62
iii. Buildings	55.67	31.08	22.82	-35.38
iv. Communication	27.92	26.08	39.32	22.09
v. Tools and plants	24.52	26.94	28.84	27.21
vi. Others	69.19	77.59	81.11	8.34
Total public works	389.43	443.88	265.31	-13.13
4. Public safety	28.31	49.51	29.96	17.70
5. Education	44.45	43.67	51.77	8.40
6. Recreational Activities	18.66	17.31	23.33	13.78
7. Others	203.80	225.75	240.09	8.56
Total revenue expenditure	1121.93	1254.58	1072.38	-1.35
Per capita revenue expenditure (Rs.)	418.63	464.66	394.26	
Per capita expenditure (at constant prices) (Rs.)	418.63	420.95	334.02	

Source : BCC, Revised Budget Estimates and Budget Estimates, 1992-93 and 1993-94, 1993-94 and 1994-95, 1994-95 and 1995-96.

Note: Figures on Public Works include a part of capital expenditure also.

PRICING AND COST RECOVERY OF URBAN SERVICES

Water Supply and Sewerage

Pricing

The Bangalore Water Supply and Sewerage Board (BWSSB) is the agency responsible for provision, operation and maintenance of water supply and sewerage system in Bangalore city. This agency, however, does not enjoy autonomy in determining the user charges. The responsibility for fixing and periodic revision of water supply tariff for Bangalore is vested with the Consultative Committee set up by BWSSB. The rates proposed by the committee, however, have to be approved by the state government. These rates are also published in newspapers for receiving public response. A period of 30 days is given for taking into account people's objections to the proposed rates.

The BWSSB follows two types of pricing principles. First, differential sectoral pricing for domestic and non-domestic water uses. Second, a slab rate of water charges for different quantities of water consumed in each sector. According to the information received from BWSSB, the current rates of water came into force from July 1, 1995 (Table 8.8). At present, there is a minimum charge of Rs. 0.96 per KL for use of water upto 25,000 litres in the domestic sector. The water rate in the 25,001-50,000 litre category is Rs. 2.40 per KL, 50,001-75,000 category Rs. 6.50 per KL, 75,001-100,000 category Rs.8.45 per KL and the highest rates of Rs.13.50 per KL is charged in the above 100,000 litres consumption slab. The non-domestic water charges are on an average five times higher than the domestic water rates. These vary between Rs.13.50 per KL to Rs.22.50 per KL. The free water provided through public fountains is priced at Rs.1,875 per tap per month.

In addition, there is a 30 per cent sewerage cess levied on water rates, which has remained unchanged over the years.

Bangalore is one of the few cities in India where the concerned agency has revised the water tariff every year in the recent past in order to meet the increasing operation and maintenance cost. The water rates have been revised by BWSSB four times since 1991. This has meant a three to five fold increase in water tariff in various consumption categories within a short span of five years.

The last revision of water tariff, both for filtered and raw water, based on cost of production came into effect on November 1, 1991. Two subsequent revisions dated August 1, 1992 and September 1, 1993 were done to absorb the increase in power tariff. Water rates were

Table 8.8

Bangalore : Categorywise Filter Water Rates, 1991-95

Slab in litres	Rates in Rupees per KL				
	Upto October 1991	November 1991	August 1992	September 1993	July 1995
<u>Domestic</u> :					
0 to 25,000	0.35 (Min.Rs. 3.50)	0.50 (Min.Rs.12.50)	0.60 (Min.Rs.15.00)	0.80 (Min.Rs.20.00)	0.96 (Min.Rs.24.00)
25,001 to 50,000	0.75	1.20	1.50	2.00	2.40
50,001 to 75,000	2.00	3.00	4.00	5.00	6.50
75,001 to 1,00,000	3.00	4.50	5.50	6.50	8.45
Above 1,00,000	4.00	6.00	7.50	9.00	13.50
<u>Non-Domestic</u> :					
0-10,000	3.00 (Min.Rs.30.00)	6.00 (Min.Rs.60.00)	7.50 (Min.Rs.75.00)	9.00 (Min.Rs.90.00)	13.50 (Min.Rs.135.00)
10,001 to 20,000	4.00	6.00	8.50	10.00	15.00
20,001 to 40,000	5.50	9.50	12.00	14.50	21.75
40,001 to 60,000	7.50	12.00	15.00	18.00	27.00
60,001 to 1,00,000	8.00	12.00	16.00	19.00	28.50
Above 1,00,000	10.00	15.00	18.00	20.00	30.00
Industries	12.00	15.00	18.00	20.00	30.00
Swimming pool	10.00	10.00	12.00	15.00	22.50
Public standposts (per tap per month)	1,250.00	1,250.00	1,250.00	1,250.00	1,875.00
Lorry load	N.A.	N.A.	N.A.	2.50	3.75

Source: BWSSB, Handbook of Statistics, 1993-94 and 1995-96.

revised once again on July 1, 1995. The practice of supplying water free of cost to all consumers was also completely dispensed with. Prior to rate revision in 1991, domestic consumers did not have to pay for water upto 25,000 litres per household per month. The free water limit was reduced to 16,500 litres per household per month in November 1991. However, BCC paid Rs. 8.50 per connection per month to BWSSB for the free water provided to the consumers. All other water supply related charges, however, remained unaltered during the five year period. This includes new connection deposits, meter cost, meter servicing charges, reconnection fee and other incidental charges. In fact, the new connection deposit is very low in comparison with other cities in India. For instance, for 0.5 inch domestic connection it is Rs. 50 and for non-domestic connection it is Rs.200. For 0.75 inch connection the deposit is Rs. 200 and Rs.400 for domestic and non-domestic consumers respectively. Non-domestic consumers pay a higher deposit of Rs.800 to Rs.20,000 per connection for one to nine inches pipe diameter. These deposits for new connections have been in practice since the inception of BWSSB in 1964. A proposal has now been made to revise the deposit ten times, which awaits state government approval.

The water rates were revised in order to meet the steep increase in operation and maintenance cost and to wipe out the revenue account deficit of Rs. 884 million, which was accumulated by the end of 1993-94. The revised water tariffs were not only expected to meet the entire revenue expenditure from revenue receipts but were also supposed to generate an additional sum of Rs. 956 million for financing a part of the Cauvery Water Supply Scheme-Stage IV.

Capital Receipts and Expenditure

The BWSSB is responsible for undertaking capital works for source development, conveyance, storage, treatment and distribution of water and the city's sewerage system. The total quantum of water received from the two rivers and about 2133 borewells in the city was about 550 MLD in 1994-95. The BWSSB has plans to augment the city's water supply by 540 MLD through the implementation of Cauvery Water Supply Scheme-Stage IV, which will help to bridge the gap between the existing water supply and demand as well as to meet the increasing demand in the next 10-15 years. The proposed water project is estimated to cost Rs. 5,000 million. At present, the Board is trying to acquire funds from various sources, including O.E.C.F. of Japan.

In the year 1992-93, the Board received Rs. 328.94 million of capital and spent Rs. 268.99 on water supply and sewerage capital works. The data on capital receipts and expenditure of BWSSB for 1985-86 to 1993-94 shows a capital surplus in all the three years, i.e., in 1985-86, 1989-90 and 1992-93 (Table 8.9). However, in the year 1993-94 there was a capital deficit of about Rs. 110 million. This is on account of expected lower receipts as well as enhanced expenditure on water supply and sewerage capital works likely to be undertaken in areas of the

Table 8.9

**Bangalore : Capital Receipts and Expenditure on
Water Supply and Sewerage, 1985-86 to 1993-94**

(in million Rs.)

Item	Years			
	1985-86	1989-90	1992-93	1993-94
Capital receipts	76.10	447.25	328.94	68.80
Capital expenditure	10.57	355.48	268.99	177.27
Surplus/deficit	+65.53	+91.77	+59.95	-108.47

Source: BWSSB, Handbook of Statistics, 1993-94 and 1995-96.

city hitherto not covered by these services. The increased capital receipts and expenditure in the years 1989-90 and 1992-93 in comparison to 1985-86 was on account of the accelerated investment in source development, particularly in the Cauvery water supply scheme.

The BWSSB also undertakes construction of water supply and sewerage facilities as deposit contribution works with funds received from BDA, BCC and other local level agencies.

Revenue Receipts and Expenditure

Although water rates have been revised four times in the past five years, BWSSB is not able to generate adequate revenues for meeting the total O & M cost. The data on receipts and expenditure of BWSSB shows a revenue deficit in all the years between 1985-86 and 1993-94 (Table 8.10). Also, this revenue deficit has been increasing over time. In 1985-86 the revenue deficit was Rs. 58.10 million and it increased to Rs.154.32 million in 1993-94.

Table 8.10

**Bangalore : Revenue Receipts and Expenditure on
Water Supply and Sewerage, 1985-86 to 1993-94**

(in million Rs.)

Items	Years		
	1985-86	1989-90	1993-94
<u>Revenue receipts</u>			
Water supply	198.17	337.90	700.85
Sewerage	3.41	9.50	32.21
General receipts	11.13	5.61	79.47
Total receipts	212.71	353.01	812.53
<u>Revenue expenditure</u>			
Water supply	167.85	267.19	431.19
Sewerage	12.86	23.64	44.80
General administration	6.89	6.08	25.75
Interest on loan/debentures	69.44	132.07	300.42
Depreciation	13.77	12.28	17.95
Provision for bad and doubtful debts and guarantee commission	-	-	14.62
Power charges	-	-	132.02
Others	-	-	0.10
Total expenditure	270.81	441.26	966.85
Surplus/deficit	-58.10	-88.26	-154.32

Source: (i) BWSSB, Handbook of Statistics, 1993-94 and 1994-95, Bangalore.
(ii) BWSSB, Statistical Brochure, 1989-90 and 1990-91, Bangalore.

Recovery of User Charges for Water Supply

The data on demand, collection and balance of water charges shows that the collection was 58.52 per cent of the total demand in 1989-90 and 64.25 per cent of the total demand in 1994-95 (Table 8.11). Discussions with the officials of BWSSB indicated that about 54 per cent of the billed amount is recovered every year, which results in mounting areas of water charges. The unpaid water dues are often from various government departments. The default rate amongst other consumers is very low, and about 95 per cent of them promptly pay their bills. The government department's dues are generally written-off, or met by the state government to fill the overall deficits of BWSSB.

Table 8.11

**Bangalore : Demand, Collection and Balance,
Water Supply 1989-90 and 1994-95**

(in million Rs.)

Item	Years	
	1989-90	1994-95
Opening balance	193.91	402.66
Demand during the year	311.82	858.81
Total demand	505.73	1261.47
Collection during the year	295.96	810.47
Write off	-	119.64
Balance at the end of financial year	209.77	331.36
Recovery rate (%) total demand	58.52	64.25

Source : (i) BWSSB, Statistical Brochure, 1989-90 and 1990-91, Bangalore.
(ii) BWSSB, Performance Report 1994-95, Bangalore.

The BWSSB attempts to increase its revenue receipts by reducing losses due to unaccounted water, which was as high as about 30 per cent of the total water supplied in 1994-95. But the main constraint in increasing the revenue is the fact that about 85 per cent of the water rate payers are domestic consumers (47% domestic connections and 38% public fountains) who pay for water at the lowest rate. This also means that there is very little inter-sectoral cross subsidy from the high rate paying industrial sector to low rate paying domestic consumers. Another reason given for low cost-recovery from domestic water consumers is that due to low water pressure the meters often stop working and billing on the basis of actual quantity of water consumed is not possible. However, it is important to note here that profitability of BWSSB in

the water supply provision will be greater even without further revising the water rates with more efficient cost recovery of water user charges.

As mentioned earlier, BCC pays to BWSSB for the free water provided through public fountains. In 1993-94, BCC paid Rs.17.85 million towards water charges on public taps, and Rs. 0.01 million towards free water allowance. In 1991-92, these two payments were to the tune of Rs. 94.26 million and Rs. 2.23 million respectively. Such high payment by BCC in 1991-92 was probably on account of past arrears.

Solid Waste

Revenue for solid waste management in Bangalore is generated by levying a cess on the property tax. General sanitary cess is a part of the health cess which is charged at the rate of 15 per cent of the property tax. The health cess is an assigned charge which is collected by BCC. The state government pays to BCC a collection charge and allows it to retain 98 per cent of the cess collected for meeting its revenue expenditure on general health and sanitary services. We do not have the data on how much of the health cess is utilised exclusively for solid waste collection and disposal.

In the year 1993-94, BCC generated Rs. 62.96 million through health cess receipts. In the year 1991-92, the collection of health cess was Rs. 48.31 million (Table 8.12). The expenditure on solid waste management was about three times more than the total health cess collection. The revenue expenditure on solid waste operation and maintenance in 1993-94 was Rs. 224.59 million and in 1991-92 it was Rs.160.78 million. The proportion of staff salaries in total revenue expenditure alone was 85 per cent in 1993-94 and 90 per cent in 1991-92. It is clear, therefore, that even total health cess is not adequate for the operation and maintenance of solid waste management in Bangalore. The revenue deficit is generally met by general revenues of BCC.

Table 8.12

**Bangalore : Revenue Receipts and Expenditure
on Solid Waste, 1991-92 and 1993-94**

(in million Rs.)

Item	Years	
	1991-92	1993-94
<u>Health cess receipts</u>		
Collection charges	4.83	6.40
Cess collected on behalf of state government	43.48	57.56
Paid to state government on account of health cess	-	-1.00
Total	48.31	62.96
<u>Revenue expenditure</u>		
Salaries	146.62	190.27
Cleaning and transportation of garbage	11.55	31.12
Others	2.61	3.20
Total	160.78	224.59

Source: BCC, Revised Budget Estimates and Budget Estimates, 1992-93 and 1993-94, 1994-95 and 1995-96.

Note: Figures on revenue expenditure include a part of capital expenditure also.

Roads

The only source of revenue for city roads maintenance is BCC's share in the state level motor vehicle tax collections. The annual revenue receipt obtained through compensation for the motor vehicle tax in 1993-94 and 1991-92 was Rs.7.43 million and Rs.7.46 million respectively. The revenue expenditure on repairs and maintenance of city roads far exceeded the revenue receipts. The expenditure on roads was Rs. 44.01 million in 1993-94 and Rs. 39.09 million in 1991-92. The revenue deficit on roads maintenance was Rs. 36.58 million in 1993-94 and Rs. 31.63 million in 1991-92. Motor vehicle tax is certainly not adequate even for meeting the recurring repairs and maintenance requirement of roads in Bangalore.

Table 8.13

**Bangalore : Revenue Receipts and Expenditure
on Roads 1991-92 and 1993-94**

(in million Rs.)

Item	Years	
	1991-92	1993-94
<u>Revenue receipts:</u>		
Motor vehical tax compensation	7.46	7.43
<u>Revenue expenditure:</u>		
Salaries	23.89	32.83
Maintenance	15.20	11.18
Total expenditure	39.09	44.01
Surplus/deficit	-31.63	-36.58
Capital expenditure	212.12	93.22

Source: Estimated on the basis of data given in Revised Budget Estimates and Budget Estimates, BCC, 1992-93, 1994-95 and 1995-96.

In addition to the repairs and maintenance, BCC spends a large sum of money on road widening, extension of city roads and construction of bridges, footpaths and culverts. The capital expenditure on roads was Rs. 93.22 million in 1993-94 and Rs. 212.12 million in 1991-92 (Table 8.13). There is no clearly stated source of capital receipts for roads in the municipal budget. This means that capital expenditure on roads in Bangalore is also met through general revenues of BCC.

IX. VISAKHAPATNAM

Visakhapatnam, the second largest city in Andhra Pradesh, is one of the fastest growing cities of India. The city has a major port, it is the headquarter of the Eastern Naval Command and is a major railway junction. From a population of 108,042 in 1951, it has joined the ranks of million plus cities in 1991 (Table 9.1). Its rapid growth is largely due to the establishment of a large steel plant in the sixties and expansion of activities at the Visakhapatnam Port Trust. These two major activities have led to the establishment of a number of medium and large scale industries in the region.

Table 9.1

Profile of Visakhapatnam

City/UA	Year	Civic Status	Population	Percentage decadal variation	Area in Km ²	Density per Km ²
1. Visakhapatnam Urban Agglomeration	1951		108,042	-	-	-
	1961		211,190	+95.47	29.14	7247
	1971		363,467	+72.10	94.53	3845
	1981		603,630	+66.08	96.54	6253
	1991		1,057,118	+75.13	204.78	5162
2. Visakhapatnam City	1951	-	108,042	-	-	-
	1961	Municipality	211,190	+95.47	29.14	7247
	1971	"	352,504	+66.91	76.32	4619
	1981	Municipal Corporation	365,321	+60.37	78.33	4664
	1991	Municipal Corporation	752,037	+105.85	N.A.	-

Source : Computed from :

- (i) Census of India, General Population Tables, Part-II(A), 1981.
- (ii) Census of India, Final Population Totals, Paper 1 of 1992.

INSTITUTIONAL ARRANGEMENT

The Visakhapatnam Municipal Corporation (VMC), under the Hyderabad Municipal Corporation Act, 1955, is obligated to provide all the core urban infrastructure and services in the city. Both the capital investments and operation as well as maintenance expenditures are made by VMC from its own budget for all the infrastructure services. In spite of the rapid growth of population and economic activities, VMC has been able to provide adequate services to its residents as well as maintain an overall surplus in its revenue budget each year.

In Visakhapatnam, VMC is obligated to make adequate provisions related to the following services:

- (a) Watering, scavenging and cleaning of public streets;
- (b) Sewerage collection, removal and treatment;
- (c) Construction, maintenance and cleaning of drains;
- (d) Construction and maintenance of roads; and
- (e) Construction, operation and maintenance of municipal water supply.

The Visakhapatnam Port Trust (VPT), has had a significant impact on the promotion of large scale industries and consequent rapid growth of population in the city. Under the prevalent central government directives, municipal corporations can not levy property tax on central government owned properties, but can levy a service charge. The service charges, in lieu of property tax, from VPT have been derived on the basis of 2 per cent of earnings of VPT. The utilisation of this service charge represents a unique institutional arrangement in which 51 per cent of the service charges payable to VMC are retained by VPT for infrastructure development in the city of Visakhapatnam. Such investments are decided by a joint committee of VMC and VPT and work is executed by VPT. For the year 1992-97, a total investment of Rs.55 million is committed from the service charges payable by VPT for a sewage treatment plant, aqua sports complex and environmental development scheme.

MUNICIPAL SERVICES

Water Supply

The city is dependent for its supply of water on three sources, viz., lake, canals and wells. The total quantum of water obtained per day from all the three sources was 127 MLD in 1992-93 which increased to 146 MLD in 1995-96. About 70 per cent of the water in Visakhapatnam is obtained from canals.

There are three treatment plants in the city, viz., (i) Krishnapuram, having a capacity of 46 MLD, (ii) Gostani with a capacity of 18 MLD and (iii) MGR Filtration Plant, with 25 MLD capacity. Thus, the total capacity of all these plants is 89 MLD. Rest of the water is supplied by VMC without any treatment for industrial and construction purpose.

About 80 per cent of the total population is served by the public distribution system. While the remaining one-fifth of the population depends upon wells and borewells.

The per capita availability of water is 95 litres per capita per day (lpcd). As per the norm for a city of this size, the requirement of water should be at least 135 lpcd. A proposal to bring water from Godavari river's Bhagirathi canal is being considered by VMC for augmenting the water supply to the city. This scheme to supply 182 MLD of fresh water is expected to cost Rs.1890 million. The VMC has sought funds from private and public sector industries in the city as well as from other government sources for this project. Of the estimated cost of Rs.1890 million, it is expected that Rs.1000 million will be collected from the industries as capacity allocation fees for an assured supply of water. The capacity allocation fee is Rs.30 million per MLD of assured water supply. The industries would, in addition, also pay the water charges at the prevailing rate. The remaining Rs.890 million will be contributed by public sector industries, the local governments in the area as well as by the state government.

Sewerage

Out of 50 municipal wards of Visakhapatnam, only 5 are covered by an underground sewerage system. The city is mostly served by an open drain system. About 90 per cent of the population living in those areas which are not covered by this service depend on septic tanks, soak pits or use open drains. About 10 MLD of sewerage is generated per day. As the city does not have any sewage treatment plant, the untreated sewage is directly disposed off in the sea.

Solid Waste Management

The VMC claims that the city generates about 368 tonnes of solid waste every day. The per capita generation of waste is estimated to be 490 gms. per day. About 80 per cent of the solid waste is collected from the bins daily. In some areas the waste is collected once in a week. However, there are some other areas where the collection of waste is done only once in a month. The collection efficiency is not commendable, as 270 tonnes of solid waste is collected daily against the 368 tonnes of solid waste generated per day.

The collected waste is transported to dumping grounds and land fills on an average by 50 vehicles. The mechanical composting of solid waste has been tried in Visakhapatnam but it has not been very successful due to a high cost of production.

The VMC has given out the responsibility of primary collection and transportation of garbage in a few residential localities and a vegetable market to private contractors. The work of private contractors is perceived to be satisfactory. The VMC, though, does not seem to be achieving any major cost savings but has decided to continue with privatisation policy in order to have an alternative to the existing system and to induce competition.

Roads

Visakhapatnam has a well designed network of roads. The total length of roads is 720 kms. There are four types of roads, namely, B.T. roads, C.C. roads, W.B.M. roads and Gravel & Kutcha roads. The typewise length of roads is given below in Table 9.2.

In addition, a 40 km. highway funded by the Asian Development Bank is under construction which will connect Visakhapatnam with two smaller townships in the Urban Agglomeration, namely, Anakpalle and Gajwada.

Table 9.2

Category-wise Roads in Visakhapatnam City

Type of roads	Length (in Kms.)	Per cent to total road length
B.T. Roads	430	59.70
C.C. Roads	150	20.83
W.B.M. Roads	90	12.50
Gravel and Kutcha Roads	50	6.94
Total	720	100.00

Source : Based on data obtained from VMC.

MUNICIPAL FINANCE

The VMC is one of the few municipal corporations in the country to have a surplus on revenue account of over 40 per cent. Such a large surplus for municipal governments is noteworthy and the experience of VMC demonstrates that it is possible for other municipal bodies to mobilise resources on their own through appropriate pricing of services.

At the aggregate level, in 1990-91, the total revenue receipts of VMC were Rs.265 million and the total revenue expenditure was Rs.134 million. The surplus on revenue account was Rs.131

million or 49 per cent of the revenue income. In 1993-94, the total revenue receipts were Rs.365 million and the total revenue expenditure was Rs.211 million. The revenue surplus of Rs.154 million was 42 per cent of its revenue receipts. Such consistently high revenue surpluses are rare among Indian cities. A detailed examination of the municipal budget suggests that VMC is able to meet nearly all its revenue expenditure from its own tax and non-tax revenues. Its share in the assigned taxes and the grants that it receives are by and large used to finance capital works in the city.

Revenue Receipts

Municipal Taxation

The tax receipts contribute about 15 per cent of the aggregate revenue receipts. Only two taxes are levied by VMC. The advertisement tax and the property tax. Yield from advertisement tax is quite insignificant. The property tax is based on Annual Rateable Value (ARV) and is levied at 25 per cent of ARV on residential properties and at 33 per cent of ARV on non-residential properties (Table 9.3).

These rates have not been revised since April 1977. The assessment of rateable values are required to be done every four years. However, this is also not undertaken. The collection efficiency is reasonable in comparison with other cities. Of the total property tax demand, 76 per cent is collected. But non-revision of rates and the ARV assessment have resulted in near stagnancy in property tax receipts. In the past three years, property tax receipts have grown at an average rate of 7.4 per cent per annum.

Table 9.3

Property Tax Components

Item	Property tax as per cent of ARV	
	Residential	Non-residential
General tax	10.00	12.00
Water tax	5.30	8.00
Drainage tax	2.70	4.00
Scavenging tax	2.00	3.00
Lighting tax	2.00	2.00
Library cess	0.88	1.16
Education tax	2.12	2.84
Total	25.00	33.00

Non-Tax Receipts

The non-tax receipts, i.e., receipts on user charges for water, fee and fines and rents, account for nearly 40 per cent of the total revenue receipts. Of these receipts, water charges are the most important source of revenue. The city manages to generate a huge surplus on its water supply. The details of the costs and receipts on water supply is described in the subsequent sections. Although, the average annual growth rate of water charges during 1990-91 to 1993-94 is 24 per cent, this is largely due to the sudden increase of revenue during 1993-94 as a result of rate revision. In the years prior to this, the receipts on water charges were nearly stagnant. It is, therefore, imperative that the city government revises its water charges periodically to ensure a certain degree of buoyancy in its most important revenue source.

Transfers from State Government

The VMC receives its share of the assigned taxes from the state government. The taxes shared by the state government include entertainment tax, surcharge on stamp duty and motor vehicle tax. The state government also pays service charges on its properties. The sharing of entertainment tax is fixed arbitrarily and these receipts have been stagnant for the past four years, the state's compensation for property taxes have grown over the years at an annual average of 79 per cent during 1990-91 to 1993-94. These shared taxes and payment of service charges account for nearly 14 per cent of the total revenue receipts of VMC.

The city also receives a per capita general purpose grant from the state government as well as certain targeted grants for specific activities such as education, pay of dearness allowance. As a part of the Overseas Development Assistance (ODA), UK assistance, on slum improvement, the city receives Rs.50 million each year. This grant will not continue beyond 1995-96. Due to this grant, the total receipts on shared taxes and grants have been nearly 50 per cent of aggregate revenue receipts. However, after the discontinuation of this grant, this share would come down drastically, unless the state government decides to compensate VMC.

Table 9.4

Revenue Receipts of Visakhapatnam Municipal Corporation

(in million Rs.)

Heads of Receipts	Year				Average annual growth rate (%)
	1990-91	1991-92	1992-93	1993-94	
1. Own receipts					
a. Tax receipts					
i) Property tax	40.42	43.12	48.20	50.00	7.40
ii) Advertisement tax	0.37	0.34	1.67	1.01	114.52
Total tax receipts	40.79	43.46	49.87	51.01	7.86
b. Non-tax receipts					
i) Water charges	69.48	73.96	71.86	121.44	24.17
ii) Fee and fines	8.13	11.00	11.27	11.61	13.59
iii) Rents	2.70	4.36	3.25	3.78	17.44
iv) Others	5.90	7.81	8.37	14.21	36.44
Total non-tax receipts	86.21	97.13	94.75	151.04	23.17
Total own receipts	127.00	140.59	144.62	202.05	17.73
2. Transfers					
a. Shared taxes					
i) Entertainment tax	19.30	17.40	18.74	19.58	0.78
ii) Surcharge on stamp duty	13.03	14.69	15.54	17.26	9.86
iii) Property tax compensation	3.64	10.91	17.75	13.32	79.15
iv) Others	3.56	3.57	3.49	3.43	-1.23
Total shared taxes	39.53	46.57	55.52	53.59	11.18
b. Grants					
i) General purpose (per capita)	0.52	0.52	1.63	3.00	99.17
ii) Specific purpose					
- Education	17.52	16.19	21.96	29.68	21.07
- ODA projects	62.60	50.86	52.86	51.08	-6.06
- Other purpose	16.69	15.53	11.05	24.72	29.30
Total grants	97.33	83.10	87.50	108.48	4.88
Total transfers	136.86	129.67	143.02	162.07	6.12
Total receipts	263.86	270.26	287.64	364.12	11.81
Per capita receipts (Rs.)	352.81	351.94	359.76	445.05	
Per capita receipts (Rs.) (at constant prices)	352.81	309.71	287.81	333.79	

Source: Based on data obtained from VMC.

Research Study Series
Number 59

FINANCING URBAN INFRASTRUCTURE IN INDIA

IS 107 T 186

Prepared for the Urban Sector Profile Project of the
Asian Development Bank, Manila, Philippines

ADB TA No.2098-IND
Contract No. COCS/95-291

National Institute of Urban Affairs
New Delhi, India
March, 1997

Revenue Expenditure

The revenue expenditure of VMC has been growing at an average annual rate of 16.7 per cent (Table 9.5). Expenditure on staff salaries account for nearly 60 per cent of the total expenditure. Among the various expenditure heads, public health (including sanitation and conservancy) and water supply have the highest expenditure. These two heads account for nearly half of the municipal expenditure. Education is the other major item of expenditure, but the city receives specific grants from the state government for this purpose.

Table 9.5

Revenue Expenditure of Visakhapatnam Municipal Corporation

(in million Rs.)

Heads of expenditure	Year				Average annual growth rate (%)
	1990-91	1991-92	1992-93	1993-94	
General administration and collection of revenue	8.60	6.61	7.82	8.72	2.23
Public works	16.07	32.37	23.54	29.18	32.70
Education	19.85	22.79	27.21	30.94	15.97
Public health	22.55	32.02	53.17	56.47	38.08
Water supply and drainage	20.11	21.62	47.65	51.06	44.91
Public safety (street light)	8.15	10.37	6.86	6.49	-4.00
Parks and rem. enterprises	2.76	3.21	2.12	3.48	15.50
Miscellaneous	35.77	43.92	21.92	24.88	-4.60
Total revenue expenditure	133.92	172.91	190.29	211.22	16.72
Expenditure on salaries of staff	70.58	86.09	106.84	124.19	20.77
Expenditure on O & M services	63.34	86.82	83.45	87.03	12.49
Per capita revenue expenditure (Rs.)	178.09	223.69	239.05	257.90	13.45
Per capita revenue expenditure (at constant prices) (Rs.)	178.09	196.80	190.53	192.23	2.74

Source : Based on data obtained from VMC.

Capital Expenditure and Receipts

The cumulative revenue surplus of each year is deployed by VMC for capital works. This is evident from the fact that the capital expenditure in each year has been more than the capital receipts (Table 9.6 and 9.7). For example, in the year 1990-91, the total capital receipts were Rs.139 million whereas the capital expenditure was Rs.222 million. In 1993-94, the capital receipts were Rs.185 million while expenditure was Rs.334 million. The deficits on capital account are generally covered by surpluses on the revenue account. A major part of the capital expenditure is on water supply and drainage projects. The Urban Community Development Programme, undertaken with the ODA assistance is another major item which claims a significant share of VMC's capital expenditure.

Table 9.6
Capital Expenditure of Visakhapatnam Municipal Corporation

(in million Rs.)

Components	Year			
	1990-91	1991-92	1992-93	1993-94
Lighting	6.11	10.29	6.24	5.63
Water supply and drainage	42.88	163.38	68.74	111.51
Roads	19.72	23.94	23.22	43.43
Management buildings	2.26	1.84	3.30	2.55
P.H. buildings	6.69	4.91	8.73	8.03
Remunerative buildings	16.38	20.13	18.91	24.07
Secondary education	1.29	2.56	1.43	0.97
Elementary education	2.82	0.63	1.66	0.82
Town Planning	3.90	4.79	0.66	0.36
Urban Community Development	63.66	51.94	55.56	52.63
Deposits and advances	56.73	69.63	59.51	84.16
Total	222.42	354.03	247.96	334.16

Source : Based on data obtained from VMC.

Table 9.7

Capital Receipts of Visakhapatnam Municipal Corporation

(in million Rs.)

Components	Year			
	1990-91	1991-92	1992-93	1993-94
Deposits	20.70 (14.91)	19.38 (12.82)	13.80 (09.56)	20.92 (11.33)
Advance	17.45 (12.57)	44.13 (29.20)	34.07 (23.61)	47.48 (25.70)
LIC loan for water supply.	--	25.00 (16.54)	9.00 (06.24)	22.50 (12.18)
HUDCO loan for underground drainage system	--	--	--	12.44 (06.73)
Investments realised	75.81 (54.59)	59.80 (39.57)	70.27 (48.69)	36.73 (19.88)
Water supply contribution	1.78 (01.28)	2.72 (01.80)	0.77 (00.53)	7.94 (04.30)
Water supply capital contribution	23.13 (16.66)	0.09 (00.06)	16.40 (11.36)	36.68 (19.86)
Total	138.87 (100.00)	151.12 (100.00)	144.31 (100.00)	184.72 (100.00)

Source : Based on data obtained from VMC.

PRICING AND COST RECOVERY OF URBAN SERVICES

Water Supply

Pricing

As is the general practice in many Indian states, in Visakhapatnam the minimum rates for water are prescribed by the state government. The municipal corporation is expected to fix water charges above the prescribed minimum water rates which should be adequate to maintain water supply on a self-sufficient basis. The rates thus fixed by the municipal corporation have, in turn, to be approved by the state government. The tariff fixation usually aims to recover both the operation and maintenance cost and capital cost of providing water. The prescribed water rates for VMC also follow the differential pricing principle for different group of users, that is, domestic, commercial and industrial users. The differential sectoral pricing is meant for cross financing of domestic water supply users by the more remunerative commercial and industrial users. The differential pricing principle is followed both for fixing user charges and other water supply related charges.

The VMC is amongst the few urban local bodies which adhered to the recent state prescription of revising water rates in Andhra Pradesh. The VMC revised user charges for water in 1993 after a gap of nearly a decade. The revised water rates for different groups of users were two to four times higher than the prevailing rates. For instance, the domestic unmetered tap rate increased from Rs.10 per month to Rs.40 per month. The charges for industrial treated water increased from Rs.4.44 per KL to Rs. 12 per KL (Table 9.8(i)). The water rates for commercial purpose increased manyfold, i.e., from Rs.1.50 per KL to Rs.10 per KL. Similarly, other charges pertaining to water supply also increased significantly. The application fee amount was revised from Rs. 2 to Rs. 25 (Table 9.8(ii)). The uniform connection charge of Rs.2000 was revised for various categories of consumers, which ranged from Rs. 4,000 for ordinary residential connection to above Rs. 30,000 for apartment complexes. Charges for other water supply related services were also rationalised with a view to full cost recovery. This included temporary connection charges, metered repairing, supply of water through tankers, regularisation of unauthorised connections, disconnections and re-connections, as well as, the charge for road cutting for extending new connection lines.

Table 9.8(i)

Visakhapatnam : Water Charges

Category		Upto March 1993 (Rs.)	Revised from April 1993 (Rs.)
<u>User Charges</u>			
Domestic :	Metered	1.50 per KL	5 per KL subject to a minimum of Rs. 150 p.m.
	Unmetered	10 per tap p.m.	40 per tap p. m.
<u>Standposts</u>		Free of cost	Free of cost
Multi storied building	Residential	4.44 per KL	10 per KL subject to a minimum of Rs. 1000 p.m.
	Non- residential	N.A.	12 per KL
Commercial		1.50 per KL	10 per KL subject to a minimum of Rs.1000 p.m.
Industrial : (semi-bulk and bulk)	Treated	4.44 per KL	12 per KL subject to a minimum of Rs. 1000 p.m.
	Untreated	2.22 per KL	5 per KL

Table 9.8(ii)

Visakhapatnam : Water Charges

Category	Upto March 1993 (Rs.)	Revised from April 1993 (Rs.)	
<u>Other Charges</u>			
Connection charges			
Tap application fee	2	25	
Residential - ordinary	2000	4,000	
Residential - O.Y.T.	2000	7,000	
Non-residential - ordinary	2000	15,000	
Non-residential - O.Y.T.	2000	25,000	
Apartment complexes	N.A.	30,000 plus 20,000 for 1" connection 15,000 for 3/4" connection 10,000 for 1/2" connection plus 3,000 per apartment	
Temporary connection	N.A.	As per meter reading or 10 per day for 1/2" pipe 20 per day for 3/4" pipe 30 per day for 1" pipe	
Meter repairing (excluding material cost)	N.A.	100 per unit	
Supply through tankers	N.A.	250 upto 4 KL	
Charges for regularisation of unauthorised tap connections	N.A.	10,000 for residential 20,000 for non-residential	
Disconnection charges (on requisition from the party)	N.A.	50 per tap	
Reconnection charges		50 per tap	
Road cutting charges	N.A.	145 per SMT for B.T. Roads 165 per SMT for C.C. Roads	

The differential pricing structure in VMC allows the domestic users to buy water at the lowest possible rates. The bulk of the domestic connections in the city are unmetered. These consumers are expected to pay a monthly flat rate of Rs. 40 per connection. The price for the metered domestic water supply is fixed at Rs. 5 per KL subject to a minimum of Rs. 150 per month. This is applicable in the case of new connections which are obliged to be metered. Water supply to the poor residents of the city is provided free of cost through 3,500 public standposts and taps. Most of the water supply for multi-storied apartment complexes as well as for commercial and industrial purpose is metered and is priced at a relatively much higher rate of Rs. 10-12 per KL.

Other water supply related charges include application fee of Rs. 25, connection charges which vary according to the consumer group and the diameter of the pipe, meter repairing charges of Rs.100, Rs. 250 for supply of water through tankers upto 4 KL, Rs. 10,000-20,000 for regularisation of unauthorised connections, disconnection-reconnection charges of 50 each and road cutting charges of Rs. 145-165 per SMT of roads of different types (Table 9.8(ii)).

Capital Receipts and Expenditure

The combined capital receipts for water supply and drainage, including grants and loans, was Rs. 82.80 million in 1993-94, as against capital expenditure of Rs. 111.51 million. The capital receipts were higher than the expenditure only in 1989-90, between 1989-90 and 1993-94 (Table 9.9). In all the other years, the capital expenditure has been higher than the receipts. The capital deficit was the largest in the year 1991-92, which amounted to about Rs.135 million. This was largely due to the capital works undertaken for the expansion of the city's water supply system. However, the situation is not the same every year. The disaggregated revised budget estimates for 1994-95 reveal that there was a capital receipts surplus of about Rs. 8 million in the water supply sector, where as there was a deficit of about Rs. 10 million in the sewerage and drainage sector (Table 9.10). The surplus from the water supply sector was expected to be channelled to the drainage sector to meet the capital requirement of the expansion of the underground drainage system.

Table 9.9

**Visakhapatnam : Capital Receipts and Expenditure on
Water Supply and Drainage, 1989-90 to 1993-94**

(in million Rs.)

Item	1989-90	1990-91	1991-92	1992-93	1993-94
<u>Capital/Receipts</u>					
<u>Grants</u>					
Low cost sanitation	2.00	0.00	0.00	0.00	2.22
<u>Loans</u>					
- LIC for water supply	31.58	0.00	25.00	9.00	22.50
- HUDCO for underground drainage system	0.00	0.00	0.00	0.00	12.44
<u>Other Receipts</u>					
- Water service connection charges	0.91	0.76	0.72	0.18	1.02
- Water supply contribution	2.08	1.78	2.72	0.77	7.94
- Water supply capital contribution	55.79	23.13	0.09	16.40	36.68
Total capital receipts	92.36	25.67	28.53	26.35	82.80
Capital expenditure	90.20	42.88	163.38	68.74	111.51
Surplus/deficit	+2.16	-17.21	-134.85	-42.39	-28.71

Source: Based on data obtained from VMC.

Note: Capital receipts exclude figures of deposits and advance of VMC for all years.

Table 9.10

**Visakhapatnam: Capital Receipts and Expenditure on Water Supply and Drainage,
Revised Budget Estimates, 1994-95**

(in million Rs.)

Item	Water Supply	Drainage
Capital receipts	55.60	0.52
Capital expenditure	47.40	11.00

Source: Based on data obtained from VMC.

The existing level of water supply in VMC is inadequate for meeting the demand, particularly the demand for water of the non-domestic industrial sector. The city authorities are keen to augment the water supply system, for which the industrialists are willing to make capital contribution. The city has been considering Godavari-Visakhapatnam water supply scheme which is likely to require huge capital investments. The budgeted amount for this scheme for the year 1995-96 was Rs. 180 million. But the proposed project has not been approved as yet by the state government.

Revenue Receipts and Expenditure

The two main sources of revenue for water supply in VMC are water tax and user charges. The water and drainage tax are a part of the property tax. The water and drainage combined tax in VMC is fixed at 8 per cent of the A.R.V. for residential buildings and 12 per cent of the A.R.V. for non-residential buildings. The ratio of revenue for water and drainage in the combined tax is 2 : 1.

Revenue receipt from water tax in 1993-94 was Rs.10.67 million which accounted for about 8 per cent of the total revenue receipts for water and drainage in Visakhapatnam (Table 9.11). User charge is the main source of revenue for water in Visakhapatnam. The bulk water charges, consumed by the industrial sector, alone accounted for about 68 per cent of the revenue receipts. It is important to note here that the industries consume less than half of the total water supply in the city and contribute a proportionately larger share in the revenue owing to the differential pricing policy prevailing in the city. In the receipts, user charges of all the categories recorded a significant increase in 1993-94 after the revision of rates for water supply in early 1993.

Table 9.11

**Visakhapatnam : Revenue Receipts and Expenditure on
Water Supply and Drainage, 1989-90 to 1993-94**

(in million Rs.)

Item	1989-90	1990-91	1991-92	1992-93	1993-94
<u>Revenue receipts:</u>					
Taxes :					
Water tax	9.87	8.63	9.20	10.28	10.67
Drainage tax	4.94	4.31	4.60	5.14	5.33
Total taxes	14.81	12.94	13.80	15.42	16.00
<u>User charges:</u>					
Tap rate charges	1.51	1.49	3.54	2.96	7.35
Excess water charges	2.83	2.74	2.61	2.11	20.19
Bulk water charges	73.27	65.18	67.75	66.73	93.60
Other water receipts	-	0.07	0.06	0.06	0.30
Total user charges	77.61	69.48	73.96	71.86	121.44
Total revenue receipts	92.42	82.42	87.76	87.28	137.44
<u>Revenue expenditure¹:</u>					
Staff salaries	11.63	11.81	11.98	13.97	15.81
Repairs and maintenance	11.38	8.30	9.64	33.68	35.25
Total revenue expenditure	23.01	20.11	21.62	47.65	51.06
Revenue surplus	69.41	62.31	66.14	39.63	86.38

Source: Based on data obtained from VMC.

Note : 1. Revenue expenditure includes expenditure on drainage which accounts for less than 5 per cent of the total expenditure on water supply and drainage.

Table 9.12

Visakhapatnam: Revenue Receipts and Expenditure on Water Supply and Drainage, Revised Budget Estimates, 1994-95

(in million Rs.)

Item	Water Supply	Drainage
Revenue receipt	148.96	11.33
Revenue expenditure	54.86	2.17

Source: Based on data obtained from VMC.

The revenue expenditure on water supply has two major components, namely, staff salaries and repairs and maintenance. The total revenue expenditure on water in 1993-94 was Rs. 51.06 million, of which Rs. 15.81 million was spent on salaries and Rs.35.25 million was the cost of repairs and maintenance. The cost of electricity alone accounted for more than 60 per cent of the revenue expenditure on water supply. The revenue expenditure on repairs and maintenance experienced a three-and-a-half fold increase in 1992-93, which was maintained at the same level in 1993-94. The electricity rates remained unchanged during this period, and hence, increase in the cost of electricity can not be the main cause of increase in the O & M expenditure. Major repair and maintenance of pipe lines and associated repairs of roads undertaken during the years 1992-93 and 1993-94 was the main cause in the sharp increase in the repairs and maintenance cost.

Cost Recovery

The VMC is one of the few urban local bodies in the country which shows a profit in the provision of water supply. In the year 1993-94, VMC recorded a massive revenue surplus of Rs. 86.38 million in the water sector. The excess of O & M revenue over expenditure has remained consistently high, above 60 million p.a. between 1989-90 and 1991-92. There was a sharp decline in the revenue surplus of about Rs. 20 million in 1992-93, which can be explained largely by an increase in the comparable increase in O & M expenditure in the same year. The revenue surplus has more than doubled in the following year, owing basically to the revised user charges for water. In general, rational pricing of water and the existence of a large industrial sector are the main factors behind a high level of profitability of the water supply system in Visakhapatnam. The returns on water are not only adequate for meeting the O & M cost of water supply, it also provides some surplus for investment in capital works for further expansion of the existing water supply and drainage systems.

Cost recovery analysed by various user groups shows that there is 90 per cent recovery of the billed amount in the case of non-domestic bulk water users in the industrial sector. However, current recovery from the domestic sector is only about half of the demand. Many of the domestic users are not paying for water in protest against the four times revision of water rates. People have gone to the court and are fighting a case for reconsideration of water rates. In November 1995, a total of 43 domestic rate payers' associations were active in Visakhapatnam who were helping people to fight these court cases and to negotiate with local and state governments.

It was difficult to estimate the magnitude of unaccounted water because of the supply system not being completely metered. But the extent of leakages was estimated to be about 10-15 per cent in 1994-95.

Sewerage and Drainage

Capital Receipts and Expenditure

At the time of the city survey in 1995, it was observed that only 10 per cent of the total population of the city was covered by an underground sewerage system. The rest of the population was still dependent on septic tanks, soak pits, dry latrines and open drains for sewerage and drainage. The VMC has currently undertaken a project of extending the underground drainage system at an estimated cost of Rs. 1000 million. The first phase of this project is being implemented with a loan from HUDCO and a part of the funding from VMC's own sources. The VMC also has plans to construct a 25 MLD sewage treatment plant. At present, bulk of the sewage is disposed off in the sea even without primary treatment.

Since the underground sewerage and drainage system in VMC is in the process of being constructed, it requires huge capital investments. In 1993-94, the combined capital receipts for drainage and water supply in VMC was only Rs. 82.80 million which was considerably lower than the combined expenditure of Rs. 111.51 million in the same year (Table 9.9). The revised budget estimates for 1994-95 present disaggregated data for water supply and drainage, which reveals that the capital receipts for drainage was only Rs.0.52 million as against the estimated expenditure of Rs.11 million (Table 9.10). Some of the capital surplus from the water supply sector is invested in drainage and sewerage works. Attempts are also made to generate funds for capital investment from other sources. For example, out of the property tax contribution of the VPT, a sum of Rs. 33.90 million has been committed for a sewage treatment plant during the eighth plan period (1992-97). In addition, VMC has levied a drainage cess since 1993 at the rate of Rs. 10 per sq. metre of the plot area which is a one-time charge payable at the time of the building plan approval.

Revenue Receipts and Expenditure

The drainage tax, which is a part of the property tax, is the only source of revenue receipt for drainage and sewerage in Visakhapatnam. The VMC also levies a user charge for septic tank cleaning at the rate of Rs. 150 per tank. So far no significant collection has been recorded under this head. In 1993-94, the drainage tax collection was Rs. 5.33 million (Table 9.11). The drainage tax amount has shown a marginal increase in the five year period, 1989-90 to 1993-94.

The revenue expenditure on sewerage and drainage is less than 5 per cent of the combined expenditure on water supply and drainage, which works out to be less than the revenue receipts. However, the revised budget estimates of 1994-95 reveal a much higher revenue receipt for drainage of Rs. 11.33 million and a revenue expenditure of Rs. 2.17 million (Table 9.12). The high level of expected revenue surplus is visualised as one of the sources of funding the extension of the existing underground drainage system.

Solid Waste

Street cleaning, collection of garbage from public dustbins and final disposal in the dumping yard is undertaken in VMC with the revenue generated from scavenging tax collection. Scavenging tax is a part of the property tax and is recovered at the rate of 2.5 per cent of A.R.V. The city neither levies any other charge for solid waste collection and disposal nor does it generate any income from recycling or composting of the garbage.

In the year 1992-93, the revenue receipts through the scavenging tax collection was Rs. 3.86 million. The revenue expenditure in the same year was Rs. 48.71 million. Staff salaries alone accounted for over 80 per cent of the total expenditure on the operation and maintenance of municipal solid waste service. The revised budget estimates for the year 1994-95 envisage a revenue receipt of Rs. 5.11 million and a revenue expenditure of Rs. 62.52 million. Such a wide gap between revenue receipt and expenditure is met by the general revenues of VMC. Additional funds have also to be provided from VMC's general pool of funds for capital expenditure on construction of dustbins and purchase of garbage carts and vehicles.

Roads and Street Lighting

Capital Receipts and Expenditure

The city road construction, maintenance and lighting are the responsibility of VMC. The only capital receipt for roads is state grant which is very small and is provided every year regularly. In addition, some funds are made available for road works under some comprehensive grants, such as, slum improvement scheme of the ODA. VPT has also taken up improvement of the beach road which does not appear in the municipal capital receipts. However, the exact data on such provision is not available. But it is quite clear that capital expenditure on roads and street lighting far exceeds the capital receipts. In the year 1993-94, the capital expenditure was Rs.43.43 million on roads and Rs.5.63 million on street lighting (Table 9.13). There was no specific state grant provided for these works during the same year. It is quite likely that VMC met these expenses also from revenue surplus generated under other heads, such as water.

Revenue Receipts and Expenditure

The only source of revenue for roads is the assigned compensation for the motor vehicle tax collected in the city, which was 0.12 million in 1993-94. The revenue for street lighting is generated by the lighting tax, which is levied at the rate of 2 per cent of the A.R.V. along with property tax. The lighting tax collection for the year 1993-94 was Rs. 4.00 million (Table 9.13).

The gap between revenue and expenditure on maintenance of roads is huge. In 1993-94, Rs. 28.03 million were spent on maintenance of roads in the city. The revenue expenditure on street lighting also exceeds revenue receipts. But the gap between these two is relatively smaller than observed in the case of road maintenance. In 1993-94, Rs. 6.49 million were incurred in the maintenance of street lighting as against the revenue receipts of Rs. 4.00 million.

Table 9.13

Visakhapatnam : Receipts and Expenditure on Roads and Street Lighting, 1989-90 to 1993-94

(in million Rs.)

Item	1989-90	1990-91	1991-92	1992-93	1993-94
<u>Capital receipts</u>					
State grant for improvement of roads	0.00	0.98	0.00	1.50	0.00
<u>Capital expenditure</u>					
Roads	25.97	19.72	23.94	23.22	43.43
Street lighting	5.71	6.11	10.29	6.24	5.63
<u>Revenue receipts</u>					
Motor vehicle tax compensation	0.16	0.16	0.16	0.16	0.12
Lighting tax	3.70	3.23	3.45	3.86	4.00
<u>Revenue expenditure</u>					
Roads:					
Salaries*	7.15	8.31	9.48	14.33	14.51
Maintenance	8.40	7.43	22.30	8.32	13.52
Total	15.55	15.74	31.78	22.65	28.03
Street lighting					
Salaries	1.17	4.99	6.48	2.31	3.34
Maintenance	3.12	3.16	3.89	4.55	3.15
Total	4.29	8.15	10.37	6.86	6.49

Source: Based on data obtained from VMC.

Note : * These figures are approximate, as they include the salaries of some of the P.W.D. staff members who may not be engaged in road works and maintenance and exclude the wages of road gang labourers.

X. AURANGABAD

Aurangabad is the sixth largest city in Maharashtra. It is located in the Marathawada region of the state, which is identified as an industrially backward region. Efforts to promote industrialisation have yielded fruitful results. The city has two industrial estates and a third large estate at Waluj, established recently at a distance of 7 kms. from the present city, is rapidly emerging as a major industrial estate of the state. Besides industries, tourism is a major economic activity in the city. The caves of Ajanta and Ellora attract a large number of tourists to the city.

The City and Industrial Development Corporation (CIDCO) established the New Aurangabad township in 1972. The township is designed to accommodate 250,000 persons and provides all the amenities and infrastructure of a modern city.

The population of Aurangabad urban agglomeration has increased from 0.06 million in 1951 to 0.59 million in 1991. The rate of growth of population was 87 per cent during 1981-91 which is much higher than that of the state's average urban population growth rate of 38.88 per cent. Table 10.1 gives the demographic profile of Aurangabad urban agglomeration and the city.

Table 10.1

Profile of Aurangabad

City/UA	Year	Civic Status	Population	Percentage decadal variation	Area in Km ²	Density per Km ²
1. Aurangabad Urban Agglomeration	1951		66,636	-	-	-
	1961		97,701	+46.62	50.56	1932
	1971		165,253	+69.14	50.48	3274
	1981		316,421	+91.48	N.A.	-
	1991		592,709	+87.11	N.A.	-
2. Aurangabad City	1951		57,949	-	-	-
	1961	Municipality	87,579	+51.13	40.87	2143
	1971	"	150,483	+71.83	40.79	3689
	1981	"	284,607	+89.13	40.79	6977
	1991	Municipal Corporation	5,732,72	+101.42	N.A.	-

Source: (i) Census of India, General Population Tables, Part II (A), 1981.

(ii) Census of India, Final Population Totals, Paper 1 of 1992.

INSTITUTIONAL ARRANGEMENT

The Aurangabad Urban Agglomeration today comprises of three distinct physical entities - the old Aurangabad city including Aurangabad Industrial Area and Chikalthana Industrial Area, the township of New Aurangabad, and the township of Waluj.

Each area is managed by a specific agency. The three major agencies involved in provision of infrastructural services are the Aurangabad Municipal Corporation (AMC), the City and Industrial Development Corporation (CIDCO) and the Maharashtra Industrial Development Corporation (MIDC). Each agency has a prescribed territorial jurisdiction for provision of infrastructure. However, there are some functions that are performed by AMC within CIDCO and MIDC's jurisdiction. The present institutional arrangements are presented below in Table 10.2.

Table 10.2

Institutional Arrangements for Various Spatial Units of Aurangabad

Infrastructure service/and related activities	Aurangabad and Chikalthana industrial areas	New Aurangabad Township	Waluj Township
Water supply	<ul style="list-style-type: none"> • Bulk water-MWSSB • Distribution-AMC • Industrial areas - MIDC 	<ul style="list-style-type: none"> • AMC 	<ul style="list-style-type: none"> • Bulk water-MWSSB • Distribution- MIDC
Sewerage	<ul style="list-style-type: none"> • AMC • Capital works in industrial areas - MIDC 	<ul style="list-style-type: none"> • CIDCO sewerage system under construction • Community septic tanks 	<ul style="list-style-type: none"> • System proposed - MIDC
Drainage	<ul style="list-style-type: none"> • AMC • Capital works in industrial areas - MIDC 	<ul style="list-style-type: none"> • CIDCO through private contractors for cleaning of drains 	<ul style="list-style-type: none"> • MIDC through private contractors for cleaning of drains
Solid Waste	<ul style="list-style-type: none"> • AMC 	<ul style="list-style-type: none"> • CIDCO through private contractors 	<ul style="list-style-type: none"> • MIDC through private contractors
Road/Street Lights	<ul style="list-style-type: none"> • AMC • Capital works in industrial areas - MIDC 	<ul style="list-style-type: none"> • CIDCO 	<ul style="list-style-type: none"> • MIDC
Planning	<ul style="list-style-type: none"> • AMC/MIDC 	<ul style="list-style-type: none"> • CIDCO 	<ul style="list-style-type: none"> • MIDC/CIDCO
Land development	<ul style="list-style-type: none"> • MIDC 	<ul style="list-style-type: none"> • CIDCO 	<ul style="list-style-type: none"> • MIDC/CIDCO

Aurangabad Municipal Corporation

The Aurangabad Municipal Corporation (AMC) was established under the Bombay Provincial Municipal Corporation Act, 1949, in the year 1982. As per this Act, the municipal corporation is obligated to provide basic infrastructure like water supply, drainage, sewerage, roads and services such as conservancy, fire fighting, street lights, education and primary health. This Act empowers AMC to levy taxes like octroi and property tax. User charges for water supply are also levied. These resources, raised by AMC's own efforts, provide sufficient revenues to meet the operating cost of services. The AMC raises loans from Life Insurance Corporation and state government to finance its capital investment.

City and Industrial Development Corporation

The City and Industrial Development Corporation (CIDCO), is an undertaking of the Government of Maharashtra, established in 1970 to create a new township near Bombay. Subsequently, its activities were broadened to include development of townships around new industrial areas in the state. Accordingly, besides the New Bombay township, CIDCO has undertaken township development in Nasik, Aurangabad, Nanded, Waluj and Vasai-Virar.

Established with a share capital of Rs.40 million, CIDCO has been able to generate profits from its land development activities. By March 1993, CIDCO's surplus and reserves had reached Rs.88 million. The CIDCO's ability to use land as a resource to finance development of an entire township has made it possible to remain a profit making corporation.

The township at Aurangabad was entrusted to CIDCO by the state government in 1972. An area of 1221 ha. was notified for acquisition for developing a township for 250,000 persons. The CIDCO has so far constructed 20,000 housing units, sold 2894 bungalow plots and allotted 69 ha. of residential land to 179 co-operative housing societies. In addition, it has sold 88 ha. of land to various government agencies, like Maharashtra Housing and Area Development Authority, police, high court and State Bank of India, for construction of staff quarters.

As a land development agency, CIDCO's primary responsibility is to make the necessary investment in infrastructure and provide serviced land. It is expected to handover the township area to the municipal corporation for operation and maintenance of services. Although, the New Aurangabad township is now incorporated in Aurangabad municipal corporation's jurisdiction, AMC only provides water in the township area. The CIDCO has to maintain and operate all other services. These services are provided by CIDCO through private contractors in the New Aurangabad area.

Maharashtra Industrial Development Corporation

The Maharashtra Industrial Development Corporation (MIDC) is an undertaking of the Government of Maharashtra. Its mandate is to implement the industrial policy of the state government and provide industrial sites in designated locations. The MIDC, as in the case of CIDCO, acquires land for industrial estates, develops industrial plots and recovers the cost of development through sale of plots.

In Aurangabad urban agglomeration area, three industrial estates - Aurangabad, Chikalthana and Waluj - have been developed by MIDC. The MIDC continues to operate and maintain many services in the industrial areas, although it is only a land development agency. For many services like solid waste collection, cleaning of drains etc., MIDC hires private contractors. It levies a service charge for general services and user charges for water to recover its operating costs.

MUNICIPAL SERVICES

Urban Services in Aurangabad Municipal Area

Water Supply

The principal agency providing bulk water to the city of Aurangabad and surrounding areas is the Maharashtra Water Supply and Sewerage Board (MWSSB). Aurangabad as well as New Aurangabad are dependent for the supply of water on the three sources, namely, Godavari river, Harsool tank and Nohar-E-Ambari. The Jaikwadi water system, constructed and maintained by MWSSB, provides water to AMC and MIDC. The AMC receives 85 MLD of water from MWSSB. The AMC also supplements the additional requirements of 12 MLD of water through its own water supply projects (Table 10.3). The AMC distributes water in its own area, including the area of the township of New Aurangabad, developed by CIDCO. Water distribution in the industrial estates of Aurangabad city, Chikalthana and Waluj is undertaken by MIDC.

Table 10.3

Water Supply by Source

Source	Capacity
Jayakwadi on Godavari river, owned by Maharashtra Water Supply and Sewerage Board (MWSSB)	85 MLD
Harsool Tank owned by Aurangabad Municipal Corporation	10 MLD
Nohar-E-Ambari owned by Aurangabad Municipal Corporation	2 MLD

Source: Based on data obtained from AMC.

The capital investments as well as the operation and maintenance costs of the Jaikwadi Water Supply Scheme incurred by MWSSB are recovered from AMC and MIDC as bulk water charges. The capital investments in storage reservoirs and distribution network is made by AMC.

There are about 64,000 water connections in Aurangabad municipal area. There are also 1,450 standposts located in low income areas. These standposts serve nearly one-fifth of the total population of the city. It is estimated that nearly 10 per cent of the city's population is unserved by the present distribution system.

The total consumption of water in Aurangabad is estimated to be 90 MLD. Of that, 66.50 MLD of water is consumed for domestic purpose, while the water consumed for commercial purpose is 9.50 MLD. The consumption of water through standposts is 19 MLD.

The present water supply to Aurangabad city is affected by a number of factors. Due to its undulating topographic condition, it becomes very difficult to maintain adequate pressure. For maintaining the water pressure, electric pumps are fitted at different locations. These pumps are not in adequate numbers and require repair or upgradation to meet the increasing demand. The other important factor is an irregular power supply which directly affects the supply of water. Moreover, the existing distribution system is very old and needs to be upgraded.

Sewerage

Aurangabad city has a separate sewerage system which is managed by AMC. About 70 million litres of sewerage is generated per day. Nearly 90 per cent of the area is covered by the sewerage service. The AMC has provided an underground system consisting of laterals and branches leading to the main trunk network which is finally connected to oxidation ponds. The sewage is collected in oxidation ponds and is drained of in streams after primary treatment.

Solid Waste Management

The collection, transportation and disposal of solid waste in Aurangabad city is the responsibility of AMC. Aurangabad generates about 175 tonnes of solid waste per day. The AMC has provided 1,100 bins at different locations. The solid waste deposited in these bins is collected daily at zonal level by 920 employees of AMC. Besides the bins, solid waste is also dumped in 400 open sites.

The collected solid waste is transported daily to the land fill site by 40 vehicles. The total capacity of these vehicles is 150 tonnes per day. It is reported that about 150 tonnes of garbage is transported for final disposal every day.

Roads in Aurangabad City

The total length of roads in Aurangabad city is 515.50 kms. Amongst various types of roads, nearly 80 per cent of the total roads are Asphalt roads followed by 16 per cent metal roads (Table 10.4).

The construction and maintenance of intra-city roads is done by a registered contractor under the supervision of AMC. Tenders are invited from the registered contractors and work is awarded to the contractor who submits the lowest quotation.

Table 10.4

Category-wise Roads in Aurangabad Municipal Corporation

Type of roads	Length (in kms.)	Per cent to total road length
Asphalt Roads	410.45	79.62
Concrete Roads	0.50	0.10
Metal Roads	84.55	16.40
Khandki Paving	20.00	3.88
Total	515.50	100.00

Source : Based on data obtained from AMC.

Urban Services in New Aurangabad Area

Water Supply

In New Aurangabad township, water supply is provided by AMC. The current population of 75,000 persons is provided the same service level of water as the Aurangabad municipal area. However, as this is a newly developed area, the distribution network is new and leakages are minimum.

Sewerage

In new Aurangabad area, no sewerage system exists at present. Septic tanks have been provided in various housing schemes which are to be connected to the sewerage system. These septic tanks are cleaned whenever the cleaning is required. In individual plots, the owners have to construct their own septic tanks and the cleaning of these tanks is done by the owners of the plots. These septic tanks are cleaned by AMC on payment of Rs. 10 per cubic metre plus Rs. 50 per tank as a labour charge.

The CIDCO has laid the peripheral sewerage line which is still not functioning. A sewage treatment plant with a capacity of 6.5 MLD is under construction. This treatment plant is located 3 kms. away from the residential areas.

Solid Waste Management

In New Aurangabad, the solid waste is managed by CIDCO which gives contract to private enterprises. Contracts are given on quarterly basis for different zones and at present five private agencies are hired. Nearly 50 tonnes of garbage is generated per day in New Aurangabad. The garbage is deposited in the dustbins provided by CIDCO. These dustbins have been placed at various locations in the neighbourhoods. The garbage deposited in the dustbins is collected and transported daily to the land fill site by about 11 tractors. The capacity of each tractor is 2.83 tons.

Roads and Street Lights

All the roads in New Aurangabad are Asphalt roads, which are 91.73 kms. in length. The construction and maintenance of roads is done by the contractor under the supervision of CIDCO. Street lights at a distance of 30 metres is provided on all roads. The major roads have sodium vapour lamps.

Urban Services in MIDC Area

Water Supply

There are three industrial areas, viz., Aurangabad Industrial Area, Chikalthana Industrial Area and Waluj Industrial Area, where the water is supplied and distributed by MIDC. The source of water for these three industrial areas is the Jayakwadi Dam at Godavari river.

The quantity of water obtained for Aurangabad Industrial Area is 500,000 litres per day. There are about 61 industrial and 7 domestic (metered) connections in this industrial area. The 7 domestic connections have been given to group housing societies which provide water to a total of about 60 families. The domestic consumption of water is 200,000 litres per day. While the industrial consumption is 300,000 litres per day.

In Chikalthana Industrial Area, about 9 MLD of water is obtained from the same source. There are 639 industrial connections in this area. The industrial consumption of water is to the tune of 7.5 MLD. Besides the industrial connections, there are only 3 metered domestic connections provided to the two sectors of CIDCO. The domestic consumption is 1.5 MLD.

Waluj Industrial area is the biggest amongst the three industrial areas. The water supply from the source is 41 MLD. As regards the number of connections in this area, there are about 719 industrial and 225 domestic connections. The industrial as well as domestic consumption of water is 19.5 MLD and 2 MLD respectively.

Sewerage

The Aurangabad Industrial Area and Chikalthana Industrial Area have been handed over to AMC for the operation and maintenance of sewerage service. For Waluj Industrial Area, MIDC has proposed to develop an underground drainage system and a sewage treatment plant for residential zones only.

Solid Waste Management

Solid wastes are collected by AMC in Aurangabad and Chikalthana Industrial Area. In Waluj Industrial Area, solid waste management is the responsibility of MIDC. About 10 tonnes of garbage is generated per day in this industrial area. The collection and disposal of garbage from residential and commercial zones is done once or twice in a month by a private agency. It is reported that on an average, 8 tonnes of garbage is collected daily. The collected garbage is transported to the low lying areas and quarries for disposal purpose. This transportation is done by a tractor/trailor and the operating capacity of this tractor is 3 tonnes per day.

Roads

There are two types of roads in Aurangabad Industrial Area, viz., Asphalt Roads (3.39 kms.) and metal roads (0.23 kms.). The construction of new roads is done by the contractors under the supervision of MIDC. While the maintenance of roads is done by AMC.

In Chikalthana Industrial Area, the total length of roads is 35.5 kms. Out of the total road length, 34.90 kms. are Asphalt roads and only 0.59 kms. are metal roads. All these roads have been constructed by MIDC through contractors. For maintenance purpose, these roads have been handed over to AMC.

As regards the roads in Waluj Industrial Area, the total length of roads is 67.04 kms. Out of this, about 70 per cent of the roads (46.95 kms.) are Asphalt roads. The remaining 30 per cent of the roads are Metal roads. The construction of these roads has also been done by private contractors under the supervision of MIDC.

Urban Finance

Financing Capital Investments in New Aurangabad

The township of New Aurangabad is being developed by CIDCO. As a land development agency, CIDCO strives to recover the entire cost of township development through the sale of land and housing. As of September 1994, CIDCO had incurred an expenditure of Rs.383 million which include land acquisition costs, physical and social infrastructure development costs and administrative costs. The total receipts from the sale of housing and land were Rs.461 million. The CIDCO has, thus, managed to raise a surplus of Rs.78 million from its New Aurangabad township project.

The balance costs to be incurred on the project is Rs.1,035 million. The CIDCO uses present worth method to work out the reserve price of land. The reserve price of saleable land is the price at which the entire development costs are met. In computing the reserve price of land, CIDCO uses discounted cash flows for the past and future expenditures. The total recoverable cost, i.e., the net present value of all the receipts and expenditures, is estimated at Rs.831 million. The balance land area available for sale is 167.86 ha. The break-even land price, or the reserve price of land works out to Rs.495 per sq.mt.

The CIDCO uses differential land pricing for various uses to ensure adequate returns. Residential plots are sold at one-and-a-half times the reserve price or by auction. Commercial plots are sold at twice the reserve price or through auction. Land for social facilities such as education, health, and other institutions is sold at half the reserve price, while land for public

utilities such as electricity, telephones, etc., is given at one-fourth of the reserve price. Through such pricing of land, CIDCO expects to recover the entire capital cost of providing urban infrastructure in New Aurangabad township.

At the inception of the New Aurangabad township project in 1972, it was contemplated that AMC will annex the township area under its jurisdiction and take up the responsibility of operation and maintenance of all the services. The township area was included within AMC jurisdiction, but AMC has so far agreed to take up only the responsibility of provision of water supply in the township area. The CIDCO has to provide other services to the township's residents. Given a small staff at CIDCO's Aurangabad office it is unable to maintain and provide other services on its own and, therefore, relies on private contractors to operate and maintain services in the township area.

The surplus of CIDCO's Aurangabad projects are, however, being depleted rapidly as it has to still maintain and provide many services in the township. It levies a service charge of Rs.4 per sq.mt. on residential premises and Rs. 6 per sq.mt. on commercial premises to recover its operational and maintenance costs. It would, however, be necessary for CIDCO to enhance its service charges to reduce its revenue losses or transfer the total responsibility of operation and maintenance of these services to AMC.

Financing Capital Investments of MIDC

The Aurangabad Division of MIDC has developed 15 industrial estates in the Marathawada region. The three industrial estates in and around Aurangabad are among the largest estates developed by MIDC. The total expenditure on area development and infrastructure provision in the three industrial estates is given in Table 10.5.

Table 10.5**Total Cumulative Expenditure by Industrial Estates, MIDC**

(in million Rs.)

Name of industrial estate	Year in which first plot was allotted	Expenditure on area development	Expenditure on water supply	Total expenditure
Aurangabad	1963	7.03	1.01	8.04
Chikalthana	1965	32.60	51.44	84.04
Waluj	1983	158.60	126.28	284.88

Source: Data obtained from MIDC, Aurangabad.

As a general practice, MIDC recovers the entire cost of development through sale of industrial plots. However, since the Marathawada region is designated as an industrially backward region, the state government stipulates that sale of industrial plots should be subsidised. The MIDC is, thus, unable to recover its total cost of area development as well as infrastructure development from its estates in Aurangabad. It has, however, been revising the land prices periodically in order to minimise the deficits.

For example, the initial sale of industrial plots was done at Rs.3.50 per sq.mt. in Aurangabad and Chikalthana in the early sixties. But today, these plots are allotted at Rs.500 per sq.mt. In Waluj, the plots were allotted at Rs.16 per sq.mt. in 1983. The price has now been revised to Rs.150 per sq.mt. Through such upward revision of land prices, MIDC manages to meet at least two-thirds of its development costs.

The MIDC also undertakes small residential development in its industrial estates. The price of residential land is generally one-and-a-half times higher than the industrial land price. The cost of services provided in the industrial and residential area by MIDC is recovered through a general service charge as well as user charges on water. Though the MIDC levies lower user charges for water than other estates, it is able to recover its operation and maintenance costs.

MUNICIPAL FINANCE

The aggregate analysis of AMC's finance indicates a very sound financial health with surplus budget since 1990-91. The total revenue receipts in 1990-91 were Rs. 251 million while the revenue expenditure was Rs. 170 million, indicating a surplus of Rs.81 million or 32 per cent of the total receipts. In 1993-94, the total receipts were Rs. 293 million while the expenditure was Rs. 204 million, leading to a revenue surplus of Rs. 89 million or 30 per cent of the total revenue. Over the past three years, inspite of the fact that the expenditure grew at an average annual rate of 10 per cent, the city government was able to maintain a surplus budget.

Revenue Receipts

The own sources of revenue, and in particular, the tax receipts account for a major share of municipal receipts (Table 10.6). Octroi, a tax on entry of goods in the city, accounted for 51 per cent of the municipal receipts in 1990-91 and its share went up to 56 per cent in 1993-94. This is a buoyant resource for the municipal corporation, growing at an annual rate of 13 per cent. The city is able to maintain nearly all its revenue expenditure from octroi receipts alone. Given the major share of octroi in municipal revenues and its high buoyancy, AMC appears to concentrate its major revenue raising efforts on octroi.

Property tax is the other major source of revenue for the city. Its receipts under this head include conservancy or sanitation tax, water benefit tax, sewage benefit tax and road tax. The property tax is levied on Net Rateable Value (NRV). The assessment of NRV was last revised in April 1989. As per the Bombay Provincial Municipal Corporation Act, the municipal corporations are expected to undertake revisions in NRV every four years. In Aurangabad, the revisions of NRV have not taken place for the past seven years. A number of other taxes are associated with the assessment of NRV. These are sanitation tax levied at 3 per cent of NRV for residential buildings and 6 per cent of NRV for non-residential buildings, tree tax, fire tax, education cess, pathkar, drainage benefit tax and water benefit tax, each levied at 1 per cent of NRV. The share of property tax receipts in the total receipts has been around 12 per cent for the past three years. The receipts on property tax have grown at an average annual rate of 11 per cent over the past three years. The total number of assessed properties in Aurangabad were 67,663 in 1993-94. Property tax due from these was Rs.128 million. However, the actual collection in the same year was only Rs. 35 million or 27 per cent of the property tax demand. The AMC can raise substantial resources by improving its collection efficiency and revision of the property tax.

Table 10.6

Revenue Receipts of Aurangabad Municipal Corporation

(in million Rs.)

Heads of Receipts	YEAR			
	1991-92	1992-93	1993-94	Average annual growth rate (%)
1. Own Revenues				
a. Tax receipts				
i. Property tax	28.37	33.49	35.12	11.46
ii. Octroi	128.72	137.80	163.88	12.99
iii. Other taxes	4.09	4.85	3.96	0.12
Total tax receipts	161.18	176.14	202.96	12.25
b. Non-tax receipts				
i. Water and sewerage charges	17.65	20.69	27.64	25.41
ii. Development and other charges	-	-	-	-
iii. Fee and Fines	5.90	5.02	5.77	0.01
iv. Rents and other receipts	4.75	6.43	8.79	36.04
Total non-tax receipts	28.30	32.14	42.20	22.43
Total own sources	189.48	208.28	245.16	13.81
2. Transfers				
i. Shared taxes	-	-	-	-
ii. Special grants-in-aid (general purpose)	-	-	-	-
iii. Specific purpose	11.73	22.78	10.83	20.87
iv. Other grants	47.09	72.57	33.60	-1.86
Total transfers	58.82	95.35	44.43	4.35
3. Miscellaneous (Deposit & Advance)	2.73	3.55	3.08	8.40
Total receipts	251.03	307.18	292.67	8.82
Per capita receipts (Rs.)	411.52	465.42	412.21	
Per capita receipts (at constant prices) (Rs.)	411.52	423.53	350.38	

Source: AMC, Revised Estimates 1994-95 and Budget Estimates 1995-96.

The tax receipts, i.e., octroi, property tax and other taxes, were 64 per cent of total receipts in 1990-91. This share rose to 69 per cent in 1993-94. The share of total non-tax receipts, i.e., receipts from fees, rentals and other charges including water and sewerage charges, have also risen in the past three years. The growth in receipts on water charges has been exceptionally high and water charges accounted for nearly 9 per cent of total revenue receipts in 1993-94.

Revenue Expenditure

A major share of revenue expenditure of AMC is on water supply and sanitation (Table 10.7). These two activities of AMC accounted for nearly 26 per cent of the total expenditure in 1993-94. The other major items of expenditure are solid waste management, education, and general administration.

The expenditure on education has been rising rapidly and accounts for nearly 15 per cent of the total expenditure of AMC. The expenditure on solid waste has remained nearly stagnant, while the general administration expenses have been rising at an annual rate of 15 per cent.

On the whole, the own sources of revenue accounted for nearly 75 per cent of total revenue receipts of Aurangabad in 1991-92 which rose to 84 per cent in 1993-94. For a city, whose major share of receipts come from a single source like octroi, there is little incentive to explore additional sources of revenue. It, thus, continues with the prevailing rates of charges and fees. Continuation of low rates of direct taxation and user charges is also politically acceptable as the residents perceive them as 'people friendly' gesture. The incidence of an indirect tax like octroi is largely on commodities that are consumed in a wider market and local residents do not necessarily absorb the entire octroi burden.

Table 10.7

Revenue Expenditure of Aurangabad Municipal Corporation

(in million Rs.)

Heads of expenditure	Year			Average annual growth rate (%)
	1991-92	1992-93	1993-94	
General administration and collection of revenue	16.06	19.56	21.25	15.22
Public health	3.80	4.76	5.08	15.99
Water supply and sewerage	60.98	N.A.	53.76	
Solid waste	22.01	28.36	24.10	3.43
Medical relief	2.87	3.67	4.57	26.20
Education	22.67	7.15	33.01	146.61
Roads and bridges	4.90	5.30	6.20	12.57
Street lighting	9.23	7.33	12.55	25.31
Fire services	0.79	2.10	3.01	104.58
Garden and parks	7.67	9.77	13.03	30.37
Community welfare centre	0.84	1.28	1.54	36.35
Recreational activities	0.55	0.15	0.21	-16.36
Advances	2.30	3.47	3.37	23.99
Miscellaneous	14.04	31.10	22.45	46.85
Total revenue expenditure	168.71	124.00	204.13	17.52 (10.35)
Per capita expenditure (Rs.)	178.67	187.88	211.79	-
Per capita expenditure (at constant prices) (Rs.)	178.67	170.97	180.02	-

Source: AMC, Revised Estimates 1994-95 and Budget Estimates 1995-96.

PRICING AND COST RECOVERY OF URBAN SERVICES

Water Supply

Pricing

Aurangabad urban agglomeration has two agencies involved in providing water supply. First, Aurangabad Municipal Corporation (AMC), which is responsible for supplying water in the municipal area and in New Aurangabad area which comes under the general jurisdiction of CIDCO. Second, the city level office of the Maharashtra Industrial Development Corporation (MIDC), which is responsible for water supply in the three industrial areas of the city, namely, Aurangabad Industrial Area, Chikalthana and Waluj. These two agencies follow different user rate structures for domestic as well as non-domestic water supply.

The AMC has two types of pricing for water, rates per KL of water consumed, and fixed charges of water according to the diameter of the connecting pipe. All domestic water with meter is priced at Rs. 2.50 per KL while the unmetered fixed price for water ranges between Rs. 500 per annum and Rs. 2,500 per annum (Table 10.8). Metered water for commercial and construction purpose is priced at Rs. 8 per KL. The fixed rates for unmetered water for commercial purpose are between Rs.3000 and Rs. 10,000 per annum. The fixed price of water for construction ranges between Rs.300 to Rs. 1000 per month. Water from the public standposts is provided free of cost. These rates have been in practice in Aurangabad since 1993. The AMC does yearly billing for water, as against the common practice of monthly or bi-monthly billing. The yearly water bills are sent to the consumers along with the property tax demand.

The state-level MIDC office fixes uniform water rates for all the industrial areas of Maharashtra. The water supplied in the three industrial areas of Aurangabad is predominantly through metered connections. In Aurangabad industrial area and Chikalthana, water for domestic use is currently priced at Rs. 3.00 per KL and for industrial use it is Rs. 5.50 per KL (Table 10.9). The MIDC also provides water to some of the neighbouring village panchayats at the rate of Rs. 6.50 per KL. Water prices for both domestic and industrial use in the newly developing industrial area of Waluj are relatively lower, which is an initial incentive for the new industries locating in that area. In this area, user charge of water for domestic purpose is fixed at Rs. 2.50 per KL while it is Rs. 4.50 per KL for industrial use.

Table 10.8

**Aurangabad : Water Rates Charged by the
Municipal Corporation, 1995**

Purpose for which water is supplied		Rates of water charged (in Rs.)	
I.	<u>For domestic purpose :</u>		
	1.	1/2" pipe without meter	500 per annum
	2.	1/2" pipe with meter	2.50 per KL
	3.	3/4" pipe without meter	1000 per annum
	4.	3/4" pipe with meter	2.50 per KL
	5.	1" pipe without meter	2,500 per annum
	6.	1" pipe with meter	2.50 per KL
II.	<u>For commercial purpose :</u>		
	1.	1/2" pipe without meter	3,000 per annum
	2.	1/2" pipe with meter	8.00 per KL
	3.	3/4" pipe without meter	4000 per annum
	4.	3/4" pipe with meter	8.00 per KL
	5.	1" pipe without meter	10,000 per annum
	6.	1" pipe with meter and above	8.00 per KL
III.	<u>For temporary water supply connection without meter for construction work:</u>		
	1.	1/2" water connection	300 per month
	2.	3/4" water connection	600 per month
	3.	1" water connection	1000 per month
	4.	For construction with meter	8.00 per KL
IV.	Water from public standposts		Free of cost

Source : Data obtained from AMC.

Table 10.9

**Aurangabad : Water Rates charged by the Maharashtra
Industrial Development Corporation, 1995**

Type of use	Rates in Rs. per KL	
	Aurangabad Industrial Area and Chikalhana	Waluj
Domestic	3.00	2.50
Industrial	5.50	4.50
Outsiders (Village Panchayats)	6.50	-

Source: Data obtained from MIDC, Aurangabad.

Revenue Receipts and Expenditure

The main source of revenue receipts of water supplied by AMC is user charge. In 1993, AMC introduced a water benefit tax which is levied along with the property tax at the rate of 1 per cent of the NRV. The major heads of expenditure on water supply include salary and associated benefits, price of bulk water paid to MWSSB, maintenance and repair, treatment cost and electricity charges. The bulk water purchase alone accounts for more than half of the revenue expenditure of AMC on water supply.

The data on AMC's water supply revenue receipts and expenditure for the years 1991-92 to 1994-95 reveals huge deficits in each year (Table 10.10). The revenue from water is adequate to meet only about half of the expenditure on water provided by AMC. The revenue deficit of AMC on water account was about Rs. 40 million in 1991-92, about Rs. 20 million in 1993-94 and it was estimated to be about Rs. 45 million in 1994-95.

Table 10.10**Aurangabad : Revenue Receipts and Expenditure on Water Supply,
Aurangabad Municipal Corporation, 1991-92 to 1994-95**

(in million Rs.)

Item	1991-92	1993-94	1994-95 Revised budget estimates
<u>Revenue receipts :</u>			
Water benefit tax	-	0.51	0.52
Water charges	16.62	24.04	35.37
Other receipts	0.12	1.81	3.22
Total	16.74	26.36	39.11
<u>Revenue expenditure :</u>			
Salary and benefits	4.14	5.68	6.66
Purchase of water (MWSSB)	28.63	23.22	50.00
Maintenance and repair	2.54	15.26	4.40
Other expenses	21.45	2.50	22.77
Total	56.76	46.66	83.83
Surplus/deficit	-40.02	-20.30	-44.72
Capital expenditure	3.23	5.39	6.00

Source: AMC, Revised Estimates 1994-95 and Budget Estimates 1995-96.

On the other hand, the data on water supply revenue and expenditure of MIDC reveals a revenue surplus situation since 1992-93 (Table 10.11). On an average, MIDC has recorded a revenue surplus of Rs. 5.47 million in 1992-93 and Rs. 10.03 million in 1994-95. The area-wise disaggregated data shows that only in Waluj the water supply expenditure exceeds revenue receipts. As mentioned earlier, this is largely due to the concessional water rates prevailing in this area.

Table 10.11

**Aurangabad : Revenue Receipts and Expenditure on Water Supply,
Maharashtra Industrial Development Corporation, 1992-93 to 1994-95**

(in million Rs.)

Item/Area	1992-93	1993-94	1994-95
<u>Revenue Receipts :</u>			
Aurangabad industrial area	0.39	0.50	0.71
Chikalthana	13.22	16.08	17.65
Waluj	11.93	14.96	18.94
Total	25.54	30.54	37.30
<u>Revenue expenditure :</u>			
Aurangabad industrial area	0.14	0.24	0.02*
Chikalthana	3.13	3.89	3.96
Waluj	16.80	24.75	23.29
Total	20.07	28.88	27.27
Surplus/deficit	+5.47	+1.66	+10.03

Source: Based on data obtained from MIDC, Aurangabad.

Note: * Does not include electricity charges.

The main reasons for low-cost recovery in AMC area is the prevailing low water rates. According to AMC officials, the actual cost of purchasing, treatment and supply of water is three times higher than the existing rates. Secondly, about 70 per cent of the current connections are given to domestic consumers who pay for water at the lowest rate. Moreover, almost all the domestic water connections are unmetered. These consumers pay a fixed annual charge of water which works out to be much lower than the actual cost of water supplied. High proportion of unaccounted water due to leakage, which was about 30 per cent in the early 1996, is also another important reason for the low revenue receipts of AMC on account of water supply. Inter-agency dispute regarding the water charge collection in CIDCO has also led to non-payment of bills. The residents in CIDCO area who pay a composite service charge to CIDCO feel that CIDCO should supply water to them free of cost. Hence, they refuse to pay the bills to AMC.

The high recovery rate of water supply expenditure in the industrial area can be attributed to a number of reasons. The major reasons for the profitability in MIDC's water supply are; almost negligible unaccounted water, all connections being metered, and almost 90 per cent of the consumers being the industries who purchase water at a higher rate. In terms of user charge of water, MIDC charges only one rupee more per KL than AMC's rate for the domestic users and charges less than the commercial rate of water levied by AMC for its industrial water supply. Therefore, it is amply clear that pricing is not the main explanation for the drastically different revenue surplus and deficit situation in the water sector of the two agencies concerned with supplying water in Aurangabad.

Sewerage

The AMC is responsible for construction, operation and maintenance of the sewerage system in the municipal area. The MIDC has constructed the sewerage system in Aurangabad industrial area and Chikalhana, and handed it over to AMC for operation and maintenance. The AMC undertakes primary treatment of sewerage through oxidation before dumping it in the river Godavari.

The revenue for sewerage is accrued to AMC by way of drainage cess, drainage benefit tax and other miscellaneous receipts. The drainage cess is levied on water user charges. The drainage benefit tax introduced in 1993 is a part of the property tax, and it amounts to 1 per cent of the NRV. Since 1994-95, CIDCO is expected to contribute a specified sum every year for getting its area connected to the main sewer lines. As per the revised budget estimates of 1994-95, CIDCO was expected to pay Rs. 1.70 million to AMC, which constitutes the largest budgeted revenue receipt of AMC under this head.

As has been observed in other case study cities, the revenue expenditure on sewerage in AMC also exceeds revenue receipts. For instance, in 1993-94, the revenue receipt was Rs. 1.28 million and expenditure was Rs.7.11 million, which implies a deficit of Rs. 5.83 million (Table 10.12). With the proposed CIDCO contribution, the revenue deficit of AMC on sewerage is expected to be reduced significantly in 1994-95.

Table 10.12

**Aurangabad : Revenue Receipts and Expenditure on Sewerage,
Aurangabad Municipal Corporation, 1991-92 to 1994-95**

(in million Rs.)

Item	1991-92	1993-94	1994-95 Revised budget estimates
<u>Revenue receipts :</u>			
Drainage cess	0.87	0.27	0.06
Drainage benefit tax	-	0.55	0.59
Contribution from CIDCO	-	-	1.70
Other receipts	0.04	0.46	1.30
Total	0.91	1.28	3.65
<u>Revenue expenditure :</u>			
Salary and benefits	1.08	1.38	1.32
Repairs and maintenance	2.96	3.75	3.80
Other expenses	0.20	1.98	0.88
Total	4.24	7.11	6.00
Surplus/deficit	-3.33	-5.83	-2.35
<u>Capital expenditure :</u>			
Sewerage	7.38	2.92	9.00
Low-cost sanitation for the poor	-	-	10.00

Source: AMC, Revised estimates 1994-95 and Budget Estimates 1995-96.

In Waluj, MIDC has proposed to construct an underground drainage system and a sewerage treatment plant for the residential zone only. This will be then transferred to AMC for operation and maintenance.

Solid Waste

Street cleaning, solid waste collection and disposal in the Aurangabad municipal area, industrial area and in Chikalthana is undertaken by AMC. Most of the garbage is disposed in open dumping ground. Since late 1995, AMC has made some attempt towards manure making from garbage collected from the city. By January 1996, 28 compost pits were ready and an equal number of pits were proposed to be dug in the second phase. The MIDC is responsible for solid

waste collection and disposal from the residential and commercial areas of Waluj. The MIDC has engaged private contractors for this task for a small yearly charge of Rs. 25,000 for 1994-95. Industries and hospitals all over the city and in the industrial area have made their own arrangements for garbage disposal largely through dumping. Only the Aurangabad medical college has its own incinerators.

The main source of revenue receipts for solid waste management in Aurangabad is conservancy tax. The AMC levies conservancy tax alongwith property tax at the rate of 3 per cent of NRV for residential buildings and 6 per cent of NRV for non-residential buildings. The revenue receipts under this head also include a small sum generated by the sale of compost.

The revenue receipt of AMC is grossly inadequate for meeting the revenue expenditure on garbage collection and disposal. In 1991-92, the revenue expenditure was almost nine times more than the revenue receipt (Table 10.13). In 1993-94, the expenditure was six times more than the receipt. In 1994-95, the gap between estimated revenue receipt and expenditure was expected to narrow down to four times. However, the revenue deficit in value terms continued to increase between 1991-92 and 1994-95, that is from Rs. 19.48 million to Rs. 26.65 million.

Table 10.13

**Aurangabad : Revenue Receipts and Expenditure on
Solid Waste, 1991-92 to 1994-95**

(in million Rs.)

Item	1991-92	1993-94	1994-95 Revised budget estimates
Revenue receipts :			
Conservancy tax	2.53	3.99	7.50
Sale of compost*	-	-	0.13
Total	2.53	3.99	7.63
Revenue expenditure :			
Salary	21.29	22.73	32.66
Equipment and other expenses	0.72	1.37	1.62
Total	22.01	24.10	34.28
Surplus/deficit	-19.48	-20.11	-26.65

Source: AMC, Revised Estimates 1994-95 and Budget Estimates 1995-96.

Note : * Actual as reported by the concerned official of the municipal corporation.

Roads and Street Lighting

Maintenance of roads and street lighting in AMC area as well as in the three industrial areas comes within the functional domain of AMC. The AMC employs private contractors, who undertake almost all the road works as well as repairs and maintenance of roads. Construction of roads in the industrial areas is, however, undertaken by MIDC with the help of private contractors.

The three sources of revenue for road repairs and maintenance are; a road tax (Pathkar) levied by AMC, motor vehicle tax compensation and state grant for road repairs. The municipal road tax is levied along with property tax at the rate of 1 per cent of NRV since 1993. AMC does not have any source of revenue receipts for street lighting. The total revenue generated from the two taxes is very small. State grant accounts for a bulk of the revenue receipts under this head. However, the revenue expenditure far exceeds the revenue receipts (Table 10.14). For instance, in 1993-94 the revenue receipt for roads was Rs. 1.81 million while the expenditure was Rs. 18.56 million. The revised budget estimate for the year 1994-95 shows an expected state grant of Rs. 10.00 million. But even a large grant will not be able to reduce the gap between revenue receipts and expenditure on roads. The revenue deficit under the roads head in 1991-92 was Rs. 17.48 million, in 1993-94 it was Rs. 16.75 million and it was expected to be as high as Rs.23.67 million in 1994-95. The AMC incurred an additional revenue expenditure of Rs. 12.55 million on street lighting in 1993-94. It is interesting to note that although the revenue receipt is not adequate to meet even the repair and maintenance of roads, AMC utilises a major share of the revenue income for financing some of its capital works on roads. Since the revenue receipts for road repair and maintenance is very small, almost all the revenue expenditure on roads and street lighting comes from the general revenue of AMC.

Table 10.14

**Aurangabad : Revenue Receipts and Expenditure on
Roads, 1991-92 to 1994-95**

(in million Rs.)

Item	1991-92	1993-94	1994-95 Revised budget estimates
<u>Revenue receipts:</u>			
Road tax (Pathkar)	-	0.26	1.00
Motor vehicle tax compensation	0.04	-	0.02
Grant for road repair	-	1.55	10.00
Total	0.04	1.81	11.02
<u>Revenue expenditure:</u>			
<u>Roads</u>			
Salary	5.36	7.72	9.72
Road repairs	3.15	3.84	5.49
Capital works from revenue receipt (new roads)	9.01	7.00	19.48
Total	17.52	18.56	34.69
Revenue surplus/deficit	-17.48	-16.75	-23.67
<u>Street lighting</u>			
Salary	0.70	1.59	1.80
Operation and maintenance	8.53	10.96	13.31
Total	9.23	12.55	15.11

Source: AMC, Revised Estimates 1994-95 and Budget Estimates 1995-96.

Services in New Aurangabad

As mentioned earlier, CIDCO provides all municipal services except water supply in the New Aurangabad area. For this purpose, CIDCO levies a comprehensive service charge on all tenements and plot holders in the area. The annual service charges are levied for residential building at the rate of Rs. 4 per sq. metre and commercial buildings at the rate of Rs. 6 per sq. metre. The CIDCO employs private contractors for street cleaning, solid waste disposal and road

maintenance. The services provided by CIDCO include street cleaning and garbage disposal, street lighting, and road maintenance. The CIDCO also incurs some expenditure on water supply and sewerage on behalf of AMC. The CIDCO has laid the underground peripheral sewerage line connected to AMC sewerage main lines, which has not become functional as yet. At present, the entire New Aurangabad area is serviced by septic tanks.

In 1994-95, CIDCO incurred a total expenditure of Rs. 10.32 million on maintenance of various services (Table 10.15). Street lights maintenance accounted for about 35 per cent of the total expenditure, street cleaning and garbage disposal claimed a share of about 33 per cent, while road maintenance accounted for about 22 per cent of the total revenue expenditure.

Table 10.15

**Aurangabad : Details of Expenditure on Service Maintenance,
CIDCO, 1994-95**

(in million Rs.)

Item	Amount
Sweeping, cleaning and garbage disposal	3.41
Street light maintenance	3.62
Water supply and sewerage	0.52
Road maintenance	2.25
Maintenance and repair of fixed and other assets	0.52
Removal of encroachments	-
Total	10.32

Source: Data obtained from CIDCO, Aurangabad.

Service charges collected in the same year, including the arrear collection, amounted to only Rs. 2.15 million, which works out to be about one-fifth of the revenue expenditure of CIDCO. The recovery rate of CIDCO's service charge is 5.82 per cent of the total demand and 31.76 per cent of the annual demand (Table 10.16). Such poor recovery of service charges by CIDCO suggests that CIDCO is cross subsidising service provision in New Aurangabad from revenues generated from land and buildings.

Table 10.16

**Aurangabad : Service Charge Receipts of CIDCO,
1994-95**

(in million Rs.)

Item	Tenements	Plots	Total
Opening balance	4.06	26.12	30.18
Yearly demand	1.53	5.24	6.77
Total demand	5.58	31.36	36.94
Receipt	0.97	1.18	2.15
Closing balance	4.61	30.18	34.79
Recovery rate (%) total demand	17.38	3.76	5.82
Annual demand	63.40	22.52	31.76

Source: Data obtained from CIDCO, Aurangabad.

XI. MANGALORE

Mangalore Urban Agglomeration with a population of 426,341 in 1991, is the fourth largest city in the state of Karnataka. It is also the only port city of the state. The Mangalore region has many natural resource based and food processing industries. Its tile and beedi industries have a national market. Processing industries for cashew, coffee, arecanuts and fish have a sizeable export earnings.

Mangalore's population growth in the past three decades has been quite moderate (Table 11.1). The traditional industrial base of the city region has now undergone a major transformation. With the establishment of New Mangalore Port, Kudremukh Iron Ores and pelletization plant and Mangalore Chemicals and Fertilisers have been located here. With changes in macro-economic policies, Mangalore has benefitted a great deal. Many major industries like the Cogentrix Power Plant, Mangalore Refinery and Petro Chemicals Limited, BASF Chemicals and Dyes and Nagarjuna Steel and Power plants have been located around Mangalore.

Table 11.1

Profile of Mangalore

City/UA	Year	Civic Status	Population	Percentage decadal variation	Area in Km ²	Density per Km ²
1. Mangalore Urban Agglomeration	1951		117,083	-	-	-
	1961		176,003	+50.32	49.21	3577
	1971		223,335	+26.89	53.47	4156
	1981		306,078	+37.05	N.A.	-
	1991		426,341	+39.29	-	-
2. Mangalore City	1951	-	117,083	-	-	-
	1961	Municipality	142,669	+21.85	21.76	6556
	1971	"	165,174	+15.77	21.70	7612
	1981	"	172,252	+4.29	22.13	7784
	1991	Municipal Corpn.	273,304	+58.66	N.A.	-

Source : Computed from :

- (i) Census of India, General Population Tables, Part II - A, 1981.
- (ii) Census of India, Final Population Totals, Paper 1 of 1992.

These investments in major industries will have a significant impact on the growth of Mangalore. It is expected that the Greater Mangalore Urban Area will double its population by the year 2001 and will have nearly 1.2 million persons in 2011. This increase in population and associated economic activities will lead to a rapid increase in demand for infrastructure and services. The present infrastructure levels in Mangalore suggest that substantial investment will be required to augment the provision of various services.

INSTITUTIONAL ARRANGEMENT

The various institutions responsible for provision and maintenance of infrastructural services in Mangalore are Karnataka Urban Water Supply and Drainage Board (KUWSDB), Mangalore City Corporation (MCC), Mangalore Urban Development Authority (MUDA), New Mangalore Port Trust and various large industrial establishments (Table 11.2)

Table 11.2

Institutional Responsibilities for Infrastructure in Mangalore

Infrastructure services and related activities	Agencies responsible for capital investments, operation and maintenance
Water Supply	Karnataka Urban Water Supply and Drainage Board (Bulk Supply), Mangalore City Corporation (Distribution)
Sewerage	
Solid waste	
Storm water drains	Mangalore City Corporation
Roads	
Urban planning	Mangalore Urban Development Authority
Land development	Mangalore Urban Development Authority, New Mangalore Port Trust, Industrial Establishments

Karnataka Urban Water Supply and Drainage Board

As per the Karnataka Municipal Corporation (Amendment) Act, 1994, provision of water supply is an obligatory responsibility of the municipal corporations. Under the present

institutional arrangements, the Karnataka Urban Water Supply and Drainage Board (KUWSDB) provides bulk water to MCC. This water is stored, filtered and distributed by the city corporation.

The KUWSDB was established in 1974, under the Karnataka Urban Water Supply and Drainage Board Act, 1973. Under this Act, the principal function of the Board was to provide financial assistance by way of loans and advances to urban local authorities in the state for water supply and drainage. The other related functions included planning and preparation of schemes covering areas falling within the jurisdiction of more than one local authority, executing such schemes, operate and maintain such schemes as directed by the state government and collect water charges from the users. The KUWSDB was envisaged as a service agency, providing technical support to urban local bodies and executing capital works on behalf of the local bodies.

The finances of the Board comprise of grants and loans from the state government, loans from financial institutions, such as, LIC and HUDCO, debentures and contributions from local bodies. The cost recovery of KUWSDB is, however, poor as it is compelled to adopt a statewide tariff prescribed by the state government. These rates are quite low and do not enable the Board to recover its operating costs and debt servicing requirements. Many local authorities do not pay even these low tariffs to the Board. As a result, the Board usually resorts to intercepting the octroi compensation grants given by state governments to urban local authorities.

Despite the envisaged function of KUWSDB as a financing and technical agency for urban water supply and drainage scheme, the Board maintains and operates water supply systems including collection of user charges in six cities of the state. In Mangalore and five other cities, the Board maintains water works at the source and provides bulk water to municipalities at predetermined rates. In 17 other cities, the Board maintains the water works and the maintenance costs are borne by the concerned local authority, but no water charges are levied by the Board. However, according to the recent decisions of the Karnataka state government, the KUWSDB is directed to maintain water supply only upto bulk point and handover maintenance of all water supply schemes upto consumer points to the local authority.

Mangalore City Corporation

Mangalore graduated from a municipality to municipal corporation in 1980 under the Karnataka Municipal Corporation Act, 1976. The main functions of the Mangalore City Corporation (MCC) are as follows:

- (1) Planning and maintaining urban water supply;
- (2) Planning and maintaining sewerage and storm water drainage;
- (3) Road construction and maintenance;

- (4) Street lights ;
- (5) Solid waste management and conservancy;
- (6) Primary health control of infectious disease registration of births and deaths;
- (7) Amenities such as parks and playgrounds;
- (8) Construction of markets; and
- (9) Planning and building regulations.

As one of its key obligatory functions, MCC operates and maintains the water distribution system in the city. It supplements the bulk water purchased from KUWSDB by drawing underground water through borewells and hand pumps. The city corporation has ten storage reservoirs with a total capacity of 2.42 MLD. Its distribution system, consisting of 89 kms. of transmission mains and 244 kms. of distribution lines, covers nearly 90 per cent of the city's area.

Water charges are collected by the city corporation through monthly bills which are computerised. Arrangements have been made with local banks for collection of water bills in a highly decentralised manner.

The city government employs a staff of nearly 400 sanitary workers who sweep the streets and transfer the collected garbage in dustbins. The city government has hired a private contractor, who collects garbage from the central market and surrounding areas and transports it to the dump site.

Mangalore Urban Development Authority

The Mangalore Urban Development Authority (MUDA) was constituted in 1988, under the Karnataka Urban Development Authorities Act, 1987. Before 1988, the city of Mangalore had an Improvement Board, which was abolished and merged with the Urban Development Authority. One of the main activities of MUDA is to develop land for house sites. It also undertakes construction of group housing. The MUDA is also designated as a planning authority and had prepared a Revised Comprehensive Development Plan for Mangalore urban region in 1992.

The MUDA has plans to acquire nearly 355 acres of land for developmental work, but has been able to take possession of only 30 acres of land for plotted development. There have been long delays in requisition procedures. The MUDA has been unable to acquire land through negotiations at market price due to limited finances at its disposal. As a result, MUDA has remained essentially a planning and regulating agency and has been unable to perform its developmental functions.

However, within the Mangalore urban region, a large number of major industries and public sector enterprises are involved in land development. The Mangalore Port Trust, Kudremukh Iron Ores and Mangalore Chemical and Fertilisers have their own townships. The other new major industries coming up in Mangalore are also expected to have their own staff housing complexes and would develop their own systems of providing urban basic services.

MUNICIPAL SERVICES

Water Supply

Mangalore gets water from the Netravathi river with head works at Thumbe which is located at a distance of about 17 Kms. from the city. Besides this, the city also gets water from a number of borewells and handpumps. The water received from KUWSDB is pretreated in clarifloculators at Thumbe and filtered at Bendoor in rapid sand filters. This filtered water is pumped to service reservoirs located on hill tops of the city and distributed by gravity.

The existing water supply from the Netravathi river and aforesaid borewells is 43 MLD and 5 MLD, respectively. About 95 per cent of the total population is covered by the public distribution system while the remaining 5 per cent of the population depends upon open wells.

In 1992-93, there were about 24,500 connections. About 90 per cent of these were domestic, which consumed 39 MLD of water supplied. There were about 1750 standposts in the same year, which registered a water consumption of 8 MLD. These two groups of consumers accounted for about 85 per cent of the water. The availability of water per capita per day is 126 litres.

The present water supply is affected by intermittent electric supply and topographic condition of the city. In order to upgrade the existing water supply system to meet the increasing demand, KUWSDB has initiated a project costing Rs. 140 million for erecting storage reservoirs at suitable locations, construction of pumping stations and distribution mains. This project was proposed in the year 1990 and was supposed to be completed in 3 years. This target could not be achieved in the given time due to the lack of funds and slow progress in construction work.

Sewerage

The city generates nearly 27 million litres of sewerage per day. About 40 per cent of the area is covered by the sewerage service. The remaining areas of the city within the corporation limits have septic tanks. There are only two sewage treatment plants. The primary treatment plant with sewage sludge digesting facility is situated at Kavoov. The capacity of this plant is 23 MLD. The other treatment plant with a capacity of 5 MLD is located at Jeppinamogaru. In

practice, the sewage is collected in the wet wells which are located on the lowest points of the city. The sewage collected in wet wells is pumped to the treatment plants by heavy duty electric pumps. After the primary treatment, the residue is discharged into the rivers.

The existing capacity and efficiency of the sewerage system are far from satisfactory. In many parts of the city, sewer lines are either damaged or choked due to which sewage overflows through many manholes. Most of the time the sewage is not pumped to the treatment plant due to damaged electric pumps and interminant power supply. Consequently, sewage is discharged directly into the river without getting treated which causes water pollution. Moreover, the sludge digesters of primary treatment plant often remain out of order.

Solid Waste Management

Mangalore generates about 200 tonnes of solid waste per day. The per capita generation of solid waste is estimated to be about 350 gms. per day. The MCC has provided 480 R.C.C. circular and 70 rectangular masonry dust bins in different places of the municipal area for solid waste collection. About 1.34 bins per km. of road length is worked out which is much below the norm of 10 bins per km. length of the road. The daily and weekly collection of solid waste from the dustbins is done by MCC which uses 11 lorries. It is important to note that only 70 per cent of the solid waste generated is collected. This service is provided in most of the areas of the city and about 60 per cent of the population is covered by the service.

The solid waste collected is transported and disposed at the municipal land fill having an area of 50 acres. This land fill is at Moodushedde which is located at a distance of about 12 kms. from the city. Besides this, there are two official land fill areas within the municipal limit at Yemmekere and Grijarakere. At present, the solid waste collected by MCC is dumped at Moodushedde dump site.

The MCC has involved the private sector in solid waste management. A portion of the city has been entrusted to a contractor. The contractor has been given the work of sweeping and collecting solid waste from central markets and the surrounding areas as well as transporting the waste to the dumping ground. The contracting out has been in operation only since the early part of 1996. The MCC is paying the private contractor Rs. 0.21 million for the work while the estimate of the corporation is that if it had provided the service on its own it would have spent at least Rs. 0.25 million. This indicates a saving of Rs. 40,000 per annum for the corporation from giving out a small portion of the city's solid waste management to one contractor.

Roads

The total length of roads in the Mangalore City Corporation area is 359.55 kms. About 79 per cent roads are asphalted and the earthen roads account for about 14 per cent of the total road length. All other types of roads account for about 7 per cent of the city's total road length (Table 11.3).

Table 11.3

**Category-wise Roads in the Old City Area
(Earlier Corporation Limits)**

Type of roads	Length (in km.)	Per cent to total road length
Asphalt	283.36	78.80
Cement Concrete	1.00	0.28
W.B.M.	24.93	6.93
Earthen	50.30	13.99
Total	359.55	100.00

Source: MUDA and MCC,(1995):Integrated Plan for Infrastructure and Municipal Services, Greater Mangalore Urban Area, 1996-2001, Mangalore.

As Mangalore receives very heavy rainfall during monsoons and the present storm water drains are silted, the roads get damaged. Therefore, regular resurfacing of roads is required. Moreover, the volume of traffic has been increasing very rapidly creating traffic congestion in most of the areas. But due to the hilly terrain and presence of two rivers, flowing through the city, the road widening and extensions have not been undertaken to the extent required for providing easy accessibility and fast mobility within the city.

MUNICIPAL FINANCE

The MCC is obligated to provide all the core urban infrastructure and services to its residents. Its financial situation is, however, not very sound to meet these obligations. For each year since 1990-91, MCC has had a revenue deficit. The deficit was Rs.3.14 million or 4.7 per cent of revenue receipts in 1990-91 and was risen to Rs.9.0 million or 7.9 per cent of revenue receipts in 1994-95.

Revenue Receipts

Among the tax receipts, property tax is the major source which accounts for nearly 30 per cent of the total receipts of MCC. However, revenues from this tax have been nearly stagnant,

inspite of a boom in the real estate market in Mangalore. The property tax revenues grew at an average annual rate of 9.4 per cent only. (Table 11.4).

Non-tax receipts comprise of fees, fines, rents and user charges. Water charges constitute a major portion of the total non-tax receipts of MCC. It has been growing at an annual rate of 14 per cent. Receipts through fees, fines and rentals constitute a small share of total receipts, but have been growing rapidly, at the rate of over 30 per cent per annum.

Transfers from the state government in terms of shared taxes and octroi compensation grants account for over 60 per cent of total receipts of MCC. Entertainment tax has been nearly constant at Rs. 10 million between 1990-91 and 1994-95. The share of surcharge on transfer of property has been growing rapidly, from Rs. 2.6 million in 1990-91 to Rs.10 million in 1994-95. Octroi compensatory grant is required to be provided by the state government with an annual incremental growth of 12.5 per cent per annum. However, during the years 1991-92 to 1994-95, it grew at an average annual growth of 26.18 per cent. The total receipts from shared taxes and grants have provided resources to the MCC to carry out its obligatory responsibilities.

Revenue Expenditure

As against the average annual growth in total receipts of 14.9 per cent, the expenditure of MCC has grown at 16 per cent per annum (Table 11.5). A major share of expenditure relates to public works, public health and water supply. The expenditure on public works was 30 per cent of the total expenditure in 1994-95. The annual growth in the expenditure on public works has also been quite rapid. It appears that MCC also includes capital investments on roads as a part of its revenue expenditure.

The expenditure on water supply shows no consistent trend. The decline in expenditure on water supply in 1994-95 is likely to be due to non payment of bulk water charges to KUWSDB. The expenditure on public health, including scavenging, drains and sewerage is nearly 20 per cent of the total expenditure and it has been increasing at the rate of 11 per cent per annum. This is largely on account of salary payments to the staff of the conservancy department.

The MCC is dependent on transfers from the state government for a significant proportion of its revenue income. Its own resource mobilisation efforts related to property tax, water charges and other sources have not been exploited to their fullest potential and the collection efficiency is also poor. It is expected that by improving its collection efficiency of property tax and by revising the water charges to the level proposed by the state government, MCC will be able to meet its revenue expenditure and reduce its dependence on the state government transfers.

Table 11.4

Revenue Receipts of Mangalore City Corporation

(in million Rs.)

Heads of Receipts	Year					Average annual growth rate (%)
	1990-91	1991-92	1992-93	1993-94	1994-95	
1. Own revenues						
a. Tax receipts						
i. Property tax	22.32	26.01	29.18	28.40	31.70	9.42
ii. Other taxes	0.53	0.31	0.24	0.53	0.60	17.49
Total tax receipts	22.85	26.32	29.42	28.93	32.30	9.24
b. Non-tax receipts						
i. Building application fee/ fines	0.57	0.63	0.94	1.57	1.80	35.35
ii. Water charges	7.25	8.67	10.57	9.60	12.00	14.33
iii. Rents and other income	1.12	1.81	2.36	3.01	3.21	31.55
Total non tax receipts	8.94	11.11	13.87	14.18	17.01	17.83
Total own revenues	31.79	37.43	43.29	43.11	49.31	11.84
2. Transfers						
a. Shared taxes						
i. Entertainment tax	10.24	9.91	12.74	11.65	10.00	0.65
ii. Motor vehicles tax	1.54	1.54	-	1.54	1.54	-
iii. Surcharge on transfer of property	2.60	2.46	5.86	6.21	10.00	49.96
iv. Octroi compensation grant	19.40	35.60	32.70	37.50	43.00	26.18
v. Specific purpose grant	0.77	1.33	4.35	8.08	-	-
Total transfers	34.55	50.84	55.65	64.98	64.54	18.17
Total receipts	66.34	88.27	98.94	108.09	113.85	14.93
Per capita receipts (Rs.)	245.70	304.38	329.80	348.68	345.00	-
Per capita receipts (Rs.) (at constant prices)	245.70	267.76	262.83	259.87	234.36	-

Source: Based on data obtained from MCC.

Table 11.5

**Revenue Expenditure of Mangalore City Corporation
(At Current Prices)**

(in million Rs.)

Heads of Expenditure	Year					Average annual growth rate (%)
	1990-91	1991-92	1992-93	1993-94	1994-95	
General administration and collection of revenue	9.97 (14.35)	11.36 (12.38)	12.22 (11.73)	14.26 (11.87)	15.33 (12.48)	11.43
Public health	15.44 (22.22)	17.10 (18.64)	20.07 (19.27)	22.89 (19.05)	23.50 (19.13)	11.21
Water supply	13.53 (19.47)	22.38 (24.39)	24.34 (23.37)	27.47 (22.87)	21.80 (17.75)	16.60
Scavenging, drains and seweraged	3.72 (5.35)	6.89 (7.51)	6.52 (6.26)	4.87 (4.05)	4.62 (3.76)	12.35
Medical and health care	2.17 (3.12)	2.46 (2.68)	3.03 (2.91)	3.21 (2.67)	3.53 (2.87)	13.11
Public safety	4.11 (5.92)	5.74 (6.26)	5.50 (5.28)	7.21 (6.00)	10.00 (8.14)	26.32
Public works	15.89 (22.87)	21.03 (22.92)	26.42 (25.36)	32.12 (26.74)	36.54 (29.74)	23.33
Primary education	1.09 (1.57)	1.21 (1.32)	1.34 (1.29)	2.13 (1.77)	2.21 (1.80)	21.12
Others	3.56 (5.12)	3.58 (3.90)	4.73 (4.54)	5.97 (4.97)	5.32 (4.33)	12.00
Total revenue expenditure	69.48	91.75	104.17	120.13	122.85	15.79
Per capita expenditure (Rs.)	257.34	316.38	347.23	387.52	372.27	-
Per capita expenditure (At constant prices) (Rs.)	257.34	278.34	276.77	288.84	252.91	-

Source : Based on data obtained from MCC.

PRICING AND COST RECOVERY OF URBAN SERVICES

Water Supply

Pricing

In a city like Mangalore where water supply is jointly provided by a parastatal agency and the municipal corporation, the pricing system/structure has to be analysed at two levels, that is, bulk water rates for water sold by the KUWSDB and the rate of municipal water supplied to the consumers. The tariff for water supply for different grades of municipalities, excluding the city corporation of Bangalore, in Karnataka are determined by the state government. The state government prescribes the minimum water rates for different types of consumers which are supposed to be levied by the local government. The state also determines the minimum average rate to be levied by the local government as well as the rate that local bodies are supposed to pay to KUWSDB for the purchase of bulk water. According to the latest revision of water tariff, the municipal corporations were expected to charge an average rate of Rs. 3.00 per KL and they were supposed to pay Rs. 2.34 per KL to KUWSDB for bulk water supply. These rates were considered to be adequate to meet the operation and maintenance cost and a part of the capital cost of the municipal corporation and KUWSDB.

The water rates revised in 1995 have not been implemented as yet, either by KUWSDB or by MCC. The KUWSDB, however, has made an attempt to increase the price of clarified as well as filtered water almost every year. The revision of rates has been only about 5 to 10 per cent per annum for the two kinds of water supply to different agencies, which is expected to meet the increasing O & M cost. The KUWSDB has three broad category of rates for three broad group of consumers, namely, MCC and other local bodies, non-domestic institutions, and commercial and industrial consumers. For instance, the current rate of clarified water for MCC and other local bodies is Rs. 0.81 per KL and for filtered water it is Rs. 1.06 per KL (Table 11.6). The rate for non-domestic institutional supplies for clarified water is Rs. 1.61 per KL and for filtered water it is Rs. 1.86 per KL. The rate for commercial and industrial consumers is Rs. 2.43 for clarified water and Rs. 2.67 for filtered water.

Table 11.6

Mangalore : Bulk Water Rates of Karnataka Urban Water Supply and Drainage Board for different Consumers effective from 1-8-92

Name of the Consumer	Basic Water Rate (Rs. per KL)					
	from 1-8-1992 to 31-3-1993		from 1-4-1993 to 31-3-1994		from 1-4-1994 to 31-3-1995	
	Clarified water	Filter water	Clarified water	Filter water	Clarified water	Filter water
Mangalore Corporation	0.67	0.87	0.74	0.96	0.81	1.06
Mangalore Chemical and Fertiliser Factory at Panambur	2.01	2.21	2.21	2.43	2.43	2.67
Katipalla village panchayat	0.67	0.87	0.74	0.96	0.81	1.06
Bala village panchayat	0.67	0.87	0.74	0.96	0.81	1.06
All other beneficiaries from Thumbe to KREC including housing societies, etc.						
For domestic supplies	0.67	0.87	0.74	0.96	0.81	1.06
For non-domestic supplies (Institutional)	1.34	1.54	1.47	1.69	1.61	1.86
For commercial consumer	2.01	2.21	2.21	2.43	2.43	2.67

Source: Data obtained from KUWSDB, Mangalore.

Note: Approved at the 109th board meeting held on 25.7.92.

The water rates of MCC have not been revised since 1984. The government order of 1995 regarding revision of water rates has not been implemented as yet. The current charges are well below the prescribed minimum rates. The non-implementation of the revised rates has been explained by the municipal officials as a result of wide public resistance to the payment of enhanced rates as well as local political interference. The state government also deferred the decision until the local body elections were held.

The MCC follows differential sectoral pricing principle. It also has different charges for varying quantities of water consumed. The current user charges for water in the domestic sector vary between Rs. 1.00 per KL and Rs. 3.00 per KL (Table 11.7). Water charges for the non-domestic users vary between Rs. 4.00 per KL and Rs. 15.00 per KL. The MCC provides water

through standposts free of cost, although it pays for this water to KUWSDB. The connection charges for the three groups of consumers are between Rs. 100 and Rs. 500 plus 10 per cent of the total estimated cost of bringing the pipeline from the main line to the meter. In addition, the consumers have to pay road cutting charges, which is Rs. 85 per metre of metalled road and Rs.35 per metre of mud road.

Table 11.7

**Mangalore : Water Rates of Mangalore City Corporation,
applicable from 1984 to 1995**

Item	Rate (Rs. Per KL)	
<u>User Charges:</u>		
<u>Domestic</u>		
upto 30,000 litres		1.00
30,001-50,000 litres		1.75
Above 50,000 litres		3.00
<u>Non-domestic</u>		
Commercial/industrial		
Upto 10,000 litres		4.00
Above 10,000 litres		8.00
<u>Hotels</u>		
upto 30,000 litres		8.00
Above 30,000 litres		10.00
Construction		15.00
Public standposts		Free
<u>Other Charges:</u>		
<u>Connection deposits</u>		Plus 10 per cent of the total estimated cost of bringing the pipeline from the main line to the meter.
Domestic	100	
Commercial and Industrial	250	
Construction	500	
<u>Road cutting charges</u>		
Metal road		85 per metre
Mud road		35 per metre

Source: Data obtained from MCC.

Revenue Receipts and Expenditure

As in the case of pricing, the revenue receipts and expenditure for water supply also have to be examined separately for the two agencies concerned. The revenue expenditure of KUWSDB for supplying bulk water to Mangalore Urban Agglomeration for 1992-93 was Rs. 19.04 million. The electricity charges for pumping water alone accounted for more than half of the revenue expenditure of KUWSDB. The total receipt for water in the same year was Rs. 14.22 million, which includes Rs. 8.52 million for direct collection of bulk water charges from various agencies and Rs. 5.70 million which came to KUWSDB as octroi grant adjustment. The total water revenue collection was about 78 per cent of the annual demand. The KUWSDB shows a deficit of Rs. 4.82 million in its water revenue account (Table 11.8). This deficit is largely on account of non-payment of water charges by MCC.

Table 11.8

**Mangalore : Bulk Water Revenue Receipt and Expenditure of the
Karnataka Urban Water Supply and Drainage Board, 1992-93**

(in million Rs.)

Item	Receipts
<u>Revenue expenditure :</u>	
Establishment charges	2.70
Power charges	10.56
Consumables	0.62
Repairs and maintenance	5.15
Total	19.04
<u>Demand and collection :</u>	
Demand	18.33
Collection:	
Direct collection	8.52
Octroi grant adjustment	5.70
Total	14.22
Revenue surplus/deficit	-4.82

Source: Based on data obtained from KUWSDB, Mangalore.

Note : MCC Port, Industries and two local bodies included in Mangalore Urban Agglomeration.

The MCC's revenue on water includes user charges and other water supply related charges. The MCC does not levy a water tax. The water is supplied in the city using a gradient based distribution system, which results in substantial cost reduction in power consumption. But, inspite of the use of such low-cost distribution technology, MCC has registered substantial revenue deficits for the period 1990-91 to 1994-95. In 1994-95, the water revenue receipt of MCC was Rs.12.00 million as against the revenue expenditure of Rs.21.80 million, which means a deficit of Rs. 9.80 million (Table 11.9). The cost of buying bulk water itself amounts to about half of the total O & M cost of MCC water supply. One of the main reasons for high level of deficit in the operation and maintenance is persistence of old water rates which are much lower than the current prescribed minimum rates. Another reason for low revenue receipts is the fact that about 85 per cent of water is supplied to domestic consumers, who pay for water at the lowest rate (65% domestic connections, 20% standposts). Major industries, which are a likely source of providing higher revenues for water, buy bulk water directly from KUWSDB. This results in lower water rate collection of MCC. However, other non-domestic consumers, both commercial and institutional, contribute about 42 per cent of the total water user charge collection.

Table 11.9

**Mangalore : Water Supply Revenue Receipts and Expenditure,
Mangalore City Corporation, 1990-91 to 1994-95**

(in million Rs.)

Item	1990-91	1992-93	1994-95
Revenue receipts	7.25	10.57	12.00
Revenue expenditure :			
Purchase of water, treatment, distribution and repairs and maintenance	11.00	21.46	18.30
Salaries	2.53	2.88	3.50
Total	13.53	24.34	21.80
Revenue surplus/deficit	-6.28	-13.77	-9.80

Source: Based on data obtained from MCC.

The gap between MCC's water supply revenue and expenditure is usually met by book adjustment. This means that MCC does not pay for the bulk water it purchases from KUWSDB. This helps MCC to reduce its revenue deficit on water supply account significantly. The KUWSDB adjusts the amount not received from MCC through inter-departmental adjustment of its power charges. It implies, therefore, that the state government indirectly bears a part of the cost of water supply in Mangalore.

Cost Recovery

The default on payment of water user charges in Mangalore is very low. About 90 per cent of the billed amount is usually recovered. The MCC is quite lenient regarding cutting the water supply of consumers on account of non-payment of bills. The water supply is cut off only if the due amount is large and the payment has not been received after two consecutive bi-monthly billing, that is, a period of four months.

The main constraints in recovering the actual cost of user charges stated by the municipal officials are : (i) uniform state-wide water rates for all corporations which do not reflect the real cost of providing water, (ii) a large proportion of consumers being unmetered; (iii) a very small number of bill collectors who read the meters and make bills (a total of 9 at present for the entire city). Finally, the officials strongly felt that the water rates need to be revised to recover the real cost of water supply in the city.

Sewerage

Until mid 1995, MCC did not levy any tax or cess for drainage and sewerage in the city. Now, MCC has introduced a one time drainage cess of Rs. 5 per sq. feet of built-up area of apartment complexes and commercial buildings. The income received will be utilised for expanding the underground drainage and sewerage system, which at present covers only 40 per cent of the city's area.

The MCC maintains the entire sewerage system of the city, which includes running the pump house, primary treatment and disposal in the river. Major industries have their own affluent treatment and disposal systems. The MCC spent Rs. 6.89 million in 1991-92 and Rs. 4.87 million in 1993-94 on the operation and maintenance of its sewerage and drainage system, which came from its general revenue receipts.

Solid Waste

The only source of revenue for solid waste management in Mangalore is a sanitation tax, which is 14.5 per cent of the property tax amount. In 1992-93, the revenue receipt through sanitation tax collection was Rs. 4.3 million. The MCC undertakes road sweeping, collecting solid waste, transportation and dumping as well as cleaning of open drains under its sanitation activities. The total expenditure on all these activities in 1992-93 was Rs. 8.3 million. The revenue deficit on solid waste was Rs. 4 million. It implies, therefore, that MCC is not able to meet all the O & M costs of solid waste collection and disposal from sanitation tax collections.

Roads and Street Lighting

The main sources of revenue for road maintenance in Mangalore are motor vehicle tax compensation and occasional grant from the state government. During 1990-91 and 1994-95, the income accrued to MCC on account of the motor vehicle tax was Rs. 1.54 million in each year. This seems to be a fixed amount and shows no yearly variation. The state grant of Rs. 0.95 million was given to MCC only in 1992-93 and it is not an annual source of income. During this year, motor vehicle tax was not transferred from the state government to the city government. There is no lighting tax levied in Mangalore, and hence there is no revenue income under this head.

The revenue expenditure on road maintenance is much higher than the revenue receipts and it has been increasing over the years. For instance, the O & M expenditure on roads alone was Rs. 25.98 million in 1994-95. The revenue expenditure on roads and street lighting together amounted to Rs.36.89 million in the same year. This suggests that MCC uses its general revenues for maintenance and repairs of roads and operation of street lighting (Table 11.10).

Table 11.10

**Mangalore : Revenue Receipts and Expenditure on
Roads and Street Lighting, 1990-91 to 1994-95**

(in million Rs.)

Item	1990-91	1992-93	1994-95
<u>Revenue receipts:</u>			
Motor vehicle tax compensation	1.54	-	1.54
Grant for road maintenance	-	0.95	-
Total	1.54	0.95	1.54
<u>Revenue expenditure:</u>			
Roads :			
Maintenance of roads	4.90	12.90	18.00
Maintenance of culverts and bridges	4.24	5.19	6.00
Salaries	1.29	1.62	1.98
Total	10.43	19.71	25.98
Street lighting :			
Maintenance (electricity charges)	4.12	5.50	10.00
Salaries	0.51	0.61	0.91
Total	4.63	6.11	10.91

Source: Based on data obtained from MCC.

XII. CONCLUSIONS AND POLICY DIRECTIONS

The interdependency of macro-economic growth and urbanisation is well demonstrated by international experience. Urban centres contribute a significant share in the national income. The productivity of urban centres is thus crucial to the national economy. But high productivity of urban centres is contingent upon requisite infrastructure investments. Efficient infrastructure provisions attract economic activities and increase employment and incomes of its residents. As some of the urban infrastructure are the basic services that directly relate to the health of its residents, governments at all levels have to assume prime responsibility in ensuring its adequate provision and maintenance.

The present macro-economic policies of reduction of fiscal deficits of the government implies that additional budgetary support for the urban infrastructure is unlikely to be available. This means that the resource base of agencies providing urban services will have to be strengthened through greater emphasis on cost recovery and surplus revenue generation. The quantum of bilateral and multilateral funds will also have to increase to provide additionality. The manner in which these funds are provided will largely depend on the preparedness of the local governments and infrastructure agencies to absorb these funds and service their debt obligations.

This chapter presents the major conclusions that can be drawn from the national review and the city case studies. The chapter also discusses the recent policy reforms in financing urban infrastructure as well as the various policy issues and directions which have emerged from this study of financing urban infrastructure in India.

MAJOR CONCLUSIONS

The major conclusions based on the macro-level inventory of financing urban infrastructure and the city level experiences in the provision of urban services which have important lessons for the state and national level policy formulation as well as for local level efforts to augment urban infrastructure are stated in the following paragraphs.

1. With about 217 million urban inhabitants in 1991, which accounted for approximately 26 per cent of the country's population, India is relatively less urbanised than even several developing countries. However, the moderate pace of urban growth recorded in the 1980s is likely to be accelerated as a consequence of the expected rapid growth of the national economy in the post-liberalisation era. If the present growth trends in the national economy are not altered, India's urban population can be projected to be about 365 million in 2001 and 530 million in 2011.

There are wide regional variations in the level and pace of urbanisation at the state level. Significant variation is also observed in the population growth rate of cities of various sizes. Amongst the four case cities for instance, both Bangalore with a population of about four million and Mangalore with a population of less than half a million have recorded a relatively lower population growth rate of about 40 per cent during 1981-91. During the same decade, Visakhapatnam with about one million population and Aurangabad with about half a million population have experienced exceptionally high growth rates of about 75 per cent and 87 per cent respectively.

2. The analysis of data on access to basic services over time indicates that, in general, service levels in India's urban areas are improving but these continue to be well below the desired norms. Also, the quantity and quality of urban services is far from satisfactory. For instance, although about 82 per cent of the country's urban population is reported to have access to safe drinking water, there are severe deficiencies with regard to the quantity of water available to urban residents. About 46 per cent of urban households have water sealed toilets, but only 28 per cent of the urban households are connected to the public sewerage system. Though nearly 300 urban centers have a sewerage system only 70 of these have sewerage treatment facility. Only 60 per cent garbage is being collected by municipal authorities in the urban areas of India. There is, thus, a major lacune in the provision of urban services, despite major efforts made in the recent years. Each of the case study city presents a similar urban situation with regard to the levels of basic civic services (Table 12.1).

The water supply level in each of the four case study cities is lower than the WHO norm of 135 lpcd. In the city of Bangalore and Visakhapatnam, the water supplied is 100 lpcd and 95 lpcd respectively while in Aurangabad it is 129 lpcd and in Mangalore it is 126 lpcd. In terms of population coverage, in the city of Mangalore 95 per cent of the population has access to water supply, whereas in Visakhapatnam only 80 per cent of the population is covered.

Among the four cities, Bangalore and Aurangabad have an extensive underground sewerage system which covers nearly 90 per cent of the city area. In Mangalore, the underground system covers only 40 per cent of the area, whereas in Visakhapatnam, the sewerage system covers only 10 per cent of the area. Except for Visakhapatnam, which does not have any treatment plant, the other three cities have only primary treatment facilities. Though, the present capacity of these treatment facilities is adequate, these will need to be augmented when water supply situation improves.

The quantum of solid waste generated in a city is directly proportional to its population size and the nature of economic activities. Management of solid waste in bigger cities involves greater efforts. In case of Bangalore, the amount of solid waste generated is 1800 tonnes per day, but the city government collects and disposes only two-thirds of it. The smaller city of

Table 12.1

Service Levels in the Case Study Cities, 1993-94

Services	Bangalore	Visakhapatnam	Aurangabad	Mangalore
a. Water				
LPCD	100	95	129	126
Population covered (%)	82	80	90	95
b. Sewerage				
Area covered (%)	90	10	90	40
Treatment facility	Primary and secondary treatment plants	No treatment facility	Oxidation ponds and primary treatment	Primary treatment plants
c. Solid Waste				
Solid waste generated (tonnes per day)	1800	368	175	200
Collection efficiency (%)	68	73	86	70
Disposal	Dumping yards and recycling plants	Dumping grounds and land fills	Land fills and composting	Land fills

Aurangabad generates only 175 tonnes of solid waste every day and manages to collect and dispose 86 per cent of the wastes. All the four cities dump the collected wastes in designated land fill sites. However, in Bangalore and Aurangabad some of the waste is composted.

3. Under the present municipal legislations, municipal governments are responsible for providing civic amenities, such as, water supply, sewerage, drainage, solid waste management, street cleaning and lighting and maintenance of public parks and playgrounds. However, there are different types of institutional arrangements for urban water supply, which includes multi-agency involvement in source development, conveyance, storage and filtration, distribution network construction and operation and maintenance. The four case study cities represents four institutional arrangements which are most commonly prevalent in India. In Bangalore, the entire water supply and sewerage system is the responsibility of a metropolitan parastatal agency,

namely, BWSSB. In Mangalore, the source development and bulk water supply is undertaken by a state level agency, KUWSDB, while the distribution is done by the city corporation. In Aurangabad, bulk water is supplied by a state level agency, MWSSB, but the distribution is undertaken by the city corporation and city level office of MIDC. In Visakhapatnam, the city government is responsible for all the stages of water supply provision, from source development to distribution and operation and maintenance.

4. In general, there has been an acceptance of the policy of privatisation of municipal services as a strategy to meet the growing demand for urban infrastructure. Private participation in urban land development and housing has been prevalent for a long time. But, private initiatives in the provision of urban civic services are very few, and limited mostly to sub-contracted road construction, maintenance and repairs and in solid waste management. Of late, public-private partnership is emerging as a more acceptable form of privatisation of urban services.

Amongst the four case study cities, there are major initiatives of private sector involvement only in Bangalore. The BWSSB has signed a memorandum of understanding with a private international company for the proposed water supply project under BOOT arrangement. It has also engaged a domestic private company for the O & M of one sewage treatment plant for a period of five years, beginning 1994.

5. Urban infrastructure provision in India has severe deficiencies with regard to the coverage of population as well as the level and quality of services. The investment required to augment the present level of supply is estimated to be Rs. 398 billion for 1991-2001 and Rs. 435 billion for the decade 2001-2011, if average technology is used and urban population growth is between the high and low projections. At present, the total flow of resources through budgetary allocation as well as institutional finance and external aid is estimated to be Rs. 16,080 million per annum, which is far short of the required annual investment of Rs. 39,800 million for urban civic services. The internal resources of municipal governments and infrastructure agencies are not sufficient to bridge the estimated resource gap of Rs. 23,726 million per annum until 2001.

6. Municipal governments are the third tier of governments and have been assigned taxation powers by their respective state governments. Municipal governments are also empowered to raise revenues through non-tax sources like user charges, fees and rents on properties. These own sources of tax and non-tax revenues have accounted for a large proportion of municipal receipts. However, the rate of growth in own sources of revenues have not kept pace with the total expenditure, especially in states where octroi is not levied by municipal governments. Municipalities, in these states, have become more dependent on transfers, that is grants and shared taxes from the state government. In states where octroi is levied, the municipal governments are able to raise over 90 per cent of the total expenditure through own sources, whereas in non-octroi

states only about 60 per cent of expenditure is met through own sources. In the own sources of municipal revenues, there is a noticeable shift towards non-tax revenues. This is largely because of the lack of buoyancy in traditional tax sources like property tax and increasing emphasis on rationalising and recovery of user charges for water supply.

The per capita municipal revenue receipts range from Rs. 349 in Mangalore to Rs. 486 in Bangalore, whereas the per capita revenue expenditure ranges between Rs. 212 in Aurangabad to Rs. 394 in Bangalore (Table 12.2). The share of own resources is the highest in Aurangabad at 84 per cent of total receipts. This is largely due to octroi which accounts for 56 per cent of municipal receipts. The city of Visakhapatnam has a share of own revenues of 55 per cent, of which a major amount of 33 per cent is received through user charges on water. The share of own resources is 50 per cent in Bangalore. Mangalore generates only 40 per cent of its revenue receipts through taxes and user charges and depends largely on the shared taxes and grants from the state government to meet its budgetary requirements. Both in Bangalore and Mangalore, property tax collection is the major source of municipal revenue generation.

Table 12.2

Municipal Finance of Case Study Cities, 1993-94

Indicators	Bangalore	Visakhapatnam	Aurangabad	Mangalore
Per capita revenue receipts (in Rs.)	486	445	412	349
Per capita revenue expenditure (in Rs.)	394	258	212	387
Total revenue surplus/deficits (in million Rs.)	+251	+153	+89	-12
Surplus/deficit as % to total revenue receipts	19	42	30	-11
% share of own resources to total revenue receipts	50	55	84	40

The general overview of municipal finances in India suggests a poor state of finances. But, among the four case study cities, only the city of Mangalore shows a revenue deficit of 11 per cent. The other cities have revenue surpluses ranging from 19 per cent of the total revenue receipts in Bangalore to 42 per cent in Visakhapatnam. However, if debt servicing component of these municipal corporations is added in their recurring expenditure their surplus is most likely to be substantially lowered or it may even amount to a revenue deficit situation.

7. In general, taxes are more predominant instruments of cost recovery of urban services. For services such as sewerage, solid waste and street lighting, taxes are levied on rateable value of property. However, fixation of these tax rates is not determined by the actual cost of providing these services. Also, legal disputes and consequent delays associated with property tax assessment and collection adversely affect the recovery of service tax receipts. Most cities receive a share in the motor vehicle tax from the states as the major resource for road maintenance, which has no relationship with the number of vehicles in each city. User charges are levied for sewerage in a few cities and for water in almost all the cities. Large number of cities levy a user charge for water in addition to water tax. There is an increasing tendency to resort to levying consumption related user charges for water and also to revise water rates. Except Mangalore, all the case study cities have revised their water rates in the recent years after a gap of a long period. The current water rates charged in the four case study cities vary a great deal (Table 12.3).

8. The revenues generated by municipal corporations and infrastructure agencies through taxes and user charges are not adequate to meet even the O & M cost of various services in most cities. Amongst the four case study cities, Visakhapatnam is an exception, where a revenue surplus of Rs. 1.80 per KL on water and of Rs.0.77 per KL on sewerage was recorded in 1993-94 (Table 12.4). The remaining case study cities reveal a deficit situation in the water supply sector, despite the recent initiative of water rate revisions in Bangalore and Aurangabad.

Table 12.3

Price of Water in Case Study Cities, 1993-94

Category	Bangalore	Visakhapatnam	Aurangabad	Mangalore
Domestic Metered				
Minimum	0.96			1.00
		5.00	2.50	
Maximum	13.50			3.00
Unmetered Flat rate				
Minimum			500 p.a.	
	-	40 per tap p.m.		-
Maximum			2500 p.a.	
Non-domestic Metered				
Minimum	13.50	10.00		4.00
			8.00	
Maximum	30.00	12.00		15.00
Unmetered Flat rate				
Minimum			3,000 p.a.	
	-	-		-
Maximum			10,000 p.a.	

Note: Metered rates in Rs. per KL and unmetered rates in Rs.

Table 12.4

**Revenue Receipts and Expenditure on Urban Services
in Case Study Cities, 1993-94**

Service	Revenue receipts and expenditure (Rs.)			
	Bangalore	Visakha- patnam	Aurangabad	Mangalore
Water supply				
Revenue expenditure per 1000 litres	3.84	1.05	1.32	1.24
Revenue receipts per 1000 litres	3.50	2.85	0.74	0.68
Surplus /deficit per 1000 litres	-0.34	1.80	-0.58	-0.56
Sewerage				
Revenue expenditure per 1000 litres	0.87	0.68	0.28	0.49
Revenue receipts per 1000 litres	0.20	1.45	0.05	-
Surplus/deficit per 1000 litres	-0.67	0.77	-0.23	-0.49
Solid waste				
Revenue expenditure per tonne	0.34	0.36	0.38	0.11
Revenue receipts per tonne	0.09	0.03	0.06	0.06
Surplus/deficit per tonne	-0.25	-0.33	-0.32	-0.05
Roads				
Revenue expenditure per km.	22,874	38,931	36,004	72,257
Revenue receipts per km.	3,862	167	3,511	4,283
Surplus/deficit per km.	-19,012	-38,764	-32,493	-67,974

RECENT POLICY REFORMS IN FINANCING URBAN INFRASTRUCTURE

A number of new initiatives have been taken in India to augment resources for the urban sector. The national government's role in policy making is crucial and it has taken a number of important steps. These include enactment of the Constitution (Seventy Fourth) Amendment Act, restructuring of the national infrastructure programmes and policy formulation for infrastructure finance. Through many state government initiatives, Municipal Development Funds are being established in Tamil Nadu, Maharashtra and in other states. At the local level, the city of Ahmedabad has been rated by a credit rating agency for issue of municipal bonds. These national, state and local initiatives are indicative of current efforts in the country to augment finances for urban development. These initiatives discussed in Mehta and Pathak (1996) are summarised below.

Initiatives of the National Government

Within the perspective of macro-economic reforms, the national government has initiated various policy reforms in the urban sector. At policy level, through the Council of Urban Development Ministers, an agenda of reforms was drawn up in 1993. This agenda included a series of reforms required to be undertaken at the state level implementation of the Constitution (Seventy Fourth) Amendment Act, 1992. It also endorsed encouragement of private sector participation in financing and operating core urban infrastructure. Commercialisation of urban infrastructure projects and full cost recovery pricing of urban services were also identified as important strategies to augment finances.

The existing development programmes under the central and state budgets have also been modified to include institutional finances. The Integrated Small and Medium Town Development Programme (IDSMT) now requires every project to have recourse to institutional finances. A mix of grant and loan funds would provide finances at reasonable rates to smaller municipalities. It is also now required that the IDSMT projects need explicit statements on cost recoveries and creating surpluses at the local level for further infrastructure investments.

The Mega Cities project, being implemented in five metropolitan cities, envisages creation of a revolving fund at the city level for upgradation of infrastructure. The state and national governments would contribute 25 per cent each and the financial institutions are expected to provide the balance. The objective of this fund is to create and maintain a pool of resources for development of infrastructural services on a sustained basis.

In addition to these reformulations of governmental programmes, the national government has embarked upon major policy reforms of the urban sector. A number of high level committees are currently in the process of finalising their recommendations on urban perspectives and

policies, financing of urban development and urban planning. The national planning commission has also constituted many working groups to formulate urban development strategies for the Ninth Five Year Plan, 1997-2002. All these efforts are directed towards placing urban development within the broader macro-economic framework and identifying strategies for resource mobilisation from the capital market.

State Finance Commissions

Under the Constitution (Seventy Fourth) Amendment Act, 1992, State Finance Commissions (SFC) have been established in most states. Article 243I and 243Y of the Constitution describe the role of State Finance Commissions. The five major tasks of SFCs are to; (a) review financial position of local bodies; (b) make recommendations about principle of distribution of state's resources among local bodies; (c) determine assignments or appropriation of taxes, duties, fees, etc., to local bodies; (d) determine principles for grant-in-aid to local bodies from the consolidated fund of the state; and (e) suggest measures needed to improve financial position of local bodies.

The Central Finance Commission is now required to take into account the recommendations of SFCs in determining sharing of central government resources with the state governments. Many SFCs have submitted their reports to their respective state governments and the decision of the state government is awaited.

State and Local Level Reforms

At the state and local level, a few efforts are underway to augment resources for urban infrastructure development through creation of financial intermediaries and municipal development funds, providing direct access to capital markets, and encouraging direct private investments.

Municipal Development Funds and Intermediaries

Municipal Development Fund (MDF) usually refers to a pool of resources, operated at a level above that of the individual municipality, for investment in urban infrastructure through municipal governments and other public agencies. The Municipal Development Intermediaries (MDI) are institutions like banks, association and agencies that often control and channel the municipal development funds.

Experience of MDF in the state of Tamil Nadu suggests that there is a significant improvement in resource utilisation at the local level, rationalisation of flow of central and state grants to local bodies and an improvement in the collection of revenues of local bodies. In many other Indian states, some institutional structures currently exist to provide finances to urban local

bodies. Kerala Urban Infrastructure Development Corporation, Karnataka Urban Infrastructure Development Corporation, Gujarat Municipal Finance Board and the revised grant structure in Calcutta are some of the examples of state/metropolitan level institutions that provide finances to the local bodies. These funds have, as yet, not leveraged public funds to raise resources from the capital market. The Tamil Nadu municipal development fund is being reformulated with the participation of government and financial institutions. This fund will be managed by private institutions and will finance municipal infrastructure projects on commercial terms.

Many State Finance Commissions, are in the process of recommending a mechanism like MDF to enable municipal bodies to finance their infrastructure. Such funds are likely to be operated by a nodal agency in a state/metropolitan area, which can pool the central grants/loans for municipal infrastructure with allocations of grants/loans from the state government. These funds are expected to operate on commercial basis and leverage the public funds with market borrowings.

Direct Municipal Access to Capital Market

In addition to the finances routed through municipal development funds and intermediaries in many countries, the local governments raise capital through bond issues from the market. Such direct borrowing in the capital market has not been widespread in India. This is because most municipal legislations require approval (and often a guarantee) of the state governments for open market borrowings. The borrowing powers of municipal corporations are defined in the respective legislations. It relates to the percentage of the total Annual Rateable Value (ARV) of the property or a definite monetary limit. The municipal corporation's open market borrowings are subject to state government and Reserve Bank of India's approval. Thus, the present legislations restrict open market borrowings of municipal governments and state governments are reluctant to permit them to borrow.

Many city governments in India have raised small amounts of capital through bond issues in the past. Such municipal bonds were classified as government security and were guaranteed by the state government. They were subscribed by public finance institutions and nationalised banks to fulfill their Statutory Liquidity Ratio (SLR) requirements. In recent years, state governments have not granted permission to municipalities to access the capital market.

Many infrastructure agencies are also legally empowered to raise funds in the capital market. The city and Industrial Development Corporation (CIDCO) has raised Rs. 500 million in recent years for their infrastructure and land development projects.

The city of Ahmedabad (population 3.5 million in 1991) in western India, will be the first city in India to issue municipal bond without sovereign guarantee of the state government. A credit rating agency has rated a general obligation bond issue of this city. Several credit

enhancement options are being considered for a Rs. 100 million bond issue of this city to be floated in June 1996. Experience of this city is being closely watched by other cities in India to develop their own bond issues. Under the Indo-USAID programme on Financial Institutions Reform and Expansion (FIRE), a few demonstration projects are also expected to raise funds in the capital market.

Encouraging Direct Private Sector Investments

Private sector investments in urban infrastructure development in India is negligible. This sector is currently not perceived as commercially viable. This is because user charges have been traditionally kept very low and the public agencies are often not able to collect these low charges. Private sector firms can however, play an important role in partnership with public agencies to mitigate some of the risks associated with low tariffs. A few initiatives in this direction are likely to pave way for an increased private sector investment.

In the city of Hyderabad (population 4.5 million) situated in southern India, the metro water agency has invited bids from private firms to undertake a Rs. 15 billion water supply project to provide water at a bulk rate to the agency for distribution to the consumers. Preliminary bids suggest that the cost of bulk water is expected to be at least 25 per cent less than agencies' own costs. For mass transport projects for Bangalore and Hyderabad, many private sector firms have shown interest to make investment in Light Rail Transit System. The success of a small toll road near the city of Indore in Madhya Pradesh state has evinced keen interest of private sector firms in similar exercises in other cities of India.

In all these projects, the public sector agencies have to guarantee adequate rates of return to the private investor through bulk purchase at agreed rate or to collect the required level of toll fees/charges. It is, however, expected that as consumers respond to higher level of services by paying higher tariffs, the direct private sector investments will increase.

POLICY DIRECTIONS

The recent initiatives taken at the national, state and local level are aimed toward enhancing flow of funds for urban infrastructure within the broader framework of macro-economic reforms. However, the initiatives indicated above, are sporadic and have faced severe difficulties in implementation in absence of a clear policy framework. There is a need to establish a range of financing mechanisms that can provide funds on a sustained basis for urban infrastructure. This would require concerted efforts of the national, state and local governments to undertake adequate reforms of the current practices. Municipal governments and infrastructure agencies will have to improve their efficiency through better management practices and accountability to ensure that full cost of services is recovered and that subsidies, if any, are

targeted and transparent. These reforms can be brought about by the following recommended actions.

Creation of Municipal Development Fund and Intermediaries

Capital for long-term urban infrastructure has traditionally come from the central and state plan allocations. These plan allocations, as indicated above, are insufficient and not made available equitably to all urban local governments according to its need. It is possible to resolve these issues by using the plan allocations to establish Municipal Development Funds.

The sources and form of these funds include: (i) loan funds from central/state governments to be used as revolving funds, capitalised from government budgets and often supplemented by assistance from bilateral and multilateral donor agencies; (ii) a 'window' for grants and loans to municipal infrastructure operated by state controlled institutions which manage pension and insurance funds; and (iii) autonomous institutions, created specifically for financing municipal infrastructure.

Promotion of MDFs and MDIs have facilitated leveraging of grant funds with loan funds and thus have reduced the overall cost of borrowed funds to the municipalities. These funds have also enhanced the capacity of local governments and financial intermediaries to tap the domestic capital markets.

Experiences of MDF in developing countries suggest that there is a significant improvement in resource utilisation at local level, rationalisation of flow of central and state grants to local bodies and an improvement in collection of revenues of local bodies.

Encouraging Direct Municipal Access to Capital Market

Municipal bonds, issued by state governments, infrastructure agencies and local governments, have been used for over a century to finance local infrastructure in the U.S.A. (See Mehta, 1995 for details). In many countries in Latin America and now in South-East Asia, municipalities have been raising funds through bond issues.

Most municipal legislations require approval (and often a guarantee) of the state governments for open market borrowings. The Bombay Provincial Municipal Corporations Act, 1948, currently enforced in Maharashtra and Gujarat has explicit provisions for open market borrowings by Municipal Corporations. However, such enabling legislation will be required for Municipal Corporations in other states and municipalities all over the country for them to become a potential bond issuer.

The borrowing powers of municipal governments and statutory authorities is extremely limited at present. No municipal authority can borrow without an explicit sanction of its state government. When the loan amount exceeds Rs. 25 lakhs or the repayment period is over 30 years, local borrowings need central approval under the provisions of the Local Authorities Loan Act, 1914 (a Central Legislation). It is important to consider amendments to this legislation, in light of the financial reform process that is underway. Section 4(i) of the said Act permits appropriate level of government to make rules consistent with the Act on the nature of funds and on the security on which money may be borrowed and various other powers related to administration of the loan. Section 7 of the Act suggests that the borrowing powers conferred on the local authority by any special enactment are beyond the purview of this legislation.

To enable all municipal governments, statutory authorities and other agencies to raise finances in the capital market for urban infrastructure, suitable changes in the Local Authorities Loan Act will have to be made with regard to the ceilings prescribed in the Act and with regard to the nature of securities.

State governments also need to consider provision of enabling legislation that grant borrowing powers to the municipal authorities and other public agencies, without a guarantee by the state government. Such provisions would enable local authorities to access capital market funds for commercially viable projects.

The direct access to capital market has some advantages. If a local authority is perceived as a good credit risk by the market, its borrowing in the form of bonds can be the least expensive form of credit. In a well developed capital market, the local authority can choose its timings of the issue based on its own need rather than be dependent on governments at higher level or other institutions.

However, urban local authorities and governments are not perceived as a good credit risk. Many urban governments have no credit history, or a poor credit history of non-payment of government loans. Under such circumstances, it is difficult to attract private and corporate investors to subscribe to infrastructure bond issues. There are, however, many forms of credit enhancements that can be provided by the intermediary institutions, like bond banks, refinancing facilities and back-stop credit guarantee by specialised finance institutions.

For a financing system based on local direct access to capital markets, several prerequisites have to be met. Firstly, the saver/investor must have sufficient information about the creditworthiness of debt issuing agencies. In countries where municipal bonds are issued frequently, several credit rating agencies are available to rate the debt instrument. Secondly, there should be a large base of investment capital pool that seeks a long-term investment in infrastructure bonds. In India, the corporate debt instruments are typically for upto seven years, while government debt instruments are for upto ten years. A municipal debt instrument of longer

tenure may be unacceptable in the Indian capital market. However, if a strong secondary debt market develops, the investors would be willing to hold long-term bonds. A clearing house or trading system will need to be developed for this purpose.

Fiscal Reforms to Increase Flow of Finances

Institutional and private sector finances to the urban infrastructure sector will increase only if some fiscal reforms are undertaken. At present, all public borrowings are regulated. The state governments are reluctant to pass on their allocations of public borrowings to lower level of governments in the form of guaranteed borrowings. Efforts are needed to move away from such sovereign guarantee debts to project recourse debts of local authorities. Suitable procedural changes under Securities and Exchange Board of India (SEBI) guidelines will be required for municipal debt instruments. Such instruments will require tax exemption and may have to be declared as public securities under the SLR requirements of the financial institutions. Infrastructure projects would also require some fiscal concessions to private sector like accelerated depreciation of physical assets and tax exemptions or moratorium on taxes for initial few years, to increase commercial viability.

Infrastructure finance institutions in India would require some initial support. These institutions will need access to long term finances from insurance and pension funds, as well as international donor agencies resources. Participation of commercial financial institutions in the state level financial intermediaries like municipal development funds will also be necessary to bring fiscal discipline among public borrowing agencies.

Strengthening Resource Base of Local Agencies

The level of municipal tax revenues are determined by the local economic base and its relationship with various tax bases. With stronger links between these, taxation would yield higher revenues in a buoyant urban economy. Improving revenue efficiency to capture the full fiscal capacity of local agencies is also critical. At present, less than half of the potential revenues are actually collected by the municipal governments. The poor collection efficiencies and lack of periodic revision in the tax assessment procedures have been largely responsible for their poor financial status. Some of the recommendations in this regard are listed below:

- a. Property taxation needs to be delinked from the standard rents prescribed under Rent Control Laws. Suitable amendments in the Rent Control and municipal legislations would be necessary. A floor area based valuation system for the purpose of property tax would eliminate the present anomalies of discriminatory and arbitrary assessment of properties and enhance yields.

- b. The present mechanism of sharing of state level taxes with municipalities and state transfers of grant-in-aid need to be rationalised. Municipal share in stamp duties, motor vehicle tax, entertainment tax and professional tax should be enhanced. Also, there should be a system of informing the local bodies the amount of grants and taxes allocated to them in the beginning of the financial year, rather than at the end of financial year as is the present practice. This will facilitate local bodies to plan their activities and expenditures for the whole year. It is expected that the recommendations of the State Finance Commissions will take care of some of these issues which will lead to more rational and greater flow of resources to urban local bodies.
- c. Municipal governments and infrastructure agencies need to adopt a combination of rational pricing, enhanced efficiency and improved management practices in order to reduce the gap between their revenues and expenditure on services. An attempt should be made to levy user charges on all exclusionary services for full cost recovery. However, the cost of institutional and managerial inefficiencies should not be loaded on the user charges.
- d. The local agencies should adopt a strategy of multiple instruments of cost recovery and phased long-term approach for recovering the current costs and past deficits. This means that the cost of services should be distributed over as many instruments as possible and a manifold spurt in tariffs in one go should be avoided to make it more acceptable to the consumers of the service.
- e. A system of in-built periodic revisions of tariffs should be evolved to avoid going through lengthy procedure of tariff fixation and approval from higher levels of government. For instance, indexing of water tariffs with electricity rates and linking of sewerage charges as percentage share with water rates.

Capacity Building of Local Agencies

With increased functional responsibilities and emerging fiscal necessities, the local governments and agencies will need to demonstrate adequate capacity for efficiency in use of resources, ensure proper debt servicing and develop skills to negotiate satisfactory arrangements with private sector firms. Such capacity building programme would include:

- a. Awareness building among elected representatives, which is crucial as decisions regarding tariff revisions for full cost recovery will need to be taken by them. They will have to be made aware that in the absence of such decisions, finances from institutions and private sector will not be forthcoming.

- b. Accounting practices of municipal governments will have to undergo a drastic change to reflect the true cost of service provision and ensure transparency in the revenue stream of specific infrastructure projects. Introduction of such practices are crucial as financial institutions and potential bond investors would need to assess the credit worthiness of local agencies.
- c. Improvement in technical and managerial capacities would help reduce the current leakages and misallocation of resources.

The above recommendations present an initial set of actions that are required for ensuring greater flow of funds for urban infrastructure. For such flows to occur on a sustained basis, it is a pre-requisite that urban infrastructure projects be made commercially viable. This requires not only a change of mind-set among the present decision makers, but a range of actions to reform the existing local governance. It is through these reform's that the growing needs for urban infrastructure and services can be met.

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