

CHAPTER 6.2

CIVIC AMENITIES IN URBAN AREAS

6.2.1 The traditional role of municipal bodies had been one of providing basic amenities of civic life. Services such as water supply and sanitation, roads and drains, street-lights, collection and disposal of solid waste, maintenance of public places, burial grounds and crematoria, cattle pounds, registration of births and deaths, maintenance of markets have long been seen as the function of municipal bodies. In addition, they performed certain regulatory functions relating construction of buildings, public health areas such as eating places, slaughter houses and tanneries, etc.

6.2.2 The 74th Constitutional Amendment has substantially broadened the range of functions to be performed by the elected urban local bodies (ULBs). The Twelfth Schedule brings into the municipal domain among others such areas such as urban and town planning, regulation of land-use, planning for economic and social development, 'safeguarding the interests of weaker sections of society including the handicapped and mentally retarded,' slum improvement and upgradation, urban poverty alleviation, and 'promotion of cultural, educational and aesthetic aspects'. The subject of 'cattle pounds' has been extended in the Twelfth Schedule to include 'prevention of cruelty to animals'. The Constitution thus envisages urban local bodies as being totally responsible for all aspects of development, civic services, and environment in the cities, going far beyond the traditional role.

6.2.3 Provision of basic amenities will continue to be among the core activities of the ULBs. The efficient performance of these responsibilities requires proper institutional structure, unambiguous decentralisation of powers, adequacy of resources, support of the State Governments and their entities, and a concerted effort to build up capabilities in the various sections of the ULB machinery. During the Tenth Plan, some key areas of water supply and

sanitation, urban transport, alleviation of urban poverty, the housing needs of slum-dwellers, and reforms in the urban sector with a view to strengthening the institutional and resource base of ULBs will have to be taken up for special attention.

URBAN WATER SUPPLY AND SANITATION

6.2.4 As in the Eighth and Ninth Plans, in the Tenth Plan also the approach to the water supply and sanitation sector will take into account the guiding principles suggested in the New Delhi Declaration, which was adopted by the U.N. General Assembly in December 1990. these are:

- a) Protection of the environment and safeguarding of health through the integrated management of water resources and liquid and solid waste;
- b) Organisational reforms, promoting an integrated approach and including changes in procedures, attitudes, and behaviour, and the full participation of women at all levels;
- c) Community management of services, backed by measures to strengthen the capacity of local institutions in implementing and sustaining water and sanitation programmes;
- d) Sound financial practices, achieved through better management of existing assets and extensive use of appropriate technologies.

6.2.5 Water needs to be managed as an economic asset rather than a free commodity in the same way as any other resource. The regeneration of sources shall be the responsibility of every user agency, whether they use water for

drinking, irrigation or other purposes. Supply of water to consumers should normally be based on the principle of effective demand that should broadly correspond to the standard of service which the users as a community are willing to maintain, operate and finance. At the same time, special provisions should be made to meet the needs of the poor who have less capacity to pay.

6.2.6 Within this overall perspective, the Tenth Plan envisages completing the task at hand, namely, 100 per cent coverage of rural and urban populations with safe drinking water as per the stipulated norms and standards on a sustainable basis. However, the focus should not only be on the investment requirements to augment supplies or install additional systems in sanitation and water supply. Instead, greater attention must be paid to the critical issues of institutional restructuring, managerial improvement, better and more equitable service to citizens who must have a greater degree of participation. Tenth Plan must also focus on achieving sustainability of the sector through the adoption of adequate measures in operation and management (O & M), the financial health of the utilities through efficiency of operations and levy of user charges, and conservation and augmentation of water sources. In view of the 73rd and 74th Constitutional Amendments, the task of providing and managing water supply and sanitation cannot be separated from the issue of functional and financial autonomy and strengthening of capacity in both rural and urban local bodies. External assistance, involvement of the private sector, and institutional/market finance are necessary to augment resources and to encourage participatory and innovative management practices.

URBAN WATER SUPPLY

6.2.7 According to the 54th round of National Sample Survey (NSS) an estimated 70 per cent of urban households reported being served by tap and 21 per cent by tubewell or handpump. Sixty-six per cent of urban households reported having their principal source of drinking water within their premises, while 32 per cent had it within 0.2 km. Forty-one per cent had sole access to their principal source of drinking water, which means that 59 per cent were sharing a public source. Fifteen per cent of households did not get sufficient drinking water from their principal source, between April and June, May being the worst month. In the aggregate, 91 per cent of urban households reported the quality of drinking water served by their principal sources to be satisfactory. 18 per cent reported using some supplementary source of drinking water and 96 per cent reported storing their drinking water.

6.2.8 Since independence there has been sustained effort at providing, on a priority basis, potable water to all habitations, and this has been successful to a large extent as seen from the NSS data. Almost all urban centres have been provided with some public water supply scheme which is the primary source of potable water for most urban inhabitants. State level data show that on an average 88 per cent of the urban population were provided with water supply through a public water supply facility, with many States reporting 90 per cent and more coverage. However, official reports tend to give greater weight to physical and financial progress rather than the quality, reliability and sustainability of services. The picture will be incomplete and misleading if the many and significant lacunae in the existing scenario are not highlighted:

BOX : 6.2.1 WHAT THE 'COVERAGE' STATISTICS DO NOT REVEAL

Statistics of 'coverage' of around 90 per cent, and bare figures of quantity of water supplied in the cities as claimed by authorities, tend to hide several realities regarding both the operations of the system, and the experience of consumers.

- The 'coverage' figure may relate to installed capacity. What is relevant for the consumer is the actual operating capacity of the water supply system, or the average actual supply over a sustained period.

- 'Coverage' by itself does not reveal the adequacy of the system, especially of the adequacy of storage, treatment and distribution arrangements, both in terms of capacity and operational features. Thus, there can be wide variations within a city in the quantity and quality of water supplied.
- Coverage figures do not indicate the actual functioning of the system and allowance may need to be made for breakdowns which may deprive the consumers of water for several days;
- Coverage figures also do not reveal the regularity or duration of supply, or even whether the supply is made on a daily basis or less frequently;
- Coverage does not reveal the financial sustainability of the system which may be low due to low tariff and poor recovery. In many towns, poor finances result in poor maintenance, leading to more frequent breakdowns and degeneration of the system leading to major expenditure on renovation, which could have been avoided by timely maintenance. Due to inadequate revenue raising, defaults in payment of electricity bills are quite common, making non-payment of water supply dues a major source of loss to the State Electricity Boards.
- Coverage does not reveal the year-round performance, like water availability in summer. In a number of schemes dependent on ground-water as well as surface sources, availability reduces in summer, causing serious disruption of normal life;
- Figures on treated and non-treated water supply are not available. Many urban centres lack treatment facilities, and where they do exist, they are often not used or used without quality control and testing;
- Coverage figures do not reveal information regarding the number of hours of supply in the case of household connections, and for public stand-posts, the distance, time taken to collect water, number of users of each stand-post, etc. New connections are delayed or sometimes denied, while new areas, especially unauthorised developments, remain unserved.
- Typically, the urban residents need to supplement public supplies with water obtained from private sources, and this is usually much more expensive. The extent to which this is required to be done – the proportion of water procured privately against the quantity determined as norm – is not brought out when only 'coverage' figures are provided;
- There are no accurate figures for unaccounted for water and the quantity actually reaching consumers. The supply figures often include unaccounted for water. Unaccounted for water also increases costs to consumers as the cost relating to water that is lost has to be made up in the tariff charged to legal connections.
- Most importantly, the coverage figures say nothing about the equity of distribution, while it is well-known that the poorer areas are provided with less water whereas the influential rich will get a more satisfactory service.
- Coverage figures say nothing about unauthorised connections, and contamination of supply due to poor maintenance and mixing with drainage and sewerage waters, nor about inequity in tariff due to flat rates applied equally to those who obtain superior service and those who get poor service.

Norms of Water Supply

6.2.9 The Manual on Water Supply and Treatment, published in May 1999 by Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development and Poverty Alleviation, specifies norms and standards of municipal water supply for domestic and non-domestic needs, such as institutional, commercial, fire-fighting and industrial requirements. The recommended minimum per capita water supply levels for designing schemes are:

1. Towns with piped water supply but without sewerage system: 70 litres per capita per day (lpcd)
2. Cities with piped water supply and existing or planned sewerage system : 135 lpcd
3. Metropolitan and megacities with piped water supply and sewerage : 150 lpcd
4. Public standposts: 40 lpcd

The above figures exclude unaccounted for water (UFW), which should be limited to 15 per cent. The requirement of water for commercial, institutional and minor industries is included. However, the bulk supply to such establishments should be assessed separately with proper justification.

6.2.10 The norms and standards of public stand-posts, including the number of households per stand-post, distance, sanitation at the stand-post and guaranteed hours of supply, need to be revised so that the households dependent on public standposts get their due share of water. The Eighth Plan specifies one source for 150 persons, with a maximum walking distance of 100 metres. The norms of services including water supply and sanitation under the Environmental Improvement of Urban Slums (EIUS) were determined many years ago, but few slums have risen above slum status despite many years of implementation of EIUS. While the prescribed normative level of supplies and services have not yet been met, there is already a need to re-define the standard of services in particular to slums and others who depend on public stand-posts for

water, and in sanitation, on community facilities. This should be taken up during Tenth Plan.

6.2.11 The existing general norms are by no means very high though they have hardly been met in most cities. The norms are not a ceiling but only a minimum. They should not, therefore, come in the way of any municipal body or water supply authority taking up projects for further augmenting supplies over and above the norms, if such projects can be financed from its own resource or borrowings, without subsidy or grants from the State or Central Government. The first priority, should however, be to plug leakages, uprate existing water works, and conserve water through proper planning of supply and maintenance of the system. Where supplies are found to be insufficient, concerted efforts should first be taken to improve the efficiency of the existing schemes. New augmentation schemes should be taken up only when these are found not to meet the needs.

Investment Needs of the Water Supply Sector

6.2.12 Assessing investment needs of a sector spread over more than 5000 urban centres, each with its own level of supply and distribution and changing needs, is no easy task. In the absence of a reliable system of collection of urban data, the status and needs of almost all civic amenities is hard to estimate.

Cost of Water Supply and Sanitation : HUDCO has estimated cost of water supply from surface sources to range from Rs 0.81 crore per mld to Rs 2.03 crore per mld at 1998-99 prices. The cost of supply from ground water sources is estimated to range from Rs 20 lakh to Rs 61 lakh per mld. Likewise, HUDCO estimates per capita investment for sanitation to be as follows:

Sewerage augmentation	–	Rs 1,620
Conventional treatment	–	Rs 162
Septic tank with soak pit	–	Rs 4,050
Twin-pit without superstructure	–	Rs 377.5 (15 users) to Rs 648 (5 users).

The India Infrastructure Report (Rakesh Mohan Committee) has estimated that the aggregate levels

of total annual investment requirement for urban infrastructure inclusive of water supply and sanitation and other infrastructure, would be in the region of Rs 28,297 crore over the period of 1996-2001, and it would be of the order of Rs 27,773 crore for the 2001-2006 period.

CPHEEO Estimates : The CPHEEO has estimated that by the end of the year 2007, the urban population of the country is likely to be around 36.3 crore. For achieving 100 per cent coverage by the end of the Tenth Five Year Plan and taking into account the urban population already covered, the requirement of funds has been assessed.

6.2.13 In regard to sewerage and sanitation facilities, it is assessed that 57 per cent of the urban population is likely to be covered by end of Ninth Plan. The estimates are based on the proposed coverage of 75 per cent of urban population. Moreover, 35 per cent of population already covered by the end of the Eighth Plan would need augmentation/rehabilitation and is included in calculation of fund requirements.

6.2.14 Based on these assumptions of requirements to be met, the CPHEEO has estimated the following requirements during the Tenth Plan :

Water Supply	- Rs 28,240 crores
Sanitation	- Rs 23,157 crores
Solid waste management	- Rs 2,322.60 crores
Total	- Rs 53,719.80 crores.

These are rule-of-the-thumb estimates which only indicate the order of magnitude of investment requirements. The figures need revision on the basis of actual urban population growth figures provided by the 2001 Census. On the ground, the investment needs will vary from town to town and will depend on the existing levels of supply and the gap vis-à-vis the normative levels, the current state of earlier installations and their performance in comparison to design capacity, and the cost of augmentation which will largely depend on the type of source, distance of the source, topographical factors, quality of water etc. Costs of operation also vary depending on the costs of pumping, treatment, maintenance etc. The exercise of assessing the water supply

needs to be fulfilled is yet to be done and should be undertaken during the Tenth Plan. State Governments need to carry out this task in cooperation with the ULBs.

State of Water Supply Services

6.2.15 The urban population faces an increasing demand-supply gap, wholly inadequate and unreliable supplies particularly in settlements of the urban poor, and deteriorating financial and technical performance of systems. To take only the metropolitan cities, according to a World Bank study, of 27 Asian cities with populations of over one million, Chennai and Delhi share the same rank as the worst performing cities in terms of hours of water availability per day, while Mumbai is ranked as the second worst performer and Kolkata as the fourth worst.

6.2.16 The problems of the sector are manifold. Transmission and distribution networks are old and poorly maintained. Consequently, physical losses are high, ranging from 25 to 50 per cent. Low pressures and intermittent supplies allow back-siphoning, which results in contamination of water in the distribution network. The utilities are overstaffed. Intermittent supplies for only two to eight hour places a burden on the women who have to fetch water from public taps. The urban poor, who constitute one-fourth of the urban population, and the slum dwellers, who may range from one-third to half of the population in certain cities, are the worst affected. Ensuring equity in distribution of available supplies is one of the key challenges of the urban water supply sector.

6.2.17 According to various studies, most cities are unable to operate and maintain the existing systems to the full capacity. The capacity utilization has been reported to be less than 50 per cent in 40 per cent of the towns, and less than 75 per cent in a further 20 per cent of towns. There is grave danger that cities may, in many instances slip back to lesser levels of water supply, due to poor maintenance and depletion of sources even as the population continues to grow. This may lead to a situation where the per capita availability of water by 2020 may actually decrease, unless corrective action is taken expeditiously.

6.2.18 There are wide variations among towns in terms of quantity of water supplied, per capita supply, achievement of normative supply, duration of supply, etc. In the case of slums, which are generally provided public stand-posts, there are wide variations in the availability and average number of households per stand. Wherever ground water is the main source, the over-exploitation of aquifers, depletion of water resources, and pollution by urban human wastes, are causing serious problems. Water supply and sanitation are, above everything else, issues in environmental health. There is a close link between water and sanitation requirements because availability of adequate water is essential for proper sanitation practices.

Finances of Water Supply and Sewerage Services

6.2.19 The general financial position of the urban water supply and sewerage sector is very poor. Only a few providers in large urban areas generate sufficient revenues to make any contribution to investment. In medium and small towns these entities typically do not collect sufficient revenue to cover operating expenses. There is no matching of revenues against expenditures. Collection efficiency is very low. A major cause of poor financial health is low tariff, resulting in direct subsidy. There is an attempt at cross-subsidization from commercial and industrial consumers to domestic consumers. According to one study, 76 percent of the responding towns did not raise sufficient revenues from water supply to cover the revenue expenditure on the service.

6.2.20 Institutions dealing with water supply and sanitation have very little autonomy on personnel and financial matters. Information systems necessary for effective management are generally lacking.

6.2.21 Water tariffs and the methods of levying them vary considerably from very low to reasonable rates. The methods in vogue in Indian cities include any or a combination of the following : water tax, flat rates, slab rates and volumetric rates.

6.2.22 In the past, when municipal functions were few and the pressure on infrastructure was not as

intense as today, many local bodies found it possible to meet the costs of water supply from general revenues. Property owners who paid taxes were assured of water supply free of any charges, up to an agreed level. With additional demand being met from water supply schemes executed at higher costs, the free supply became infeasible, but there was resistance to paying more in the absence of a demonstrated improvement in service quality. The prevailing 'subsidy culture' has been largely responsible for the reluctance to raise tariffs, notwithstanding the fact that lack of resources is one of the major causes for poor standards of service and maintenance, and inability to expand the system to cater to additional demand.

6.2.23 The resultant unsatisfactory service standards has now created a vicious circle of poor service—leading to low tariff because of less willingness to pay—leading to poor resource position—leading to poor maintenance and poor service. Although surveys show consumer willingness to pay higher tariffs, increases, if they are to be acceptable, must be accompanied by substantial improvements in service quality.

Institutional Arrangements for Financing and Execution of Water Supply Schemes

6.2.24 Water supply and sanitation schemes are capital intensive and, consequently, they are financed from the budget, borrowings from financial institutions or the market, and external funding agencies. Most State Governments have a policy relating to the financing pattern of the schemes, with shares for the ULB, State Government, and institutional finance. The Central Government provides assistance through the centrally sponsored scheme of Accelerated Urban Water Supply (AUWS) programme. The five cities covered under the Mega City scheme have been able to avail its funds for water supply and sanitation, and in the Tenth Plan, it is proposed that the scheme of Integrated Development of Small and Medium Towns may permit a similar facility.

6.2.25 The rationale for financing water supply schemes fully or partly through grant funds, is not always clear or consistent. In instances where the capital costs per capita are excessive due to

distance of the source, multi-stage pumping or water quality problems exist, and where the number of urban poor requiring targeted subsidy is large, there is need for a capital grant from the Government. Grants ranging from 20 to 50 per cent of the project cost are being provided, but many large cities have received external assistance which has been passed on fully as grants.

6.2.26 Instances where ULBs have raised funds in the domestic financial markets on their own strength, have been very few. HUDCO has been financing water supply projects for the past 30 years, especially those in small and medium towns, against State Government guarantee. As much as 28 per cent of the cumulative loan sanctions for urban infrastructure of HUDCO is towards water supply. During the Ninth Plan period, HUDCO has sanctioned 101 water supply schemes for financial assistance of Rs 4,828 crore. The schemes include water supply augmentation, rehabilitation, extension as well as new schemes with development of source for unserved areas. State Governments have routinely stood guarantee to borrowings from HUDCO and have in many instances, also undertaken to bear the repayment obligation of such loans.

6.2.27 Water supply and sanitation works are generally executed by the state public health engineering division which is a Department of the State Government, or a state-level Board or Corporation dealing exclusively with water/sanitation or infrastructure in general. In the metropolitan cities with their own water supply and sewerage boards, these bodies have executed the works with financial assistance from the sources mentioned earlier. Though water supply and sanitation are essentially municipal functions to be discharged by the ULBs, these bodies are unable to take any significant initiative because of their weak financial position. As a result action is rarely taken to augment supplies or effect improvements when they are most needed.

6.2.28 In most states, there is an unhealthy overlapping of responsibilities between the and the state-level Board/Department/Corporation, which leads to dilution of responsibility for project and service quality and accountability to the consumers.

ULBs who are the ultimate owners of the schemes, have little say in project specifications, project cost or quality control, or given assistance for subsequent operation and maintenance (O & M) of the scheme. It is quite common to see the individual city water supply schemes being tossed around between the parastatal and the ULB for O & M, customer service, billing and collection, etc.

6.2.29 The main problem in financing of urban water supply and sanitation is the sustainability of the present model which is heavily dependent on the State Governments' willingness and capacity to provide guarantees for institutional finance, apart from meeting the agreed state share of the project cost. Inability of the states to provide committed shares of project costs, and the tendency to sanction more works than financially feasible, has led to a situation of large numbers of incomplete works, project delays, and cost over-runs.

6.2.30 Some ULBs have initiated innovative cost recovery mechanisms, such as advance registration charges, connection charges, betterment charges, water tax, and application of general revenues and other receipts to meet part of the cost of capital works. However such instances are relatively rare. To encourage reform measures and prompt ULBs to become viable entities to access market funds, instruments such as the City Challenge Fund and the Pooled Finance Development Fund have been proposed in the Tenth Plan. Under the Urban Reforms Incentive Fund, financial strengthening of the municipal bodies through reforms and better enforcement of both property taxes and user charge, is a key objective.

Conservation, Augmentation, and Recycling of Urban Water

6.2.31 So far, there has been little or no thrust on conserving water either in the mega cities or in the smaller ones. For example, Delhi claims to supply water at the rate of 225 lpcd whereas cities like London supply only 150 lpcd. In most cities, large quantities of potable water is used for non-potable uses, while treatment of waste water and its re-use continue to be neglected. The following measures should be taken by all ULBs in order to optimise available water and conserve water sources:

- Water tariff should be set at levels that discourage excessive use. Water-efficient systems for flushing should be made mandatory. Conservation of water should be a recurring theme for both users as well as those managing the water supply system.
- Leakages and unaccounted for water is another constraint in cities. Due to old and rusted pipes or poor maintenance of the system, these losses sometimes go up to 50 per cent. These must be controlled and brought to the minimum level. Severe penalties should be levied on those found responsible for leakage and wastage of water.
- Reuse of treated sewage must be given priority in view of the fact that water is going to become more scarce in the near future. With tertiary treatment, water from treated sewage can be used even for air-conditioning, industrial cooling and other non-potable uses. This should be made a thrust area.
- Use of potable water for purposes like washing of vehicles, maintenance of gardens, etc. should be prohibited. In urban concentrations, dual supply of potable and non-potable water should be undertaken. For non-potable domestic uses, tubewells should be permitted to be sunk, subject to the construction of a percolation structure in the premises. This will conserve potable water without affecting ground water availability.
- Rainwater harvesting should be implemented widely. This has been taken up as a thrust area in Chennai and Delhi and must be given priority in all towns in the country. The Delhi Jal Board has taken up more than 80 works to harvest rain water and intends to cover about 200 buildings. The Delhi Government has approached the Ministry of Urban Development and Poverty Alleviation to amend building bye-laws to make rain water harvesting mandatory in the Capital. During the Tenth Plan, it shall be made obligatory for all urban areas to adopt rain-water harvesting as a part of the building bye-laws.
- Central Ground Water Board (CGWB) is engaged in developing techniques for artificial re-charge of ground water, which should be implemented where conditions are appropriate. Similarly the exploitation of ground water in urban areas must be

BOX : 6.2.2

A BLUEPRINT FOR WATER AUGMENTATION IN DELHI

A study carried out in 1999 identified numerous avenues for augmentation of water in Delhi. These included:

- On-channel storage and recharge of storm water channels.
- Off-channel storage for floodwater.
- Storage in lakes and depressions.
- Floodplain reservoirs for conjunctive extraction.
- Quarries, historical water-bodies, check-dams, paleo-channels, village ponds.
- Rooftop water harvesting, and ecoparks.

It was estimated that a total volume of over 980 MCM of water would be harvested, with an estimated annual recharge exceeding 71 MCM as a result. The estimated cost of the engineering works and land acquisition costs involved was Rs. 1,360 crore, which works out to Rs. 1.30 crore per MCM of capital cost, as compared to an average of Rs. 4 crore per MCM of capital cost for water obtained from upstream Himalayan reservoirs.

(Source: INTACH Natural Heritage Division)

ARTIFICIAL RECHARGE TO GROUND WATER THROUGH CHECK DAMS IN JNU AND IIT, NEW DELHI

The Central Ground Water Board had taken up a project of artificial recharge of ground water in the Jawaharlal Nehru University (JNU) and Indian Institute of Technology (IIT) area. A watershed of about 10 sq. km. area comprising of JNU, IIT, Sanjay Van and its surrounding area was selected. The JNU campus has a weathered quartzite formation while in IIT the formation is alluvium. Around 0.46 MCM water was going as surface runoff from the area. To harness the available runoff, three check-dams were constructed in JNU and one check-dam in the IIT campus. A study during the 1998 monsoon revealed that about 76,000 cum of water was recharged to ground water. The rise in water level was in the range of 0.97 to 13.7 m, benefiting an area of about 74 hectares. The results indicate that these structures are suitable in the Delhi ridge area as well as alluvial areas if sufficient space is available for the creation of reservoirs.

MODIFICATIONS NOTIFIED BY MINISTRY OF URBAN DEVELOPMENT AND POVERTY ALLEVIATION FOR RAIN WATER HARVESTING IN DELHI

Clause 22.4 Part-III (Structural Safety and Services) of Building Bye-laws, 1983

22.4.1 Water harvesting through storing of water runoff including rainwater in all new buildings on plots of 100 sq. meters and above will be mandatory. The plans submitted to the local bodies shall indicate the system of storm water drainage along with points of collection of rain water in surface reservoirs or in recharge wells. These provisions will be applicable as per the Public Notice (s) of Central Ground Water Authority issued from time to time.

22.4.2 All buildings having a minimum discharge of 10,000 litres and above per day shall incorporate a waste water re-cycling system. The re-cycled water should be used for horticultural purposes.

constantly monitored in order prevent the drying up of this important source.

ACTION TO BE TAKEN IN THE TENTH PLAN FOR OPERATIONAL EFFICIENCY AND SUSTAINABILITY

SUMMING UP

6.2.32 The unfinished tasks in water supply in urban areas may be summed up as augmentation to reach the prescribed norms, higher degree of reliability, assurance of water quality, a high standard of operation and management, accountability to customers and in particular special arrangements to meet the needs of the urban poor, and levy and recovery of user charges to finance the maintenance functions as well as facilitate further investment in the sector. The achievement of these tasks depends to a large on the willingness of the State Governments and ULBs to make restructure water supply organisations, levy reasonable water rates, take up reforms in billing, accounting and collection, and become credit-worthy in order to have access to market funding. In addition, measures suggested earlier for conservation, re-use, and re-charging of water sources, should be taken up.

6.2.33 Efficiency Enhancement Steps in ULBs: The solution to water supply problem is often seen as capacity addition, rather than operating the existing capacity more efficiently. This bias in favour of new projects is partly on account of the lack of accountability on the part of the agencies at both local and the State levels, because inefficient management of schemes goes un-noticed. Efficient operation of existing water supply schemes is the critical first step in any move to make the schemes operate in a viable fashion, by increasing availability, improving reliability and customer service, and reducing cost. While additional schemes will augment availability, it will not improve either the viability of the schemes, or lead to greater customer satisfaction as the quality of service will remain the same. Since the low quality of service is the single biggest obstacle to the levy of reasonable user charges, efficient operation will also help improve acceptability of higher user charges.

6.2.34 The decision to take up an augmentation project should be preceded by a detailed study of the needs of consumers, and the possibility of managing the available capacity more efficiently. The exercise should be in three parts and should be made by each city/town seeking augmentation of water supply. In fact, in view of its significance to improving the quality of civic services, the exercise should be carried out for every town and city:

6.2.35 **Diagnostic Study of the Operational Status of Existing Investments** : The first part will be a diagnostic study of the investment already made, to determine the level at which the capacity created is currently being operated, assessment of losses, causes of under-performance, and identification of components to be improved or restored. Leakage detection shall be carried out to determine the extent of physical loss, and the measures needed to reduce unaccounted for water will be identified. This will lead to an assessment of the additional quantity which can be made available through improvement of the system by restoration of its installed capacity and more efficient operation. Issues in water quality, reliability and regularity of supply, and inadequacies of the distribution system, will also be studied.

6.2.36 **Review of Practices in Management and Finance** : This will involve an examination of existing tariff and revenue collection to determine the adequacy of resources for proper O & M of the systems and, where applicable, for debt servicing. It will also examine the management structure, personnel, budgeting, and delegation of powers to the water and sanitation wing. The existing arrangements for attending to consumer needs, complaints, water quality assurance, and equity in distribution, will also be examined as measures to enhance customer satisfaction.

6.2.37 Assessment of Investment Needs –

- *Restoration and Renovation* : Assessment of the investment needs of system improvement, for plugging leakages, for ensuring more equitable distribution, and measures required to be

taken for managerial autonomy and performance improvement has to be made.

- *Augmentation* : Outline of a proposal for augmenting supply and improving distribution (including storage and treatment of water), with identification of possible sources, and line estimation of cost, will be prepared.

6.2.38 The study should preferably be carried out initially by the state-level water and sanitation agency (PHE Division, Water and Sanitation Board, etc.) in association with the concerned ULB. Experts should be engaged to help in the study in respect of particularly complex cases. Residents' associations and non-government organisations should also be associated in the study.

6.2.39 **Implementation of Efficiency Enhancement Measures** : After establishing the viability of investments through revision of tariff and efficiency of collection, the resources available under schemes such as the IDSMT, the Mega City Project, the Urban Reforms Incentive Fund, and the proposed City Challenge Fund and the scheme for Rejuvenation of Culturally Significant Cities when launched, should be tapped to make the necessary investments, in addition to State budgetary support and institutional finance. Maximum emphasis should be placed on restoration of designed capacity and achievement of full capacity utilisation, leakage detection and remedial action, because it will prevent wastage, reduce costs and increase availability, apart from preventing contamination of water. Water quality should be made a consumer right. A committee of citizens/users should be formed to create awareness of quality issues, and to monitor the process of water treatment and disinfection. Adequate levy of user charges, and putting O & M arrangements in place must also be ensured. At the same time, the O&M costs, especially the staff costs, must be controlled as many towns have excess staff in water supply divisions, with low employee productivity.

6.2.40 The issue of management of water supply schemes as utilities in the public service

sphere, must be re-emphasised. While private sector participation, and public-private partnerships can be beneficial in certain cases, the need for capacity building and organisational restructuring as public utilities is also an important issue which must not be lost sight of. During the Tenth Plan, there will be concerted action to improve the performance of the water supply utilities in the public sphere. Greater accountability of personnel should be ensured by appropriate organizational restructuring, adoption of modern management methods, strict supervision, amendments to the rules of service, and measures for training and motivation. A set of selected pilot projects of this nature will be taken up under the supervision of the CPHEEO, which will help establish the process, procedures, and utility of such efforts.

Financing of Water Supply Schemes Under Central Plan

6.2.41 Sustained efforts by State Governments with supportive Central assistance and institutional finance, have ensured that urban centres have one or more existing water supply schemes. Most new water supply schemes including those under the AUWS, are augmentation schemes. Such schemes, while necessary where supplies are inadequate, should be taken up after ensuring that the earlier schemes are being operated optimally as indicated in this Chapter.

Objective of Plan Assistance

6.2.42 The objective of provision of assistance under various Centrally Sponsored Schemes is to help the ULBs to achieve viable water supply schemes by defraying part of the cost of project, especially where the costs are high on account of reasons beyond the control of the local authorities. However, having provided part assistance, the schemes should thereafter be operated on commercial lines.

6.2.43 Assistance from Central Government for water supply and sanitation need to be clearly aimed at projects with high cost where a grant component is called for to make the project feasible and credit-worthy. The assistance should also be geared to meet the needs of the urban poor among beneficiaries who may not be able share any part of the project cost, and to small towns with limited

resources. Additionally, transitional costs of restructuring such as investment towards renovation and modernization of schemes for higher efficiency which will lead to sector reforms, may also be met. The level of grant assistance should therefore be specific to each project rather than be an across-the-board amount at a fixed per cent. A ceiling of 50 percent may, however, be placed in order to ensure that the schemes are designed as economically as possible.

6.2.44 The state which seeks Central assistance should have implemented reform measures such as setting up an independent regulatory regime, levying of user charges, and providing autonomy and functional powers to the professional teams managing water supply and sanitation.

6.2.45 Presently, state organizations such as the PHE Division or a state Water Supply Board presently have monopoly of project execution. The relationship between the ULB and the parastatal should be clear and based on mutual agreement, which will bind the parastatal or Department to quality and timely completion, with penal provision for delays and unacceptable quality of work. Opportunity should also be given to private sector consultancies to design and supervise projects, creating a competitive environment in which the public and private sectors have level playing field.

6.2.46 Local contribution should not normally be less than 10 percent of the project cost, and should be recovered from the beneficiaries of the scheme in advance of the project. The urban poor need not bear any part of the cost, and their share will be met by grants. Project details, including projected augmentation in water supply, cost and contractual details, and likely tariff, should be made available to the urban citizens.

SECTOR REFORMS

6.2.47 The reforms required relate to making the sector more professionally managed, with adequate autonomy and financial powers, and levy of user charges preferably determined by an independent regulatory authority. By the end of the Tenth Plan, the target would be to recover full O & M costs through levy of user charges.

6.2.48 It would be paradoxical if, on the one hand, urban utilities receive assistance from Government and its agencies like HUDCO without reform conditionalities, while, on the other hand, States are given additional financial support towards implementing reforms in the form of the new schemes such as Urban Reforms Incentive Fund, the City Challenge Fund, etc. The institutional restructuring and levy of user charges must be implemented in all schemes under which assistance is provided for developing urban infrastructure, and not only as a special reform programme. In fact a special reform financing arrangement may not have become necessary, had the proper policies been followed from the beginning.

Meeting the Needs of the Urban Poor

6.2.49 There is a need to modify the approach to the supply of water to the clusters of the poor. Instead of making them dependent on public stand-posts, households willing to take individual connections should be given these, subject to normal payment conditions. Funds under the National Slum Development Programme (NSDP), Valmiki Ambedkar Awas Yojana (VAMBAY), and EIUS funds could, however, be used to meet part of the cost of individual connections also. This will reduce the drudgery related to collection of water from the public stand-posts, and enable the poor to reach a higher standard of hygiene and health.

6.2.50 Where stand-posts must continue to be the source of water, the number of such stand-posts should be adequate for the population being served. There are successful examples of community supervision of the stand-posts. Community groups should be made responsible for maintenance of hygiene around stand-posts, for maintenance including prevention of wastage, and for collection of user charges from each household attached to the stand-post.

Review of Ninth Plan Schemes: Centrally-Sponsored Accelerated urban water Supply Programme (AUWSP)

6.2.51 The Centrally sponsored Accelerated Urban Water Supply Programme was launched in 1993-94 during the Eighth Plan. It aims at providing

water supply in towns with a population of less than 20,000 as per the 1991 census. A total of 2151 towns qualify for consideration under the scheme. The project funding is shared equally by Centre and State, the latter including a 5 percent contribution from the beneficiary town. The Centre meets the entire cost in Union Territories. State-wise share in the Plan allocation is based on a weightage system based on population, incidence of poverty, etc. Priority has to be given for towns with special problems such as very low per capita supply, very distant or deep water source, drought-prone areas, areas with excess salinity, fluoride, iron content in water source and high incidence of water-borne diseases. The per capita unit cost is normally limited to Rs 1000, which can be relaxed if there is sufficient justification.

6.2.52 Till 15th March 2002, schemes have been approved in 654 towns with an estimated cost of Rs 817.70 crore. Of this 223 schemes at an estimated cost of Rs 212.01 crore were approved during the Eighth Plan. A total of Rs 337.37 crore have been released by Government of India, of which Rs 68.624 crore were released in the Eighth Plan. The State Governments have released an amount of Rs 244.1 crore towards their share. The expenditure reported is Rs 390.33 crore. A total of 240 projects under the AUWSP are reported to have been completed.

6.2.53 Both sanctions and project completion have fallen short of the targets. The average time taken from sanction to completion is about two to three years. Insufficient flow of project funds from the State Governments, land acquisition delays, and inadequacies in project management in some of the executing agencies have been responsible for the delay in project execution, resulting in a large number of schemes being carried over into the 10th Plan.

6.2.54 Out of 240 completed projects, 98 are in the State of Uttar Pradesh. Other States which have made substantial progress in completed projects, are Madhya Pradesh (30), Tamil Nadu (25), Rajasthan (15), Maharashtra (12), Karnataka (8), Chattisgarh (9), Punjab (8), Gujarat (6), Orissa (6), and Manipur (5), and Himachal Pradesh (5). Haryana has completed four projects, West Bengal

Box : 6.2.3**Problems faced in AUWSP Projects**

AUWSP projects, wherever completed, have resulted in improved availability of water supply in the towns, even going up to 70 lpcd. However, several drawbacks in the implementation of AUWSP schemes, and after completion, have been noticed:

The following obstacles to successful implementation of the projects have been reported:

- Changing priority lists by the State Governments;
- non-submission or delay in submission of Detailed Project Reports (DPRs);
- DPRs not conforming to guidelines;
- delays at the State level in according administrative approval, and in release of State share; and
- delays in land acquisition.

The Problems in operation of the schemes are:

- Despite increases in revenue collection, the overall annual revenue generation is less than the actual O&M expenditure in most cases.
- The local bodies are not willing to take over the schemes for O & M because of lack of expertise, financial constraints, and because the schemes have not been executed/ completed in all respects as per the approved designs. Despite this, the State implementing agencies have handed over the schemes. In some cases, non-execution of staff quarters and compound walls have resulted in unauthorised encroachments on the project land.
- The most serious problems seem to be absence of manpower required for the maintenance of such capital-intensive projects, and resource crunch for O&M due to low levels of tariff and low collection efficiency. 'Negligence to some extent' was cited as one more reason for poor O&M. The poor status of power supply has affected the efficient running of the installations.
- Though disinfection units have been installed, they are not being used in some cases.

three, and Goa and Mizoram two each. In the States of Jammu & Kashmir, and Nagaland, one project each has been completed.

6.2.55 The Working Group on Urban Development for the Tenth Plan has recommended continuation of AUWSP in towns with population less than 20,000 as per the 2001 Census. This will make 2,433 towns eligible for assistance under the scheme.

6.2.56 In the Tenth Plan, the following measures must be taken to ensure that there is no slackness in the implementation of the scheme:

6.2.57 Land acquisition must be done prior to sanction of the scheme. No scheme should be given Central sanction unless the land has been acquired in advance.

6.2.58 In regard to project preparation and execution, the role of the PHE Division or the State Water and Drainage Board, should be redefined as has been indicated in the Chapter 6.1 – Urban Development.

6.2.59 Given the many factors causing delays in projects, advance planning for all projects to be taken up during the Tenth Plan should be undertaken in the first year of the Plan period. Each state's indicative allocation of Central assistance under the scheme during the Tenth Plan period should be communicated during 2002-03 so that the states can also make corresponding provision in their Tenth Plan, and proceed with project selection and preparation. Additional funds should be provided to states who excel in performance. At the time of Plan discussions itself it should be ensured that the state share in the scheme is provided in adequate measure in yearly budgets. The State should preferably deposit its share in advance into the account of the implementing agency before the Central share is released. States should be encouraged to use their allocation under the Urban Reforms Incentive Fund for execution of urban infrastructure schemes. In order to simplify the procedure for sanctioning projects during the Tenth Plan, state level Project Sanctioning Committees will be formed instead of referring projects to the Central Government. It is also

proposed that the Central grant be given directly to the State implementing agencies.

6.2.60 The Ministry should closely monitor progress of the scheme on a regular basis and any slackness or delay brought to the notice of the state for corrective action.

6.2.61 The scheme should be transferred to the ULB for maintenance after ensuring that it has qualified personnel who have been properly trained in the O & M needs of the scheme. Levy of user charges adequate to cover the full cost of O & M should be built into the scheme through an agreement between the State Government, the implementing agency, and the ULB.

6.2.62 The Working Group on Urban Development, Water Supply and Sanitation, and Urban Environment, has recommended that 100 per cent Central grant may be given for implementation of water supply schemes in small towns under AUWSP. However, rather than increase the outlay for individual water supply schemes, in view of the relative neglect of sanitation issues in the past, there is need to enlarge the scope of the scheme to include sanitation, especially basic sanitation such as waste water / sewage treatment, solid waste disposal, and surface drainage. The town which is provided assistance under AUWSP (to be renamed Accelerated Urban Water Supply and Sanitation Project – AUWSSP), should be bound by an agreement to take up such a comprehensive package of sanitation and water supply augmentation, and the subsidy under the scheme should be made available to these components also. Simultaneously, the town should also implement Low Cost Sanitation (LCS) programme in parallel, for which the allocations available under LCS should be utilized.

6.2.63 There is a need to subject the projects taken up until now under AUWSP to post-evaluation to assess their actual performance since commissioning. The Ministry of Urban development will undertake this exercise in the Tenth Plan.

URBAN SANITATION

6.2.64 The 54th round of NSS reported that 26 per cent of households reported using no latrine,

35 per cent reported using septic tank, and 22 per cent reported using sewerage system. This indicates that as many as 43 per cent of households in urban areas either had no latrines or no connection to a septic tank or sewerage. As regards waste disposal, 71 per cent of urban households reported removal of household waste by household members, 14 per cent by local authorities, and 12 per cent by private agreement among residents. Forty-seven per cent of urban households reported removing of their waste to community dumping spot, and 30 per cent, to individual dumping spots. Ninety per cent of urban households reported concern regarding mosquitoes, 66 per cent regarding flies and 50 per cent regarding problems related to foul odour.

6.2.65 Estimates of access to excreta disposal systems in urban areas vary from a low 48 percent to a high 70 percent. Out of 300 Class-I cities, about 70 have partial sewerage systems and sewage treatment facilities. Levels of sewage treatment are reported to be very low. A study by the Central Pollution Control Board in 1994-95 shows that the total waste-water generated in 300 Class-I cities is about 15,800 million litres a day (mld), while the treatment capacity is hardly 3,750 mld. In the 23 metro cities, over 9000 million litres of sewage is generated daily, of which about 60 per cent is generated in the four mega cities of Mumbai, Kolkata, Delhi, and Chennai. Of the total waste water generated in the metro cities, hardly 30 per cent is treated before disposal. Most of the cities have only primary treatment facilities. Thus, the untreated and partially treated municipal wastewater finds its way into water sources such as rivers, lakes and ground water, causing water pollution. On the other hand, the programme of Low Cost Sanitation, which offers an affordable alternative technology, has made very little progress, despite being linked to the social problem of manual scavenging, which is prohibited by law.

6.2.66 The poor sanitary conditions, particularly in slums, are often linked to outbreaks of cholera and gastro-enteritis. Water-borne diseases are a major cause of mortality throughout India and impose a huge burden in terms of loss of lives and productivity. According a case study, water and sanitation diseases are responsible for 60 per cent

of the environmental health burden and over 11 per cent of total burden of disease in Andhra Pradesh. The single major cause of this burden of disease is diarrhea, which disproportionately affects children under the age of five.

Low Cost Sanitation

6.2.67 The centrally-sponsored scheme of Urban Low Cost Sanitation for Liberation of the Scavengers started from 1980-81, initially through the Ministry of Home Affairs and later through the Ministry of Welfare. From 1989-90, it came under the jurisdiction of the Ministry of Urban Development. The main objective of the scheme is to convert the existing dry latrines into low cost pour flush latrines and provide alternative employment to the liberated scavengers. The rehabilitation component is dealt with by the Ministry of Social Justice and Empowerment.

6.2.68 Low cost sanitation is rightly seen as an important solution to the dehumanizing practice of carrying night-soil, and the legislation prohibiting manual scavenging and its enforcement in turn strengthens the movement for installation of sanitary latrines in urban areas. Low cost sanitation is also the appropriate solution where resources do not permit the provision of underground sewerage, or septic tanks. The scheme covers all the households which have dry latrines and households having no sanitation facilities including households in slums and squatter colonies.

6.2.69 Under the scheme, loan and Central subsidy are extended simultaneously by HUDCO. Subsidy is graded according to economic status, being set at 45 per cent for EWS, 25 per cent for LIG, and nil subsidy for middle and high income groups. Loan ranging from 50 per cent to 75 per cent of the cost, is given at 10 per cent interest repayable over 15 years. Loan is also given for construction of community latrines on 'pay and use' principle, shared latrines in slums, housing chawls. Subsidy is limited to the cost of the sub-structure, but the HUDCO loan can be availed for the construction of super-structure also. The loans require State Government guarantee. For management of the programme, HUDCO was required to set up a separate cell, and the regional

offices of HUDCO were expected to render assistance to the State Governments in the formulation of proposals. The guidelines provide for the creation of a co-ordination committee at the Central level, as well as co-ordination committees at the state level. A recommendation has been made to create state-level cells or to nominate an existing institution for channelising the subsidy and HUDCO loans to the implementing agencies. The cell may be registered as a society. In the State of Madhya Pradesh, the Slum Clearance Board was nominated as the nodal agency.

Progress of the Scheme

6.2.70 According to an estimate prepared by a Committee constituted by Planning Commission, there were 400,000 scavengers and 5.4 million dry latrines in urban areas in 1989, and the practice of manual scavenging continues in 3117 towns. Seven states have declared themselves as scavenger free - Goa, Kerala, Gujarat, Manipur, Mizoram, Sikkim and Tripura. Six Union Territories - Andaman & Nicobar Islands, Pondicherry, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep - have also declared themselves scavenger free.

6.2.71 The number of households without access to a proper system of removal of human excreta is bound to be much higher than the number of dry latrines estimated by the Committee, because the number of households in urban areas without even dry latrines, who use open places for defecation, is estimated to be 7.3 million. Therefore the number of households in need of low-cost sanitation or community toilet facilities may be as high as 15 million, if not more.

6.2.72 The progress of the scheme as on 15 March 2002 is as follows:

Financial Progress

Schemes sanctioned	- 847
No. of towns covered	- 1,317
Project Cost	- Rs. 1,435.51 crore
Subsidy sanctioned	- Rs. 486.891 crore
Loan sanctioned	- Rs. 592.69 crores
Subsidy released	- Rs. 250.67 crores
Loan amount released	- Rs. 309.18 crore

Physical Progress

Total units sanctioned	- 35,53,585
● Conversion	- 17,05,701
● Construction	- 18,47,884
● Community toilets	- 3,966
No. of units completed	- 14,58,274
No. of community toilets completed	- 2,982
No. of scheme in progress	
● Conversion	- 1,05,619
● Construction	- 2,12,987
● Community toilets	- 185
Towns declared scavenger free	- 387
Scavengers liberated	- 37,430

6.2.73 The data indicate that:

- In the 9th Plan, no loan or subsidy was sanctioned in Assam, Bihar, Haryana, Jammu & Kashmir, Kerala (declared to be free from manual scavenging), Karnataka, Orissa, Punjab, Jharkhand, Tripura, and Andaman & Nicobar Islands.
- Gujarat, Nagaland, Mizoram, Sikkim, Arunachal Pradesh and Himachal Pradesh have also not drawn any loan or subsidy under the scheme since inception.
- Nearly 37 per cent of the loan and 24 percent of the subsidy has been drawn by Andhra Pradesh, which has been consistent both before and during the Ninth Plan.
- Other major beneficiaries have been Haryana, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. These ten States account for 92 per cent of both the loan and the subsidy released under the scheme. However, in respect of Haryana and Karnataka, the performance was only in the period prior to the 9th Plan.
- Hardly 13 per cent of dry latrines existing at the beginning of the Eighth Plan have been converted into sanitary toilets during

the Eighth Plan period and the first three years of Ninth Plan.

Review of the Programme

6.2.74 Apart from the backlog in numbers of units, there are important issues of user acceptance of the units installed. Evaluation of the scheme was in 1990 in Maharashtra and Andhra Pradesh, in West Bengal in 1991, and in Uttar Pradesh, Rajasthan, Haryana, Punjab, and Maharashtra in 1994. A 'Benchmark Survey Report for Evolving Community and Women's Participation' for Uttar Pradesh was prepared with the sponsorship of the World Health Organisation in 1994. These evaluations revealed some of the problems of the programme, and judging by the lack of any significant progress, they do not appear to have been adequately attended to in the Ninth Plan period, during which there was no evaluation of the scheme.

6.2.75 The reasons put forth for the slow progress are that the subsidy is limited to the sub-structure; the loan amount is small, and numbers of beneficiaries involved are large, which has made it a difficult task for the local bodies, who generally do not have a high performance in collection efficiency, to recover and re-pay. The states have been unwilling to give guarantees for this reason. On the other hand, in keeping with its policy, HUDCO is unable to provide loans because the municipal finances are in poor shape and most ULBs cannot be funded without state guarantee.

6.2.76 Project management has been weak, with hardly any state establishing an organisation capable of taking up the task of propagating the programme and supervising its implementation. Consequently there has been little effort at developing locally relevant options in sub- and super-structure which is responsive to user needs and preferences, using suitable and cost-effective locally available materials, training of local craftsmen to undertake construction of the units, induction of NGOs, quality control, user education, etc. Considerable delay due to bureaucratic reasons has been noticed in the States passing on the project funds to the implementing agencies. Thanks to weak supervision, defalcation of funds has also been reported in some cases.

The Importance of Low Cost Sanitation

6.2.77 Towns which do have sewerage do not often have sewage treatment plants, with the result that water sources are getting polluted. It has been assessed that 80 per cent of pollution is caused by sewage alone. It is infeasible to provide underground sewerage or septic tank latrines in all cities and for all residents. In the first place, highly urbanised, industrialised and densely-populated urban centres may be provided with sewerage, with priority being given to installing sewage treatment plants to prevent pollution of water sources. For the majority of the urban centres, low cost sanitation is the appropriate technology.

6.2.78 Low cost sanitation is not a programme solely for the urban poor or slum population. It has to be propagated as the appropriate solution wherever the costly option of underground drainage is not feasible. In this sense, there is need to offer more options to households that desire sanitation facilities which, while being based on the 'twin-pit-pour-flush' model, is in keeping with their needs and capacity to invest. Low cost sanitation is best propagated as a part and parcel of the maintenance of environmental health. This includes the areas of water supply, protection of the environment and preservation of environmental cleanliness, and promotion of health among infants, expectant and nursing mothers, and children. Within a town or city, the proper approach would be to take up a co-ordinated programme covering sanitation in schools, individual households, and public places with special emphasis on the sanitation needs of the urban poor and slum-dwellers and pavement dwellers. The practice of focusing on water supply to the exclusion of sanitation and waste water treatment, should be given up in the Tenth Plan.

PROGRAMME IMPROVEMENT MEASURES

6.2.79 Rejuvenating the Implementation Organization : States should set up a State Sanitation Council to be in overall charge of supervision of the programme. The Council should be headed by the Chief Minister or his nominee, and consist of experts, NGOs, representatives of PRIs and ULBs, HUDCO, other institutions in the field of environmental sanitation, health workers,

and other concerned officials. The mandate of the Council shall be to carry out extensive propagation of the principles of sound practices in hygiene and sanitation, and supervise the programmes of individual and community toilets, school toilets, pay-and-use toilets, and water quality. The areas of solid waste management and waste water treatment including drainage, will also be within the ambit of the Council. The Council will implement measures to promote the concept of sanitary latrines while bringing home the indignity of open defecation as well as manual scavenging.

6.2.80 Sanitary latrines have to be promoted as part of an overall health, sanitation and environmental awareness programme, especially among the young. Adequate provision should be made to meet the cost of information, education, communication (IEC) activities under the programme, which seems to be lacking at present. The Task Force had recommended that upto 10 per cent of the budget allocation be earmarked for this component. Out of this, 5 per cent could be utilised for project management and NGO involvement. The cost of training of skilled workers should also be met out of this provision and training should be organised locally with the help of NGOs, Building Centres, and technical institutions. A part of the provision should be used for organising safai karmacharis (manual scavenging workers) to undertake construction of LCS units.

6.2.81 Use of sub-standard materials and construction by untrained workers, in order to cut costs, may result in units which do not fulfill the user expectations, and these may be discarded. There is a minimum water requirement without which the unit cannot be kept clean and may lead to bad odour. Similarly, the space requirements, and suitability of soil must be taken into account before starting work on installing the unit. The guidelines prescribe the distance to be maintained from a potable water source to avoid contamination, and this must be fulfilled. The users need to be trained to keep the units clean and free from odour, and regarding the resting period and removal of the contents of the pit. The superstructure must cater to the comfort of the users, for protection against rain, privacy, etc., and has to meet the minimum criteria of acceptability. These issues will have to be tackled

to the satisfaction of the users before the programme can make headway. Strict standards for the construction of the LCS units need to be prescribed and followed in implementation.

6.2.82 The subsidy programme should, however, be based on the cost of the basic twin-pit pour flush model for a small household. Subsidy should be extended to cover the super-structure and sub-structure. The unit cost should be determined on the basis of local costs, and the loans and subsidy provided accordingly. The householder should have the option to design a unit that meets his requirement. It is suggested that the financing pattern of 50 per cent subsidy and 50 per cent loan, which existed prior to 1988-89 should be restored during the Tenth Plan with the further modification that it should be available to both the sub-structure and the super-structure.

6.2.83 There should be no distinction between the states that have scavengers and those that do not have, because the programme is intended to prevent both manual scavenging as well as open defecation.

6.2.84 HUDCO should establish state-wise units for the management of the programme to provide technical and organisational back-up. The ULBs should be strengthened to undertake the recovery of loan instalments.

Community / Pay-and-use Toilets

6.2.85 The scheme of low cost sanitation also includes community toilets. HUDCO has reported that the number of units sanctioned, completed, and in progress, as follows :

	Sanctioned	Completed	In Progress
Andhra Pradesh	158	40	58
Karnataka	117	0	0
Maharashtra	2,809	2,663	120
Orissa	10	10	0
Tamil Nadu	372	269	15
Uttar Pradesh	100	0	0
West Bengal	400	0	0

Community Toilet Complex Under Valmiki Ambedkar Awas Yojana

6.2.86 HUDCO is also involved in the implementation of the pay-and-use toilets programme under the Night-shelters schem, and has reported sanctioning 69 schemes for pay and use toilets, under which a subsidy of Rs 14,000 per seat is provided. This scheme has now been merged with the new scheme of Valmiki Ambedkar Awas Yojana (VAMBAY), as part of the sanitation component of the scheme for which 20 percent of the funds are earmarked. The stand-alone toilet complexes, as distinct from the units provided in slum housing colonies, will continue to be financed under the scheme as earlier.

6.2.87 Community toilets are needed for slum and pavement dwellers, rickshaw pullers and the floating population. However, the experience of maintenance and upkeep of these units by municipal authorities has been dismal, with the conditions turning so insanitary that people prefer open air defecation rather than use the public toilets. The maintenance of the units should, therefore, be handed over to an NGO or a community-based organisation. The beneficiary community should pay a small fixed monthly amount towards upkeep of the toilet and the money should be used for cleaning, water supply, and remuneration of a caretaker.

6.2.88 The construction and maintenance of pay-and-use toilets for the floating population or places such as bus-stands, markets, parks, and other places where people congregate, should be done by an NGO like Sulabh International. In some instances, such installations may even generate a surplus. Despite the possibility of commercial viability of some of the installations, it is premature, in the view of the Task Force, to base the programme on assumptions of viability. In the Tenth Plan, therefore, the construction of community toilets for the urban poor, and of pay-and-use toilets for the floating population should continue to be supported through subsidy from the Central Government.

Treatment of Urban Waste Water

6.2.89 Three-fourths of surface water resources are polluted and 80 per cent of the pollution is due to by sewage alone. On the other hand, in addition to organic matter sewage contains nitrogen, phosphate and potassium in sufficient quantities, which are essential nutrients for plant growth. Sewage is also viewed as an economic source of methane fuel. Thus it can be a valuable resource after with due treatment and processing.

6.2.90 Water supply has direct linkage with sewage generation. A survey of 345 towns with population between 50,000 and 100,000, revealed that over 95 per cent of them do not have any waste water treatment facilities, and disposal on land, and direct and indirect use for irrigation is the predominant mode of disposal.

Scheme to Provide Sewerage for River Bank Towns

6.2.91 The problem of pollution of river waters is particularly acute in the case of densely populated cities located on river banks and which do not have adequate treatment facilities for sewage or safe disposal of solid waste. In such cases, urban waste - both solid and liquid - finds its way directly into the rivers, causing a serious pollution problem. The Ministry of Environment and Forests is implementing a massive programme of cleaning of rivers and lakes in the country. The programme, which was started with the Ganga Action Plan (GAP) in 1985, now extends to the polluted stretches of 27 major rivers with works spread over 149 towns in 16 states. The approved cost of these works is nearly Rs. 3,100 crore. This is in Addition to the Rs. 450 crore already spent on GAP Phase-I. So far, an amount of Rs. 1,100 crore has been spent on the programmes.

BOX: 6.2.4

The problems identified in the Ganga Action Plan

- Most of the cities and towns do not have underground sewerage system as well as facilities for sewage treatment. As a result untreated sewage is discharged into the nearest water body - a river or a lake or a pond.
- To tackle the urban insanitary conditions and pollution of water bodies, an integrated approach covering all works such as, internal sewerage system, sewage treatment plants, low cost toilets, organised solid waste management and management of other hazardous wastes is necessary.
- Neither the State Governments nor the ULBs have been able to provide all the required resources for O & M of the existing facilities and the assets created under the programme.. As a result, the plants and facilities are not being properly maintained. Collection of user charges and funds for service connection are essential to improve the urban environment. For this, the 'ownership' of the units by the ULBs should be ensured in the first place.
- Technologies for the treatment of sewage are another area of concern. The conventional technologies require electricity which has to be paid for. On the other hand, low cost technologies like ponds require large areas of land that is not easily available in big towns and cities. There is a need to adopt intermediate technologies, of which there is a choice. Further research and development needs to be done in this area.
- The reduction of bacterial pollution and pathogenic matters is a matter of concern. Conventional technologies do not address this problem adequately. On the other hands, ponds do address this issue but the availability of land remains a constraint.
- Management of municipal solid waste leaves much to be desired in all towns including capital cities like Delhi. Run-off from municipal solid waste dumps contain pathogens as well as pollutants, which finally reach the nearest water body. In several towns, municipal solid waste is dumped into rivers. Similarly, management of hospital and hazardous wastes is practically non-existent in many large towns. Requirement of funds for adequate management of solid waste is a major constraint for ULBs.
- Low-cost toilets and on-site treatment facilities can significantly help in minimising generation of waste water. Public awareness and participation is necessary for improving urban environment. Not much attention has been given to this issue.

Urban Waste Water-Action Points for The Tenth Plan

- There is no scheme under the Ministry of Urban Development to deal with the problem of treatment of urban waste water. In view of the importance of the issue for environmental health, AUWSP is proposed to be enlarged in the Tenth Plan to include sanitation. Further, the assistance available in various other schemes such as the IDSMT, the Mega City Project, and the proposed Rejuvenation of Culturally Significant Cities, will also be applied to sanitation projects, including waste water treatment.
- Sewage water is already widely used in agriculture and horticulture, but the health effects of such use need to be studied. Technological solutions with a view to dispose treated waste water through agricultural reuse require further development and implementation.
- Replication of innovative models which have been successful needs to be ensured. One such model is the human waste powered water supply in slums in Kanpur.
- Conventional treatment techniques such as trickling filters, activated sludge process, extended aeration, aerated lagoons, oxidation ditches, up-flow anaerobic sludge blanket reactors, contact biological disk reactors, etc., are all proven technologies with varying degrees of efficiencies. Appropriate treatment systems have to be selected depending upon the local conditions and the final mode of disposal of treatment effluents. In urban areas where land availability is a problem, these systems are particularly useful in treating municipal waste water to a reasonable degree. However, these systems are costly from both capital as well as O&M points of view, and many are energy intensive as well. As such a majority of the urban local bodies may not be in a

position to afford such costly treatment systems.

- Under the circumstances, if sufficient land is available, simple treatment systems, such as stabilisation ponds, duck-weed ponds, artificial wet lands may prove effective. In urban areas where extensive sewerage network has not been established, particularly in the fringe areas of towns and cities, on-site sanitation systems such as septic tanks, soak pits, twin pit toilets etc. may serve as intermediate technologies. Moreover, decentralised waste treatment systems may be adopted to the extent possible.
- For waste water treatment and solid waste, several new approaches have been identified. On-site waste water management in large housing complexes and townships is one such option. Several low cost intermediate technology solutions are available for such decentralized waste water treatment plants. It should be ensured that the appropriate measures are taken for each location and habitation.

Solid Waste Management

6.2.92 India produces about 42 million tons of urban solid waste annually. The per capita waste generation varies between 0.2 kg. to 0.6 kg. per day, and the current municipal solid waste generation is estimated to be approximately 0.4 kg per capita per day.

6.2.93 It has been estimated that because of the increasing per capita waste generation of about 1.3 per cent per year, and the growth of urban population of between 3 and 3.5 per cent per annum, the yearly increase in the overall quantity of solid waste in the cities is about 5 per cent. Urban waste management by the ULBs is already under stress because of poor resources and inadequacies of the system. Unless concerted efforts are made to improve the flow of resources to solid waste management and build up systems which incorporate the basic requirements of a proper waste management practice, the problem of urban

waste will be further aggravated and cause environmental health problems. The composition of urban waste is another factor to consider, with increasing use of packaging material made of both paper as well as plastic

6.2.94 In October 2000, the Ministry of Environment and Forests notified the Municipal Solid Wastes (Management and Handling) Rules, 2000, which lay down the procedures/guidelines for collection, segregation, storage, transportation, processing, and disposal of municipal solid waste. The rules require that all cities should set up suitable waste treatment and disposal facilities by 31 December 2001. The rules also specify standards for compost quality, leachate control, and management and closure of landfill sites.

6.2.95 A comprehensive manual on Municipal Solid Waste Management has been brought out by CPHEEO for the guidance of ULBs. This manual was prepared by an expert group consisting of various bodies such as the CPHEEO, Central Pollution Control Board, National Environmental Engineering Research Institute, Ministry of Non-conventional Energy Sources, ULBs, academic institutions, etc. In pursuance of Supreme Court directions in 1996, a Technology Advisory Group for improving solid waste management in the country has also been set up by the Ministry of Urban Development, with three core groups to deal with appropriate technologies and R & D, financial resources and private sector participation, and on capacity building, human resource development and IEC.

6.2.96 Waste management in the cities is receiving attention from a number of departments relating to health, environment, agriculture, non-conventional energy, as well as urban development. Participants are not only government bodies but include NGOs, CBOs and the private sector as well as research organisations.

6.2.97 The problem of urban waste management is notable not only for the large quantities involved but also its spatial spread across over 5000 ULBs and the enormity and variety of problems faced by them in setting up and managing systems for collection, transportation, and disposal of waste. In

fact, in the municipal budgets the staff salaries relating to solid waste management are normally among the largest items, accounting for up to half of the total municipal staff. It is estimated that the ULBs spend about Rs 500 to Rs 1500 per ton on waste collection, transportation, treatment and disposal, most of it on collection and transportation and very little on disposal and treatment, and 75 to 80 per cent of this expenditure is on staff salaries. In spite of this, collection efficiencies range from 50 to 90 per cent of the waste that is generated. Localities of the urban poor and slums are likely to be the ones most neglected, exposing the residents to extreme squalor, made unbearable especially when it rains.

6.2.98 While transportation arrangements are generally inadequate due to the unavailability of the right kind of vehicles, and low productivity of the personnel, the major problem is that of indiscriminate disposal in open spaces, road margins, tank beds, etc. A survey by the CPCB on the status of municipal solid waste management reported indiscriminate dumping of garbage in open lands. There have been studies of the public health impacts and pollution of surface and ground waters resulting from the liquid and solid waste disposal practices of the small and medium towns. Sanitary landfills designed and constructed so as to prevent contamination of ground water, creation of stench, and other forms of environmental hazards, are largely absent. Studies of the existing landfill sites and their environmental effect are yet to be taken up. The ULBs find it hard to raise resources to acquire suitable land, and lack the technical capability to design a proper sanitary landfill facility. There is need to prevent dumping in open spaces and introduce sanitary landfill.

6.2.99 Resources for solid waste management is generally met out of the overall property tax receipts of the ULB, though some states provide for a general purpose tax to which surcharges towards specific services such as sanitation, water supply, etc. are added on.

6.2.100 Promotion of composting of urban solid waste was implemented by the Ministry of Food and Agriculture in the 1960s through soft loans to ULBs. Block grants and loans were given to State

Governments in the Fourth Five Year Plan (1969-74) for setting up composting plants. The Surat plague epidemic in 1994 highlighted the inadequacies and risks inherent in poor solid waste management. The Bajaj Committee in 1995 made a number of recommendations including waste segregation at source, primary collection, levy of user charges, use of appropriate equipment and vehicles, focus on sanitary land filling and composting, and encouraging private sector participation.

6.2.101 Post-Surat the country saw the emergence of more than 35 waste treatment projects between 1995 and 2000, with private sector participation, mostly for composting facilities. There has been increased awareness and people's participation in solid waste management. NGOs and CBOs have begun to participate in this movement and have found wide acceptance among municipal and State Government functionaries. Private sector participation has been encouraged with a view to economy in cost, efficiency, introduction of new technologies, and more effective service delivery. Municipal bodies have engaged private sector agencies for different activities such as street cleaning and collection of solid waste, its transportation, as well setting up composting plants. Experience in such cases has shown that with suitable agreement being reached on provision of land, supply of solid waste, and where appropriate, sharing of capital cost, the private sector and NGOs can assist in setting up compost plants.

6.2.102 There have been important developments in terms of guidelines, rules and regulations during the Ninth Plan period. These are:

- Constitution of a Committee by the Hon'ble Supreme Court of India in 1998 to look into all aspects of solid waste management in the Class I cities of India and submit a report to the Court for further direction. The report was submitted in March 1999.

- Constitution of a Technology Advisory Group on Solid Waste Management under the Ministry of Urban Development and Poverty alleviation, Government of India, pursuant to the recommendations of the Committee on Solid Waste Management for Class I cities constituted by the Supreme Court, to identify proven technologies, provide technical assistance to ULBs, channelise funds earmarked for solid waste management in various ministries, develop IEC material and promote capacity building of ULBs.
- Notification of Bio-medical Waste (Management and Handling) Rules, 1998 by the Ministry of Environment and Forests, which also incorporates comprehensive guidelines for selection of technologies and specifications for bio-medical waste apart from the rules and regulations, time frame to be followed and the duties and obligations of the generators of such waste and operators of facilities.
- Notification of Municipal Waste (Management and Handling) Rules, 2000 by the Ministry of Environment and Forests, which also incorporates comprehensive guidelines for the selection of technologies and specifications apart from the rules and regulations and time frame to be followed.
- Publication of the Manual on Municipal Solid Waste Management by the Ministry of Urban Development, in May 2000.

6.2.103 The initiatives of the Ministry of Non-Conventional Energy Sources and the Ministry of Agriculture during the Eighth Plan were not only continued but their scope and extent were broadened. The Ministry of Environment and Forests also has provided incentives in the form of subsidy for setting up municipal solid waste based compost plants as demonstration projects during the Ninth Plan Period.

Box : 6.2.5
Common Waste Treatment Facility
HYDERABAD

Given different treatment systems for compliance of the rules, individual health care establishment cannot have own arrangements for comprehensive treatment and disposal of the waste generated by them. Therefore, each town/city should have at least one common treatment facility for the management of bio-medical waste. A common treatment facility for bio-medical waste has been established at Kothur in Mehboobnagar district near Hyderabad, which is perhaps the first such facility in the country. The facility has been established by a private company on a build-own-operate basis. HUDCO has provided financial assistance for this project.

The company collects bio-medical waste from health care establishments in Hyderabad and Secunderabad in specially fabricated covered vehicles with compartments for different types of waste. The waste is transported to the Kothur plant. The facility has an incinerator with double chamber, wet-scrubber and a 30 metre high chimney stack. An indigenously manufactured microwave equipment has been installed along with a small standby autoclave for certain categories of bio-medical waste. There is a shredder for shredding sterilised waste. There is a secured landfill within the premises for incinerator ash and other sterilised waste. The company is planning to install a treatment plant for the wash water generated while washing the collection vehicles.

The facility caters to 6,000 beds per day at present and this is likely to increase to more than 10,000 beds within a year. The project cost for this facility was Rs 120.62 lakh.

SHILLONG

A common treatment and disposal facility for bio-medical waste is under implementation in the outskirts of Shillong. The facility would cater to the needs of about 2,000 beds in the Shillong and Greater Shillong area and would consist of a dual chamber incinerator with emission control facility for the anatomical waste and autoclave with steam generating and shredding facility for other bio-medical waste. A secured landfill would be created for the incinerator waste whereas the other sterilized waste would be put in the adjoining sanitary landfill site. Bio-medical waste would be collected from the health care establishment by covered vehicles and brought to the common facility by private operators.

Priority Action Areas for Sanitation

- Municipal bodies in many parts of the country suffer from inadequate resources. Assessment of demand and 'willingness to pay' by the communities, which will help arrive at a basis for pricing waste management services and to clarify the scope for adopting 'full cost recovery' policies to achieve financial sustainability, should be carried out.
- Soil fertility is being affected by excessive use of chemical fertilisers without adequate use of organic manure. The large quantity of urban waste can be a useful solution to this problem. Compulsory production of compost from urban solid waste in all cities, and promotion of this organic manure in agriculture should be implemented as this may have a significant positive impact on soil fertility. Agricultural research and extension services, as well as fertilizer producers/marketers to be involved in promoting urban compost (avoiding dumping of urban waste in raw form in the fields) in the neighbouring farms.
- Identification and development of less capital-intensive 'intermediate' waste

- management technologies, and implementation of known technologies which are cost-effective and not dependent on assured power supply, are priority areas. There is a need for both specialised technological institutions in the field of environmental concerns and NGOs, to take the lead in development and propagation of such technologies in the urban areas. Programmes in the urban and environmental sectors should provide for financing of such programmes.
- Comprehensive project preparation for each town and city for both solid and liquid waste treatment and re-cycling should be undertaken within the next two years. Identification of sites and acquisition of land should be done, keeping in view a long-term perspective, as availability of land for these purposes will sharply decline in the near future.
 - Fiscal concessions and subsidies are important. Transport vehicles for carrying solid waste may be exempted from excise, sales tax and other duties. A number of private sector and NGO providers of technology in this field have been identified by the Technology Advisory Group on Solid Waste Management. Private companies entering in this sector should be granted soft loans for the installation of compost-plants, land on lease for a period of 30 years, tax holiday, accelerated depreciation, legal and financial help and support. The organic manure produced in these compost plants should be granted some subsidy as in the case fertilisers.
 - Safe disposal of urban solid waste, especially of hospital waste, is now a mandatory requirement on State Governments and ULBs. In the interests of community health and the environment, enforcement and implementation of rules relating to bio-medical, municipal solid waste and hazardous waste has to be very strict.

- Since there is no centrally sponsored scheme for either waste water treatment or for solid waste management for urban areas, the provisions under such schemes as the IDSMT, Mega City Scheme, Scheme of Rejuvenation of Culturally Significant Cities, and the City Challenge Fund, would have to be made use of for these purposes. The States should be encouraged to utilise their allocations under the Urban Reforms Incentive Fund also for urban infrastructure works, including sewage/waste water treatment and safe solid waste disposal.
- However, in the Tenth Plan, a new Mission-mode state sector programme named 'Urban Sanitation Mission', with focus on setting up sanitary land-fills and composting plants for urban solid waste, and improvement to drainage in urban areas, will be taken up with Special Central Assistance.

URBAN TRANSPORT

6.2.104 A good network of roads coupled with an efficient mass urban transport system play a catalytic role in urban economic growth, with a beneficial impact on the urban poor. However, there is a growing trend towards an increasing number of personalised vehicles, especially two-wheelers which account for 60- to 80 per cent of motor vehicles. This results in congestion on the roads, slowing down of traffic and atmospheric pollution. Narrow carriageways and poor road surface add to the problems. Growing vehicular pollution in cities is a cause of great concern, as are noise levels and traffic accidents. Traffic and transport are emerging problems in many cities which are experiencing heightened economic activity and mobility of people.

6.2.105 Growth of cities leads to a sharp increase in the demand for urban transport facilities. However, the provision of public transport facilities has suffered because of a number of reasons. As population density in cities increases and cities expand in area, there is very little planning for this growth, especially for transport needs. Older areas suffered because of lack of resources for developing

appropriate carriageways and public transport systems. Capacity constraints of the existing public transport systems grew worse with densification of the inner cities, and increase in land values and development in excess of the capacity of the existing infrastructure, made the provision of relief more difficult.

6.2.106 Seventeen of the 23 largest cities have organised bus services, with a combined fleet of about 25,000 buses including private buses. Use of urban rail services is extremely limited, with only three cities – Mumbai, Kolkata and Chennai – having suburban rail systems. Phase I of the Delhi Mass Rapid Transport System is under construction. Except for mega cities, modal split in favour of public transport is poor and generally less than 20 per cent.

6.2.107 In smaller cities and towns, circulation of people and vehicles is hampered by narrow roads. This is further constrained by the fact that the carriageway is occupied at the margins by vendors, unauthorised structures, solid and liquid waste, and parking of vehicles. Poor road construction and inadequate maintenance further hamper smooth traffic flows. Failure to provide for genuine requirements such as parking areas for lorries and buses, vehicles for hire as well as for private vehicles leads to haphazard use of road space and acts as an obstacle to the smooth movement of traffic. The solution to these problems is better design and construction of roads, provision of parking areas and bus-bays, provision of suitable areas for vendors, and enforcement of traffic regulations.

6.2.108 The transport situation can be improved by better planning and coordination among the various agencies involved, and augmenting the public transport system. A meaningful urban transport policy would need to address the following:

- Ensuring the fullest use of available transport infrastructure through low-cost

optimisation measures (Transport System Management techniques).

- Development, as appropriate, of cost-effective road-based, rail-based and water-based (where applicable) forms of public systems and inter-modal integration.
- Reducing emissions from motor vehicles.
- Land use – Transport integration. Urban transport has to be recognised as a sub-system of the urban system, and transport planning has to be given highest priority in urban planning.
- Central and State Governments must provide higher levels of financial support for urban transport projects. Innovative sources of financing must be explored. Schemes of urban investment such as the Mega City Project and IDSMT should invariably address the requirements of the traffic and transport management.
- Development of suitable institutional mechanisms at the national, state and local levels for the planning, financing, construction and O&M of urban transportation systems.
- Review of the policy of nationalisation of urban public transport and bringing in the capital investment and management capabilities of the private sector with due regulation.
- Special attention to road-based public bus transport system since it is crucial especially for the lower income brackets. Increasing the capacity of the public bus systems is a key to reducing congestion on roads in cities. It will also increase the access of the urban poor to social and economic opportunities.

BOX : 6.2.6
THE CASE FOR PRIVATISATION OF URBAN PUBLIC TRANSPORT

The private sector has shown remarkable growth and entrepreneurial abilities in the transport industry. It is a matter of concern that the financial and managerial capabilities of the private sector are not being put to better use in urban public transport systems. There is inadequate appreciation of the importance of an efficient public transport system in the economic and social life of the city.

The private sector is already present in urban and suburban transport, but because of the prevailing system of 'transport permits' and nationalisation, most of the private vehicles are run in a clandestine fashion. This affects the quality of the system, apart from exposing the users to avoidable risks. A more demand-driven public transport system is called for, in the interests of the commuters in the cities.

The right course would be to de-nationalise the sector, and bring in a competitive system of road-based public transport in the cities, in a phased manner. The present systems, while subjecting the State Road Transport Corporations to losses, do not provide reliable and punctual services. With the sector being thrown open to the private organised sector, a regulator can fix the fares and determine the subsidies to be provided by the State for categories such as school-children, the disabled, and the elderly. The number of such subsidies need to be kept low.

The transport systems should be operated by corporate organisations or co-operatives of bus-owners. The minimum or qualifying level of investment capabilities and experience of operators can be defined, so that the systems are run on professional lines with attention being paid to passenger comfort, safety, reliability, and punctuality.

6.2.109 The road capacity of cities is seriously impaired due to wasteful use and neglect. Traffic management measures in most cities are inadequate. Traffic problems of different degrees are caused by:

- Poorly planned traffic circulation;
- poorly designed intersections;
- inadequate signalling/other traffic management measures;
- inadequate parking facilities and parking on the streets;
- on-street loading/unloading activities;
- heavy 'through' traffic in central areas;
- encroachment on footpaths/roads;
- general lack of regard for traffic regulations;
- inadequate enforcement of traffic rules and regulations.

6.2.110 As a complement to creating more physical capacity through major investments in urban transport infrastructure, there is a lot of potential for the effective use of existing road space by appropriate traffic engineering and management/enforcement measures.

6.2.111 During the Tenth Plan period, studies will be carried out in a number of the larger cities to develop integrated transport systems particularly to strengthen the modes of transport for the urban poor such as the urban public bus system, non-motorised transports, and informal transport. The objective will be to strengthen the public transport systems by increasing its capacity, while integrating all other modes of transport so as to optimise the options available in each city to reduce congestion and pollution, while improving access, speed and

safety. Emphasis will be laid on urban planning, including development of satellite towns, creation of ring-roads and bye-passes, and decongestion of the cities by shifting non-essential activities to the outskirts. Measures to improve the viability of public transport projects, and innovations to attract greater investment into this sector, including strengthening the network of urban transport infrastructure consisting of roads, grade separators, pedestrian subways, etc., will also be undertaken.

6.2.112 A programme of Central assistance to urban transport related investments is also proposed to be taken up during the Tenth Plan. Some of the areas to be assisted will be:

6.2.113 Urban Bus : In view of the technological superiority and other advantages, urban bus may be introduced in metropolitan cities replacing the standard bus currently in use. The Central Government should finance 50 per cent of the cost of 2,000 urban buses, as an initial investment towards more efficient public transport.

6.2.114 Dedicated Bus-ways: As a major part of the transport demand will continue to be met by the bus system in cities, it is important to facilitate their movement through provision of dedicated bus-ways. A pilot programme on this will be taken up during the Tenth Plan. Alternatives such as electric trolley buses and sky bus will be explored where appropriate.

Planning for Rail Based Urban Transport

6.2.115 In cities with a population of 3 million or more, there are several corridors of heavy – 20,000 or more – peak hour peak direction traffic. Provision of rail-based urban transport system on such corridors becomes inescapable, and institutional arrangements for introducing such systems in eligible cities are overdue. City-wise specific projects for rail-based urban transport systems together with funds required for them need to be identified. Certain other measures are also required, such as:

- A comprehensive legislation covering construction as well as O & M of metro railways in all Million Plus cities, needs to be enacted. The legislation will also have provisions for a regulatory authority for fixing fares, and safety inspection system. The Rules of Business should clarify the responsibility of each department of government involved such as the Ministry of Railways, Urban Development, etc., as well as the State Governments concerned.
- The Central Government should set up a National Urban Transport Development Fund with a 'seed money' allocation of Rs. 3,000 crore. In addition an equal amount should be raised through taxes/cesses taking the total amount available to Rs. 6,000 crore. The Fund would be the prime mover for making urban rail-based transport systems a reality.
- Metro systems are urgently needed in cities like Kolkata which presently has a limited metro rail system, Mumbai and Chennai which have a partial coverage of suburban rail service, and cities of Hyderabad and Bangalore which have virtually no commuter rail systems. Cities such as Ahmedabad, Pune, Kanpur, Nagpur, Lucknow, Surat and Jaipur can also aspire for rail-based urban transport systems. Central assistance on par with assistance given to the Delhi Metro project, is a commitment to be fulfilled as and when these projects get grounded.

Plan Outlay

6.2.116 The Ministry of Urban Development & Poverty Allivation will implement the policies & programmes mentioned in this chapter. The schemewise break up of the Tenth Plan outlay is given in the Appendix.

