

**REPORT OF THE STEERING COMMITTEE ON**

---

# **URBAN DEVELOPMENT**

---

**FOR ELEVENTH FIVE YEAR PLAN  
(2007-2012)**



सत्यमेव जयते

**GOVERNMENT OF INDIA  
Planning Commission  
New Delhi**

# REPORT OF THE STEERING COMMITTEE ON URBAN DEVELOPMENT FOR ELEVENTH FIVE YEAR PLAN (2007-2012)

## CHAPTER 1

### IINTRODUCTION

Urbanization is an indicator of economic development. Urban agglomerations afford economies of scale in both manufacturing and services activities and also in provision of infrastructure services. Urbanization should be seen as a positive factor for overall development. This is manifested in the increasing contribution of urban sector to the national economy. For instance, in 1950-51, the contribution of urban sector to India's GDP was only 29%, which increased to 47% in 1980-81 and presently it is contributing 62%-63% and is likely to be 75% by 2021.

#### **1.1 National and urban scenario and the global context**

India's total population increased about 2.8 times between 1951 and 2001, but the urban population rose about 4.6 times during the same period. The decadal growth rate in urban population has been more than 30% during 1971-2001. Index of urban population has been continuously growing up with an increasing trend since 1951. There has been a remarkable increase in urban population during 1991-2001, which can be attributed to the economic reforms initiated in the year 1991.

Notwithstanding, the difference in definitions of constituents of urban areas in various countries, the degree of urbanization in India is amongst the lowest in the world. As per United Nations estimates, 47 per cent of total population of the world lived in urban areas in 2000. The percentage of urban population in Asia was 36.7 while that for Europe, South America and North America was 74.8, 79.8 and 77.2 respectively. With less than 28 percent of the total population living in cities and towns, India is less urbanized compared to many countries. The pace of urbanization in India has also been slower as compared to other countries. United Nations estimates show that while the degree of urbanization in the world increased from 30 per cent in 1950 to 47 per cent in 2000, that for India went up from 17.3 in 1951 to 27.8 in 2001. China and Indonesia, which had lower levels of urbanization in 1950, have now overtaken India with the percentage of urban population being 32.1 and 40.9 respectively.

##### **1.1.1 Growth and pattern of urbanization**

According to the Census 2001, out of total population of 1028.6 millions in India about 286 millions live in urban areas accounting for 28% of total population. The people living in urban areas in the country increased from 11% in 1901 to 28% in 2001 (*Table 1*)

**Table - 1****Urbanization & Decadal Growth***(Population in Crores)*

Year	Total population	No. of Towns and UAs	Urban Population	Share of Urban Population to Total Population (%)	Decadal Growth of Urban Population (%)	Index of Urban Population (Base 1951 = 100)
1951	36.11	2843	6.24	17.3	41.4	100
1961	43.92	2365	7.89	18.0	26.4	126
1971	54.81	2590	10.91	19.9	38.2	175
1981	68.33	3378	15.95	23.3	46.1	256
1991	84.63	3768	21.76	25.7	36.4	349
2001	102.86	5161	28.61	27.8	31.3	458

*Source: Census of India.*

The tempo of urbanization has slowed down from 46.1% during 1971-81 to 31.3% during 1991-2001. However, the fast pace of urbanization in absolute terms has in fact, imposed increasing pressure on the level of services in the urban centers. Consequently, the positive role of urbanization has been over-shadowed by deterioration in the quality of built environment and quality of life.

The proportion of population in metropolitan cities, which was 19% in 1951, increased to 37% in 2001 (Table-II).

**Table-II: Past trend of growth of metro cities in India**

		YEAR	YEAR	YEAR
		1981	1991	2001
1.	Number of metro cities (population-1 million +)	12	23	35
2.	Population (million)	42	70	108
3.	Percentage of total urban population	26	32	37.8

The rate of urban growth in the country is very high as compared to developed countries, and the large cities are becoming larger mostly due to continuous migration of population to these cities.

Based on the population forecast made by Registrar General, Census Operations, Government of India, the urban population is expected to reach 433 million by 2021, while the total population may reach 1340 million. Thus, the level of urbanization in the country in the year 2021 is expected to be about 32%.

**1.1.2 Morphology of Cities and Towns**

The Census of India classified as many as 5161 towns in 2001, which was 472 more than 1991 Census (4689). Out of the total 5161 towns in 2001, 3800 are statutory towns and 1361 are census towns. The number of statutory towns and census towns in 1991 was 2987 and 1702 respectively. The number of Urban Agglomerations (UAs) in the country increased from 381 in 1991 to 384 in 2001. If an urban agglomeration is

taken as one urban unit then as per 2001 Census the number of Urban Agglomerations/Towns is 4378 as compared to 3768 in 1991.

The Indian urbanisation scenario is characterised by two significant features. First, there has been a massive growth in the absolute number of people living in urban areas. During 1951-2001 the country's urban population increased from 62.4 million in 1951 to 286.1 million in 2001. Second, there has been an increasing concentration of urban population in the Class I towns or 'cities' (with 100,000 or more). In 1991, about two-thirds of the urban population lived in 300 Class I UAs/Towns, which constituted less than 8 per cent of the total of 3,768 urban agglomerations in the country. Data on metropolitan population reveal that 32.5 per cent of the urban population lived in metropolitan urban agglomeration/towns in 1991 and by 2001 the figure went up to 38.6 per cent.

The trends of urbanisation in India in recent decades indicate the following key features: (i) continued concentration of urban population in large cities and existing city agglomerations; (ii) slowing down of urbanisation during 1981-1991 and 1991-2001 as compared to 1971-1981 and 1961-1971; and (iii) large variations in the spatial patterns of urbanisation across the states and cities. The pattern of population concentration in large cities reflects the spatial polarisation of employment opportunities. This phenomenon has led to a tremendous pressure on civic infrastructure systems: water supply, sewerage and drainage, solid waste management, parks and open spaces, transport, etc. It has also led to deterioration in the quality of city environments. In several cities, the problems of traffic congestion, pollution, poverty, slums, crime, and social unrest are assuming alarming proportions. However, there is also another side of population concentration in cities. Large cities are the engines of economic growth and generators of resources for national economic development.

### **1.1.3 Functional characters and cities and towns**

As per the Census of India 1991, out of the 3697 UAs / towns in 1991, 1756 or about 47% were engaged in primary activities (Table 2). However, these "agricultural" towns accounted for only about 15.89% of the urban population. The number of towns engaged predominantly in industrial activities constituted about 20% of the total number of UAs / towns but in terms of urban population, accounted for about 49.69%. Trade and transport activities were predominant in 13% of the UAs / towns, but only about 7.67% of the urban population lived in these "trade and transport" cities. Service sector accounted for about 20% in terms of number of UAs / towns, but about 26.75% in terms of urban population.

The scenario would have drastically changed after 1991, when the economic reforms were initiated. The actual scenario can be known only after the 2001 Census figures relating to functional classification of towns are released.

More investments have to go into agricultural towns to make them really urbanized. A town acquires a true urban character only when industrial or service activities are dominating in that town.

**Table - 2**

**Distribution of Urban Agglomerations / Towns by Functional Categories and the Percentage of Urban Population Living in Them – 1991**

Functional Category	No. of UAs / Towns	Percentage of total no. of UAs/ towns	Percentage to urban population
Primary Activity	1756	47.50	15.89
Industries	723	19.60	49.69
Trade	460	12.40	7.30
Transport	22	0.60	0.37
Services	736	19.90	26.75
<b>Total</b>	<b>3697</b>	<b>100.00</b>	<b>100.00</b>

## **1.2 Challenges for Urban Development**

In the present context, it will be a mammoth task for the Urban Local Bodies to extend the coverage of water supply, sanitation, solid waste management as highlighted in the following paragraphs.

Due to burgeoning urban population growth, the big cities viz., metropolitan (million plus) and mega cities are under severe strain particularly in terms of making access to infrastructure services to the inhabitants. Overall the urban dwellers in the country have low access to infrastructure services such as water supply, sanitation, power supply and solid waste disposal. The availability of, at least, minimum level of these services is considered necessary for a conducive human settlement and habitat. In addition to the absolute shortage of services in urban areas, there is the problem of inequitable distribution across the states and different income strata of population.

The deficiencies in services in urban areas are absorbed by the low-income and poorer sections of the population. Infrastructure inadequacies and inequitable distribution are accompanied by the absence of efficient and effective management, which has led to service leakages and financial losses and have, consequently, had an adverse impact on urban productivity and economic growth. Improvements in productivity and efficiency are essential to make continued economic growth possible with growing population, urbanization and industrialization and increasingly degraded resource base.

### **1.2.1 Urban Planning and Management**

Master Plan / Development Plan is an important instrument for urban planning and development. The existing status of Master Plans in India needs to be reviewed. Experience of implementing the Master Plans has not been encouraging because of weak data base, financial constraints, lack of resource mobilization, over ambitious plan

proposals, lack of integration between spatial planning proposals with economic development plans and inadequate legislative support. In the Master Plan for cities, vegetable markets, firewood depots, building material markets and such other heavy markets should be located in the periphery of the town in conforming zone. It should suggest steps for covering the open drains, shifting of dairies from the city and other measures for improving the sanitary condition so that cities are free from flies/mosquitoes and cattle menace. Master Plans, instead of being rigid and static, should be made feasible and dynamic to incorporate the changing situations. The existing Town Planning Acts/City Development Act do not have adequate provision for redevelopment/reconstruction/urban renewal. As such there is a need to have Model Urban Renewal Act in India to tackle the problems of core areas specifically which will also be helpful in achieving the envisaged goals under JNNURM.

### **1.2.2 Finance**

- Financing of infrastructure facilities like water supply, sewerage, drainage, solid waste management and power supply requires huge amount of investment.
- Urban Local Bodies are not in a position to afford huge investments due to their weak financial base.
- There has not been much rationality in pricing infrastructure / services in most of the million plus cities of the country.
- Existing tariff structure for different core services is not sufficient to meet the production / operation / maintenance costs.
- Subsidization of services further worsens the financial condition of the implementing agencies.
- With inadequate return from the provision of services and also huge gap between demand and supply of the services the Urban Local Bodies are not able to cope up with the pressure.
- Urban Local Bodies have to struggle to get the State and Central Govt. grants and are unable to expand the availability of services commensurating the growth of population and related demand for the services.

Though the urban water supply and sanitation sector had remained as an important area of concern, but allocation of funds made right from the First Five Year Plan onwards has remained almost of the order of 1.00% to 1.5% of the total public sector outlay. In the Ninth Plan, this, however, could be stepped up to 2.17%. The tentative 10<sup>th</sup> Plan outlay for urban water supply & sanitation sector was Rs.18749.20 crore, which is only 1.3% of total public sector outlay. The Plan-wise investments for the UWSS sector in India may be seen at Annexure-I of the Working Group report.

### **1.2.3 Governance**

It may be pertinent to mention that in the backdrop of recent changes introduced in the system of urban governance and planning, there have been wider implications on the pattern of urban growth. During the 1950s and 1960s, physical planning controls on

location of economic activities and urban land-use, imposed through Master Plans, etc., were more of a restrictive nature and flexibility had limited scope.

The Urban governance in the country today has been characterized by fragmentation of responsibility, incomplete devolution of functions to the elected bodies, lack of adequate financial resources, unwillingness to progress towards municipal autonomy, adherence to outdated methods in property taxation and hesitation in the matter of levy of user charges, property tax recovery, levy or withdrawal of octroi, role of parastatals on water supply and sanitation services, etc. Experience shows that functional autonomy can become a reality only when financial strength supports it. Therefore, the States need to play a catalytic role, in particular, the parastatal agencies and Development Authorities, need to adopt a supportive role towards the elected bodies rather than take over functions, which statutorily belong to ULBs.

The Master Plan document incorporating the zoning regulations and development control regulations were perceived as static, whereas the large cities especially the million plus experienced large scale conversion of agricultural land into urban uses thereby leading to spurt in construction activities. Further, in most of the metropolitan cities rampant violation of building bye laws have become a common feature. The presence of unauthorized and haphazard development within the city limits as well as in the fringes put a question mark on the urban governance. Further the cumbersome processes involved in getting clearances in the construction activity affected the transparency in the governance.

Further, the financing of infrastructure facilities like water supply, sewerage, drainage, solid waste management, power supply requires huge amount of investment and the ULB's just are not in a position to afford huge investments due to their poor financial base. They are not able to plan infrastructure networks in an efficient manner, conducive to desired spatial pattern as well as keep them cost effective. Also, there has not been much rationality in pricing infrastructure / services in most of the million plus cities of the country. The existing tariff structure for different core services has not been sufficient to meet the production / operation / maintenance costs. The subsidization of services further worsens the financial condition of the implementing agencies. With the inadequate return from the provision of services and also huge gap between demand and supply of the services the Local Bodies are not able to cope up with the pressure. The problem of lack of urban governance could only be overcome as the ULB's undertake reforms appropriately and work for attaining transparency and simplification of procedures. Hence, the cumbersome process involved in approval of Building plans and issuance of completion certificate have to be simplified with the introduction of single window clearance. Various city administrations have realized the need for the same and this has also lead to liberalization in the development control regulations and the processes associated with them.

#### **1.2.4 Infrastructure and Service Delivery**

##### **Water**

- According to 54<sup>th</sup> round of National Sample Survey, 70% of urban households reported being served by tap and 21% by Tube well or hand pump.
- 66% of urban households reported having their principal source of water within their premises while 32% had it within 0.2 Km.

- 41% had sole access to their principal source of drinking water and 59% were sharing a public source.

## **Sewerage**

- The 54<sup>th</sup> round of NSS reported 26% of households having no latrines, 35% using septic tank and 22% using sewerage system.
- 43% of households in urban areas either had no latrines or no connection to a septic tank or sewerage.
- In urban areas sewerage connections varied from a low 48% to a high 70%.
- Out of 300 Class I cities, about 70 have partial sewerage system and sewage treatment facilities.
- According to Central Pollution Control Board, the waste water generated in 300 Class I cities is about 15800 million litres a day while the treatment facilities exist for hardly 3750 million litres per day.

## **Solid Waste**

- 71% of urban households reported removal of household waste by household members themselves, 14% by Local Authorities, 12% by private agreement among residents.
- 47% of urban households reported removing of their wastes to community dumping spot and 30% to individual dumping spot.
- The solid waste generated by the million plus cities ranges from 1200 metric tones per day in cities like Ahmedabad and Pune to a maximum of 5000-5500 metric tones per day in cities like Delhi and Mumbai.
- Out of total waste generated in the million plus cities hardly 30% is treated before disposal.
- The per capita solid waste generation ranges from 300 gm in Bangalore to 500-550 gm in Mumbai and Delhi.

## **Urban Transport**

- Fare structure of city transport in most of the million plus cities is highly subsidized.
- Public Transport Authorities have to resort to deficit financing and have very little incentive to be cost affective.
- Road network of the million plus cities has problems like inefficient use, poor maintenance, poor traffic management and poor enforcement of regulations on parking and encroachments on right-of-way.
- High proportion of traffic is slow moving.
- High traffic volumes and low road capacities lead to high volume / capacity ratios for most of the road networks in million plus cities.
- The share of public transport in mega cities is Mumbai 88%, Kolkata 79%, Chennai 67% and Delhi 62%.
- The share of urban suburban railway is Mumbai (44%). Kolkata (14%), Chennai (16%) and Delhi (1%).
- With the introduction of metro in Delhi, the share of passenger trips by metro is likely to increase substantially with the completion of phase I and II.

### **1.2.5 Transport**

India is one of the emerging urban economies in the world with roughly 60% of the country's GDP coming from the urban areas. Rapid urbanization with economic growth has generated corresponding increase in travel demand. However, neither the transport infrastructure development has kept pace with the increased travel, nor the investment strategy has been appropriately focused to provide efficient access and mobility to citizens. Due to lack of efficient, comfortable and reliable public transport coupled with buoyant economic growth of about 10%, most of the cities in the country are already witnessing a rapid growth of personal vehicles. This coupled with the declining share of public transport has led to severe problems of congestion and its consequent costs in the form of travel delays, loss of productivity, air quality deterioration, noise pollution and increasing road fatalities. It is not only posing a serious threat to sustainability of urban areas but also impacting India's energy security with increased consumption of petroleum fuel.

If cities are to be the engines of economic growth that power India's development in the 21<sup>st</sup> century, transportation systems have to be their lifeline. Immediate proactive measures are needed to deal with the emerging situation. The only emerging solution is to invest sincerely in public transport, pedestrianisation and non motorized vehicles (NMTVs) now or pay very heavily later since the continuous growth in number of personalized mode will also require very high constant investments in terms of road infrastructure to accommodate the increased number of vehicles on road.

In the light of these trends the Government of India has announced a National Urban Transport Policy in April 2006. The policy focuses on the need to "Move people - Not vehicles". It seeks to do this by encouraging improvements in public transport and facilities for the use of non-motorised modes. It suggests greater involvement of the private sector and innovative financing mechanisms to enhance efficiency and reduce the impact on the public budget. It seeks to encourage the use of cleaner technologies. It seeks to create better awareness amongst the people so that there is support for the initiatives that need to be taken and also for some of the compromises that people may need to make. It emphasizes the need to build capacity to undertake good urban transport planning, both at the institutional and individual level.

### **1.3 Vision and Objectives**

According to the Registrar General population projection about 37 million persons will be added in the urban areas during the Eleventh Plan period. In view of the stronger relation between urbanization and economic growth, the states with higher growth rate may also register higher urbanization level. Recognizing the interdependence between urbanization and economic growth, the vision in Eleventh Plan should be to develop the cities in a sustainable manner, so that they could provide required infrastructure support for the sustained economic growth and also absorb the benefits of expanding economic activities. Urban Development should contribute in achieving the national goals and objectives of the economic development envisaging about 10% of economic growth rate. The vision and objectives of urban development should focus on increasing the efficiency and productivity of cities by deregulation and development of land market, dismantling the public sector monopoly over urban infrastructure, creating conditions for the private sector to invest in urban economic infrastructure, establishing autonomous regulatory framework to oversee the functioning of the public and private sector, strengthening urban local governments, reducing

incidence of poverty and deprivation in cities and towns and consolidating fragmented programmes and schemes under one umbrella like JNNURM.

In this context, JNNURM with reform agenda is a unique mission. The implementation of the mission in right perspective will create environment for cities to become efficient, equitable and accountable. Any statutory or procedural bottleneck in implementation of JNNURM need to be sorted out so that cities become major partner in the process of economic and social development and inclusive growth. Comprehensive planning and effective monitoring are, therefore, essential to take the JNNURM to its logical conclusion so that financial and functional efficiencies of urban local bodies are improved.

Improvement of the urban environment through creation of basic infrastructure like water supply, sanitation etc. in order to bring down the rate of morbidity and mortality, and financial losses by way of controlling water borne diseases, which will facilitate enhancement of productivity and overall economic development of the country.

Inadequate availability of drinking water, improper treatment of sewage, uncollected solid waste etc. severely affect the quality of life. The 11th plan aims at tackling all such urban issues with a view to providing safe drinking water and adequate sanitation facilities to the entire urban population leading to improvement in urban environment.

#### **1.4 Strategies and Action Plans**

The strategy in the Eleventh Plan should lay emphasis on faster, broad-based and inclusive growth. The policies and action plan in urban development should be in consonance with putting the economic development on a sustainable growth trajectory with a growth rate of about 10% by the end of the plan period. In urban areas, apart from improving the urban infrastructure services, productive employment opportunities need to be created at a faster pace than before. It should reduce intra-city disparities by ensuring access to basic physical and social infrastructure services to all. The steps initiated as part of the National Common Minimum Programme during the Tenth Five Year Plan need to be strengthened and consolidated further in the Eleventh Plan. The key element of the strategy in urban development is inclusive growth by providing access to the basic facilities and services to all in urban areas. In the long run good infrastructure in city / town determine the level of development of economic opportunities in the future. The private sector has a critical role in achieving the objectives of faster and more inclusive growth. The urban areas need to provide conducive environment where all sectors and groups participate in an equitable manner for sustainable growth of towns and cities.

##### **1.4.1 Development from Above**

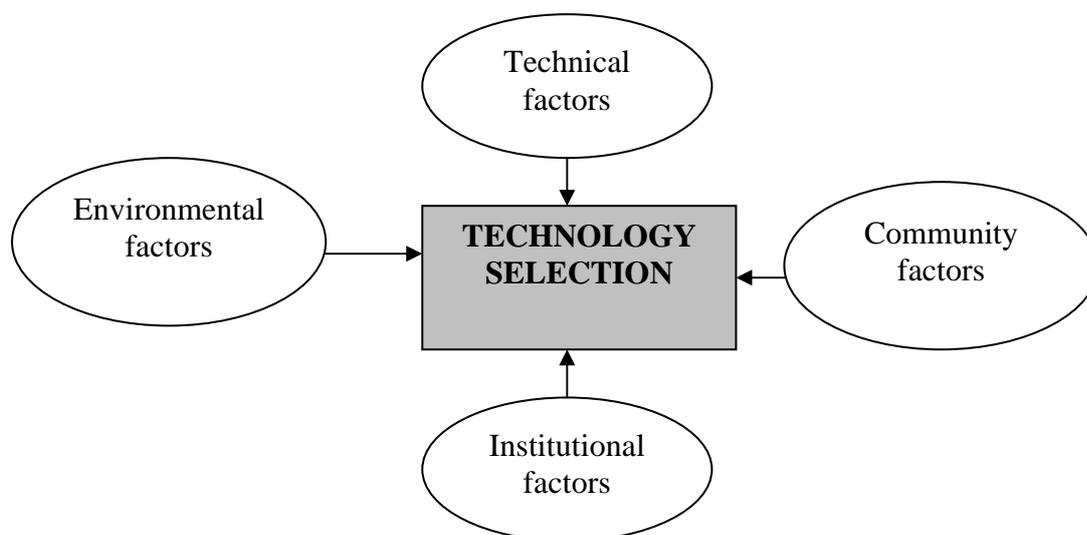
Keeping in view the national level policies and goals for economic and urban development, there is a need to follow the concept of integrated development planning linking the development plans from national to local levels in an hierarchical framework. At the national level a National Urbanization Policy is overdue and the time is ripe to formulate a long term National Urbanization Policy indicating the emerging pattern of urbanization and measures to channelise the future urban growth in an equitable and sustainable manner. Within the broad framework of National Urbanization Policy,

Regional Development Plan at the State level may be formulated as a broad policy and vision document for development of urban and rural growth centers in an integrated manner. At the district and metropolitan area levels, the District Development Plan and Metropolitan Development Plan, as envisaged under 74th Constitution Amendment Act, should be prepared by DPC and MPC indicating the potentials and growth perspective of various settlements as part of urban – rural continuum. At local level, City Development Plans, Ward and Local Area Plans indicating vision of the cities, priorities of development, investment requirements, resource mobilization, land use and location of facilities and services alongwith development promotion regulations may be prepared by Urban Local Bodies for achieving the objectives of planned development.

### 1.4.2 Innovation and Technology savvy development

Basic principle followed is the need to involve communities right from the start in the selection of technologies. This prerequisite is particularly important in the context where users and communities, both men and women, are more and more endowed with the responsibilities of operation, maintaining and managing their water supply systems.

Identification and development of less capital intensive technologies and implementation of such technologies which are cost effective and not much energy intensive are priority areas. A technology should match people’s needs, expectations, preferences and cultural habits. It should be convenient, manageable, maintainable and affordable. Selection of technology should invariably consider the following four factors.



### 1.4.3 Active Role of PPP and Community participation

#### ***PRIVATE SECTOR PARTICIPATION***

Though private sector participation in water supply and sanitation sector could not make significant progress as of now, there is substantial potential and need for the same in India. By and large, tariff rates being charged from the consumers are very low and there is a general reluctance for enhancing the same. Under the

circumstances, without aiming at full cost recovery, private sector participation cannot be a successful proposition.

It is felt that it would be easier and convenient to introduce privatization in new areas where the private companies will have a free hand to take up the task of planning, designing, execution, operation and maintenance, billing and collection including tapping of raw water from the selected source either on BOO or BOOT basis. The successful award of Chennai service contracts for operation and maintenance of 61 sewage pumping stations in Chennai and Rajkot and Surat examples of contracting out a number of municipal services to private firms as well as community groups are a few examples to infuse confidence in private entrepreneurs.

#### **Chennai service contracts**

In Chennai, formerly Madras, the operation and maintenance of 14 sewage pumping stations was contracted out in 1992. The success of this contract led to further contracting out of an additional 61 pumping stations, on a mixture of two and three-year contracts. In addition, the operation and maintenance of four water boreholes has been contracted out and it is planned to extend this to a new water treatment plant and a new sewage treatment plant. The contracted-out stations have achieved cost savings of 45-65%, compared to the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB). This has been achieved without any compulsory redundancies, instead, CMWSSB has re-deployed excess staff to vacancies resulting from retirement elsewhere within the organization.

#### **Success in solid waste management : The case of Surat**

The outbreak of plague-like disease in Surat, in 1994, brought solid waste to the public's attention. The contrast between the scrupulously clean Indian homes and the heaps of rubbish and filth commonly found in the urban public spaces, was much discussed in the newspapers of the day. Urban filth was deemed to be bad for both public health and the urban economy, where the disease was present.

Accordingly, the situation created an intense political will to clean up the city. Money and professional management was mobilized on a PSP/PPP bases and there was a major cleaning of the urban areas. Today, Surat is one of the cleanest cities in India, indicating how rapidly and effectively this can be achieved if political will and the organization are present. The only question yet to be answered, is that of sustainability. This concern underlines the need for systematic changes to establish incentives for management to perform, even after the time for political profit has dissipated.

Even in the existing systems, service and management contracts for tapping of raw water, its conveyance, treatment and supply in bulk to the local bodies, treatment of wastewater, its reuse for various beneficial purposes, maintenance of pump houses, collection, transportation and hygienic disposal of municipal solid waste etc. can be entrusted to private agencies. With a view to assisting the State Governments and ULBs for initiating Public-Private Partnerships, detailed guidelines have been formulated and widely circulated by the Ministry of Urban Development for necessary action at the State and ULBs level.

In the recent years, the Central Government has provided some fiscal incentives to help mobilize resources for urban infrastructure. These include permitting issuance of tax-free Municipal Bonds, broadening the definition of infrastructure to include water supply and sanitation, removing restriction on foreign direct investment in urban infrastructure, Income tax and excise duty exemptions and tax holidays etc. Ahmedabad

and Brihanmumbai are a few examples of floating municipal bonds for mobilizing resources for urban infrastructure.

Sewage treatment plants (STPs) are highly power intensive and should be provided electricity at subsidized rates as those available for agriculture, so as to make the sewerage projects financially viable.

In order to make Solid Waste Management a successful proposition in India, it is very much necessary to encourage and involve private sector by offering certain incentives such as land on long term lease for setting up of compost plants and tax holidays for 10 years or so and exemption of customs duty and excise duty, sales tax and local taxes on equipment / machinery for collection, transportation of solid waste, processing plant etc. for setting up compost plant / sanitary land fill etc.

In addition, there is an imminent need to bring water supply and sanitation services under the regulatory regime so as to achieve a level playing field and to generate enthusiasm among the private players.

### **Community Participation:**

The basic principle followed is the need to involve communities right from the start in the selection of technologies. Hence, agencies, communities and users should work together as partners, and plan subsequent activities in mutual agreement.

One of the redeeming features of JNNURM is to enhance community participation with the help of Technical Advisory Group envisaged under the Mission. The Technical Advisory Group is expected to help create voluntary technical corps in each of the Mission cities. Technical Advisory Group will also facilitate implementation of 2 mandatory reforms namely enactment of community participation law and enactment of public disclosure law which will go a long way in enhancing community participation.

#### **1.4.4 Role of Government as a facilitator**

The Government of India can play a vital role in facilitating states/ULBs in meeting infrastructure and service delivery. The Government of India should continue to play the role of a facilitator as in being done through JNNURM and various other reform initiatives such as property tax reforms, municipal accounting reforms, model municipal law, guidelines on private sector participation etc. advocated to the State Governments and urban local bodies. The Government of India should also come up with policy framework for regulators in urban sector. The State Government in turn should quickly play a similar role to facilitate urban local bodies in order to provide an enabling environment to the ULBs to function as effective units of self government.

### **1.5 National Urbanization Policy**

It may be recalled that a policy document entitled National Commission of Urbanization (NCU) Report was brought out in 1988 under the chairmanship of Sh. Charles Correa. The NCU Report was in the form of recommendations for the balanced and sustainable development of urban centers in the country. By and large the recommendations of NCU Report were advisory in nature and no effort either at central or at state level was done to follow up the implementation of the recommendations and the exercise remained on paper. Unfortunately, the NCU Report was brought out in

pre-liberalization time as NCU could not foresee that with the economic liberalization and globalization, the urban centers of the country would be poised for huge changes in terms of strengthening the infrastructure, development of new townships coupled with construction and real estate boom. Hence, it is high time to think comprehensively for **National Urbanization Policy, which** should encompass changing economic scenario, reform agenda of JNNURM and above all the role of urban centers in globalization era with rapid strides in information and communication technology. Hence following initiatives are required.

- Formulating National Urbanization Policy, which should set an example for urban development at national level, and similarly the States should also devise their own urbanization strategy.
- The Urbanization policy should have a long-term vision fully realizing that in next two to three decades nearly half of the population will live in urban centers and may contribute 75% to the GDP.
- Within the National Urbanization Policy, a thought should emerge for the development of State Capital Regions, which should encourage decentralization of economic activities, development of satellite townships and development of hinterland thereby helping in uniform distribution of urban population instead of concentrating both population and investments at the selected metropolitan cities. Ultimately, the objective of balanced and sustainable development is to be achieved by reducing the spatial disparities.

## **1.6 Metropolisation and Mega-city development**

Metropolitan City Regions are dynamic entities wherein especially in 1960's and 1970's centripetal forces dominated and metro cities became centers of industrial development, trade and commerce and other sphere of tertiary services. These cities have to cope up with their own problems of excessive concentration of population and unprecedented increase in the demand for infrastructure/ facilities and amenities have led to the problems of land shortage, housing shortfall, transportation problems and management of essential infrastructure like water supply, sewerage, drainage, solid waste disposal which has become more challenging and above all unabated in-migration from small and medium towns and vast rural hinterland. The metropolitan cities have to be planned beyond the municipal limit and vast region giving due importance to linkages backed by fast transport and communication. The other settlements located in the vicinity of the mother city are to be developed as satellite/counter magnet cities so as to reduce the burden on infrastructure and also giving impetus to decentralization of economic activities from city core to outside city limit will boost the regional economy. It is high time that serious thought is to be given to develop metro city regions or even State Capital Regions. This will help in redistributing the population and population influx to metropolitan cities can be curbed

## **1.7 National Capital Region – Role and Challenges**

The NCR Planning Board came into being by virtue of the NCR Planning Board Act, 1985 passed by Parliament and duly confirmed by the legislatures of Haryana, Rajasthan and Uttar Pradesh. The preamble of the said Act stipulates: “An Act to provide for the constitution of a Planning Board for *the preparation of a plan for the development of the National Capital Region and for coordinating and monitoring the implementation of such plan...*” The total area of the National Capital Region is 33,578 sq. kms. excluding the area of Counter Magnet Areas (CMAs). The National Capital

Territory of Delhi: is less than 4.5% of the NCR. A map of the National Capital Region is enclosed as Annexure-I. *The total territory of the National Capital Region (even without including CMAs) is more than the combined territories of the three States of Goa, Nagaland and Tripura and the two Union Territories of Chandigarh and Pondicherry.*

The administrative units of the National Capital Region are:

- a) Union Territory of Delhi;
- b) Uttar Pradesh Sub-Region comprises Meerut, Ghaziabad, Gautam Bhudha Nagar, Bulandshahr and Baghpat districts;
- c) Rajasthan Sub-Region comprises the Alwar district; and
- d) Haryana Sub-Region comprises Faridabad, Gurgaon, Mewat, Rohtak, Sonapat, Rewari, Jhajjar and Panipat districts.

Section 8 (1) of the NCR Planning Board Act, 1985 empowers the Board to select, in consultation with the State Governments concerned, *any urban area* outside the National Capital Region having regard to its *location, population and potential for growth*, which may be *developed as a Counter-Magnet Area in order to achieve the objectives of the Regional Plan*. The Regional Plan-2001, prepared by the NCR Planning Board, incorporated the concept of developing Counter Magnets for reducing in-migration into Delhi. *Under the said Plan, five Counter-Magnets were identified namely Hissar (Haryana), Bareilly (Uttar Pradesh), Kota (Rajasthan), Patiala (Punjab) and Gwalior (Madhya Pradesh).* A map of the Counter Magnet Areas selected under the Regional Plan – 2001 is given at Annexure-II.

The main Functions of the NCR Planning Board are elucidated in Section 7 of the NCR Planning Board Act. Two of the core functions listed in the Section are:

- “to ensure proper and systematic programming by the participating States and the Union territory in regard to project formulation, *determination of priorities in the National Capital Region* or sub-regions and *phasing of development of the National Capital Region in accordance with stages indicated in the Regional Plan;*”
- “To *arrange for, and oversee, the financing of selected development projects* in the National Capital Region through Central and State Plan funds and other sources of revenue.”

The NCR Planning Board prepares a perspective plan of 20 years called the Regional Plan for the territory it encompasses. The Regional Plan-2021 was notified by the Board on 17<sup>th</sup> September, 2005. The Regional Plan-2021 *aims to promote balanced socio-economic development of the National Capital Region by adopting a spatial approach to infrastructure development*. From an operational point of view, the thrust areas of the Regional Plan-2021 are:

- Development of *Metro Centres and Regional Centres* as powerful growth nodes to attract major socio-economic activities;
- Development of *core urban infrastructure related to sectors like power, water supply, sanitation, sewerage and drainage in NCR Towns* with the NCR Planning Board participating in financing key infrastructure projects;
- Construction of *peripheral eastern and western expressways* and an orbital rail corridor around Delhi;

- Provide *Regional transport linkages* in terms of a Regional Rapid Transit System (RRTS) and its interface with the Delhi Metro;
- *Development of the region's economy through model industrial estates and special economic zones* outside NCT-Delhi; and
- Development of Counter-Magnet Areas outside the National Capital Region.

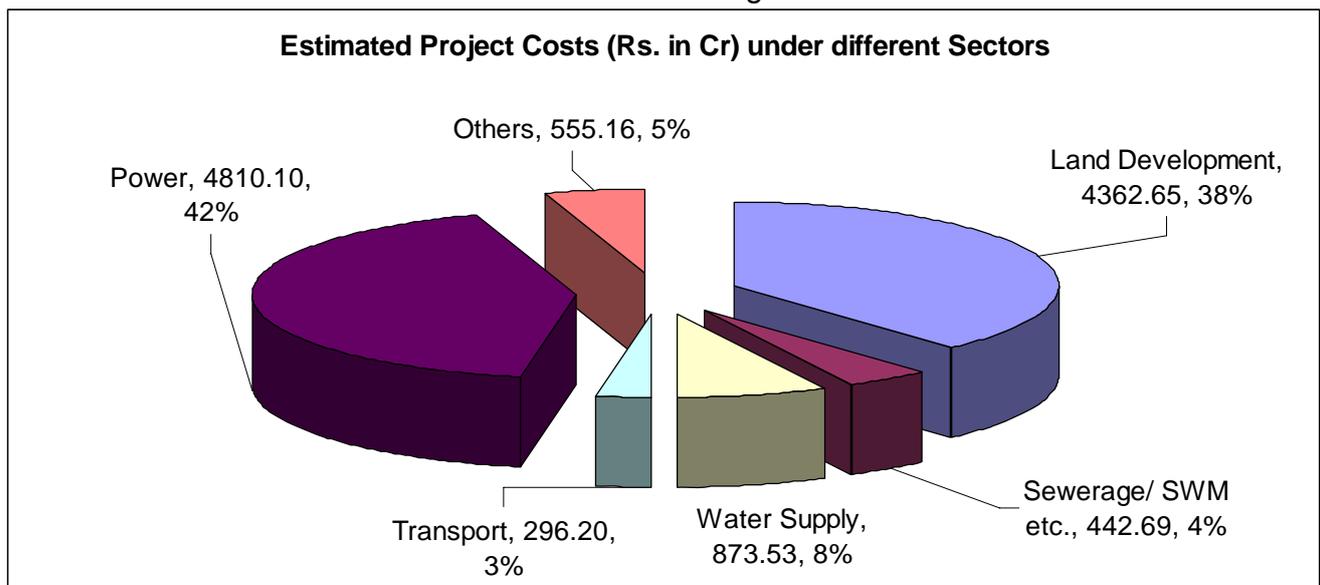
The Board has the following four sources of financial resources mobilization:

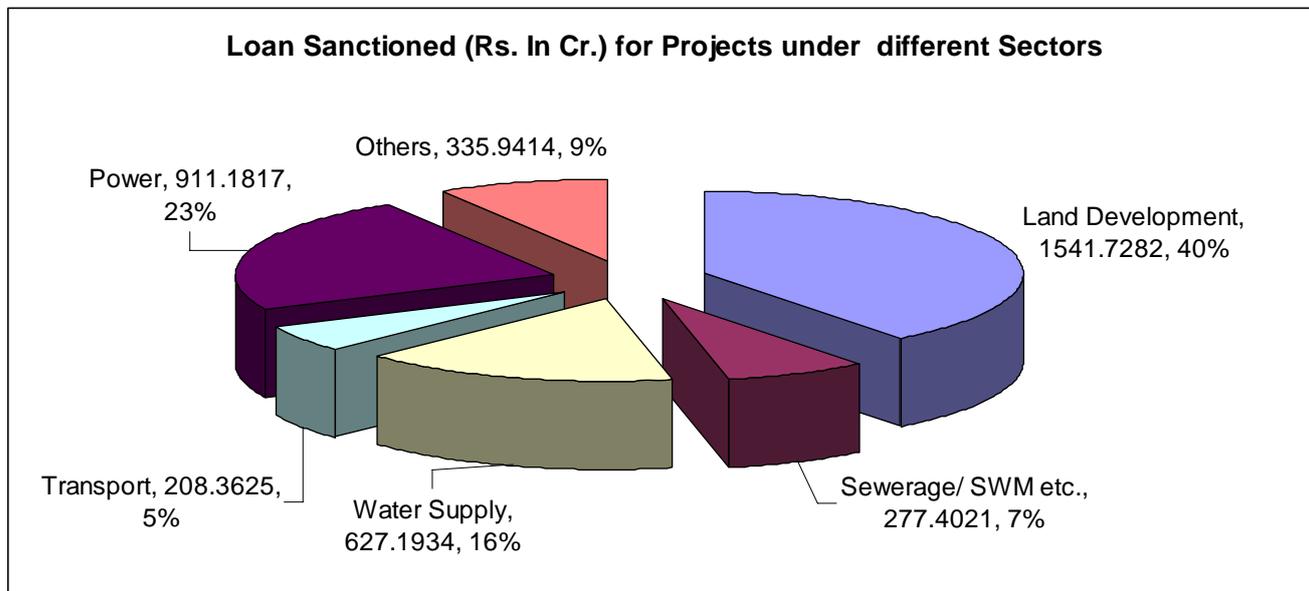
- Grants from the Government of India;
- Contribution from the NCT of Delhi;
- Funds from the capital market; &
- Internal accruals of the Board.

It is pertinent to point-out that the Board has been *raising funds from the capital market through the instrumentality of Private Placement Bonds*. In the last decade, the Board has raised about Rs. 900 crore through this process. The Board has a creditable loaning performance in as much as it has 100% recovery and no NPA. *The Board's fund-raising operations are rated by CRISIL and it has been securing AAA (SO) rating for the last 9 years*. This is the highest level of rating given by CRISIL for such type of organisations.

The pattern of Project loan assistance provided by the NCR Planning Board is 25:75; 25% being the borrowing agency's contribution and a maximum 75% of the project cost being the loan from the NCR Planning Board. The Infrastructure Projects seeking loan assistance from the NCR Planning Board are submitted by the Constituent States and NCT of Delhi through State Depts., development authorities, urban local bodies or other parastatals. With limited resources at its disposal, the Board has so far financed 171 infrastructure projects with an estimated cost of Rs. 11,340 crore out of which an amount of Rs. 3,902 crore has been sanctioned as loan. The Board has released a loan amount of Rs. 2628 crore till March, 2007.

The Sector-Wise breakup of the Infrastructure Projects financed by the NCRPB in terms of estimated cost and loans sanctioned are given in the Pie-Charts below:





### **Future Challenges**

The key rationale for constituting a National Capital Region in 1985 was **to reduce the rate of in-migration into the National Capital as well as to develop the Region at a level comparable to the best such regions in the world.** Thus, the vision of the National Capital Region is to *develop the National Capital and its surrounding areas as a region of global excellence with Delhi centric emphasis to disperse/reduce pressure on the National Capital's infrastructure.*

In order to achieve the above stated vision, the Board since its inception, has been attempting to channelise the flow and direction of economic growth along more balanced and spatially oriented paths, thus trying to provide improved opportunity of employment and quality of life in the complete region so that the immigration to Delhi for these purposes may be controlled. Accordingly, the Board has prepared Regional Plans, 2001 and 2021 along with complementary Functional Plans related to key elements of infrastructure. In order to implement major thrust areas of Regional Plans, the Board is also *arranging for and overseeing the financing of selected development projects* in the National Capital Region through Central grants and contribution from the GNCT of Delhi, by recycling loan repayments and internal accruals. To supplement its resources, the Board has also raised resources from the capital market in the form of Bonds in the past.

The NCR Planning Board has made a positive contribution to overall development of the NCR particularly by financing infrastructure projects in NCR states and CMA towns and thus reducing migration to Delhi and improving the quality of city life. As a result of the Board's efforts, though constrained by limited resources, the net migration from the NCR states to Delhi has declined significantly and at the same time CNCR (Central NCR) towns have witnessed significant growth. In other words, increased employment opportunities are getting created in the NCR towns outside NCTD that has led to reduction in migration to Delhi.

In the 52<sup>nd</sup> Meeting of the National Development Council (NDC) held on 9.12.06, the Chief Ministers of Haryana and Delhi had stressed the need to revisit the concept of the National Capital Region for greater commitment towards implementing the Regional

Plan by the concerned State Governments and for providing liberal assistance for upgrading infrastructure and civic services in the NCR. The Govt. of Delhi, in its 11<sup>th</sup> Plan document has desired that NCRPB should contribute significantly in the development process of Delhi by initiating a number of interstate projects in the NCR in the areas of electricity generation, water supply, sanitation etc. The Planning Commission while reviewing the 11<sup>th</sup> Plan projections of MoUD has also recommended that NCRPB should play a more effective role.

In order to play a more effective role with the ultimate objective of translating the vision of the National Capital Region to develop as a region of global excellence into actual reality on the ground, the NCR Planning Board needs to substantially scale up its operations by undertaking financing of large/mega infrastructural projects in the thrust areas identified in the Regional Plan-2021, which would require huge capital investments and therefore, substantial financial resources would have to be arranged for by the Board through higher budgetary allocations for the NCRPB and by raising funds from other sources viz. multi-lateral funding and capital market. In this regard, the Board has taken following key initiatives:

### **Studies Undertaken**

- (i) Study on Integrated Transportation Plan for NCR including Regional Rapid Transit System:

A Study on "Integrated Transportation Plan for NCR" has been awarded by the NCR Planning Board with the objective to provide accessibility to all the parts of NCR and promote growth and balanced development in the Region by providing efficient and economic Multi-Model Transportation System well integrated with the land use pattern. This study is expected to be completed by January, 2008. Once the study is completed, the multi-modal transportation system including Regional Rapid Transit System would be projectised and implemented for the overall development of the Region.

- (ii) Study on Water Supply and its Management in NCR:

The objective of the Study is to prepare Integrated Water management Plan for the Region which will give a solution to water requirement for NCR focusing on identification of all the potential surface water sources, ground water aquifers, inter basin transfer of water, demand supply gap, leakages in the existing supply systems, etc. and to evolve mechanism for improving the water supply scenario in the region including integrated water management and to prepare technically viable proposals for additional water production, treatment, transmission, distribution, storage and pumping facilities. The Study is expected to be completed by July, 2007.

- (iii) Study on Counter Magnet Area:

The objective of the Study is to review the Counter-Magnet Area Development Strategy including selection of Counter-Magnet Areas as adopted and followed by the Board and to suggest changes in the strategy/evolve alternative strategy of development of Counter-Magnet Areas. The Study is expected to be completed by July, 2007.

- (iv) Study on Development of New Township at Shahjahanpur-Neemrana-Behror in Rajasthan Sub-region

A Study on Formulation of Development Strategy and Action Plan for a New Town- Global City at Shahjahanpur-Neemrana-Behror in Rajasthan Sub-region has been initiated. On the basis of the study Master Plan for the development of this new township will be notified by the Govt. of Rajasthan and further development in the area will be on the basis of this Master Plan.

**Preparation of Functional Plans:** NCR Planning Board has also initiated the preparation of Functional Plans for following sectors:

- (i) **Water:** Based on the outputs of the Study on Water and policies of the Regional Plan-2021, draft Functional Plan on Water will be prepared.
- (ii) **Transport:** Based on the outputs of the Study on Transport, Functional Plan on Transport will be prepared.
- (iii) **Drainage:** Drainage plays an important role in the Region as it has got inter-state bearing. Keeping in this mind, it is proposed to prepare Functional Plan on Drainage which will ultimately help in improving the Regional drainage system in the National Capital Region.
- (iv) **Power:** Power Sector is important for the development of any region and in order to have the continuous supply of power, there is a need to have appropriate Functional Plan of Power which is being prepared in NCR.

The constituent States of NCR Planning Board are preparing the Sub-regional Plans for their respective sub-regions in which GIS based data is being used for a preparation of spatial plan and policies for the development of the Sub-regions.

The foregoing studies would result in technically viable proposals in the area of new townships, integrated water supply and Regional Rapid Transit System for financing during 11<sup>th</sup> plan period besides other identified mega projects for financing during 11<sup>th</sup> Plan period in the area of power generation, 100% sewerage development and road networks. These mega projects would be in addition to the projects the Board would be receiving for financing from the State Governments including GNCTD and their implementing agencies during the 11<sup>th</sup> Plan. The projects identified by the NCR Planning Board for being financed during the 11<sup>th</sup> Plan (2007-12) involve a total outlay of Rs. 15,000 crore. Some of these projects will be taken up in collaboration with other stake-holders. Out of the total projected outlay of projects, it is expected that the loan component will be above Rs. 11,000 crore. Accordingly, the Board had requested for the total budgetary support of Rs. 2986 crore during the 11<sup>th</sup> Plan Period. The balance amount has been proposed to be raised by the NCR Planning Board outside of budgetary inputs from the Central Government and the Government of the NCT of Delhi from multilateral funding institutions (Rs. 4000 crore) and from the capital market through issuance of the Bonds. In order to lend at concessional interest rates, the Board will have to keep its cost of capital low which would require following measures:

- Access to low cost funds to the NCRPB through increased grant, 54 EC Bonds and Non-taxable bonds to keep cost of capital low.
- The Board may be allowed to raise loan/assistance at a concessional rate from multilateral agencies like the World Bank and ADB duly backed by Guarantee from the Central Government. In this regard a request has already been made to Ministry of Urban Development, Ministry of Finance and the Planning Commission.

- The Board may be exempted for paying Income Tax since it is not a profit-making body and is engaged in basic infrastructure development of the NCR. This has also been recommended by the Standing Committee on Urban Development in their Twentieth Report (14<sup>th</sup> Lok Sabha) on Demands for Grants-2007-08.
- The recommendations made by M/o UD to the Planning Commission to allow the NCR Planning Board to release a grant component of 15% to be combined with loans to State Government s/ULB/Development authorities may be approved.

## **1.8 Jawaharlal Nehru National Urban Renewal Mission (JNNURM)**

Consistent with the policies of the present Government, the Prime Minister of India launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) on 3<sup>rd</sup> December, 2005 to give focused attention to integrated development of urban infrastructure and services in select 63 cities with emphasis on provision of basic services to the urban poor including housing, water supply, sanitation, road network, urban transport, development of inner (old) city areas etc. A provision of Rs.50,000 crore is being made available as reform linked Central assistance over the Mission period of seven years beginning from 2005-06. Another Rs. 50,000 crore will come from the States and Urban Local Bodies (ULBs).

The JNNURM follows two track strategy. Track I consists of for integrated development in 63 identified mission cities. Track II consists of UIDSSMT and IHSDP for catering to other cities.

Track I consists of two Sub-Missions: “Urban Infrastructure and Governance” (UIG) under the Ministry of Urban Development and “Basic Services to the Urban Poor” under the Ministry of Urban Employment and Poverty Alleviation.

### **1.8.1 Mission Cities**

The 63 select cities have been classified in three categories.

- |  |    |
|--|----|
| ▪ Cities with 4 million plus population as per 2001 census population                              | 07 |
| ▪ Cities with 1 million plus but less than 4 million population                                    | 28 |
| ▪ Other Cities (culturally and historically significant cities and cities with tourist importance) | 28 |

Objectives of the mission are:-

- Planned development
- Integrated development of infrastructural services
- Effective linkages between asset creation and asset management
- Ensure adequate investment of funds

- Scale up delivery of civic amenities and provision of utilities with emphasis on universal access to the urban poor
- Take up urban renewal programme, i.e., redevelopment of inner (old) cities area to reduce congestion, and
- Provision of basic services to urban poor including security of tenure at affordable prices where possible in situ, improved housing, water supply, sanitation and ensuring delivery of other already existing universal services of the government for education, health and social security.

Provision of additional Central assistance is linked to implementation of certain mandatory as well as optional reforms at the State and ULB/Para - statal levels. Implementation of all mandatory and optional reforms has to be completed during the Mission period. Central assistance is in the form of 100% grant to be funded as Additional Central Assistance (ACA). To avail of the assistance, Cities have to prepare City Development Plans (CDPs) and Detailed Project Reports (DPRs). Also, the State Governments and Urban Local Bodies/Parastatals have to sign Tripartite Memorandum of Agreement (MoA) with Central Government. The MoA should indicate commitments and milestones to be achieved in the implementation of reforms at the State & ULB/Parastatal levels.

Depending upon population, geographical location of the cities and category to which a city belongs, fund is provided as indicated below:-

- (i) 35% / 50% / 80% / 90% of the cost of projects would be funded by Govt, of India through 100% Additional Central Assistance and
- (ii) 65% / 50% / 20% /10% would be funded by the State/ULBs/Financial Institutions.

The funds would be released in four installments. The first installment shall be released on signing of MoA and approval of City Development Plans (CDPs)/Detailed Project Reports (DPRs). Balance will be released in subsequent instalments depending upon achievement of reform/milestones and progress of projects.

### **1.8.2 Non-Mission Cities**

The Ministry of Urban Development has formulated Urban Infrastructure Development Scheme for Small & Medium Towns (UIDSSMT) to cater to towns not covered under the UIG, i.e., cities other the select 63 cities. Urban Infrastructure Development Scheme for Small & Medium Towns (UIDSSMT) aim at improvement in urban infrastructure in all other towns and cities as per 2001 Census (other than the 63 cities identified under JnNURM) in a planned manner, It subsumes the existing schemes viz. Integrated Development of Small and Medium Towns (IDSMT) and Accelerated Urban Water Supply Programme (AUWSP).

The objectives are:

- a) To improve infrastructural facilities and help create durable public assets and quality oriented services in cities & towns,
- b) To enhance public-private-partnership in infrastructural development and

c) To promote planned integrated development of towns and cities.

The components eligible for assistance under the scheme include the following :

- Urban Renewal
  - Water supply & sanitation
  - Sewerage and solid waste management
  - Construction and improvement of drains/storm water drains
  - Construction/upgradation of roads, highways/expressways
  - Parking lots/spaces on public private partnership basis
  - Development of heritage areas
  - Prevention and rehabilitation of soil erosion/land slides
- 
- The sharing of funds would be in the ratio of 80:10 between Central Government and State Government and balance 10% could be raised by the nodal agencies from Financial Institutions.
  - Central assistance (grant) is released directly to the nodal agencies as Additional Central Assistance (ACA)
  - Central share is released in two instalments depending on availability of state share and submission of Utilisation certificate within 12 months of the closure of the financial year.

The provision of Central assistance is linked to implementation of certain mandatory as well as optional reforms at the State and ULB/Para-statal levels. Implementation of all mandatory and optional reforms has to be completed during the Mission period.

## **CHAPTER 3**

### **Urban Planning and Management**

It is a well-known fact that India's urban population is growing rapidly at the rate about 3% per annum. The number of urban agglomerations and towns has increased from 3697 in 1991 to 4369 in 2001. The extent and magnitude of urban population calls for extra efforts to be made by city planners and managers to cope up with the ever growing strain on urban infrastructure. The efficiency of the urban settlements in the country largely depends on how well they are planned; how well they are developed economically and how efficiently they are managed. As such, planning inputs, by and large, govern the efficiency of human settlements. The urban development planning process in the past, besides being unduly time consuming has largely been confined to the detailing of land use aspects. Proper implementation of Master Plans / Development Plans is a critical aspect in the regulated development of cities and towns. Although 1200 Development Plans / Master Plans for important towns and cities have been prepared so far, their implementation has not been satisfactory due to a variety of reasons which in turn have resulted in mushrooming of slums and squatters, unauthorized and haphazard development and above all environmental degradation and transportation problems. It is high time that the city planners and managers should gear up to meet the challenges of the urban planning especially in the era of globalization wherein market forces will be by and large shaping the future of the cities.

#### **3.1 Emerging issues of planning and management**

The 74th Constitutional Amendment Act, 1992, is a historic piece of legislation, which provides for a democratic and participatory planning process so as to incorporate the needs of the people, particularly poor and socially disadvantaged groups, in the planning process. The Act stipulates the setting up of District Planning Committees and Metropolitan Planning Committees for integration of spatial and economic development as well as rural and urban planning. This is in recognition of the need for integrated regional planning with due attention to regional and local infrastructure, environmental conservation and investment planning. In order to effectuate the urban planning process with greater people's participation as envisaged in the Act, the State Governments should take concrete steps to constitute the Metropolitan Planning Committees (MPCs) and District Planning Committees (DPCs). In this connection, Urban Development and Plan Formulation and Implementation Guidelines (UDPFI) brought out by the Ministry of Urban Development are relevant which have, in fact, duly incorporated the provisions of the 74th CAA. The guidelines have been circulated to all the State Governments.

#### **3.2 Approach of the 11<sup>th</sup> Five Year Plan**

In view of the changing scenario and in order to make the urban planning and development process sustainable, it would be appropriate to interlink the planning framework comprising national level spatial strategies, regional level strategy plans, metropolitan region strategy plans, and city and ward level landuse and development plans.

The national spatial strategy should incorporate policies for industrial location and development, employment generation, human settlement pattern and structure and infrastructure development both for rural and urban areas.

The state spatial plans should be prepared by the State Government taking into account demographic and economic potentials, broad landuse configurations, infrastructure requirements, project implementation schedule including mechanism for public-private partnerships.

Each district should prepare District Development Plan, which should integrate the plans for its constituent urban and rural areas as well as the sectoral allocations for various schemes under the purview of existing district agencies.

The Metropolitan Development Plan should be prepared on the basis of plans prepared by Municipalities and Panchayats under the metropolitan area and in the context of overall objectives and priorities set by central and state governments.

For an effective urban planning system, there is a need to have inter-related plans at three levels namely Perspective / Structure Plan (20 –25 years), Short-term Integrated Infrastructure Development Plan (5 years), coterminous with the National Five Year Plans and plans of projects and schemes.

The legal and institutional framework should provide the municipalities with adequate infrastructure and manpower to undertake the preparation of these plans. Further, the process of preparation of development plans should be facilitated by developing urban and regional information system and providing access to remotely sensed data, aerial photographs, Geographic Information System (GIS), etc.

Development Control Norms should be simplified and made user friendly and transparent with the help of digital technology.

Concept of transferable development rights, purchasable development rights, accommodation reservation, land re-adjustment, market based charges for institution and change of landuse, external and internal development charges, and impact fees should be adopted.

Improve the urban environment through creation of basic infrastructure like water supply, sanitation etc. in order to bring down the rate of morbidity and mortality, and financial losses by way of controlling water borne diseases, which will facilitate enhancement of productivity and overall economic development of the country.

Inadequate availability of drinking water, improper treatment of sewage, uncollected solid waste etc. severely affect the quality of life, urban environment and lower the investment climate since India cannot expect to make a favorable impression on foreign investors and international business communities if India's cities / towns appear to be falling behind those in other developing countries. The 11<sup>th</sup> plan aims at tackling all such urban issues with a view to provide safe drinking water and adequate sanitation facilities to the entire urban population leading to improvement in urban environment by the end of 11<sup>th</sup> Plan.

It is proposed to achieve the following coverage targets by the end of the Eleventh Five Year Plan i.e. 31.3.2012

<b>Urban Water Supply</b>	100% population coverage
<b>Urban Sewerage and Sanitation</b>	100% population coverage (which includes 70% population to be provided with sewerage and sewage treatment and 30% population with low cost sanitation, septic tanks etc).
<b>Solid Waste Management</b>	100% population coverage with appropriate Solid Waste Management facilities.
<b>Drainage</b>	100% population coverage to provide comprehensive drainage system in towns / cities wherever needed to help control flooding of urban centres due to rainfall and spread of sewage over streets.

To achieve the above targets of 100% coverage on sustainable basis, the following approach/strategy may be adopted during 11<sup>th</sup> Five Year Plan in different areas of public health.

- Proper strategy for implementation of Programmes
- Mechanism for effective monitoring of project implementation/evaluation benefits.
- Sustainable O & M mechanism for created infrastructure
- Emphasis on information, education and communication (IEC) needs to be stepped up.

In the past, provision of water supply and sanitation services has been deemed as the responsibility of Government/Urban Local Bodies. Due to poor services rendered by ULBs because of resource crunch, people suffer on account of various diseases and loss of man days. Unless, people are made aware of the benefits of safe drinking water supply, sanitation and water conservation they may not be able to effectively contribute towards maintenance and upkeep of the systems. As such, Information, Education and Communication (IEC) are must for creating public awareness.

#### **Conservation of water and efficient utilization of available water supply.**

To reduce the stress on fresh water supply sources, which are diminishing day by day, measures to promote rain water harvesting and artificial recharge of ground water and recycle and reuse of tertiary treated wastewater for non potable uses need to be given due emphasis. Like wise, reduction of unaccounted for water, which is in the range of 20% to 50% of the total flow, would also help in conservation of treated water.

#### **Preservation of drinking water sources/water bodies**

To preserve the fresh surface water sources for drinking and other uses, it is essential that all industries suitably treat their effluents by setting common effluent treatment plants (CETPs) and dispose. Similarly, the ULBs/ municipalities must treat the municipal sewage before discharging it to water bodies. All municipalities need to put in place comprehensive solid waste management system to stop pollution of water bodies around the town. Moreover, indiscriminate use of insecticides and pesticides should be

avoided in and around the water bodies and instead it is advisable to use organic compost/manure to the possible extent.

### **Integrated management of water resources**

The Ministry of Water Resources has brought out comprehensive Report on the National Commission for Integrated Water Resources Development, which contains extensive details of water potential in various regions of the country, its use by various stakeholders, legal and institutional aspects involved in its management. It has been assessed that the requirement of water for domestic use of both urban and rural areas is expected to grow from the present level of about 5% to about 9% by the year 2050. The National Water Policy, April 2002 has assigned overriding priority for drinking water among other uses of available water. Therefore, the States on their part have to formulate State Water Policies on the lines of National Water Policy, 2002 and implement the same in letter and spirit. Likewise, recommendations of the Report of National Commission for Integrated Water Resources Development have to be put to real use in policy / strategy for water resource management

The Ministries of Water Resources and Urban Development should take up a joint study for identifying availability of water in various basins, indicating scarcity zones, surplus water zones, including transfer of water to deficit zones with specific objective to meet the drinking water supply needs of the towns/cities in the future. This would help in ensuring better national water resources planning, consumptive use of surface and ground water and integrated management of water resources at national level.

### **Setting up MIS cells to build data base at national and state level.**

Evolving suitable mechanism to have strong data base for all cities / towns in regard to coverage of urban population with water supply, sewerage, drainage and solid waste management facilities is most essential in the wake of large number infrastructure projects are being considered for sanction and to help planning them realistically for development of this sector.

### **Public Health Engineering training programme**

The area of training under the Ministry of Urban Development's PHE Training Programme needs to be widened, so as to provide requisite training to increase the skills and expertise all the personnel involved in the field of water supply and sanitation sector.

The infrastructure which are being developed by various ULBs / State Departments for drinking water supply, sewerage, sanitation, drainage, SWM under the recently launched JNNURM would require more number of qualified and trained manpower for better planning, designing, implementation and O&M of water supply and sanitation schemes.

### **Research and development**

The Ministry of Urban Development would continue to sponsor research and development study on various applied research subjects / topics in collaboration with leading research institutes in the country. At the same time, on the basis of results

obtained on various applied research subjects, demonstration-cum-pilot plants may also be set up with the help of promising ULBs to demonstrate the technology / process for replication of same in other parts of the country.

### **Role and Involvement of External Support Agencies:**

The assistance from external support agencies like WHO, UNDP, World Bank and bilateral agencies may be allowed to continue on case to case basis when the ULBs / States seek such expertise and assistance.

However, at present, most of the donor agencies take 2-3 years to finalize the project appraisal for funding and project implementation. In light of launching of JNNURM, it becomes essential that the external donor agency cut short their processing/ decision making time to less than a year, so that projects planned under JNNURM may be able to seek the financial and technical support of the external donor agency without hampering the actual progress of project implementation.

### **Convergence of Programmes of Different Ministries of GOI with Similar Objectives**

#### **Linking NRCD projects of M/o E & F with the programme of MOUD**

The Ministry of Urban Development is the nodal Ministry at the Central level for urban water supply and sanitation sector and facilitates the States and ULBs for planning, designing and assisting the State Governments and ULBs in provision of safe water supply, sanitation (sewerage, sewage treatment, low cost sanitation) solid waste management and drainage facilities in urban areas of the country.

M/o Environment and Forests under National River Conservation Plan (NRCP) has been implementing projects for interception and diversion of waste water by laying trunk mains/ pumping waste water along the banks of rivers and construction of sewage treatment plants for treating sewage effluents. Creation of the aforesaid infrastructure is only along the side of river / lakes and do not comprehensively address the sanitation problems in totality. In other words, unless the entire city is provided with sewerage system to enable collection and conveyance and treatment of the wastewater as well as effective solid waste management, pollution control cannot be achieved by implementation of mere interception and diversion projects as being done by the NRCD at present.

Under the JNNURM, a holistic approach is being adopted to provide basic amenities such as water supply, sewerage, sewage treatment, low cost sanitation, solid waste management and drainage and urban environment improvement on a "whole town basis", which will help significantly reduce the pollution load in the water bodies and land.

Under the circumstances, it appears that programmes operated by Ministry of Environment & Forests through NRCD may be conveniently merged with JNNURM of the Ministry of UD to provide better solution to the problem of pollution control as well as provision of basic services in all the cities and towns of the country.

With the launching of JNNURM, the towns on the banks of rivers/ lakes may be prioritized, and comprehensive sewerage system, low cost sanitation and solid waste

management system may be planned and executed for each town / city, so as to control river / lake pollution problem indifferent parts of the country.

### **Linking Of Budget Provisions of Ministry of Urban Development and Ministry Of DONER Meant For North Eastern States and Sikkim with JNNURM.**

The 10% lump sum pool of resources of Ministry of Urban Development and Non Lapsable Central Pool of Resources (NLCPR) under Ministry of DoNER meant for North Eastern States and Sikkim, which provides funding for creation of urban infrastructure including water supply, sewerage, drainage and solid waste management on the same pattern of funding as that of JNNURM i.e. 90:10 basis. These programmes may be integrated with JNNURM so that duplicity in implementing the projects with different Ministries may be avoided and the States can adhere to implementing projects based on City Development Plans.

### **Appropriate Low Cost and Affordable Technology Options in Water Supply, Sewerage and Solid Waste Management**

Emphasis should be given on low cost technology options with less power dependent and minimal O&M requirements suitable to Indian environment for water supply and treatment, sewerage and sewage treatment and solid waste management. To provide necessary guidance to public health engineers across the country, CPHEEO has prepared and published the following Manuals, which are technical guide books for the help of field engineers:

1. Manual on Water Supply & Treatment, Third Edition, Revised-updated, May 1999.
2. Manual on Sewerage & Sewage Treatment, Second Edition, 1993.
3. Manual on Municipal Solid Waste Management, 2000.
4. Manual on Operation and Maintenance of Water Supply systems, 2005.

Besides, emerging options like desalination technology for water treatment for drinking, low cost options for sewage treatment like decentralized sewage treatment and package treatment for housing complexes, Fluidised Aerobic Biological Reactor (FAB) and C-TECH (Sequential Batch Reactor) processes for sewage treatment etc. should also be explored for their adoption.

A range of low cost sanitation technologies, which can be mainly found in rural and low-income urban areas, have been listed below. They can be managed by either individuals or communities.

#### **Wet systems**

- *Pour-flush latrine with leaching pits*
- *Septic tank and aqua privy*

#### **Pit emptying techniques**

- *Vacuum tanker*
- *Manual latrine-pit emptying technology (MAPET)*

## **Liquid effluent disposal systems**

- *Soakaway*
- *Drainage field*
- *Small bore sewerage*

In case of solid waste management the treatment options like vermin-composting, aerobic composting and sanitary landfilling etc. should be adopted conforming to solid waste management (handling) rules 2000.

The report of Technology Advisory Group (TAG) on solid waste management has suggested cost effective treatment options in Indian condition. Further, the Inter-Ministerial Task Force report brought out by M/o urban development on “Integrated Plant Nutrient Management using city compost” provides guidance on composting of municipal solid waste.

### **Urban Environment:**

- About 80% of the diseases are caused by problems relating to poor quality of water supply, inadequate sanitation, drainage, solid waste management. Children, especially infants, are most vulnerable to environmental degradation.
- Municipal Bye-laws need to be suitably amended with necessary penal clauses and enforced effectively to stop open defecation, indiscriminate throwing of garbage/litter in public places, which is the main source of contamination of water bodies and spread of diseases. Adequate sanitation facilities need be provided to the areas prone to open defecation.
- Today, cities and towns in the developing world are exposed to water pollution and problems relate to inadequate liquid and solid waste disposal. Indiscriminate discharge of domestic and industrial waste water has seriously polluted most water resources.
- Proper sanitation is a necessary condition for improvement in general health standards, productivity of labour force, and better quality of life. However, as a matter of priority in the past, water supply has received greater attention compared to sanitation. Consequence of the relative neglect of sanitation has been degradation of environment and serious health impact from water borne and vector borne infections. It is necessary that the problem of water supply and sanitation (including sewerage, low cost sanitation, waste water treatment, and solid waste management) are addressed simultaneously to improve overall environment.

### **3.3 Role of IT in efficient Governance, Provision and management of Urban Services etc.**

With the use of modern technology there have been perceptible changes in urban governance. The advent of digital technology coupled with the availability of various modes of fast communication like Internet, intranet, cellular phones and menu-based softwares have revolutionized the concept of governance. There has also been change in the outlook of administrators and policy makers in adopting the latest technology and go for paperless work and make governance more citizen friendly. Realizing the importance of the changing scenario in the era of globalization and

economic liberalization there is a need to focus on the concept of e-Governance in relation to the field of urban development.

e-Governance is not merely a government website on the Internet. It can simply be defined as the structure and processes that encompass all forms of electronic interaction between the government and the citizens. *In a broader sense we can say that it represents the strategic and systematic use of modern information and communication technology by a government to improve the efficiency, transparency and accountability in its functioning and interface with citizens.* Over the last several years, governments have increasingly been using technology to redesign business processes, restructure departments and programs, and change the way they plan and manage their affairs, deliver their services and interact with various stakeholders.

In fact both Central and the State Governments are adopting modern technology to become increasingly responsive to stakeholders such as citizens, vendors and various interest groups who want more efficient service delivery and greater access to information on the functioning of the governments. In August 2002, the Government of India announced that it would implement a comprehensive programme to accelerate E-governance at all levels of the government to improve efficiency, transparency and accountability at the government-citizen interface. As an initial step, the Prime Minister's Office has set up a high-powered Task Force on IT and Software Development.

Subsequently, the Government of India approved the *National e-Governance Action Plan for implementation during 2003-2007*. The Plan seeks to lay the foundation and provide impetus for long-term growth of e-Governance within the country.

It aims to create the appropriate governance and institutional mechanisms, define policies and set up the core infrastructure and to implement a number of Mission Mode Projects at the Centre, State and integrated service levels to create citizen-centric and business-centric environment for good governance. The National e-Governance Action Plan has identified formulation of various Mission Mode Projects in e-Governance, including one for Municipalities under the responsibility of the Ministry of Urban Development.

### **Management Information System**

The Planning Commission had made budgetary provision in the Ministry's budget for MIS right from the 7<sup>th</sup> Five Year Plan including the 10<sup>th</sup> Plan in order to have a strong database for planning, taking policy decisions and mid-course corrections, collection of information on urban water supply and sanitation sector. However, exclusive MIS cells at the Central and State levels could not materialize. To collect & disseminate information in an effective way, it is essential that MoUD provides financial support for creation of MIS cells for collection of data in urban water supply and sanitation sector.

However, the CPHEEO, MOUD has initiated action for creation of 'CPHEEO WEBSITE' which provides a platform for data collection and information exchange through electronic media.

### **3.4 Application of GIS in spatial planning, property management etc.**

Planning and management of urban centers needs quicker reactions to the ground truth. As such planning policies and decisions should match to the ground truth

and not on static information base. One of the prime requirements of such a planning process is the information supply to meet the challenging task to identify planning problems, preparation of plans and implementation. All these three stages are of either long-term strategic nature or short-term action plan. Traditional information back-up of planning department are paper based with wide gap between the ground and paper, and it takes lot of efforts in terms of time and cost to update the information. Geographic Information System (GIS) is a vehicle through which planners can be backed with geographical and attribute data for analysis and decision making process with fast update and analysis.

Property tax is a vital source of income for the cities in developing countries. Determination of tax on a property requires truthful information about the property structure, location, ownership, condition, size, and its use. This research is an effort to investigate the existing property taxation system with an objective to suggest a GIS-based system. In the existing system traditional methods are being followed and tax is being calculated manually. There are strong possibilities and practices to assess a property according to desires of the taxpayer, not following the laws of Property Taxation. Crosscheck is hardly fruitful. Therefore, Existing Property Taxation System (EPTS) gives a way to many possibilities for unlawful tasks like corruption, tax defaulting, etc. Using GIS functionalities, Property Taxation Information System (PTIS) has been developed, which provides spatial and non-spatial background information of each property. Business Processes are identified in detail to devise a comprehensive data model system. By the implementation of PTIS, various illegal ways will be reduced significantly. Earlier there was no evidence in the property taxation record for exact property location in the rating area and their condition and structure. PTIS is designed to automatically calculate the tax due on a property by just putting raw data. The system has also capability to generate tax recovery information when required so as to keep a check on tax defaulters. Further, PTIS provides opportunities to perform various analyses on the spatial data and attribute data to provide a base for decision-making and future planning.

Geographic Information System (GIS) and Remote-sensing (RS) technologies are essential tools that facilitate the spatial decision-making process. Map making and geographic analysis are not new, but a GIS performs these tasks faster and with more sophistication than traditional manual methods do. Without owning the individual software, the Internet GIS technology has opened new paths for disseminating, sharing, displaying, and processing spatial information on the Internet. Web-based solutions provide a low-cost, efficient way to deliver map products to users. The urban planning and information system is a step towards web-GIS based solution, which is certainly helping public in a big way. The utility departments of Municipal Corporations are encouraged to view maps and data using a PC sitting comfortably in their ward offices thereby not visiting head offices as often they did earlier. Fire and Health departments find it useful during emergency services since all information is brought around the hot spots with the click of a button. The most beneficial amongst all departments are the roads and building and town planning. The search for maps and documents seems to be over. Where hours are counted to locate maps, now that uncertainty is over. Overall the department officers find the system too much beneficial. The future of this system lies in sharing the information with the public and all ULBs and the world via www.

The Ministry of Water Resources does not have city-wise data as of now. Therefore, efforts should be made by the Ministry of Water Resources (CWC, CGWB) and the State Governments, to generate reliable town-wise data on availability of ground water, surface water, water quality status and requirement of water for drinking

and allied use for next 30-50 years, on GIS platform. This would help in analyzing the reliability and availability of source and better formulation of project proposals.

The Ministries of Water Resources and Urban Development should take up this exercise as a joint study for identifying availability of water in various basins, indicating scarcity zones, surplus water zones, including transfer of water to deficit zones. This would help in ensuring better national water resources planning, consumptive use of surface and ground water and integrated management of water resources at national level.

## CHAPTER 4

### Municipal Governance and Reforms

#### 4.1 74<sup>th</sup> Constitutional Amendment

Towns and cities contribute substantially to the economic development of the country. These urban centres also play an important support role in the development of rural hinterland. To keep this economic transformation in line with needs and realities at the grassroots level, it is necessary that the people and their representatives are fully involved in the planning and implementation of the programmes at local level. If democracy in Parliament and the State Legislatures is to remain strong and stable, its roots must reach towns and villages and the cities where the people live.

2. The Constitution of India has made detailed provisions for ensuring protection of democracy in Parliament and in the State Legislatures. Hence, democracy in these institutions has survived and flourished. However, the Constitution did not make Local Self Government in urban areas a clear-cut Constitutional obligation. While the Directive Principles of State Policy refer to Village Panchayats, there is no specific reference to municipalities except implicitly in Entry-5 of the State List, which places the subject of Local Self Government as a responsibility of the State. Entry-5 reads as under:-

“Local Government, that is to say, the constitution and powers of municipal corporations, improvement trusts, district boards, mining settlement authorities and other local authorities for the purpose of local self-Government or village administration.”

As a consequence of inadequate Constitutional provision for Local Self Government, democracy in municipal governance was not stable. Though the respective municipal acts of the States provided for regular elections to municipal bodies, they were frequently suspended and superseded for indefinite periods of time. Frequent and indefinite suspensions or supersessions eroded the very basis of local self-government and had a negative effect on democracy at the grassroots level. The general position with regard to financial resources of the municipal bodies was also not satisfactory. Over the years, there was a steady encroachment on the assigned functions and revenues of Urban Local Bodies by specialized agencies of the State Governments. As a result, many urban local bodies became weak and were not able to perform effectively. The weakened status of Urban Local Bodies crystallized public opinion in favour of need for a Constitutional guarantee to safeguard the interests of urban local bodies in order to provide for

- Regular and fair conduct of elections to these bodies
- Holding of elections within a specified time limit in case of supersession
- Adequate representation of SC/ST and women in the elected bodies
- Placing on firm footing the relationship between the State Governments and the urban local bodies with respect to:
  - functions and taxation powers of the urban local bodies
  - arrangement for revenue sharing between the State Government and the urban local bodies.
- Involvement of elected representatives at grassroots level in planning at the district and metropolitan levels.

3. Accordingly, the Constitution (73<sup>rd</sup> Amendment) Bill was introduced in the Parliament in 1991, which was referred to the Joint Parliamentary Committee with Members from both Lok Sabha and Rajya Sabha for consideration. The Committee held several sittings and also took oral evidence and written comments from various organisations and individuals. The Committee had the opportunity of visiting various municipalities and held detailed discussions with their officers and elected representatives as well as with several State Governments. This was probably the first time that the Parliamentary Committee had deliberated so extensively on a legislation concerning local self-government.

4. The Bill as reported by the Joint Parliamentary Committee was taken up for consideration and passed by the Lok Sabha on 22<sup>nd</sup> December, 1992 and by the Rajya Sabha on 23<sup>rd</sup> December, 1992 and it received the assent of President on 20<sup>th</sup> April, 1993. It was published in the Government Gazette on 20<sup>th</sup> April, 1993 as the "Constitution (Seventy Forth Amendment) Act, 1992".

5. The above Constitution Amendment Act came into force on 1<sup>st</sup> June, 1993,

#### **4.1.1 Involvement of community and elected representatives in decision Making and implementaiton**

The Constitution (Seventy Forth Amendment) Act, 1992 has introduced a new part namely, Part IXA in the Constitution, which deals with the issues relating to municipalities. The main provisions introduced by the above Act are as under:-

- (i) **Constitution of Municipalities-** It provides for constitution of 3 types of municipalities depending upon the size and area namely (i) Nagar Panchayat for an area in transition from rural to urban area; (ii) Municipal Council for smaller urban area; and (iii) Municipal Corporation for larger urban area. Demographic and other conditions, which are determining factors for constituting a particular type of municipality differ a great deal from one State to another. It has, therefore, been left to the State Legislatures to decide which specific type of municipality will be constituted for particular urban area.
- (ii) **Composition of Municipalities-** The seats shall be filled by direct elections. Besides the seats filled by direct elections, some seats may be filled by nomination of persons having special knowledge and experience in municipal administration. Persons so nominated shall not have the right to vote in the meetings of the municipality. The Legislature of a State may, by law, also provide for the representation in a municipality of members of the House of the People and the members of the Legislative Assembly of the State representing constituencies which comprise wholly or partly the Municipal area and also the Members of the Council of States and the members of the Legislative Council of the State registered as electors within the municipal area. The manner of election of Chairpersons of municipalities has been left to be specified by the State Legislature.
- (iii) **Constitution of Wards Committees-** This provides for constitution of Ward Committees in all municipalities with a population of 3 lakh or more.
- (iv) **Reservation of seats-** In order to provide for adequate representation of SC/ST and of women in the municipal bodies, provisions have been made for

reservation of seats. The proportion of seats to be reserved for SC/ST to the total number of seats shall be same as the proportion of the population of SC/ST in the municipal area. The reservation would be made in respect of seats to be filled by direct elections only. Not less than one-third of the total number of seats reserved for SC/ST shall be reserved for women belonging to SC/ST. This is a mandatory provision. In respect of women, the seats shall be reserved to the extent of not less than one-third of the total number of seats. This includes seats reserved for women belonging to SC/ST. These reservations will apply for direct elections only. This is also a mandatory provision. There will be no bar on State Legislatures from making provisions for reservation of seats in any municipality or office of Chairperson in the municipalities in favour of backward class of citizens. This is an optional provision.

- (v) **Duration of Municipalities-** The municipality has a fixed term of 5 years from the date appointed for its first meeting. Elections to constitute a municipality are required to be completed before the expiration of the duration of the municipality. If the municipality is dissolved before the expiry of 5 years, the elections for constituting a new municipality are required to be completed within a period of 6 months from the date of its dissolution.
- (vi) **Powers and Functions of the Municipalities-** All municipalities would be empowered with such powers and responsibilities as may be necessary to enable them to function as effective institutions of self-government. The State Legislature may, by law, specify what powers and responsibilities would be given to the municipalities in respect of preparation of plans for economic development and social justice and for implementation of schemes as may be entrusted to them. An illustrative list of functions that may be entrusted to the municipalities has been incorporated as the Twelfth Schedule of the Constitution.
- (vii) **Finances of Municipalities-** It has been left to the Legislature of a State to specify by law matters relating to imposition of taxes. Such law may specify:
- Taxes, duties, fees, etc. which could be levied and collected by the Municipalities, as per the procedure to be laid down in the State law
  - Taxes, duties, fees, etc. which would be levied and collected by the State Government and a share passed on to the Municipalities
  - Grant-in-aid that would be given to the Municipalities from the State
  - Constitution of funds for crediting and withdrawal of moneys by the Municipality.
- (viii) **Finance Commission-** The Finance Commission constituted under Article 243-I to review the financial positions of Panchayati Raj Institutions shall also review the financial position of the municipalities and will make recommendations to the Governor.

The recommendations of the Finance Commission will cover the following:

- Distribution between the State Government and Municipalities of the net proceeds of the taxes, duties, tolls and fees leviable by the State

- Allocation of share of such proceeds between the Municipalities at all levels in the State
  - Determination of taxes, duties, tolls and fees to be assigned or appropriated by the Municipalities
  - Grants-in-aid to Municipalities from the Consolidated Fund of the State
  - Measures needed to improve the financial position of the Municipalities.
- (ix) **Elections to Municipalities**- The superintendence, direction and control of the preparation of the electoral rolls for, and the conduct of, all elections to the panchayats and municipalities shall be vested in the State Election Commissions.
- (x) **Audit and Accounts**- The maintenance of the accounts of the municipalities and other audit shall be done in accordance with the provisions in the State law. The State Legislatures will be free to make appropriate provisions in this regard depending upon the local needs and institutional framework available for this purpose.
- (xi) **Committee for District Planning**- Planning and allocation of resources at the district level for the Panchayati Raj institutions are normally to be done by the Zilla Parishad. With regard to urban areas, municipal bodies discharge these functions within their respective jurisdictions. However, some important questions may arise, which would concern the urban-rural interface, and it may be necessary to take an overall view with regard to development of the district as a whole and decide on allocation of investments between the rural and urban institutions.

Provision has, therefore, been made for the constitution of a Planning Committee at the district level with a view to consolidating the plans prepared by the Panchayats and the Municipalities and preparing a development plan for the district as a whole.

The District Planning Committee in preparing the Draft Development Plan shall have regard to:

- Matter of common interest between the Panchayats and the Municipalities including spatial planning
- Sharing of water and other physical and natural resources
- Integrated development of infrastructure and environment conservation
- Extent and type of available resources, whether financial or otherwise.

The Draft District Development Plan so prepared and recommended by the District Planning Committee shall be forwarded by the Chairperson of the Committee to the State Government.

- (xii) **Metropolitan Planning Committees**- It is provided in the Act that in every Metropolitan area (with a population of 10 lakhs or more), a Metropolitan Planning Committee shall be constituted for preparing a draft development plan for the metropolitan area as a whole.

The Metropolitan Planning Committee shall take into account the following for preparation of the Draft Development Plan:

- Plan prepared by the Municipalities and the Panchayats in the metropolitan area
- Matter of common interest between the Municipalities and Panchayats including coordinated spatial plans of the area
- Sharing of water and other physical and natural resources
- Integrated development of infrastructure and environmental conservation
- Overall objectives and priorities set by the Government of India and the State Government
- Extent and nature of investments likely to be made in the metropolitan area by agencies of the Government
- Other available resources, financial and otherwise.

2. In terms of Article 243ZC of the Constitution, nothing in Part IXA shall apply to Scheduled areas and Tribal areas as referred to in Article 244 of the Constitution. However, Parliament may by law, extend the provisions of Part IXA to these areas subject to such exceptions and modifications as may be specified in that law.

### **Implementation of Part IXA**

3. In order to provide time to allow changes to be made in the then existing laws which were inconsistent with the provisions of the Constitution (74<sup>th</sup> Amendment) Act, a transition period of one year was provided for. Immediately after the Constitution (74<sup>th</sup> Amendment) Act came into force on 1<sup>st</sup> June, 1993, the Ministry of Urban Development took necessary steps to ensure that the provisions of the State Municipal Laws are brought in conformity with the provisions of the above Act. As a result of various steps taken up by the Ministry of Urban Development through correspondence and also organising meetings of the State level Secretaries, the State Governments brought in place the conformity legislations by target date i.e. 31<sup>st</sup> May, 1994.

4. The amended State municipal laws provide for detailed provisions for constitution and composition of municipalities, reservation of seats for SC/ST and women, fixed term of 5 years and re-election of municipalities within a period of 6 months in case of dissolution, functions and financial powers of municipalities, setting up of State Finance Commission etc.

5. The Ministry of Urban Development is in constant touch with the State Governments to ensure that the provisions of the Constitution (74<sup>th</sup> Amendment) Act are implemented in letter and spirit.

6. At present the Ministry is implementing Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Under the Mission, it is conditional for the State Govts. and the ULBs to effect certain reforms for availing of Central assistance. The Model Municipal Law (MML) circulated by the Ministry in October, 2003 is based on the provisions of the Constitution (74<sup>th</sup> Amendment) Act and has included innovative approach of involvement of private sector in delivery of municipal services, fixation of user charges, provision of enhanced borrowing, adoption of Double Entry Accounting System etc.

### **4.2 State Finance Commission**

As per the provision of sub-clause (a) of clause (1) of Article 243-1 and sub-clause (a) of clause (1) of Article 243-Y of the Constitution, the State Governments are empowered to constitute State Finance Commission. All the states, which are not

exempted under the Act, had constituted First State Finance Commission immediately after the enactment of 74th Constitution Amendment Act. The second State Finance Commissions were also constituted by the concerned State Governments after the expiry of the term of the First Commission. As per the information available, the states of Andhra Pradesh, Haryana, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, Chandigarh, Lakshadweep have also constituted Third State Finance Commission. The Commissions have been reviewing the financial position of the rural and urban local bodies and suggesting ways and means to devolve the finances by the State Governments upon Urban Local Bodies. However, estimating the resource gap and absence of expenditure norms for various services are the important areas which need to be addressed by the commission while devolving funds to the ULBs so as to put them on firm grounds.

#### **4.3 Implementation of reforms agenda**

Mandatory and optional reforms included under JNNURM are being implemented by the State Governments and ULBs as per the Guidelines. Majority of states have signed Memorandum of Agreement under JNNURM and 16 states have signed Memorandum of Agreement under UIDSSMT to implement the mandatory and optional reforms in a phased manner. In addition, other reforms are also being pursued with the State Governments and Urban Local Bodies such as regulatory framework indicating participation of private sector in financing and delivery of infrastructure at the municipal level. In this regard, guidelines are required to be developed at the national level to ensure consistency across the country. A modal legislation to facilitate private sector participation in urban infrastructure is also required to be finalized. Municipalities are being pursued to adopt National Municipal Accounting Manual so that accounting procedures and financial reporting are followed in right perspective to improve the financial position of ULBs. The Guidelines prepared for Public-Private Participation (PPP) provide support to municipalities in designing the PPP process. Under fiscal incentives guidelines issued for Foreign Direct Investment (FDI), envisage FDI in development of integrated townships including housing and building material. Procedural difficulties need to be sorted out. As regard external assistance, the need is to adopt a 'programme approach' rather than the 'project approach' for availing external assistance for urban infrastructure and projects. In the Eleventh Plan, efforts should be to strengthen the mechanism for implementation of Urban Reform Agenda and operationalisation of new scheme on Pooled Finance Development Fund (PFDF) initiated by the Ministry.

#### **4.4 Skill upgradation and capacity building of ULBs.**

The need for improving the functional efficiency of Urban Local Bodies has acquired greater importance after 74<sup>th</sup> Constitution Amendment Act, which has devolved additional functions, and the recently launched JNNURM. The JNNURM is a significant move to improve the urban infrastructure, but comprehensive planning and effective monitoring are essential to take this scheme successfully to its logical conclusion. The objectives of 74<sup>th</sup> Constitution Amendment and the JNNURM scheme cannot be achieved, unless the ULBs have highly skilled manpower to undertake the various additional tasks entrusted to them. At present, many of the ULBs have only one or two engineers for preparing projects and almost no town planner for preparing City Development Plan, Project Reports, etc.

The skill of municipal engineers has to be upgraded by exposing them to best practices in various areas and giving them in-service training to enable them to adopt

these best practices. If the municipal engineers are given intensive in-service training, they may become innovative. Not only the engineering personnel need to be trained, but the personnel in other areas such as administration, accounts, public health, etc., also have to be given intensive training to upgrade their skills. All the personnel of ULBs have to be trained in public – dealing so that they consider them as facilitators and provide efficient and committed service to the people.

#### **4.5 e-Governance in Municipalities – Transparency, Right to Information**

Over the last several years many governments worldwide have launched major initiatives in information technology and its tools to improve the functioning of government. The emphasis has been on providing better services to citizens in improving internal efficiency and effectiveness. The Government of India approved the National e-Governance Action Plan for implementation during 2003-07. The Plan seeks to lay the foundation and provide the impetus for longer-term growth of e-Governance within the country.

The National e-Governance Plan which includes a number of Mission Mode Projects on e-Governance have been approved by Government of India in 2006. Ministry of Urban Development is concerned with preparation and implementation of one of these Mission Mode Projects, i.e. Mission Mode Project on e-Governance in municipalities.

The objective of the Mission Mode Project on e-Governance in Municipalities is to improve the efficiency and effectiveness in (1) the interaction between local government and its citizens and other interest groups (i.e. NGOs, CBOs, RWAs, private sector, etc); and (2) internal government operations to support and stimulate good governance.

This Ministry proposes to cover the following services/management functions, being performed by municipal bodies in the first phase of MMP:

- Registration and Issue of Births/Deaths Certificate
- Payment of Property Tax, Utility Bills
- Grievances and Suggestions
- Building Approvals
- Procurement and Monitoring of Projects
- Health Programs
- Accounting System
- Personnel Information System

The stakeholders and the benefits to be derived from the implementation of this MMP are as follows:

<b>Sl.No.</b>	<b>Stakeholders</b>	<b>Benefits</b>
1.	Citizens	Making information available in open domain, easy access to municipal services, hassle free payment of taxes and user charges, quick redressal of grievances
2.	Business establishments other than companies	Easy access to municipal services, hassle free payment of taxes and user charges
3.	Regulatory Agencies	Development of regulatory mechanism in the provision of services

4.	Bank and Financial Institution	Access to information for investment decisions and project development
5.	Foreign Direct Investors	Improved information for investment decisions
6.	Research Organizations and Academics	Improved information for urban sector research and policy making
7.	Other departments	Improved information for planning of their activities
8.	Employees	Improved efficiency
9.	IT Service Providers	Partnership with municipal bodies in the provision of services

The National Mission Mode Project on e-Governance in Municipalities Scheme 2005 is to be considered as part of the Eleventh Five-Year Plan.

This Ministry has appointed Joint Secretary (UD) as the Mission Leader for the above Project. The Ministry has also constituted an Implementation Committee under the chairmanship of Secretary (UD) for monitoring the implementation of the e-Governance Project.

An estimated cost of Rs.787 crore would be spent for implementation of the project. The share of the Central Government in the total cost would be Rs.676 crore. Under this Scheme, nodal agencies in the State would be released grants in instalments for implementation of project. The project will be implemented in all the 423 cities/towns during a period of five years from 2006-07 to 2010-11. However, the States would be provided annual maintenance grants for two years after commissioning the project. Hence, grants will be released to the States till 2012-2013.

#### **4.6 Professional entities for Basic Service Delivery**

Urban Governance and management have, over the years, been the domain of State Governments which changed significantly after the enactment of 74th Constitution Amendment Act. Although ULBs have been recognized as important third tier of government, the authority, powers and functions are to be devolved upon them through state legislative enactment. As part of Urban Reform Agenda included under JNNURM, functions listed out in Twelfth Schedule attached to 74<sup>th</sup> Constitution Amendment Act are to be assigned to ULBs within the Mission period of seven years. The local institutions are not strong enough to provide, operate and maintain the basic services with their available capacity and resources. As such, over the years, parastatal agencies like Public Health Department, Jal Board, Electricity Agencies and Urban Development Authorities, etc., have been created to deal with the delivery of basic services. Since the municipal bodies are the important democratic institutions, they should be strengthened with funds, functions and functionaries. The functions and the services which have been withdrawn from the municipal bodies should be restored to them and the creation of new organizations should be discouraged. The existing parastatals and Development Authorities could be merged with the ULBs as their undertakings.

#### **4.7 Independent Regulatory Institutions**

Urban Local Bodies are the third tier of Government at local level. These bodies, being elected bodies, are subject to political interference. The local bodies have to be freed from political interference in their day-to-day functioning and also given some autonomy with regard to imposition of taxes, fees, etc. However, a complete autonomy for local bodies may lead to problems where inter-sectoral interests are at cross purpose. What is required is to give them more autonomy within certain framework and create an independent regulatory institution at the state level to ensure that the Urban Local Bodies operate with autonomy but within the framework decided by the independent regulatory institution.

The independent regulatory institution can decide the parameters such as framing minimum and maximum limits for various types of local taxes, fees, user charges, etc., the maximum proportion of administrative expenditure, the staff requirement, etc. The accounting system to be followed, the common format in which the budget of the local body has to be prepared etc., can be indicated / decided by the independent regulatory institution. Setting up the regulatory institution can go a long way in improving the performance of local bodies in delivery of civic services to people.

#### **4.8 Preparation of Operating Manual for ULBs.**

Municipal functions are governed under Municipal Acts. Some of them are mandatory. The independent regulatory institution can be entrusted with the responsibility of preparing operating manuals relating to various services being provided by the Urban Local Bodies. These manuals can prescribe the norms and standards for the services being provided by the ULBs. In order to ensure quality control, the manuals can lay down standards for each and every material that is being used for creation of various assets. The quality of bricks, cement, coal tar, steel, electrical wires, electrical fittings, sewerage and drainage pipes, concrete and so on, as per specifications of National Building Code suiting to the local requirements can be laid down in these manuals. The operating manuals can definitely improve the quality of assets that are being created by the ULBs. Operating manuals need not be only for engineering aspects but can cover the whole gamut of services in which the ULBs are involved.

## **CHAPTER 5**

### **Municipal Finance**

#### **5.1 Broad basing ULBs Revenue from own sources**

Investment requirements for urban infrastructure and services is huge while financial and managerial capacity of municipal governments in this regard is not commensurate. Resource generation in the municipal bodies is not picking up in proportion to the increasing functional domain which may even be widened as envisaged in 74<sup>th</sup> Constitution Amendment Act (CAA). It calls for strengthening of urban local bodies both financially and managerially to face the urban management and development challenges. The State Finance Commissions have also recommended the modalities and the extent of financial devolution to enable the local bodies to perform their tasks adequately and efficiently. Local bodies generally suffer from poor administration of property taxes, inelasticity of most of the tax revenues (except octroi), poor cost recovery of the services rendered, mismatch between functions and sources of revenue devolved upon them; inadequate grants-in-aid, defective tax sharing principles, lack of access to financial institutions, insufficient resource mobilization and effective use of available manpower and equipments to improve the delivery of services. Prudent financial management is, therefore, essential, particularly in the context of fiscal constraints.

#### **5.2 Evolve alternative ways to augment Municipal Resources**

Almost all the municipal bodies face paucity of funds and, therefore, shortage of funds is a major bottleneck in providing satisfactory civic services to the people. The first and the foremost requirement for improving the performance of local bodies is to improve their financial position. The 74<sup>th</sup> Constitution Amendment Act have given additional responsibilities to the local bodies, and unless the local bodies and the central and state governments take effective measures to strengthen the financial position of the local bodies, the local bodies may not be able to shoulder the additional responsibilities.

##### **User charges / fees**

For a ULB to have a sound financial position, user charges / fees should be related to the cost of maintenance/operation and the total expenditure incurred on the creation of asset. In any case, user charges should be enough to cover at least the cost of maintenance.

##### **Administrative expenditure**

Administrative expenditure of ULBs should be drastically reduced and modern management practices, including e-Governance, should be adopted by all the ULBs.

##### **Public Private Partnerships**

Whatever measures may be taken to strengthen the financial position of local bodies, they may still face shortage of funds and may not be in a position to provide satisfactory

civic services as there is no infusion of efficiency and injection of market fund to improve service delivery.

Public-private partnerships should, therefore, be encouraged in all the areas / functions of ULBs. Areas which are amenable to private sector participation should be identified and taken up for private sector participation. Solid waste management has already become a remunerative sector and the private sector is already participating in some of the towns in a big way.

### **Property Tax**

Property tax should be based on unit-area method and not on the cost of the property, in all the states. This would go a long way in eliminating legal cases and litigation relating to property tax. This would also give relief to the property owners from harassment of property tax Inspectors.

### **Training in Financial Management**

All the officers and staff of ULBs should be given adequate training highlighting the need for better financial management.

### **Land as a resource**

Land is a very good resource to generate revenue for the local bodies. This should be exploited by the ULBs, wherever possible.

### **Tax Rates**

Tax rates of ULBs should not be so high that it becomes a burden on the people; but at the same time, it should not be very low also, as it would bring only negligible revenue to the ULBs.

### **New Levies**

New levies / cess can be thought of by the ULBs to increase revenue such as drainage fee, parking fee, vacant land tax, development impact fee etc.

### **Municipal Bonds**

In order to improve the financial position, the municipal bodies need to be vested with powers to raise funds through municipal bonds

### **Loans from Financial Institutions**

The other measures required to strengthen the financial health of the local bodies are assisting them through loans from financial institutions.

### **Budgetary Support**

There are many cities and towns which have a very weak economic-base and these towns may not be in a position to raise much resource through their own sources such as taxes, user charges, fees etc. The local bodies of such "weak" towns and cities will

have to be supported by central and the state governments to enable them to improve the quantity and quality of services being provided by them.

### **5.3 Cost efficiency and productive use of resources**

Almost every ULB in the country has resource crunch. It is, therefore, obvious that the ULBs should use their resources productively and effectively to tackle the problem of shortage of funds. Land, available with the local bodies, should be judiciously used to generate revenues. Whenever any new project has to be undertaken, cost-benefit analysis of every alternative has to be carefully done to identify the alternative which is not only cost-efficient, but also qualitatively, the most desirable. Administrative expenditure in any project, should be kept to the minimum. Projects, which involve huge expenditure on land acquisition, should be taken up with due consideration to economic and social cost and benefit. Projects being carried out by contractors have to be carefully supervised and maintained to ensure quality and timely completion. Cost over-runs in projects due to delay caused by contractors, should be borne by the contractors by including penalty clause in the contract. If the ULBs find that some of the services being provided by them can be contracted out and provided at much cheaper rates, then such services can be provided through private sector participation.

### **5.4 Changing Role for the State and ULBs**

The management and governance of urban areas is fragmented between different state level agencies and ULBs without any mechanism for coordination. The provision of 74th Constitution Amendment Act in respect of District Planning Committee (DPC) and Metropolitan Planning Committee (MPC) has not been implemented in most of the states which has also caused confusion in the allocation of functional responsibilities. The Ministry of Urban Development formulated and circulated a set of guidelines related to Model Municipal Act. However, clear-cut delineation of functional domain is yet to be worked out. In the Eleventh Plan, emphasis should be laid on the provisions of the 74<sup>th</sup> Constitution Amendment Act while deciding the functional jurisdiction of ULBs. The municipalities should be responsible for preparation of ward and area level Plans for which they may be assisted by State Town and Country Planning Departments. Instead of having City Development Authorities, Urban Development Authority for the state as a whole focusing on new areas around existing towns and development of new townships may be set up. The state level departments such as Town and Country Planning Departments, Urban Development Authorities, State Electricity Boards and other agencies involved in development and management of urban services should prepare overall plans for the state as a whole and enforce these Plans as per Reform Agenda. The field offices of state level departments at local level should be the technical arms of the ULBs for development of basic services at local level. The State level agencies should develop regulatory framework, while ULBs should be responsible for implementation and maintenance part of the urban services.

### **5.5 Approach of the 11<sup>th</sup> Five Year Plan towards Municipal Finances**

Unsatisfactory finances of Urban Local Bodies continues to be an important issue which has not been addressed adequately inspite of the 74th Constitution Amendment Act coming into force. The financial base of the ULBs and autonomy given to the Local Self Government have not undergone any change even though the area, population and functions of ULBs have increased manifold over the years. In the Eleventh Five Year Plan fiscal empowerment of ULBs should be given top priority, as financially weak ULBs

which form the third tier of government, will prove incompatible to meet the envisaged goals at the State and national levels for economic and social development. The strategy for financing of urban development may focus on commercialization of urban infrastructure project, municipal credit ratings, fiscal concessions, enhancing the efficiency of tax administration machinery, devolution of additional tax authority, rational fiscal transfers, refurbishing the property tax and increasing user charges for financing directly chargeable services.

## **CHAPTER 6**

### **Basic Urban Services**

#### **6.1 Status of Urban Infrastructure**

##### **6.1.1 Water supply**

As of 31.3.2004, about 91% of the urban population has got access to water supply facilities. However, adequacy, equitable distribution and per-capita rate supply may not be as per prescribed norms in some of the cities. For instance, the poor, particularly those living in slums and squatter settlements, are generally deprived of these basic facilities.

##### **6.1.2 WASTE WATER GENERATION, TREATMENT AND DISPOSAL- STATUS**

As of 31.3.2004, about 63% of the urban population has got access to sewerage and sanitation facilities. As per assessment made by the Central Pollution Control Board (CPCB) in Class I cities and Class-II towns during 2003-04 (Table-IV), about 26,254 MLD of wastewater is generated in 921 Class I cities and Class II towns in India (housing more than 70% of urban population). The wastewater treatment capacity developed so far is about 7044 MLD – accounting for 27% of waste water generated in these two classes of urban centers.

##### **6.1.3 MANAGEMENT OF MUNICIPAL SOLID WASTE**

Management of municipal solid waste is one of the most important obligatory functions of the urban local bodies. The 74th constitutional amendment gives constitutional recognition for local self government institutions specifying the powers and responsibilities. And therefore, all the concerned authorities should make concerted efforts to control and mitigate the problem of municipal solid waste.

It is estimated that about 1, 15,000 MT of Municipal Solid Waste is generated daily in the country. Per capita waste generation in the cities varies from 0.2 kg to 0.6 kg per day depending upon the size of population. An assessment has been made that per capita waste generation is increasing by about 1.3% per year. With growth of urban population ranging between 3 to 3.5% per annum, the annual increase in overall quantity of solid waste generated in the cities is assessed at about 5%. The collection efficiency ranges between 70% to 90% in major metro cities, whereas in several smaller cities it is below 50%. It has been estimated that the Urban Local Bodies spend about Rs.500 to Rs.1500 per tonne on solid waste collection, transportation, treatment and disposal. About 60-70% of this amount is spent on street sweeping, 20-30% on transportation and less than 5% on final disposal of waste, which shows that hardly any attention is given to scientific and safe disposal of waste. Landfill sites have not yet been identified by many municipalities and in several municipalities, the landfill sites have been exhausted and the respective local bodies do not have resources to acquire new land. Due to lack of disposal sites, even the collection efficiency gets affected.

The Ministry of Environment & Forests, Government of India has notified Municipal Solid Waste (Management & Handling) Rules, 2000 to tackle this problem.

Increase in quantity of municipal solid waste generation with increase in the urban population is quite obvious. Efforts towards waste recycle, reuse and resource

recovery for reduction in waste and adoption of more advanced technological measures for effective and economical disposal of municipal solid waste is need of the hour.

## **6.2 Review of Policies and Programmes including JNNURM**

Since its launch , CDPs from 62 out of 63 mission cities have been received Of these, 59 CDPs have been appraised as on 15.5.2007. 50 cities have signed MOA for implementation of Reforms. A total number of 210 projects have been approved as on 15.5.2007 at a total approved cost of Rs.17735.05 crore. Rs.8692.18 crore has been approved for release as Additional Central assistance. An amount of Rs.1404.64 crore has been released as Additional Central Assistance.

Regional Workshops were held for sensitizing Mayors/Chairpersons/Municipal Commissioners/State Secretaries of other stake holders by JNNURM. Similarly, workshops for middle level municipal functionaries were arranged throughout the country and the participants were briefed about the steps to be taken under JNNURM for effective implementation.

Various Organization and Institutional Mechanisms have put in place as indicated below:

- Appointment of Appraisal Agencies for CDP/DPR/Reforms
- National Steering Group held two meetings in 2006
- Central Sanctioning and Monitoring Committee held 29 meetings till date.
- Technical Advisory Group, having members drawn from civil society, has been set up for enhancing community participation and holds meetings regularly.
- Communication Agency for creation of awareness about the Mission has been selected and pilot run of communication campaign will begin in 5 cities in June, 2007.
- A separate web-site on JNNURM has been launched and information shared with public through MIS.
- Working Groups Task Force have been constituted to assess and suggest measures for capacity building, financial improvement and for making CDP a living document.
- To enable easy institutional flow of funds to ULBs, the Ministry is in the process of getting each of the ULBs credit rated for improving their credit worthiness.

Monitoring Mechanism have been envisaged as under to track the progress of the mission, as outlined below:

1. The entire data relating to the CDPs, MoAs and DPRs have been put in the website created for JNNURM for public access and information.
2. The CSMC apart from approving the projects also reviews and monitors the progress of the projects sanctioned by it periodically from time to time.
3. It is proposed to appoint Independent Project Review and Monitoring Agency (IRMA) to ensure that projected outcomes are achieved.

4. A comprehensive “Project Monitoring and Evaluation System (PMES)” is being set up to review the progress of project implementation and reform implementation.
5. It is also proposed to set up exclusive Project Cell at the State Level and ULB Level for implementation / monitoring the progress of the projects.

Participation of Private Sector is also envisaged under the mission as indicated below:

- Involvement of private sector in Operation and Maintenance of the infrastructure facilities is gearing up with dissemination of information about initiatives being taken by the Government/Local bodies under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).
- Private parties have shown encouraging responses in management of municipal wastes. The changed economies, growth and application of modern technology has shifted the focus from dumping of whole municipal waste to its conversation into various useful products of profitable nature like organic pellets, construction material etc.
- Private sector has also been increasingly involved management of water treatment plants (WTPs) and Sewerage Treatment plants (STPs) thereby enhancing optimum utilization of water resources available.
- Large scale participation of private sector has been ensured in the Bus Rapid Transport System (BRTS) projects approved by the Ministry under Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

For effective implementation of JNNURM in mission towns, funding pattern needs to be reviewed especially in light of the fact that a number of states/ULBs are not in a position to contribute their share of funds towards implementation of projects. Moreover, availing external assistance is also time consuming and may not prove to be effective in timely execution of JNNURM projects in such cities. These aspects may be thoroughly looked into as to how to support those States/ULBs, which do not have counter-part funding so as to encourage them also to come forward for implementation of projects under JNNURM.

### **6.3 Urban Water Supply**

To achieve the goal of 100% coverage of population as per the suggested norms of Government of India by the end of 11<sup>th</sup> Five Year Plan priority should be given to extend drinking water supply facilities with new schemes to the uncovered urban population. Simultaneously, the existing schemes which need augmentation/rehabilitation should also be taken up. The following recommendation are made for urban water supply.

1. As the availability of fresh water is diminishing day by day due to change in rainfall, it is necessary to bring out proper ground water legislation at the State Govt. level based on the model ground water legislation brought out by the Central Ground Water Board (CGWB) and should be implemented in all such urban areas which are facing shortage of drinking water.
2. While designing and constructing multi purpose dams / reservoirs, adequate quantity of water should be reserved / apportioned for domestic use in the urban

areas. Keeping in view the National Water Policy, top most priority should be given by the State Govts. to drinking water supply needs of cities and towns from the available water sources. This needs to be operationalised by all States in the form of State Water Policy as desired in National Water Policy, 2002.

3. Under JNNURM, special attention is needed for towns and cities affected by surface and ground water contamination due to the presence of chemicals such as iron, fluoride, etc. Drought prone and water shortage areas as well as the cities and towns having water quality problems should be given top priority in the selection process by State Governments/ ULBs.
4. due to poor operation and maintenance of water supply schemes, the assets created are either under utilized or defunct in some cases without accruing anticipated benefits to the community. As such, suitable strategy should be evolved for effective O&M of the schemes.
5. Metering of water supplies should be made mandatory in a gradual manner so as to conserve precious water and to generate revenue. Good quality water meters must be made available to the water utilities for achieving this objective. Joint ventures of Indian and foreign companies may be encouraged to manufacture requisite quantity good quality meters. Concessions in excise and customs duty may be considered to promote such joint ventures. Existing capital investment limit of Rs. 5 crore of Ministry of Small Scale Industries (SSI) may be raised to Rs.100 crore or so to attract reputed companies in this field to meet the requirement of good quality, long lasting water meters to meet the surging requirement of water meters in wake of launching of JNNURM. Ministry of Small Scale Industries (SSI) may be advised to take up this issue on priority.
6. Telescopic water tariff / user charges should be formulated and levied to discourage excessive use of water. Moreover, efforts should be made to generate adequate revenue through water charges, at least, to meet the O&M expenses in the initial years and gradually increased to recover the capital, to make the systems financially viable and self supporting.
7. Leakage and Unaccounted for Water (UFW) is another constraint in cities and towns, which is up to 50% in some cases. Such losses should be minimized to 15% to start with through intensive leak detection and rectification programme. Severe penalties should be levied on those found responsible for leakage and wastage of water. ULBs may be asked to enact necessary changes in the Municipal Acts.
8. To reduce wastage of water, adoption of low volume flushing cisterns, waste not taps etc. should be adopted so. Ministry/ TCPO may take up the matter with the States and ULBs to promote usage of such cisterns so as to conserve fresh water. CPWD may also widely use such cisterns in the buildings constructed by them.
9. Roof top rain water harvesting systems in both public and private buildings including industrial and commercial establishments should be made mandatory so as to conserve water. The ULBs should make it a point not to approve building plans having no provision for such systems and to ensure proper implementation of the approved system by the builders.

10. The State Govts. /ULBs should implement schemes for artificial recharge of ground water as per techniques developed by the Central Ground Water Board (CGWB).
11. Water quality surveillance and monitoring should be given more thrust by the State Govts./ ULBs to ensure prevention and control of water borne diseases. For this purpose, water quality testing laboratories have to be set up in every city and town backed by qualified lab technicians and where such labs already exist, they should be strengthened with equipment, chemicals, manpower etc., if necessary..
12. Under JNNURM, as a part of Reforms Agenda, the State Govts./ ULBs should take up reform measures in selected cities and towns, for Unaccounted for Water (UFW), water and energy audit, metering, reuse and recycling, levy of realistic user charges, efficient water use and its equitable distribution, rain water harvesting, commercial accounting systems, consumer orientation, cost recovery, mobilization of additional resources, development of computerized MIS/GIS and urban mapping of utilities, decentralized waste treatment/management systems, adoption of appropriate technologies suiting to local conditions etc. as models to demonstrate their efficacy and usefulness, which can be further replicated in other cities and towns of the country.
13. As per 74<sup>th</sup> Constitutional Amendment Act, the ULBs need to be given greater autonomy formulation and implementation of water tariffs and its periodical revision, without waiting for State Govt's approval. There is a need for regulatory regime in water supply and sanitation sector to enthuse confidence among the private players.
14. As requirement of funds for achieving the Urban Water Supply and Sanitation targets during 11<sup>th</sup> Plan is huge, it is not possible to meet the same through the budgetary resources of the State and Central Governments alone. Hence, efforts should be made to step up the quantum of funds through institutional financing, foreign direct investment, assistance from bilateral, multi-lateral agencies, newly launched Pooled Finance Development Scheme (PFDS), tax free municipal bonds, MPLAD funds etc. apart from involving private entrepreneurs.
15. Since, computerized MIS is a must for developing a strong data base at local, State and Central levels on Urban Water Supply and Sanitation sector for planning and decision making it is recommended that MIS Cells may be created with central funding at the State and Central levels for development of a good data base for the sector.
16. The PHE training programme of the Ministry of UD has to be toned up further with adequate funds and manpower so as to enable CPHEEO to impart training to the various technical personnel of the State Govts./ ULBs on a variety of technical and management aspects.
17. To ensure safety of public water supply infrastructure, which is within the reach of anti-social elements, who may disrupt water supply by way of polluting / poisoning of supply, mandatory fencing and other security measures should be ensured to all water supply units to safeguard the health of the public.

Keeping in view the above recommendation, outlay for Jawaharlal Nehru National Urban Renewal Mission (JNNURM) may have to be stepped up /augmented considerably in the 11<sup>th</sup> Five Year Plan so as to meet the fund requirements of this vital sector.

#### **6.4 Sewerage, Low Cost sanitation, Storm Water Drainage**

To achieve 100% population coverage with sewerage, sewage treatment and low cost sanitation facilities in urban areas during 11<sup>th</sup> Five Year plan period, the following suggestions have been made.

1. 70% of the urban population may be provided with conventional sewerage and sewage treatment facilities and the balance 30% of urban population will be provided with low cost sanitation (onsite) sanitation facilities
2. Since conventional sewage treatment techniques are costly both from capital as well as O&M point of view, several urban local bodies may not be in a position to afford such costly technologies. Therefore, wherever feasible, cost effective and less power intensive technologies such as decentralized sewage treatment plants, waste stabilization ponds, fluidized aerobic biological reactor (FAB) etc. for treating sewage can be adopted.
3. Untreated sewage in most cities and towns is reaching water bodies and land causing contamination / pollution in both surface and ground water sources. Besides, the demand for fresh water is increasing day by day while the fresh water sources are depleting. Therefore, sewerage and sewage treatment plants have to be installed wherever necessary to treat the sewage and recycling and reuse of sewage after the desired degree of treatment for various non-potable purposes should be encouraged. Industries and commercial establishments must reuse and recycle treated sewage and trade effluents to reduce fresh water demand.
4. Incentives in the form of rebate on water cess, concessions in customs and excise duty on equipment and machinery, tax holiday etc., should be considered by the GOI for agencies dealing with planning, developing operating such reuse treatment plants as well as users of treated sewage and trade effluents.
5. Suitable public private partnerships may be roped in in the sanitation sector. Excise and customs duty concessions, income tax concessions, tax holidays etc. should be considered by the GOI for import of equipment and machinery needed for development of such systems, so as to encourage private agencies to participate.
6. The local bodies must ensure that the existing Municipal Bye-laws are so amended that it will become mandatory for all the residents to connect their toilets to the existing sewerage system, wherever it exists.
7. Fringe areas of cities and colonies of economically weaker sections and slum dwellers may have to be covered in the first instance with low cost sanitation facilities, either on individual household basis or community basis with "pay & use system" with adequate maintenance arrangements. Municipal Bye-laws may be suitably amended with necessary penal clause and enforced

effectively to stop open defecation practice as well as indiscriminate throwing of garbage/litter in public places.

8. In urban poor areas, due to inadequate water supply and sanitation facilities they are prone to various waterborne/ water related diseases. Therefore, during the 11<sup>th</sup> Plan Period concrete steps should be taken to improve service levels in these areas and colonies predominantly inhabited by SC/ST population.
9. Targeted subsidy may be given to SC and ST and other disadvantaged groups living in urban slums for taking water supply/ sewerage house service connections, metering, construction of latrine and subsidized water rates etc. and accordingly adequate funds may be ear-marked for the purpose so as to avoid any possible diversion of funds by the State Governments / ULBs. At the same time internal ear-marking of funds for the urban slums under JNNURM should be made mandatory.
10. Comprehensive storm water drainage system has to be provided in all the cities and towns based on need, in order to avoid water logging in residential areas /flooding of streets during monsoon period.
11. Under the National River and Lake Conservation Programme of the Ministry of Environment & forests, Gol, in some towns works on interception & diversion of waste water are taken up reduce pollution in rivers, lakes, sea etc. However, these works are not carried out on “whole town” approach, coupled with requisite sewerage network due to which sewage from several areas of the project towns are not being collected and conveyed to the sewage treatment plants, which result pollution of the water body. Under the programme of JNNURM of the Ministry of Urban Development whole town approach is followed by approving schemes for sewerage network and sewage treatment plants to effectively address the problem of pollution. Therefore, it is recommended that the schemes / programmes of National Region Conservation Directorate (NRCD) may be merged with the programmes of JNNURM during the 11<sup>th</sup> Plan Period, so as to avoid overlapping of such works.

## **6.5 Solid Waste Management**

The following recommendations have been made to achieve the target of 100% solid waste management facilities to urban population:

1. Urban waste management by ULBs is already under stress because of poor resources and inadequacies of the system. Therefore, all the cities and towns have to be provided with appropriate Solid Waste Management facilities with due emphasis on various technological options available for processing and treatment of municipal solid waste for resource/ energy recovery/ disposal etc. as under:
  - Composting
  - Vermi-composting
  - Anaerobic Digestion/ Biomethanation
  - Incineration
  - Gasification/ Pyrolysis

- Plasma Pyrolysis
- Production of Refuse Derived Fuel (RDF)/ Pelletisation
- Sanitary Landfilling/ Landfill Gas Recovery

The selection of a particular technology, one or multiple technologies for treatment of municipal solid waste may be done after duly examining the characteristics of the waste, its quantity, calorific value, availability of land, climatic condition and other factors as suggested in Manual on Municipal Solid Waste Management, 2000 published by Ministry of Urban Development with due emphasis on long term sustainability of the project, and also ensure that minimum waste shall reach the land fill site”.

2. Soil fertility is being badly affected by excessive use of chemical fertilizers and inadequate use of organic fertilizers. Compulsory production of compost from urban solid waste in cities and towns and application of this organic manure in agriculture and horticulture should be implemented to improve soil fertility.
3. The Report of the Inter Ministerial Task Force on the “Integrated Plant Nutrient Management using city compost” constituted by the Ministry of Urban Development in March, 2005 has recommended technical, financial, qualitative, marketing and sustainability aspects of utilization of municipal solid waste for compost purpose. Concerned Ministries / Departments of Government of India, as well as the State Governments and ULBs must ensure implementation of these recommendations in managing the city garbage in a sustainable manner as well as create wealth from waste.
4. The Hon’ble Supreme Court in its verdict has directed that all the concerned Ministries /Departments to implement the recommendations made in the Task Force Report. Accordingly the following subsidies should be provided:
  - Fiscal concessions and subsidies may be considered in the management of solid waste. For instance, transport vehicles for carrying solid waste may be exempted from excise, sales tax and other duties. Similarly, private companies entering the sector may be granted soft loans for installation of compost plants, sanitary landfills and waste recycling plants. For plant and machinery, custom and excise duty exemption and for installation of processing plants, income tax exemption and tax holidays may also be considered. The organic manure produced in compost plants may be granted similar subsidy as in the case of chemical fertilizers.
5. Quality standards for compost will have to be prescribed by Bureau of Indian Standards (BIS) at the earliest. At the same time, it should be made mandatory that compost sold in the market should clearly indicate the exact chemical composition (NPK etc) on the bags for the benefit of users.
6. Materials such as metal, glass, plastic, rubber, tin and paper available in the municipal waste must be recycled as they have adequate salvage value. Inorganic and inert material such as sand, grit, stones, bricks, concrete, rubble, etc. may also be used for making low cost bricks, road material, aggregates, etc. Enough incentives in the form of tax concessions, subsidies etc. may be given to the entrepreneurs dealing with such materials/ processes.

7. A sustainable program involving citizens, NGOs and other organizations should be implemented to obtain citizens' cooperation, Ward Committees as laid down in the 74th Constitution Amendment. All decisions regarding location and capacity of community bins, cleansing frequency etc. should be taken in consultation with them.
8. Rag pickers play an important role in recycling of the waste. NGOs should be encouraged to provide organizational support and identity to the rag pickers so that better recycling occurs.
9. Municipal Solid Waste (Management and handling) Rules, 2000 notified by the Ministry of E & F should be implemented by the State Governments and ULBs without any further delay.
10. Adequate land should be earmarked / allotted at the planning stage itself by the respective ULBs for setting up of sanitary land fills; compost plants and other processing units including provision for future expansion.
11. Ministry of Urban Development, can produce short films, advertisements, picture posters etc. for audio and video publicity through TV and print media on various aspects of water quality, importance of safe drinking water, its handling and storage, water conservation in homes, use of sanitary toilets, separate storage of dry and wet garbage and its hygienic disposal, vector control, personal hygiene etc.
12. Experienced NGOs and CBOs may be identified and involved for construction and maintenance of Low Cost Sanitation (LCS), maintenance of water supply, solid waste management and IEC activities, particularly in urban slum settlements.
13. ULBs do not have adequate trained personnel for planning, preparation of DPRs, operation and maintenance of water supply & sanitation systems. This has often resulted in failure of the latest equipment and facilities. Therefore, suitable trained manpower be deployed to ensure selection and optimal utilization of various equipments, vehicles and the services as a whole.
14. Adequate funds may be provided in the Central plan to continue applied research projects on various field related problems like development of software, setting up of pilot plants of decentralized sewage treatment, composting etc. to serve as models. Pilot plants may be necessary to demonstrate the technology and its financial viability.

### Recommended Investment Needs For Urban Water Supply and Sanitation Sector

To achieve 100% population coverage targets in urban areas with water supply, sanitation, drainage and solid waste management, as envisaged in 11<sup>th</sup> Plan, the estimated requirement of funds and the possible sources of fund flow are outlined as below:

## Fund Requirement during 11<sup>th</sup> Five Year Plan:

The total fund required for implementation of 11<sup>th</sup> Five Year Plan targets in respect of urban water supply, sewerage and sanitation, drainage and solid waste management is as under:

(Rs. In crore)

Sl.No.	Sub-Sector	Estimated Amount
(i)	Urban water supply	53,666
(ii)	Urban sewerage & sewage treatment	53,168
(iii)	Urban drainage	20,173
(iv)	Solid waste management	2,212
(v)	Management Information system (MIS)	8.4
(vi)	R & D and PHE training	10
	Total	1,27,025.4

Say Rs. 1,27,025 crore

Detailed calculation of fund requirement including the assumptions made for the assessment may be seen in the main working Group recommendations.

### Availability of funds:

To improve the infrastructure related to water supply and sanitation in the urban centres, Gol has been assisting the ULBs / the State Government through various schemes / special Central assistance from time to time. However, in order to expedite creation of infrastructure and to improve the urban environment, Government of India has launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) with Central outlay of Rs. 50,000 crore to be invested during 2005-2012 over a period of 7 years.

However, water supply and sanitation has been accorded highest priority among the eligible components and it is expected that 40% of the outlay would be spent on water supply and sanitation sector. As such, the tentative outlay available for the sector under JNNURM up to 2012 may be taken as Rs. 40,000 crore.

The total requirement of funds for achieving the envisaged 11<sup>th</sup> Five year Plan targets in respect of urban water supply, sewerage and sewage treatment, drainage and solid waste management has been assessed at Rs. 1,27,025 crore at 2006 price level. The available funds for the ongoing programmes of JNNURM and UIDSSMT may be to the tune of Rs. 40,000 crore leaving a gap of Rs. 87,025 crore.

### For bridging the gap, the following are identified as possible sources:

1. **Central Sector outlay** : The central sector outlay may be stepped up from the existing Rs.40,000 crore to around Rs.70,000 crore under the ongoing central programme of JNNURM so that great thrust could be given to water supply and

sanitation sector in the urban areas in order to cover 100% population with water supply and sanitation facility.

2. **State Sector Outlay :** Likewise the State sector outlay which stands at Rs.18,749 crore during the 10<sup>th</sup> Plan may be stepped up to around Rs.35,000 crore.

3. **Institutional Financing :** Funds may be mobilized through national financial institutions such as LIC, HUDCO, IL&FS etc to the tune of Rs.10,000 crore.

4. **Additional assistance from external support agencies (ESA) :** Funds may be mobilized through external funding agencies viz. World Bank, JBIC, ADB and other Bilateral Agencies to the tune of about Rs.10,000 crore.

5. **FDI and Private Sector:** In addition, through foreign direct investment and private sector funds upto Rs.2,025 crore may be mobilized to support the sector activities.

The proposed flow of funds is summarized as below:

Source of funding	Amount (in Rs. Crore)
Central Sector outlay	70,000*
State Sector outlay	35,000*
Institutional Financing	10,000
Assistance from External Support Agencies	10,000
FDI & Private sector	2025
Total	1,27,025

\* The Central and State sector outlay needs to be stepped up to cover 100% population with water supply and sanitation facility during 11<sup>th</sup> Five Year Plan period.

## 6.6 Private Public Partnership in creating Basic Urban Infrastructure

Already covered under para 1.4.3

## 6.7 Provision of Basic Services to Urban poor at their workplace

In all stages of planning, formulation and development of water and sanitation projects, poor and disadvantaged sections of society mainly consisting of SC/ST population should be included and their needs accorded top priority so that they do not become vulnerable to water borne diseases and other health hazards due to non availability of potable water, inadequate sanitation and unhygienic living conditions in their localities. At the same time, the programmes of other central Ministries such as SC/ST Plans, Tribal Welfare Plan may be suitably dovetailed under the JNNURM of the Ministry of Urban Development. CDPs should be prepared so as to include the special problems and requirements of these vulnerable sections of the society.

Such urban areas which are predominantly inhabited by SC / ST population should be provided with water supply and sanitation facilities on a priority basis by the State Governments and concerned ULBs. As such, the DPRs under being submitted by the State Government and ULBs to the Ministry of Urban Development for approval should give due emphasis on the aforesaid aspects.

Also, the Inter-Ministerial Task Force on Universal Sanitation in Urban Areas constituted under the Chairmanship of Joint Secretary in charge of the Urban Water Supply and Sanitation, Ministry of Urban Development and Members from Planning Commission, other Ministries, CPHEEO, Administrative Staff college of India and WSP, South Asia needs to adequately deal with the current National and State Level policies and programme for urban sanitation with special emphasis on sanitation facilities to SC/ST and urban poor.

Moreover, the two sub-committees constituted by the aforesaid Task Force to develop “National Urban Sanitation Policy” and “Communication Campaign Strategy for Open Defecation Free Urban Areas” need to address the problems of SC/ST and other urban poor in a holistic manner.

## Chapter 7

### URBAN TRANSPORT

#### 7.1 Urbanization Trends and Travel Needs

India is one of the emerging urban economies in the world. The growth is characterized by a specific shift in contribution to GDP from agriculture to tertiary and manufacturing sectors, thus bringing urban areas into the centre stage of development process. It is estimated that roughly, 60%<sup>1</sup> of India's Gross State Domestic Product is generated in urban areas.

The pace of urbanisation continues to be rapid. In 2001, of the total 1027 million population of India in 2001, 28% were living in urban areas. The projections<sup>2</sup> are that, by 2026, total population would go up to 1.4 billion and urbanization level to cross 38%. A minimum of 5 states are expected to be predominantly urban with Tamil Nadu leading the list of states with over 75% of its population expected to reside in urban areas. In terms of cities, there are 35 metropolitan areas which, in 2001, had populations exceeding one million. Of these Mumbai, Kolkata and Delhi had population of more than 10 million in 2001. The other four megacities: Chennai, Hyderabad, Bangalore and Ahmedabad, had population of more than 4 million. These urban areas predominate the urban scene in India.

Rapid urbanization has generated corresponding increase in travel demand. The pace of motorization is rapid. During 1981 to 2001, the number of registered vehicles went up by 7.75 times. The transport infrastructure development has not kept pace with the increased travel demand. The share of public transport vehicles has declined.

As a result, the problem of congestion and its consequent costs in the form of travel delays, loss of productivity, air quality deterioration, noise pollution and increasing road fatalities are posing a severe threat to sustainability of urban areas. Non-motorized transport seems to have lost its earlier importance in the larger metropolises. Studies<sup>3</sup>, show that the share of bicycle trips of the total trips in Delhi has declined from 17% in 1981 to 7% in 1994. This is perhaps due to increasing trip lengths and the increasing affordability of motorized personal vehicles. Yet another factor is that non-motorized modes are exposed to greater risk of accidents as they share a common right of way with motorized vehicles. Statistics<sup>4</sup> show that 57% of the road accident fatalities in Delhi involve cyclists and pedestrians. Thus, not only do longer trip-lengths make cycling extremely difficult, non-motorized modes are also exposed to greater risk of accidents. Moreover, cycling to work or using a cycle rickshaw tends to be shunned as it symbolizes a low economic status in society. There have also been problems of deteriorating air quality due to automobile exhausts and an increased incidence of road accidents. The increased consumption of petroleum fuels also impacts energy security of the nation.

---

<sup>1</sup> <http://urbanindia.nic.in>

<sup>2</sup> Office of the Registrar General of India

<sup>3</sup> Mohan, Dinesh and Tiwari, Geetam, *Sustainable Transport Systems: Linkages between Environmental Issues, Public Transport, Non-motorized transport and safety*, EPW, June 1999

<sup>4</sup> Delhi Traffic Police, *Road Accidents in Delhi, 2001*

In the light of these, the Government of India has announced a National Urban Transport Policy in April 2006. The policy focuses on the need to “Move people – Not vehicles”. It seeks to do this by encouraging improvements in public transport and facilities for the use of non-motorised modes. It suggests greater involvement of the private sector and innovative financing mechanisms to enhance efficiency and reduce the impact on the public budget. It seeks to reduce travel demand by encouraging a better integration of land use and transport planning. It seeks to encourage the use of cleaner technologies and create better awareness amongst the people. It emphasizes the need to build capacity to undertake good urban transport planning, both at the institutional and individual level.

Indian cities are characterized by relatively high density and mixed land uses, which are conducive for high public transit use. However, due to inadequacies in planning and land-use management and lopsided industrial location policies, cities are beginning to experience rampant urban sprawl greatly increasing trip lengths for some and in turn forcing excessive reliance on personalized vehicles, mainly cars. Managing urban expansion is a critical element towards achieving the goals set by the National Urban Transport Policy. This is even more critical as most of cities are expected to double in size within the next 2-3 decades.

Transportation “needs” cannot be considered an independent variable. The needs are greatly influenced by urban form and access policies. Table 1 below shows mobility patterns in 8 high income cities.<sup>5</sup> These data show the tremendous variation in car use, distances traveled, public transport use at similar levels of income. It has been shown that people may use different modes and technologies, public or personal transport, but the daily average motorised travel time varies relatively little.

**Table 1. Mobility patterns in high income cities**

Cities	Motorised mobility (all modes) Km /year/ person	Motorised mobility (Private) km /year/ person	Daily motorized travel time, minutes	Share of the journeys by foot, bicycle and public transport, percent	Density persons/ha
Houston	25,400	25,600	90	5	9
Melbourne	12,100	13,100	70	26	14
London	5,600	7,700	60	51	59
Paris	5,500	7,300	50	56	48
Munich	6,300	8,900	60	60	56
Tokyo	4,300	9,900	70	68	88
Singapore	4,700	7,900	60	48	94
Hong Kong	1,300	5,000	50	82	320

Source: Jean Vivier, 2001

<sup>5</sup> Jean Vivier (2001) Mobility and Accessibility: Complementary or Contradictory Objectives? *Public Transport International*, 5:4-10.

The travel time for all modes, including journeys by foot and by bicycle, differ little as everyone has the same time constraints – twenty-four hours with 8-10 hours workday. In low-density cities, which are car dominated and have high road space, car owners travel long distances relatively fast, but have high travel times (Houston and Melbourne in Table 2). It is difficult to establish efficient public transport systems in such cities. Those who do not have cars, cannot get to work easily and can get excluded from economic activities. On the other hand, those cities that have a dense settlement pattern, tend to be more public transport friendly and more citizens use non-motorized forms of transport (Tokyo, Singapore and Hong Kong).

These world wide experiences tell us that access needs (as opposed to mobility patterns) remain similar across cities of different sizes and populations. Basically, during the peak period, every worker and student needs to undertake one trip to get to work or to school/college and another trip back. Figure below shows the relationship between income and demand for trips. As is obvious, the demand for trips changes with income, but the compulsory trips – work and school – remain the same. Therefore, the total number of trips during the peak hour – if limited to work and school – does not increase with increasing incomes. However, with increasing incomes, heavy traffic will be observed over larger parts of the day to accommodate for discretionary trips.

Since transport needs have to be worked out for the peak period, one can say that needs do not change per person over time. What may change are modal shares – and this can be influenced by policy. Since the travel budget remains same for most people, majority trip distances change not so by change in city size, but by change of mode. In most cities of the world, majority of trip distances are less than 10 km. In India, a majority of trip distances are still less than 5 km.<sup>6</sup>



In urban India, over 75% of the trips are on account of employment and education and per capita trip rates range from 0.7 to 1.9<sup>7</sup>. The travel modes include

<sup>6</sup> Baker, J. et al (2004) Urban Poverty and Transport: The Case of Mumbai. The World Bank.

<sup>7</sup> Assessment by the Ministry of Urban Development (Through RITES) covering 21 cities. The share of work trips ranged from 33% in Udaipur (Rajasthan) to 77% in Tiruppur (Tamil Nadu). Similarly, the share of education related trips ranged from 13% in

walk, cycles, cars, 2-wheelers, para-transit, etc. 30% of the total trips are undertaken by walk and the share tends to reduce with increasing city size and simultaneously, the share of trips by public transport goes up significantly.

A study carried out by RITES<sup>8</sup> had estimated that while the intra-city travel demand in 1994 was 759 million passenger kilometer (pkm) per day, it would go up to 2511.23 million pkm / day in 2021. The growth projected in this study<sup>9</sup>, in terms of total number of trips, is shown in Table 2.

**Table 2. Projected number of trips in 2021 compared to 1994**

Year	1994	2021
Trips (million)	183	614
Vehicular trips (million)	126	430

The growth projected by the study for different categories of cities is as given in Table 3.

**Table 3. Projected travel demand for different categories of cities (in passenger-kms)**

Class of city	1994	2001	2021	Growth (2021/1994)
A	103.9	149.43	453.25	4.36
B	75.89	90.43	309.57	4.08
C	109.20	148.66	227.23	2.08
D	94.41	132.07	347.08	3.68
E	92.08	97.22	270.30	2.94
F	284.34	420.99	903.80	3.18
Total	759.00	1038.80	2511.23	3.31

---

Tiruppar to 40% in Rourkela (Orissa). Recent surveys from Ahmedabad by CEPT recorded even a higher trip rate (1.9 total and 1.1 vehicular trips per person per day).

<sup>8</sup> RITES, 1988. *Traffic and Transportation Policies and Strategies in Urban Areas in India*

<sup>9</sup> Since these projections are based on a study carried out in the mid 1990's, another study has been commissioned by the Ministry of Urban Development to assess the extent to which the projections made in the RITES study have actually been realized. Also the economy is growing at about 10% and the transport demand is growing at 12%, this is expected to continue. Therefore it becomes imperative to make fresh projections based on changed trends that may be noticed. The results of this study would be available only July/August 2007, for the present purpose, the projections made by RITES are being taken to hold.

Recognizing the problem of Urban Transport, a number of cities are coming up with Mass Transit System proposals (Bus Based/Rail Based), based on the guidelines issued for preparation of Detailed Project Reports (DPRs) by the Ministry of Urban Development. As per the guidelines a Comprehensive Mobility Plan is a mandatory requirement for getting central assistance. These plans should be NUTP compliant.

To ensure preparation of quality Comprehensive Mobility Plans and DPRs, the Ministry of Urban Development, at present, is implementing a scheme under which it provides support in to the extent of 40% of the cost of studies and preparation of the reports. In addition, funds required for the Delhi Metro Rail Project, in the form of equity, and sub-ordinate debts are provided in the budget of the Ministry. A similar arrangement is being followed in respect of the Bangalore Metro Rail Project.

By and large, in the past few years, the nature of investments made to improve transport are in the form of

- 1 Construction of flyovers in a large number of cities
- 2 Widening of roads, and
- 3 Construction of MRTS in Delhi

The construction of flyovers and widening of roads have not produced the desired improvements in all locations. These policies have to be reviewed critically and best practices adopted taking into account the experience of cities considered “good” internationally.

The construction of flyovers and widening of roads has, unfortunately been accompanied by the removal/reduction of pedestrian facilities. Considering that India has very high pedestrian mortality rates, this practice must be stopped immediately. It must be made mandatory to provide at least a minimum of a prescribed area for pedestrian and bicycle facilities on all arterial roads (say 4-5m combined in each direction).

The MRTS in Delhi is operating at about 20% of its projected capacity for December 2005 (4-5 lakh passengers per day vs. projection of 21.8 lakh passengers per day). The Kolkata MRTS and Chennai MRTS are operating at about 10% and 5% capacity respectively. Therefore, the operating experience of metro rail systems in India should be taken into account in the proper planning and design of new systems.

It has been noticed that most of the bypasses soon become arterial roads, necessitating creation of another bypass. Such sprawling growth of the city is not conducive for planning and operation of Mass transit Systems. In order that bypasses remain bypasses, the ministry has issued a policy circular, which makes it desirable to ban any development on 500 meters on either side of bypasses. Instead the development should be oriented along the pre-defined major transport axis in a linear form as identified in the transport master plans for the cities rather than a radial form.

It is also seen that there are considerable weaknesses in the proper planning of urban transport, which is a highly complex area. The skills and competencies required for urban transport planning are vastly different from those required for inter-city planning. Hence, a major capacity building initiative would be essential if meaningful

proposals for improving urban mobility are to emerge from the State/city level authorities.

In the light of the above, the following suggestions are made, for changes in the scheme for the purpose of the 11<sup>th</sup> Plan:

- 1 The existing scheme of providing 40% support may be continued, but with center's contribution being enhanced to 80%. However this would be with the condition that the State Governments would set up a mechanism to review their reports and translate base line studies into meaningful project proposals.
- 2 Proposals for preparation of Detailed Project Reports should be preceded by an open minded and professional evaluation, by technology neutral agencies, of alternative technology options before a specific technology is decided upon.
- 3 A comprehensive program of capacity building should be formulated and implemented during the 11<sup>th</sup> Plan period. This should not only include capacity building of the human resource, but also of the Public Institutions/agencies that would be involved with urban transport. A program of research and knowledge up gradation in urban transport, in the Indian context, should also be a part of this capacity building plan.

The 11<sup>th</sup> Plan should set itself the objective of significantly improving urban mobility in the country, so that economic activities can continue unhindered and urban areas in the country can function as the true engines of India's economic growth. The broad policy for this purpose has already been laid out in the National Urban Transport Policy, 2006. **The mobility plans are to be aimed at reducing travel demand, supporting pedestrian and non-motorised movements and promoting public transit. The plan needs to take into account integration of landuse and transportation systems and environmental sustainability. The emphasis has to be on public-private partnerships.** The policy recognises that creation of transport facilities increases real estate value and hence the increased value capture has to be inbuilt in the planning process. It is needless to say that, the systems have to be accessible to all. Emphasis has to be placed on the needs of the disadvantaged; physically, socially or economically. More specifically, the plans should include the following:

- a. All cities must prepare a comprehensive mobility plan which includes a master plan for non-motorised transport and must develop and implement plans for adequate and safe pedestrian and bicycle facilities on all arterial roads.
- b. Street vendors and hawkers are essential service providers for non-motorised modes and they are also essential for maintaining low street crime rates. Therefore, all cities should formulate a realistic hawker policy on roads.
- c. All cities should prepare a plan for traffic calming to reduce emissions and road accident rates.
- d. All million plus cities should prepare plans to introduce / upgrade existing bus services as also introduce BRT systems on selected arterials during the 11<sup>th</sup> plan period.
- e. All cities should have a parking policy. State governments would be required to amend building bye laws in all million plus cities so that adequate parking space is available for all residents/ users of such buildings. To enable this, FAR norms would be made more liberal. Multi-level parking complexes should be made a mandatory requirement in city centers that have several high rise commercial complexes. Such complexes could even be constructed underground. Such complexes could come up through PPP in order to limit the impact on the public budget. All such parking

complexes would be encouraged to go in for electronic metering so that there is a better realization of parking fees to make the investments viable.

- f. All cities should upgrade taxi and three-wheeler fleets and use ITS for the same.

The specific measures will vary from city to city and will depend on the city size and shape. For the sake of convenience, all urban areas with a population of over 1 lakh have been targeted. These, in turn, have been divided into 4 categories, namely:-

- Cities in the population range of 1-5 lakhs;
- Cities in the population range of 5 lakh-1 million;
- Cities in the population range of 1 – 4 million;
- Cities in the population range of more than 4 million.

### **Mobility needs in small and medium towns (1 – 5 lakh population)**

The small and medium towns do not yet face the kind of mobility problems that are faced in the larger cities. However, unless their growing transport needs are channelized into sustainable directions from now, they could easily go the way larger cities have gone. The objective of the interventions in this category of towns would be to (1) enable smoother flow of traffic and (2) prevent a decline in the use of non motorized modes. This would be largely through ensuring that non motorized modes continue to be safe despite the increase in motorized modes of travel. Such cities would not need a regular public transport system at present but would need improvements in para-transit, especially shared para-transit, as a means to prevent a shift to the use of personal motor vehicles. The specific interventions that may be required would be the following:-

- Providing for pedestrian pavements and cycle tracks.
- Some improvements in the quality of roads
- De-congestion of some of the crowded areas like inter-state bus stations, major hospitals, central market areas, major Government offices, railway stations, etc. through improved traffic flows, shifting of small shopping units to higher storied complexes, and a host of other measures.
- Improvement of some intersections
- Developing transport corridors in advance to enable the orderly growth of new settlements in a manner that would facilitate a preference for public transport.
- Creation of parking spaces for para-transit and other vehicles.

It is expected that all this would be in the form of short term investments, to be completed within a period of 3 or 4 years in the cities selected for the purpose. It is also expected that 50% of the towns in India coming in this range would be covered within the 11<sup>th</sup> plan period. The remaining cities would spill over to beyond the 11<sup>th</sup> plan period.

It is estimated that each such town would require an average of Rs 40 crores. With the assumption that 50% of the 370 towns in this category would be covered during the 11<sup>th</sup> plan duration, the requirement of funds would be Rs 7,400 crores.

### **Mobility needs of 0.5-1 million population cities**

At this population range, the problems of urban mobility begin to manifest themselves to a somewhat larger extent. If these problems are addressed at such an initial stage, they would not grow into larger problems at a later stage.

The focus of investments here would be largely similar to those in the 1-5 lakh population towns, with the addition that improvements in the facilities for public bus services will have to be added. In addition some pedestrian subways and larger parking facilities will be needed. As part of the renewal process, some facilities such as wholesale markets, jails, inter-state bus terminals, warehouses, etc. may have to be shifted to city fringes.

The following interventions are envisaged:-

- Improvement of some busy intersections
- Construction of pedestrian paths and subways
- Provision of improved parking spaces
- Improving traffic flow at selected congestion points
- Improving passenger facilities for bus systems
- Shifting of certain facilities from the city center to the fringe areas.
- Construction of freight terminals and bus terminals on a BOT basis
- Addition of bus lanes to existing roads
- Construction of new corridors for the development of new settlements
- Linkages with smaller towns falling within a regional context

It is estimated that cities coming in this category would require an average of Rs. 400 crores each. It is also been assumed that 50% of the 39 cities coming in this population range can be covered during the 11<sup>th</sup> plan period. Half of them would be eligible for resources under the JNNURM and the remaining half under UIDSSMT. Based on these assumptions, the financial requirements for all the cities to be covered are estimated at Rs. 7,800 crores over the plan period. The requirements for the remaining cities would spill over into the post 11<sup>th</sup> plan period.

#### **1-4 million category cities**

This category of cities will also need the kind of interventions that 0.5-1 million population cities would require. However, in these cities it will also be necessary to plan for a low to medium capacity mass transit system along some of the high density corridors. Such a mass transit system would have to link with a larger network of lower capacity feeder systems. An approximate cost of Rs 20 crores/km has been taken as the cost of such low capacity mass transit systems based on the available estimates. It is also assumed that on an average each city will develop such a mass transit system over a length of 50 kms of arterials and will also have a network of feeder systems covering a wider area.

It is estimated that these cities would need an average of Rs. 930 crores each within the plan period. All the 28 cities coming in this category would be covered during the plan period. Based on this, the estimated requirement of funds during the plan period would be Rs. 26,040 crores.

#### **4 million plus cities**

This category of cities would need the same investments as the 1-4 million population cities with the difference that the mass transit systems would have to be of medium to high capacity. A larger network of sub-systems and feeder systems would be required.

Currently only 7 cities fall in this range and the cost estimates have been arrived at by taking into account the cost of metro and other rapid transit systems that have already been planned. Implementation would be taken up in all the cities coming in this category. The estimates have been prepared separately accounting for the MRT systems and the other interventions required. The cost of the MRT systems has been taken based on the estimates available in the DPRs that have been prepared.

It is estimated that each city would require an amount of Rs 3000 crores for non MRT investments. With seven cities falling in this category, the requirement would be Rs 21000 crores. The requirements for the MRT systems proposed would be Rs 32,000 crores.

To plan cities as per the NUTP guidelines, actions to be taken for the development of integrated transport plans could be categorized into multiple areas as given below:

### **Land-use interventions**

- Encourage “Transit Oriented Development” with high density areas at or close to public transport stations
- Either develop all future new / satellite townships / Emerging activity centres (SEZ) along the defined major transport corridors or integrate them properly with mass transit system in the master plan itself
- Allow land use changes from time to time, (including for public/government uses) to enable efficiency in urban structure through market forces
- Discourage sprawl through introduction of vacant land tax and levy of “Transport Impact Fee” on developments in the periphery

### **Transport Sector Interventions**

- Promote NMV by creating facilities for safe use of such modes and its integration with public transport systems
- Promote public transit systems that are more cost effective and able to meet the demand levels more optimally
- Encourage investments in premium bus systems (AC, Express, etc.) that persuade personal motor vehicle users to also shift to public transport
- Develop ring roads and city bypass roads as well as Rail Line Bypass
- Develop freight transport terminals outside city limits

Shift interstate bus terminals from the city center to the peripheries, with linkages to an intra-city bus service as Interstate bus terminals (IBTs) sometimes cause congestion in cities, but less than similar number of people using cars for inter city travel. Before deciding on the shifting of IBTs to the periphery of the city a proper origin destination survey of passengers may be done to assess the impact of the measure.

### **Institutional/Regulatory Interventions**

- Modify the enabling legislations
- Establish fare policies and a fare regulator
- Implement fiscal measures that encourage use of public transport

## 7.2.1 Integration of Landuse and Transport Planning

JNNURM requires the “Mission” cities to prepare a Comprehensive City Development Plan (CDP) as a kind of vision document before it is able to access funds. The CDP is also required to include a broad city investment plan that lists out the priority projects for the city. From the CDPs received so far it is seen that though a number of transport projects have been listed, there is no overall transport or mobility master plan. The projects seem to be more of a compilation of the requirements of individual agencies/departments rather than part of an overall mobility plan. This is perhaps due to the fact that multiple departments are responsible for urban transport and there is no single agency responsible for this. Road and bridge projects are proposed by the public works departments or State Road Development Corporations, bus transport systems by the transport departments and metro rail systems by the urban development departments. This is not a desirable state of affairs and needs to be corrected.

In order to get over this problem it is suggested that apart from the CDP, the city should also prepare an overall transportation/mobility plan. This should be an integrated transport and land use plan recommending appropriate urban structure, emerging mobility needs and the manner in which such mobility needs are proposed to be met. Only then will individual proposals fall into place within an overall plan. In this context the following need to be kept in mind:

- Motor vehicles have killed more than 20-30 million people and injured more than 500 million worldwide in the last one hundred years. This is not sustainable.
- Emissions will reduce significantly only if more people walk, bicycle and use public transport. This will be possible only if walking and bicycling is made much safer in our cities and the quality of public transport is improved.
- Cities will be aesthetic and humane only if streets include large numbers of people walking and playing safely. Streets must, therefore, be made disabled friendly and include public amenities like shops and restaurants (street vendors included), toilets, etc. These conditions can be fulfilled only if special attention is given to speed reducing measures along with street designs that facilitate traffic calming.
- Road safety in general and safety of vulnerable road users in particular has to be given as much importance as vehicle emissions for ensuring cleaner and more liveable cities. Road safety has to be included as a necessary condition for healthier life in cities. For sustainable transport policies it would be essential that Indian cities do not get locked into systems that encourage high speeds and greater use of personal car transport.
- With increased emphasis on education the number of children traveling to school/ college will go up faster than the population and measures to ensure their safe and sustainable travel must be planned for.
- These proposals should not be corridor based but should be comprehensive mobility plans for the entire city.

Before the individual projects are considered, the overall transport plan should be appraised and approved.

The mission supports proposals that conform to the National Urban Transport Policy. Thus, proposals for well-evaluated and meaningful public transport facilities and non-motorized modes receive priority over road widening. A clear set of instructions

have been issued in this regard so that the cities are able to prepare proposals accordingly. An integrated land use and transportation plan is a pre-requisite to receiving funds for any major urban transport projects.

### **7.2.2 Pedestrianisation and Non Motorized Transport**

Well planned facilities are important for safe pedestrian and cyclist movement and proper crossings for these modes must be made an integral feature of all urban roads. Special consideration should be given in designing pedestrian and cyclist facilities along the road and at intersections. The needs of the physically challenged persons should be taken care of. The entire road network including footpaths, road crossings service roads, carriageways, median, bus stops terminals, mass transit stations, parking facilities etc. should be considered as per disabled friendly design principles. Guidelines for provision of transport infrastructure for disabled persons should be framed.

Grade separation (foot over bridges without or with escalators, underpasses) should be designed at suitable locations when the pedestrian traffic intensity is high. While providing pedestrian subways the road level should be raised half way up to reduce the depth of the pedestrian subway.

Footpaths must be physically segregated from the carriageway to avoid conflicts and their widths should not be less than 2 meters. They should not be taken as a provision of future expansion of the carriageway. Informal sector operating on footpaths should be planned and integrated with the design of the pedestrian facility.

Crowded commercial areas with a large number of pedestrians should be taken up for complete pedestrianization and properly integrated with parking facilities and a limited number of eco-friendly vehicles being allowed for the movement of the disabled and aged.

Road Side furniture such as appropriate road markings, lane changing zones, proper lighting, traffic signals and signage's, landscaping and aesthetics, ITS components, guide maps, etc. must be provided as per IRC guidelines

### **7.2.3. Mass Rapid Transit Systems**

With regard to the public transport technologies, choice has been a matter of debate for quite some time. Arguments favoring the need for high capacity systems have generally been based on traffic forecasts that tend to be gross overestimates. While these systems, where-ever they have been developed at a very high cost, provide high quality service for very few, the problems of congestion and basic accessibility remain. Riderships have been far short of projections and well within the carrying capacity much lower cost options. Excessive subsidies, both for capital and operations, extending over large number of towns would not be feasible within the resources available for the sector.

It must be remembered that the European and American cities that have extensive rail based public transport developed the same in the period 1900-1950, i.e. well before large scale private vehicle ownership became common. This resulted in the natural development of a Central Business District (CBD), which was fed by metro

systems. Typically, cities like Tokyo, New York, Paris and London provided exceedingly large central business districts with more than 750,000 jobs. Virtually no other urbanized area in the developed world has a central business district with more than 400,000 jobs and most are in the range of 50,000 to 200,000. The massive central business district employment numbers and densities support a high degree of substitution by rail of automobile use that is not possible in smaller central business districts (because there is too little demand and it is too dispersed). The prerequisites for rail success are thus high residential population density and massive central business districts.<sup>10</sup>

According to the 2001 Census of India, the main workers in India constitute about 30-35 % of the population. Of these workers, a significant proportion (say about 30%) are self employed, daily wage labour, hawkers, etc. who are not likely to use any form of motorized transport. Therefore, workers as the potential motorized transport users would amount to about 20% of the population. This means, that a city to have a CBD to attract 750,000 trips by motorized means would need to have a population close to 4 million and all of them should be working in the CBD. As against this, in all the large Indian cities development is taking place on the periphery and the cities are poly-nuclear. Hence, there are few if any cities that will be able to feed very high capacity (>30,000 pphpd) mass transit systems.

It would, thus appear that the following criteria should be adopted in evaluating the mix of modes and technologies for public transport:

- 1 All proposed public transport systems must be financially viable at least in their O&M costs without requiring substantial external subsidy. A subsidy, if necessary, must be met by taxation of local city residents (eg levy of pollution tax, road tax, congestion charges, cess etc from private vehicle owners, cess on petrol/ diesel and transportation tax from employers) and not by diverting taxes paid by residents of other cities. There is also a strong case for providing tax concessions for public transit (rolling stock as well as services) to enable provision of state of the art rolling stocks for public transport on the basis of the fact that it is a service /social good or on second best pricing argument.
- 2 Technologies could be grade separated or at-grade. Most of them, like buses, light rail, etc. can be run either as grade separated systems or at grade systems. Though grade separated systems offer considerably higher carrying capacity, they are also several times more expensive than at-grade systems. Hence, there needs to be a very special justification for use of the former showing that all possible options have been exhausted.
- 3 EIA and safety audit must accompany all proposals and it must be shown that the system proposed can cover all major arteries of the city within a reasonable period.

Transport investment benefit users as well as non-users of the system. Then the basic question here is whether investments in mobility should be paid for by the direct users only or even by the indirect beneficiaries. The non-user beneficiaries include: car users and other city residents who are indirect beneficiaries of reduced congestion, improved air quality, increased land value etc.,. Following are important aspects to be taken into consideration.

- In this context, the NUTP suggests that in financing mass transit systems, the basic principle should be that the government should provide the infrastructure but users/commuters must pay for operating costs and the rolling stock. This implies that the infrastructure and capital investments should come from all

---

<sup>10</sup> Keys to Urban Rail Success. 2001 [www.publicpurpose.com](http://www.publicpurpose.com) — Wendell Cox Consultancy.

beneficiaries, both direct and indirect, whereas the operations and maintenance expenses, as far as possible, should come from direct beneficiaries.

- Investment in transport sector benefits real estate sector. Studies estimate that transit investment would have significant impact on land values (8 to 16% price increase within 500 meters of transit line). Often value is captured through increased base rate of property tax, captured value is not transferred to the transit operator/agency. A transparent mechanism to transfer at least a (significant) part of captured value is necessary.
- At present a number of towns and cities in India, have a public bus service. However, the quality of service is not up to the mark and most citizens who can afford private transport prefer not to use the bus service. Since the poor, who do not have access to other modes of transport, usually use public transport, it would be advisable to render different type of service for different groups of people. Keeping this in mind, the NUTP envisages the use of different types of public transport services for different segments of commuters. According to the policy, ‘...those who place a premium on cost are the poorest sections of society and need to be given affordable prices. The cost for providing public transport for them needs to be subsidized by other sections of society. However, there is another segment that values time saved and comfort more than price. This segment is comparatively better off and would shift to public transport if their quality expectations are met. The cost of providing transport service to them need not be subsidized and can be met from the fare revenues.....’

The following are suggested as guiding principles for public transport pricing:

- Fares should not be pegged at levels lower than that required to cover the operating costs as per established performance standards, unless this is done for very special reasons of “public good”. In such cases, where special fares or concessions are offered to any section of users as a measure of public good, the concerned departments/ local bodies should compensate the operators. For example, the revenue loss as a result of concessions to students should be fully reimbursed by the Ministry of Education or any other concerned department.
- Fare structure should be balanced to avoid large distance slabs, which may be enhanced gradually along with increasing distance.
- Ordinary as well as concession tickets should be revised annually to partially meet the increases in operating cost. Steep fare hikes with time spans of 3 to 4 years creates strong public resentment.
- Tickets of public bus undertakings should be comparable to that of Metros or suburban trains, at least for average distance lead.

However, trends indicate that in most cases, world over, transit operations recover less than the operating costs. In cities of Australia, Europe and US indicate that cost recovery is between 35 to 54%. In many Asian cities full cost recovery is achieved. In India, the available data indicate that full cost recovery is achieved only in a handful of cities. The recovery vary between 60 to 101%. In the light of this, reducing the costs through tax concessions, both on vehicles and on fuel, would be necessary to bring the costs within the affordable limits.

The NUTP recommends that to ensure fair and reasonable tariffs, the Central Government would require that a regulatory authority be set up by the State Government to, *inter alia*, regulate the prices to be charged by different types of public transport services.

#### **7.2.4 System Integration**

All cities have corridors that have varying densities of travel and hence need technologies that best match the level of demand on the corridor. This often requires different operators managing such systems. However, a good public transport system is one that is perceived by the user as a single system and allows seamless travel from origin to destination between one mode and the other as also between systems managed by different operators. Unless this is done, it would be difficult to attract users of personal motor vehicles to public transport. One of the methods of providing such seamless travel is to have a common ticket covering different modes of public transport. Such a ticket creates a psychological impression of easy transfer, particularly since it does not require multiple purchase of tickets and may also offer benefits of telescopic fares.

Thus, the benefits of common ticketing to the operators are reduced transactions and lower recurring costs. For the passengers it means a saving in time and greater convenience. Unfortunately, despite these advantages, the system of common ticketing has not picked up in public transport systems in India.

A necessary condition for common ticketing across operators is the creation of a mechanism that allows a fair sharing of the revenues earned from such common tickets. If there is only a single service provider, sharing of revenue is not a problem. However, with multiple providers this is a complex task. Fortunately, advances in information technology provide us with an opportunity to enable such sharing across various operators and modes of public transport. However, an institutional mechanism is required for the single point collection of the revenue and its sharing. Indore has been a pioneer in this having set up the Indore City Transport Service Ltd. which arranges for the issue of common tickets and also for its sharing on a fair and agreed basis.

#### **7.2 Appropriate/ cleaner technologies for Public Transport**

Emissions from transport vehicles, both public and private, are a major contributor to air pollution in our metropolitan cities. Vehicular emission is directly related to the fuel used, the technology employed and the driving technique.

A step towards the use of cleaner technologies is through improvements in the current fuel quality. Improvement in fuel quality can be achieved through removal/reduction of emission related constituents in the fuels such as sulphur in diesel and sulphur, lead, benzene and other aromatics in petrol. Further reduction of emissions can be obtained through improved engine technology and exhaust treatment systems.

The Auto Fuel Policy approved by the Government of India in 2002 lays down the roadmap for tighter emission regulations up to 2010. The roadmap envisages the following:

<b>Vehicle Category</b>	<b>Bharat Stage II (Entire Country)</b>	<b>Bharat Stage III (11 Metros)</b>	<b>Bharat Stage III (Entire Country)</b>	<b>Bharat Stage IV (11 Metros)</b>
Passenger Cars	01 April, 2005	01 April, 2005	01 April, 2010	01 April, 2010
Commercial Vehicles	01 April, 2005	01 April, 2005	01 April, 2010	01 April, 2010
2 & 3 Wheelers	01 April, 2005		Preferably April, 2008 but not later than 01 April, 2010	

Although these specifications are only relevant for future vehicles, a serious concern is the large fleet of old vehicles that are still running and have been built on the old standards. The vehicles produced before the first mass emission norms were introduced in the country in 1991, would require to be replaced through some method, if air quality is to meet the national standards.

Ministry of Road Transport and Highways (MoRTH) has appreciated the need for strengthening the Inspection & Certification (I&C) and inspection & Maintenance (I&M) systems for in use automobiles in the country and has instituted several studies on the subject. This has major implications both for air-quality as well as safety of in-use vehicles on the roads.

Currently, a system of fitness testing exists as per Section-56 of Motor Vehicle Act and Rule-62 of Central Motor Vehicle Rules for commercial vehicles. The procedure adopted is for the owners to get their vehicles attended at dealer/private workshops and to offer them for inspection to the Transport Department in their respective places. Certificates are issued generally after visual inspection and are normally valid for a period of one year.

Given the continuous upgrading of vehicle specifications and technologies, the present system may not fully serve its intended purpose. It is also not designed to cope with the continuously increasing vehicle population.

Presently, the centre in Delhi (at Burari), which handles I & C for commercial vehicles is the only semi-automated inspection facility. Another wing of that centre handles safety-related inspection of CNG buses operating in Delhi with ASRTU providing technical expertise for that wing.

Given the magnitude of the task and the late start we have had in India, it is proposed that 10 pilot I & M centres be established in select places on the lines of the Burari Centre. These could be funded by the Central Government. These centres could be operated by the private sector or on Private Public Partnership (PPP) basis. The government may authorize such centres and monitor and regulate their activities and the fee structure. Ultimately, they could be empowered to issue certification with minimal over-check by the State Transport Authorities.

Non-hydrocarbon fuels such as solar energy are regarded as clean fuels. However, vehicle systems based on their applications are still in various stages of development and not yet commercially available.

Electric vehicles are perhaps the only zero emission vehicles available in the market today. A major barrier to greater use of electric vehicles seems to be the absence of adequate infrastructure to facilitate charging of batteries or a suitable mechanism for replacing a run down battery with a charged battery. A detailed study needs to be carried out to assess the other barriers to commercialization of electric vehicles. Measures should be adopted in at least a few cities to help commercial viability of the electric vehicle as a mode of personal mobility.

Greater use of alternative fuel vehicles would be an important means to clean the environment.

SIAM has proposed the following time frame for adoption of different fuels:

<b>Time Frame</b>	<b>Technology</b>
Short term	Ethanol, CNG, LPG
Medium term	Bio-diesel, EV, HEV
Long term	Hydrogen/Fuel Cell

For the industry to carry out the necessary development activity and introduce alternative fuel vehicles, there is a need to have an accepted and agreed roadmap, clearly indicating the time frame under which the infrastructure for supply of these alternative fuels would be set up. Besides, for any alternative fuel to have a meaningful penetration in the market, the following enablers are also essential:

- Cost economics through incentives so that they are competitive vis-à-vis the current vehicles.
- Legislative mandating e.g. only zero emission vehicles are allowed near the Taj Mahal in Agra, thus promoting the use of Battery Operated Vehicles (BOV).
- An integrated approach encompassing cleaner vehicle technology, fuel quality and in-use vehicle emission management.

### **7.3 Private Public Partnership in Urban Transportation**

The total financial requirements for development of cities in tune with the NUTP was initially estimated to be Rs. 57,320 crores. In view of the projected economic growth of 10% during the 11<sup>th</sup> Plan and a growing travel demand at about 11- 12%, these estimate seem to be on a lower side. Further the projected requirements of BRTS made in the Working Group Report are also on the lower side. Hence the revised estimate to cater to the growing demand would be Rs 1,32,590 crores as summarized in the table given below:-

<b>Requirements of funds- Summary</b>	<b>Rs in crores</b>
Capacity Building	350
0.1 - 0.5 million cities	7,400
0.5 - 1 million cities	7,800

1 - 4 million cities	26,040
4 million plus cities	21,000
MRT for Mega cities	32,000
Modern Buses	38,000
Total	1,32,590

It may be noticed from the above that the government has identified the highest investment of Rs 38,000 crores for introduction of modern buses in the country. The Ministry aims to replace all the existing urban buses with 'truck chases body' on PPP basis in the 11<sup>th</sup> Plan period with low floor/ semi low floor ultra modern buses.

Indore in Madhya Pradesh has already evolved a suitable PPP model for operation of their city bus services which may be rated as one of the best practices. In this model, the investment on the rolling stock is planned through private participation. The source of revenue for the private operator is daily fare collection and income from advertisements. Similar SPVs can be formed for any city requiring city bus services. In fact the cities which are planning for BRTS later on, may first introduce city bus services on similar model which can be upgraded to BRTS. Delhi Metro is also on partial PPP model. The civil structure is developed by the government and rest of the infrastructure including signaling and rolling stock are partially outsourced.

However this investment may not be enough and as suggested in the NUTP, the following methods of additional resource mobilization need to be tapped:

- Commercial exploitation of land and air rights over the land used for transport infrastructure
- Use of private capital in such activities that are financially viable and can be provided by the private sector in a competitive environment
- Use of betterment levies to make those whose property values have improved to also pay for the investments that enhanced the value of their properties
- Fees collected from parking, etc.

The ministry in its guidelines for development of DPRs for Mass Transit System also lays emphasis on identifying other options of where investment from private sector may be utilized. This includes development of terminals, stations, parking lots etc on PPP or BOT basis besides the rolling stock. The ministry is also advising cities to evaluate the potential of private investment for developing the complete BRT corridor.

The following sources are being suggested:

- The JNNURM, in respect of cities that are eligible for funds under the scheme
- The UIDSSMT, in respect of cities that are not included amongst the mission cities
- Viability Gap Funding scheme, in respect projects that are taken up as Public Private Partnerships
- Government of India's other budgetary sources.
- State Government resources
- Resources of the Urban Local Bodies
- Financial Institutions
- Private promoters

A rough estimate of requirement of funds from different sources for this investment during the 11<sup>th</sup> Plan is given below:

<b>Source</b>	<b>Funding (in Rs Crores)</b>
NURM (GOI) including UIDSMT	15,500
Non NURM (Budgetary Support)	4,400
Viability Gap	6,000
States/ ULBs	19,500
Financial Institutions	61,190
Private Promoters	26,000

It is evident from above that huge capital investments are required in dealing with the urban transport problems. However, the resources are limited. Most State governments and local bodies do not have the required resources and, therefore, alternative methods of financing would have to be explored. Land resources, available with public transport service providers, can be commercially utilized to raise additional resources. The possibility of commercialization of all vacant government land along the identified corridors of Mass Transit System on BOT basis may be reviewed by the city/ ULBs.

Investments in urban transport would be for a variety of facilities. They can be classified into the following categories:

- Investments in road infrastructure covering;
  - New roads
  - Widening of existing roads
  - Flyovers and Road over-bridges
  - City by-passes
  - Ring roads
  - Intersection improvements, etc
- Investments in facilities for pedestrians and non motorized modes;
- Investments in parking facilities;
- Investments in Truck terminals and Bus terminals;
- Investments in improved public bus services;
- Investments in high cost public transport systems.

Investments in road infrastructure as well as in facilities for pedestrians and non motorized modes will have to be taken up by a public entity and funds have to come from the public budget. Only city by-passes may be possible on a BOT basis as toll collection is possible. However, investments in parking facilities, terminals, bus operations as well as in the high cost public transport systems should be encouraged under the PPP route to the extent possible. This would not only make operations more efficient, but cost effective.

With regard to public transport, publicly owned bus undertakings in India have been incurring losses and few are able to meet their operating costs. Such undertakings find it difficult to even maintain existing assets. Increasing fleets to meet the rising demand is therefore out of question.

Under the circumstances, attempts were made to privatize public transport in a number of cities -Delhi, Jaipur, Bhopal, Indore, Visakhapatnam etc. It was expected that these private buses would reduce the burden of the public bus undertakings and benefit

commuters at the same time if done through properly designed contracts. However, instead of making the daily commute easier, the private operators brought in a new set of problems. For example, in Delhi, a private bus operator is supposed to operate on all type of routes prescribed by the Delhi Transport Corporation (DTC), irrespective of whether it is economical or not. However, as a general practice, they began to operate only on profit making routes. In addition, they would miss trips during non-peak hours, stop their buses anywhere at the request of the commuters, indulge in rash driving with inadequately trained crew, etc. Not only has this practice led to disruption in traffic movement, but the number of fatal accidents has also gone up.

In light of the above, the following recommendations are made:

- The private operation of public bus transport in large cities is a viable option, provided certain conditions are met - (a) differential quality of services are made available – low – fare premium bus service and high - fare super premium bus service (b) strong and effective regulation of bus services (c) an urban transport authority to co-ordinate and regulate the operation of these buses through a set of norms for route allocation, fare fixation, safety and pollution control.
- The private sector can play an important role in activities like the operation and maintenance of parking facilities, repair facilities, construction and management of terminal facilities etc.
- Management of rail based transport infrastructure may be continued on the lines of the existing system of public management because of its highly cost intensive nature. The Government may finance fixed infrastructure like tracks and the balance (e.g. rolling stock etc.) could be outsourced on BOT basis or the complete projects may be taken up with viability gap funding support from the govt. However, the need for such high cost systems needs to be carefully and rigorously evaluated. They should be well justified and not approved on the basis of sentimental a priori decisions. In particular, exaggerated estimates of ridership that seek to justify them should be guarded against.

## **7.4 Role of Intelligent transport Systems**

Intelligent transportation systems (ITS) encompass a broad range of wireless and wire line communications-based information and electronics technologies. When integrated into the transportation system's infrastructure, and in vehicles themselves, these technologies relieve congestion, improve safety and enhance productivity. Applied effectively, Intelligent Transport Systems and Services (ITS) can save lives, time, and money as well as reduce threats to our environment and create new business opportunities.

Some of the key ITS applications could be the following:

### **Advanced Traffic Management Systems**

ATMS systems endeavor to eliminate or, at least reduce the traffic congestion, and results in doubling the number of vehicle-kilometers traveled. Characteristic components of an ATMS are roadside sensors to monitor traffic flow, computer coordinated traffic signalization to optimize urban arterial traffic flow, and variable message sign as or highway advisory radio for dissemination of traffic and travel information for example, an alternative-route recommendation upstream of a highway incident to motorists. The ATMS systems comprise inputs (traffic-flow data), data processing capability (both at intersections and by computers in a traffic control center,

or, for fully integrated ITS systems, in a transportation management center), and outputs (timings to traffic signals, VMS messages to motorists, incident advisories to tow trucks, and so on).

### **Advanced Traveler Information Systems**

Advanced Traveler Information Systems (ATIS) are an integral component of the concept of Intelligent Transportation Systems. ATIS are envisioned to enhance personal mobility, safety and the productivity of transportation. ATIS can play a pivotal role in reducing traffic congestion. The primary services of ATIS include pre-trip and/or route traveler information concerning traffic conditions, route guidance, and “yellow page-type” information related to traveling as well as entertainment, dining and other services. The function of ATIS is to assist the travelers with planning, perception, analysis and decision making to improve the convenience and efficiency of travel. ATIS technologies include:

- ◆ On-board display of maps and road way signs.
- ◆ On-board route guidance systems
- ◆ On-board traffic hazard warning system.

### **Electronic Toll Collection**

Electronic Toll Collection (ETC) is a fairly mature technology that allows for electronic payment of highway tolls. ETC equipment substitutes for having a person (or coin machine) to manually collect tolls at toll booths. In addition, it allows such transactions to be performed while vehicles travel at (almost) highway cruising speed.

ETC systems take advantage of vehicle-to-roadside communication technologies to perform an electronic monetary transaction between a vehicle passing through a toll station and the toll agency. ETC systems require onboard units (OBU), vehicle detection and classification as well as enforcement technologies.

### **Cooperative Intersection Collision Avoidance Systems**

*Intelligent intersection systems can save lives and prevent injuries by helping drivers avoid crashes.* Each year intersection-related crashes take a heavy toll on lives, productivity, and the economy. Intelligent intersection systems offer a significant opportunity to improve safety by enhancing driver decision-making at intersections that will help drivers avoid crashes.

Intersection collision avoidance systems use both vehicle-based and infrastructure-based technologies to help drivers approaching an intersection understand the state of activities within that intersection. Cooperative intersection collision avoidance systems (CICAS) have the potential to warn drivers about likely violations of traffic control devices and to help them maneuver through cross traffic. Eventually, CICAS may also inform other drivers (i.e., potential victims) about impending violations as well as identify pedestrians and cyclists within an intersection.

### **Emergency Transportation Operations**

ITS technologies can help to identify the appropriate response and get the correct equipment and emergency personnel to and from the scene quickly and safely.

This can improve the management of all forms of transportation emergencies through the application of ITS technologies. Advances in in-vehicle communication and information systems will provide access to essential real-time data about an incident and about transportation conditions on all routes throughout the affected region.

### **Integrated Vehicle-Based Safety Systems**

Integrated Vehicle Based Safety Systems could prevent over the rear-end, run-off-road, and lane change crashes.

The widespread deployment of advanced integrated driver assistance systems has the potential to reduce rear-end, road departure, and lane change collisions by 50 percent. Integrated systems will provide better hazard information from multiple sensors and provide coordinated warnings to reduce driver distraction. The Integrated Vehicle Based Safety Systems (IVBSS) initiative aims to demonstrate the technologies necessary to equip all new vehicles with advanced driver assistance systems that would help drivers avoid the most common types of deadly crashes.

### **ITS Technologies to Reduce Pedestrian Injuries and Fatalities**

Pedestrians represent about 30% of all roadway fatalities. In general, half of pedestrian fatalities are caused by pedestrian inattention/error, and half are caused by driver inattention/error. Experience with various ITS based pedestrian safety systems such as pedestrian detection devices, lighted crosswalks and countdown pedestrian signals has shown that such devices generally improve pedestrian safety, especially help slower moving pedestrians and save motorists time.

### **Vehicle Assist and Automation Systems for Transit Operations**

Operating buses in extremely narrow lanes is difficult and can be dangerous. Vehicle assist and automation systems (VAA) allow precise operations of buses in such circumstances. VAA supports precision docking, vehicle guidance, vehicle platooning and automated operations. VAA has the potential to improve mobility, improve bus rapid transit amenity and accessibility and increase efficiency and productivity of bus operations. While the primary focus of this initiative is transit vehicles, this technology has implications for commercial vehicles as well.

Vehicle assist systems have the potential to allow transit vehicle operators to safely implement service in situations where there are inadequate operating conditions, such as vehicle maintenance yards, narrow lanes or bus-only shoulders on freeways.

### **Vehicle Infrastructure Integration (VII) for Mobility**

As the economy grows, so also does traffic congestion. This initiative will examine the potential for using this communication technology to enable a new generation of active traffic operations services. These services use emerging intelligent vehicle and vehicle-infrastructure wireless communication technologies to improve traffic flow. These potential applications include active queue management, dynamic intersection control and merge assistance.

## **ITS in Public Safety**

In India large number of persons get hospitalized, receive minor and major injuries due to road accidents every year. The ratio of deaths: serious injuries: minor injuries is in the order of 1:15:70 which is very high. According to official statistics- 84, 210 persons were killed and 3,42,200 were injured. However since not all Road traffic accidents are reported to the police, about 1,200, 000 required hospitalization and 5,600,000 received minor injuries. In these and other emergencies, lives depend on how fast rescuers reach the scene.

The emerging technologies in transportation and communication can both save lives on the highways every day and form the technology foundation for a stronger disaster preparedness network. ITS, can be a vital link for the entire community of emergency responders: law enforcement such as police, fire and rescue, emergency management, and emergency medical services (EMS).

## **Integrated Corridor Management Systems**

Through the Integrated Corridor Management Systems initiative we can improve mobility and enhance productivity in metropolitan cities. Traffic congestion continues to grow, with the greatest concentration of congestion along the principal routes in major metropolitan areas. These “critical corridors” that link activity centers (e.g., business centers, shopping areas) with residential areas carry the highest volumes of people and goods.

Corridor management can be achieved through collaboration and coordination between the operations and planning communities and through integration of the services. Collaboration between planning and operations communities and integration of travel management tools could help shift travel demands between facilities and modes, thus reducing delays and increasing reliability and predictability of travel. Unused corridor capacity often exists on parallel routes, on the non-peak direction on freeways and arteries, within single-occupant vehicles, and in transit vehicles. Shifts in travel demand to unused capacity can be accomplished by delivering real time travel data through in-vehicle devices, changeable message signs, as well as through various traffic and transit management strategies, including adaptive traffic signal and ramp metering systems. A planned model deployment will show how proven and promising ITS technologies, working together, can improve corridor mobility and productivity.

ITS should be effectively used for setting up traffic information centres that would help in performing multiple functions. One of them would be to facilitate smooth movement of traffic and the handling of emergencies and temporary traffic build-ups in an effective manner. Another extremely useful function would be to collect data on a continuous basis and thereby provide a scientific basis for future policies and plan. These initiatives can be taken in 4 or 5 pilot cities begin with and then replicated in all the million plus cities of the country. An appropriate ITS infrastructure should be put in use and model regulator should be established through pilot initiatives as mentioned above.

## **7.5 Institutional Framework/ Establishment of UMTA**

The current legal institutional arrangements for managing urban transport were developed at a time when urban transport was not a major problem. As a result, there is a high degree of fragmentation and separate enactments cover different modes of

transport. Apart from this, the planning and implementation of urban transport infrastructure rests with multiple agencies, which do not necessarily work in a coordinated manner. In most States, the Transport Department carries out regulatory functions of setting the fares for public bus systems. Roads are build and management by the local bodies or State PWD. A State Transport Corporations operates public buses.

Such a fragmented system of planning and implementation of urban transport projects is not desirable and there should be meaningful coordination in all urban transport activities. Several changes need to be made in the existing regulatory and administrative systems. They have to be conceptualized in the context of the fact that urban transport can not be divorced from the rest of urban development and there has to be very close coordination between various modes of urban transport as also between urban transport and land use. It calls for very close coordination among those who provide different urban services and it would not be desirable for any one of them to work in isolation. Accordingly, the National Urban Transport Policy recommends the setting up of Unified Metropolitan Transport Authority in all million plus cities to facilitate better coordination in the planning and implementation of urban transport systems. Such an authority should not be an operator of any transport facility, but should function as a coordinator amongst various operators. It could perform a regulatory function and also provide common facilities that would benefit all operators. It should play an important role in creating a future vision for improved mobility and ensuring that the required investments take place.

A number of other gaps in the current legal and administrative structures that constrain coordinated planning and implementation of urban transport systems need to be noted and corrected. Some of these are highlighted below:

### **Allocation of Responsibility**

**Between the Centre and the States:** The Constitution of India does not make a clear allocation of responsibility for urban transport between the Centre and the States. Various entries do suggest that urban transport is a State government responsibility, though the allocation is based more on the transport technologies and not as an overall subject.

Entry-13 of List-II (State List) under the 7th Schedule of the Constitution of India reads as follows:-

“ Communications, that is to say, roads, bridges, ferries, and other means of communication not specified in List I; municipal tramways; ropeways; inland waterways and traffic thereon subject to the provisions of List I and List III with regard to such waterways; vehicles other than mechanically propelled vehicles”

Shipping and navigation on inland waterways (entry 32: list III) and “mechanically propelled vehicles” (entry 35: list III) are items on the concurrent list. Railways, national highways, shipping and navigation on national waterways, as well as maritime shipping are all subjects in the union list.

As may be seen from the above, there is no clear allocation of the overall subject of Urban Transport to the Union or the State list. Different components of an urban transport system have been allocated to the three different lists. Unfortunately, this is not conducive to an integrated and well coordinated transport system in a city. As a

result, different modes of public transport within a city tend to be managed and regulated by agencies that belong to different levels of the government. The operators of these modes do not necessarily work in a coordinated manner. Classic examples exist in Mumbai, Kolkata and Chennai where rail based systems are operated by a central government agency and bus based systems by a State government agency. Though Delhi has presented an example of the State and Central Governments having collaborated to set up the metro rail system, yet there is little coordination between the Delhi metro and the bus system.

Fares for different modes are also set by different agencies, drawing their authority to do so from different enactments.

**Allocation amongst Ministries/Departments:** There is lack of clarity even in the allocation of subjects amongst the Ministries/Departments. The “Allocation of Business Rules” of the Government of India has allocated the subject of Urban Transport to the Ministry of Urban Development through the following entry:-

“Planning and coordination of Urban Transport systems with technical planning of rail based systems being subject to the items of work allocated to the Ministry of Railways, Railway Board.”

It is not clear from this as to what constitutes technical planning. This became evident in a recent difference of opinion with regard to the choice of gauge for metro rail systems where the Ministry of Railways took the view that this is a technical parameter whereas the Ministry of Urban Development took the view that it was a planning parameter.

At the State level the allocation of responsibilities is even more confusing. The general trend seems to be that rail transit systems are being promoted by the Departments of Urban Development whereas bus based systems are being administered through the Department of Transport. The only exception is Delhi where even the Delhi Metro is being dealt with by the Department of Transport.

### **Changes needed**

The current institutional and regulatory arrangements are, therefore, far from satisfactory and several changes seem to be necessary if cities in India are to secure a good and well-coordinated transport system.

First of all, the State Governments should designate one department as the nodal department for urban transport. However, for proper strategic planning several other departments/agencies have to be very closely involved. Among them would be the Traffic Police, the State Transport Corporation (STC), the rail transit operator (if any), Indian Railways, Municipal Corporation, Metropolitan Development Authority, Urban Development Department, Transport Department, Public Works Department, Planning Department, Finance Department, etc. The involvement of so many agencies can only be ensured through a high level committee/authority that has representation on behalf of all such agencies. Such a body should have powers to allocate funds to the different agencies involved in accordance with strategic plans. It should also be empowered to ensure compliance with the strategic plans. As suggested above, an Urban Metropolitan Transport Authority needs to be set up as a professional body, for each million plus city to make professional recommendations to the State Government on the long term and strategic transport needs of the city. Capital investments in Transport Infrastructure and the level and quality of service should generally be based on the recommendations of this Authority.

In order to ensure that such an authority is able to render high quality professional advice, it should be manned by personnel who have the requisite professional knowledge and competence backed up by the required qualifications, in modern systems of urban transport planning and management.

Further, in order to ensure that the recommendations of this Authority receive due consideration, it should be headed at a very senior level and should be set up under a legislation. The authority may be required to submit a half yearly report to the State Assembly highlighting the recommendations made by it during the period and also pointing out those that have been/have not been acted upon.

The nodal department should also be required to lay a report in the State Assembly on the action taken on such recommendations and for this purpose it should obtain a report from the concerned departments of the State Government.

## **7.6 Summary and Conclusions**

National economy depends on cities to contribute towards growth. Economic development brings people to cities. In India, in the next 25 years, most cities are likely to double their size in terms of population and more than double in terms of area. This coupled with rising wealth and personalized vehicle growth fuel mobility demand. The public transport with limited investments and institutional constraints is stuck in a vicious circle. The resultant increase in travel times, congestion, deteriorating air quality, high noise levels are threatening the sustainability of urban areas.

In view of these trends, the government of India, Ministry of Urban Development announced a National Urban Transport Policy, 2006. The policy emphasizes the need for 'giving streets back to people' and thus aims to facilitate movement of people and not vehicles. The attempt in this chapter was to identify investment needs and actions required to be taken to translate the policy on ground during the eleventh plan.

The plan proposes to initiate high density transit oriented development through integrated landuse-transport development, mixed land use structure, promotion of public transport, use of non-motorized vehicles, value capture and public private partnerships for system development. While infrastructure is proposed to be developed by local government through support from the centre and state governments, the operation of transit services has to be on self sustaining basis. Specific subsidies, as required such as student passes etc., need to be reimbursed by respective departments. Further, to enable improvement in services, use of state of the art buses is envisaged even for the ordinary service. Support to procure the same is proposed through tax concessions and viability gap funding. Certain tax concessions to reduce operating costs are to be examined as a measure to correct market imperfections. Levy of additional cess on personalized vehicle purchase and on fuel as a demand management measure and also to provide for viability gap funding to public transport are to be examined.

The plan proposes to invest Rs. 1, 32, 590 Crores towards urban transport sector, to be raised as plan funds, budgetary allocations, private sector and financial institutions contribution.

## **CHAPTER 9**

### **JNNURM: AN INSTRUMENT / VEHICLE OF CHANGE**

#### **9.1 Overview of the Mission**

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched on 3<sup>rd</sup> December '07. It is an ambitious programme of the Government of India aimed at creating economically productive, efficient, equitable and responsive cities. It rests on the postulate that in order to make cities work and meaningfully contribute to India's economic growth and poverty reduction objectives, it is essential to create incentives and support urban reforms both at the state and city levels. It aims at developing appropriate enabling frameworks to enhance the creditworthiness of municipal governments and integrate the poor with service delivery systems. The Programme seeks to fulfill the Millennium Development Goals. This programme is envisaged to operate in a mission mode by facilitating investments in the urban sector. It seeks to incentivize policy and institutional reforms, leading to sustainable socio-economic growth, service delivery and improved governance in the Mission cities. JNNURM provides for a budgetary provision of Rs. 50,000 crore from Government of India for a mission period of seven years.

#### **Objectives of the Mission**

- Focused attention to integrated development of infrastructure services in cities;
- Establishment of linkages between asset-creation and asset-management through a slew of reforms for long-term project sustainability;
- Ensuring adequate funds to meet the deficiencies in urban infrastructure services;
- Planned development of identified cities;
- Scale-up delivery of civic amenities and provision of utilities with emphasis on universal access to the urban poor;
- Special focus on urban renewal programme for the old city areas to reduce congestion; and
- Provision of basic services to the urban poor including security of tenure at affordable prices, improved housing, water supply and sanitation, and ensuring delivery of other existing universal services of the government for education, health and social security.

#### **Scope of the Mission:**

JNNURM comprises two sub-missions for 63 cities, i.e., Sub-Mission-I for Urban Infrastructure and Governance and Sub-Mission-II for Basic Services for the Urban Poor. The main thrust of the Sub-Mission I is on infrastructure projects relating to water supply and sanitation, sewerage, solid waste management, road network, urban transport and redevelopment of old city areas with a view to upgrading infrastructure therein, etc.

For all other cities, not covered under Sub-Mission - I, the Ministry of Urban Development (MoUD) has launched a scheme known as Urban Infrastructure

Development Scheme for Small and Medium Towns (UIDSSMT) while the Ministry of Housing and Urban Poverty Alleviation (MoHUPA) has formulated a scheme known as Integrated Housing and Slum Development Programme (IHSDP).

### **Strategy of the Mission**

The Mission seeks to achieve the objective of integrated development of cities, for which the cities are required to formulate a City Development Plan, bringing out long term vision for the city and support their efforts through funding of project proposals. Essential requirement of the Mission is implementation of urban reforms, within the mission period. Based on satisfactory completion of the above tasks, funding support is provided in the form of 'additional central assistance' (ACA), ranging from 35% to 90% of the project cost, based on the city category. The fund for identified projects across cities is sent to the ULB/Parastatal agency through the designated State Level Nodal Agency (SLNA) as soft loan or grant-cum-loan or grant from the States. The States / Cities are expected to mobilize additional resources. The Mission also aims to leverage and incorporate private sector efficiencies in development, management, implementation and financing of projects, through Public Private Partnership (PPP) arrangements, wherever appropriate.

### **Expected Outcomes of the JNNURM**

- Financially sustainable cities for improved governance and service delivery
- Universal access to basic level of services in urban areas
- Transparency and accountability in governance
- Adoption of modern transparent budgeting, accounting and financial management systems
- Increased application of e-Governance for service delivery and internal operations

### **9.2 State of Implementation of the Mission** (for Sub Mission for Urban Infrastructure and Governance, as on May 18<sup>th</sup> 2007)

Significant progress has been achieved in implementation of the Mission. 62 out of 63 cities have submitted their City Development Plans. MoAs have already been signed with 50 cities from 22 states. It is expected that rest of the cities and the states shall sign MoAs within the first few months of FY 2007-08<sup>11</sup>.

As on date, the Mission Directorate has received projects for 52 ULBs from 28 states. Of the sanctioned projects, significant number of projects and quantum of investments is towards provision of basic services, in keeping with the principal of the

---

<sup>11</sup> - The detailed list of cities with respect to their status of CDPs, MoAs and projects can be accessed through <https://jnnurmmis.nic.in>.

Mission, as tabulated below :

Table 1: Sectoral scenario of projects sanctioned

<b>Sl. No.</b>	<b>Sector</b>	<b>Number of projects sanctioned</b>	<b>Cost of projects sanctioned</b>	<b>% of cost of projects sanctioned</b>	<b>Funds released (1<sup>st</sup> installment)</b>
	Drainage/Storm Water Drainage		256,611.97		19,909.14
	Roads/Flyovers		167,985.95		19,645.15
	Water Supply		590,834.75		53,165.01
	Sewerage		456,687.64		34,170.02
	Urban Renewal		12,402.48		1,297.80
	Mass Rapid Transport System		178,929.50		12,243.67
	Other Urban Transport		2,325.00		203.44
	Solid Waste Management		103,415.49		12,094.82
	Development of Heritage Areas		4,313.08		862.62
<b>Total</b>			<b>1,773,505.86</b>		<b>153,591.67</b>

### 9.3 Operational Issues linked to JNNURM process

Sustaining momentum of the Mission by continuous engagement with all cities and at the same time ensuring wider ownership has been an under-riding challenge while operationalizing the Mission.

The key challenge for the Mission is to augment capacities (financial, organizational and leadership) at the city level in order to achieve the Mission objectives. The capacity of city level agencies to absorb the investment support that the Mission provides, and deliver on reforms and projects is a critical bottleneck. The challenges for the Mission directorate is to calibrate and pace its capacity building efforts in a manner, so as to ensure that all Mission cities are able to reap the benefits of the programme and therefore enable the programme to meet its stated goals and objectives.

Projects hitherto being implemented by city level agencies have been very small in size compared to that being taken up under JNNURM. The overall institutional capacity and more specifically the project implementation capacity is clearly inadequate to deal with such large projects. This calls for immediate lateral expansion of human resources with appropriate skills, backed up by good project management systems. There is also a tremendous shortfall in the contracting capacity in the private sector. Large / organized sector players in infrastructure industry have not yet seriously looked at municipal infrastructure because of uncertainty in enabling environment. The project sizes have been small, with overdependence on government funding. Poor credibility is also an issue.

Successful implementation of reforms within the committed time-frame, envisaged under JNNURM is critical to the success of the Mission. The challenge is to facilitate the cities to internalize the reforms. Simultaneously, the process rigor of reporting and monitoring progress of reforms will need to be sustained throughout the mission period. The challenge is also to address the granularity of such commitments during the monitoring process.

The Mission by its very design requires close engagement of the city with the Mission Directorate. With more cities and more projects participating in the Mission the challenge will be its ability to retain its process rigor and intensity of engagement through the course of the project implementation and reform implementation.

#### **9.4 Measures to strengthen JNNURM process**

Steps are being taken to handhold the slow performing cities under JNNURM. Several workshops and seminars have been organized at regional and state level, apart from day-to-day interactions to speed up their participation in the Mission.

The Mission Directorate has undertaken series of workshops / seminars with the objective of dissemination of the Mission objectives among the elected representatives and municipal functionaries. These forums have been instrumental in enhancing citizen involvement and improving technical capacities for project preparation and implementation of ULBs/other city level agencies, in various cities and states. The Mission Directorate has also organized workshops for review of progress on implementation of projects and reforms on regional basis. To enhance community participation in the planning process and in various aspects of implementing JNNURM, the Sub-Mission on Urban Infrastructure and Governance has created a Community Participation Fund. This is to enable the citizens to develop a sense of ownership on community assets and take on responsibilities for community-based projects. To improve community participation in implementation of the Mission, a Technical Advisory Group (TAG) has been set-up at national level, which is to be further supported by similar structures at the State and city level.

The Mission is in the process of preparing a framework for capacity building and up-scaling of all related activities, so as to bridge the capacity gap in implementation of projects and reforms. It is proposing to conduct rapid training programme for municipal functionaries, in key areas like governance and reforms, DPR preparation and project preparation. For fulfilling the long-term requirement of human resource challenges in ULBs, the Mission Directorate is in the process of establishing a network of regional institutions across the country, which will address training and capacity building needs for the States, Cities and other related institutions.

Strengthening communication channels to facilitate institutionalisation and internalisation of reforms is a key to the success of the Mission. The Mission Directorate has also appointed independent agencies for monitoring implementation of reforms.

A quarterly progress reporting system for the cities and state has been instituted under the Mission. Apart from this, a management information system has been developed, for monitoring projects and reforms.

To address the issues of credibility and financial sustainability of the ULBs, Municipal Finance Improvement Programme (MFIP) has been launched by the Ministry. A taskforce constituted, under the programme, has recommended measures to synergize all financial resources at city level and improve environment to access finance, which is planned to be disseminated to cities for reference. As a part of the recommendation, all ULBs, under Sub-Mission – I, are being rated based on their financial capacities and credit worthiness.

### *Preparation and Dissemination of Best Practice documents*

The best practices under the Mission are being disseminated through the website of the Ministry, and through workshops and seminars.

Apart from this, the Mission Directorate has launched an initiative called Peer Experience and Reflective Learning (PEARL) to facilitate networking among JNNURM cities to encourage cross learning and knowledge sharing. The cities have organized themselves in various groups / networks having similar socio-economic profile. The city networks have selected a Knowledge Manager for the respective groups to anchor partnerships within and outside the networks for exchange of best practices in urban governance & reforms.

## CHAPTER 10

### HUMAN RESOURCES AND URBAN DEVELOPMENT

Human resource development of municipal functionaries and elected representatives is one of the most critical requirements for balanced and efficient urban development. The sector has received low priority in professional and training systems in the country. In-service training of staff has not developed at par with other sectors such as rural development, education and health.

Professionalization of municipal services and re-orientation of staff and elected representatives to meet the challenges of rapid urbanization is a key priority for urban development in the next five years.

#### 10.1 Training and capacity building

To meet the growing training and capacity building needs of the ULBs, the MoUD has prepared a Framework for Action (FFA). The FFA is being implemented in a phased manner, with a Rapid Training Program (RTP) for the slow performing cities and states is scheduled for launch in 2007.

##### 10.1.1 Identification of areas for training

The key competencies for the municipal staff and elected representatives include:

- a. Key operational skills for upgrading among municipal functionaries at various levels:
  - (i) Principles and objectives of urban reform agenda and responsibilities of individual functionaries in change management.
  - (ii) Governance, Development Planning and Urban Management, and Urban Poverty Alleviation
  - (iii) Financial Management- Accounts, Finance (Costing and Pricing),
  - (iv) Infrastructure (Water, Sanitation, Waste Management and Transportation); A module for supervision and assessment of Detailed Project Reports (DPRs).
  - (v) Project Implementation – good practices in procurement processes, project structuring and contract management, supervision of works and reporting through the Project Monitoring and Evaluation System (PMES).
  - (vi) Human Resource Development including management and leadership
  - (vii) IT Applications, e-Governance and GIS and its use
  
- b. Orientation and Training Areas for Elected Representatives, civil society and NGOs
  - (i) Principles and objectives of urban reform agenda and roles and responsibilities of elected representatives /consumers/ NGOs in the change process, interface with ULBs
  - (ii) Local governance, e-Governance, decision making.

- (iii) Personality Development (particularly for female councilors).

c. Areas of focus on for Organizational Development

- (i) Benchmarking the necessary skills, with indicators on competency levels for personnel. Defining a Job - chart and individual responsibility within the ULB,
- (ii) Subjecting all staff to social audit, recognition and reward for good performers as well as municipal councilors; disincentives for poor performance
- (iii) Need to have a common cadre for all the ULBs including the option of in-sourcing specialized skills on contractual basis, as necessary.
- (iv) Certification of in-service officials and a requirement for fresh recruitments
- (v) In-sourcing private sector efficiency, wherever necessary.

## **PHE TRAINING PROGRAMME**

For success of any programme and its sustenance, personnel with requisite qualification and experience is a must. Keeping this in view, the Ministry of Urban Development is sponsoring PHE Training Programme as a Plan scheme for the benefit of in-service engineers working in Public Health Engineering Departments and ULBs. In order to further step-up this activity to meet ever increasing demand for the same in the 11<sup>th</sup> Five Year Plan, it is proposed to recognize a few more premier institutions for conducting Post Graduate courses to increase the intake capacity. It is also proposed to identify 10 more academic and research institutions to organize about 70 Refresher Courses of duration ranging from 1-4 weeks to train about 1400 junior, middle, senior level Public Health / Environmental Engineers annually on a variety of subjects. Efforts will also be made to conduct Refresher Courses on subjects such as water and energy conservation, waste water management, re-use and re-cycling of treated effluents, financial management, solid waste management etc. to benefit various personnel working in ULBs.

### **10.1.2 Selection of targeted groups**

The central principle for capacity building is to open opportunities for quality and sustained interaction and professionalization of urban management and subject specific targeted training for all levels of staff across all urban sector institutions /parastatals involved in service delivery at city level and elected representatives. Female councilors will be specially targeted for accessing intensive training as necessary.

Though Municipal Solid Waste Management Handling Rules-2000 have been notified a few years back, several ULBs are yet to fully understand their duties and responsibilities for successful implementation of solid waste management programme in their respective municipalities / corporations. Special emphasis shall be given to run short term programmes for sanitary workers, supervisors, health workers and other personnel involved in collection, segregation, transportation, processing of waste and hygienic disposal of garbage. The infrastructure which are being developed by various ULBs / State Departments for drinking water supply, sewerage, sanitation, drainage, SWM under the recently launched JNNURM would require more number of qualified and trained manpower for better planning, designing, implementation and O&M of water supply and sanitation schemes.

### **10.1.3 Advance training for implementation**

Development of trained manpower is one of the thrust areas of the Ministry. The Central Public Health and Environmental Engineering Organization, Ministry of Urban Development has been making efforts to promote PHE Training Programme since 1956. The magnitude of such activities has increased considerably over the years. In order to cater to the needs of various Water Supply & Sanitation Departments (water utilities) the following training programmes have been introduced and are being conducted through research & academic institutes and field departments:

- (i) Post Graduate Course in the PHE/ Environmental Engineering. The duration of the PG course is two years. There are 11 recognized institutes where in-service engineers are sponsored for undergoing the course.
- (ii) Short Term Course in PHE/ Environmental Engineering in two institutes. The duration of the course is three months.
- (iii) More than 60 Refresher Courses on various aspects of design, construction, operation and maintenance of water supply and sanitation facilities conducted by 20 recognized academic & research institutes and field departments. The duration of the course varies from one week to four weeks.

### **10.2 Development of synergy among stakeholders**

One of the expected outcomes of the capacity building programs in the urban sector is to develop an interface and synergy among stakeholders. Innovative initiatives of MoUD aimed at achieving these are:

- (i) “The Peer Experience and Reflective Learning” (PEARL): The initiative has created networks between cities for cross learning and knowledge sharing.
- (ii) The Community Participation Fund (CPF): The initiative aims to provide resources for community led initiatives for development of local infrastructure and services, interface with ULB, etc
- (iii) Technical Advisory Groups (TAG), set-up at national level, has initiated efforts to provide forums for stakeholder participation. Designated forum within ULB for citizen interface and display of information regarding local development/projects is being proposed.

### **10.3 Development of manpower in technology and managerial skill**

A lot of infrastructure is being created which is supposed to be looked after by ULBs for O&M of the schemes. However, due to very weak technical and managerial know-how available with ULBs, they are not able to efficiently operate and run the water supply and sanitation projects. Necessary steps have to be taken to develop adequate technical and managerial manpower with ULB to ensure efficient O&M of water supply and sanitation infrastructure available with ULBs.

## CHAPTER 11

### Future actions

#### **11. Future actions**

Efforts are underway to institutionalize the process of city development plan preparation to make it a living document, on a long term basis. The Ministry is planning to develop a framework and toolkit to enable the cities to do so. Such a framework shall seek to integrate the statutory planning process with perspective planning process.

Capacity gap in the ULBs is well recognized as a key challenge for success of the Mission. To address the capacity constraint for implementation of projects and reforms and for addressing the human resource challenges in ULBs, the Mission Directorate is planning to establish a network of regional institutions across the country. Mechanisms are being put in place, at Centre, State and City levels, to ensure timely implementation of projects, and monitoring and evaluation. Platforms are being created to help the cities familiarize themselves with latest technological options and practices and build synergies with the private sector.

Community Participation Fund is being created to enhance the citizen's ownership of community assets and take on responsibilities for community-based projects.

Use of appropriate communication channels is being planned so as to disseminate the Mission objectives. Communication campaign on JNNURM is proposed in cities with an objective to create awareness at city level and engage citizens more effectively in the Mission.