

**STRATEGIC ISSUES IN INFRASTRUCTURE
DEVELOPMENT: A CASE STUDY OF LUCKNOW CITY**

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INTRODUCTION

Widespread urbanization is a twentieth century phenomenon. Rome was probably the first settlement to reach one million population in 5 BC while London became the second such city in 1800. In 1900, the total urban population of the world was not more than 250 million less than 15 per cent of the total population. The Indian urban population today is itself greater than this number. In 2000, the world's urban population had increased to almost 2.9 billion, about 47 per cent of the total population. Today Asian countries have emerged as most populous countries. According to United Nations Study (1995), by the year 2015 ten of the world's fifteen largest cities will be in Asia, three of these will be in India. Of the 10 most populous countries, 6 are in Asia (Table – 1.1).

Table – 1.1
Urban Population of Most Populous Countries

Country	1950		2000		2030	
	Percentage of Urban Population	Population (Millions)	Percentage of Urban Population	Population (Million)	Percentage of Urban Population	Population (Million)
China	12.5	555	35.8	1275	59.5	1485
India	17.3	357	29.0	1009	40.9	1409
USA	64.2	158	77.2	283	84.5	358
Brazil	36.5	54	81.2	170	90.5	226
Indonesia	12.4	79	41.0	212	63.7	283
Nigeria	10.1	30	44.1	114	63.6	220
Pakistan	17.5	40	33.1	141	48.9	273
Mexico	42.7	28	74.4	99	81.9	135
Japan	50.3	84	78.8	127	84.8	121
Bangladesh	4.3	42	25.0	137	44.3	223

Source: United Nations, 2002

The structural reforms and the associated development strategies launched in 1991 are expected to accelerate rural urban migration and boost the pace of urbanization. The demographic and economic growth in India is likely to be concentrated in and around fifty to sixty large cities with population of about a million or more. There is migration from villages to town and cities which results in growth of metropolitan cities since they provide multiple avenues, services and amenities viz. education, health care, employment, business and entertainment options etc. People also migrate for economic opportunities and urban life styles. Though urbanization brings about development in the social, economic and cultural spheres of life but some times it disturbs the ecological system. Rapid and unplanned growth of urban agglomeration generates a series of negative environmental and social effects. Today urban India presents a very pathetic scene. Cities have become a site of rotting garbage, degrading drainage system and shocking night soil removal system. Besides, poor have practically no access to covered toilets and in many towns and cities, the majority have to defecate in the open. The untreated sewage being dumped into the nearest water body leads to health hazards.

India is one of the least urbanized countries in the world because between 1951 and 2001, the level of urbanization increased by 13 percentage points only. However, it has the second largest urban population in the world and more than two third of it lives in the 393 cities that have population of over one lakh. The four mega cities viz., Mumbai, Kolkata, Delhi and Chennai with a population of more than 6 millions each in 2001 account for almost one fourth of population living in cities. As per 2001

census, 285 million population i.e. 27.8 per cent of 1027 million total population of India is residing in 4368 cities and towns in the country, where as in 1991, 25.7 per cent population lived in urban areas. The decadal growth in urban population during 1991-2001 has been 31.2 per cent whereas at the beginning of the 20th century, only 10.8 per cent of total 218 million population of the country resided in cities and towns. The number of million plus cities has increased to 35 in 2001 from 12 in 1981 and 23 in 1991. These 35 million plus cities account for 107.9 million urban population of the country (Table 1.2). As per projections of Government of India, the urban population of the country in 2011 will be 405.26 million and 553.04 million in 2021. Thus, around one third population is expected to live in urban areas.

There has been phenomenon growth in the number of towns and urban agglomerations over the period of 1981 to 2001, however, annual exponential growth rate of urban population is low. Even, in the recent the growth has been reported to be declining. There has been just 2.06 percentage points increase in proportion of urban population to total population during 1991 to 2001.

Table – 1.2
Urbanization in India

Year	Percentage of Urban Population	Number of Towns	Total Population (Millions)	Urban Population (Millions)
1901	10.8	1827	238.39	25.85
1911	10.3	1815	252.09	25.95
1921	11.2	1949	251.32	28.09
1931	12.0	2072	278.98	33.46
1941	13.9	2250	318.66	44.16
1951	17.3	2843	361.23	62.44
1961	18.0	2365	439.23	78.13
1971	19.9	2590	548.15	109.11
1981	23.3	3378	159.46	159.56

1991	25.7	3762	846.30	217.61
2001	27.8	4368	1048.15	296.97

Source: Census, 2001

An analysis of the distribution of urban population by size categories reveals that the process of urbanization in India has been large city oriented. This is proved that a high proportion of urban population being concentrated in Class I cities, which has gone up systematically over the decades in the last century, the massive increase in proportion of Class I cities from 26 per cent in 1901 to 85.20 per cent in 1991 while it declined to 68.67 per cent in 2001, has been attributed to faster growth of large cities. The number of class one cities has grown to 393 in 2001 from 24 in 1901. There has been more than five fold increase in the number of class one cities since 1951 (Table – 1.3).

Table – 1.3
Number of Towns and Percentage of Urban Population in Different Size Categories

Year	Class I	Class II	Class III	Class IV	Class V	Class VI	Total
1901	24 (26.00%)	43 (11.29%)	130 (15.64%)	391 (20.83%)	744 (20.14%)	479 (6.10%)	1827
1911	23 (27.48%)	40 (10.51%)	135 (16.4%)	364 (19.73%)	707 (19.31%)	485 (6.57%)	1815
1921	29 (29.70%)	45 (10.39%)	145 (15.92%)	370 (18.29%)	734 (18.67%)	571 (7.03%)	1949
1931	35 (31.20%)	56 (11.65%)	183 (16.8%)	434 (18.00%)	800 (17.14%)	509 (5.21%)	2072
1941	49 (38.23%)	74 (11.42%)	242 (16.35%)	498 (15.78%)	920 (15.08%)	407 (3.14%)	2250
1951	76 (44.63%)	91 (9.96%)	327 (15.72%)	608 (13.63%)	1124 (12.97%)	569 (3.09%)	2365
1961	102 (51.42%)	129 (11.27%)	437 (16.94%)	719 (12.77%)	711 (6.87%)	172 (0.77%)	2365

1971	148 (57.24)	173 (10.92)	558 (16.01)	827 (10.94)	623 (4.45)	147 (0.44)	2590
1981	218 (60.37)	270 (11.63)	743 (14.33)	1059 (19.54)	758 (3.50)	253 (0.50)	3378
1991	300 (65.20)	345 (10.95)	947 (13.19)	1167 (7.77)	740 (2.60)	197 (0.29)	3768
2001	393 (68.67)	401 (9.67)	1151 (12.23)	1344 (6.84)	888 (2.36)	191 (0.23)	4368

Source: India Infrastructure Report, 2006.

The startling fact is that the proportion of population living in smaller towns has shown declining trend over the period while there is massive growth in population of larger towns. Importantly, growth of population in smaller towns has been reported negative while the growth of population in large cities and towns has been found massive. During 2001, the high proportion of urban population has been reported to be in Delhi, Pondicherry, Goa, Chandigarh, Maharashtra, Mizoram, Lakshadweep, Tamil Nadu, Karnataka, Gujarat etc. (Table – 1.4). The high rate of growth of urban population during 1991-2001 has been reported high in Dadra & Nagar Haveli (14.59 per cent) followed by Arunachal Pradesh (7.0 per cent), Andaman and Nicobar Islands (4.14 per cent), Sikkim (4.83 per cent), and Delhi (4.14 per cent).

Table – 1.4
Patterns of Urbanization and Growth of Urban Population across the States

State	Percentage of Urban Population				Annual Exponential Growth Rate		
	1971	1981	1991	2001	1971-8	1981-91	1991-2001
Andhra Pradesh	19.31	23.25	26.84	27.08	3.94	3.55	1.37
Arunachal Pradesh	3.70	6.32	12.21	20.41	8.32	9.28	7.00
Assam	8.82	9.88	11.09	12.72	3.29	3.29	3.09

Bihar	7.97	9.84	10.40	10.47	4.27	2.66	2.57
Chhatisgarh	10.38	14.69	17.40	20.08	5.33	4.00	3.09
Delhi	89.70	92.84	89.93	93.01	4.56	3.79	4.14
Goa	26.44	32.46	41.02	49.77	4.37	3.96	3.32
Gujarat	28.08	31.08	34.40	37.55	3.42	2.92	2.80
Haryana	17.66	21.96	24.79	29.00	4.65	3.58	4.11
Himachal Pradesh	6.99	7.72	8.70	9.79	3.02	3.11	2.81
Jammu & Kashmir	18.59	21.05	22.76	24.88	3.80	3.44	3.44
Jharkhand	16.01	20.09	21.25	22.25	4.51	2.61	2.55
Karnataka	24.31	28.91	30.91	33.98	4.08	2.55	2.53
Kerala	16.24	18.78	26.44	25.97	3.19	4.76	0.74
Madhya Pradesh	18.58	22.34	25.27	26.67	4.25	3.63	2.71
Maharashtra	31.17	35.03	38.73	42.4	3.35	3.27	2.95
Manipur	13.19	26.44	27.69	23.88	9.70	2.98	1.21
Meghalaya	14.55	18.03	18.69	19.63	4.84	3.10	3.16
Mizoram	11.36	25.17	46.2	49.5	11.79	9.57	3.27
Nagaland	9.95	15.54	17.28	17.74	8.49	5.58	5.27
Orissa	8.41	11.82	13.43	14.97	5.21	3.08	2.61
Punjab	23.73	27.72	29.72	33.95	3.62	2.55	3.19
Rajasthan	17.63	20.93	22.88	23.38	4.52	3.31	2.71
Sikkim	9.37	16.23	9.12	11.1	9.55	-3.23	4.83
Tamil Nadu	30.26	32.98	34.2	43.86	2.45	1.76	3.56
Tripura	10.43	10.98	15.26	17.02	3.26	6.19	2.53
U.P.	14.02	18.01	19.89	20.78	4.78	3.27	2.84
Uttrakhand	NA	NA	NA	25.59	NA	NA	2.84
West Bengal	24.75	26.49	27.39	28.03	2.75	2.54	1.84
All India	20.22	23.73	25.72	27.78	3.79	3.09	2.73

Source: Census of India, 2001

Uttar Pradesh occupies the central position in the northern India. It is the most populous state in the country. The state witnessed a tremendous growth in its urban population during the last three decades. Between 1971-81 the decadal growth was about 60.62 per cent, the highest in the country. In 1981-91 the growth had been about 38.97 per cent, second after Orissa. As per 2001 census, every fifth person in the state is residing in urban centres. The total urban population of the state has been raised to 347 million showing an increase of about 33 per cent over the decade of 1991-

2001. Uttar Pradesh is the most populous state in the country which accounts for 16.4 per cent of the country's population. It is also the fourth largest state in geographical area, covering 9 per cent of the country's geographical area. The pace of urbanization has been lower in the state. The level of urbanization has been reported lower than most of the other states. In 2001, 20.78 per cent population of the state was found living in urban areas. During 1991-2001, urban population grew by 2.84 per cent per annum (Table 1.5).

Table – 1.5
Trends of Urbanization in Uttar Pradesh

Census year	No. of UA's and Towns	Total Urban Population	Percentage of Urban Population	Decadal Growth	Annual Growth
1901	349	0.52	11.20	-	-
1911	350	0.47	10.26	-9.61	-1.01
1921	367	0.47	10.61	0.16	0.02
1931	375	0.53	11.28	13.24	1.24
1941	385	0.67	12.52	26.06	2.31
1951	410	0.82	13.65	21.86	2.31
1961	215	0.90	12.81	9.23	0.88
1971	256	1.16	13.90	29.72	2.60
1981	598	1.87	17.83	60.89	4.76
1991	631	2.60	19.68	38.52	3.26
2001	670	3.45	20.78	32.88	2.84

Source: Census of India, 2001, Uttar Pradesh

As per census, there are 670 towns and cities in the state. Most of the towns and cities are categorized as class IVth and Class IIIrd having population in between 10,000 to 50,000. However, urban population is concentrated in large towns and cities.

During 2002, there were 3641 urban local bodies. Out of total urban local bodies in India, 107 ULB, were Municipal Corporations, 1443 Municipal Councils, and 2091 Nagar Panchayats. The highest number of local bodies were reported in Tamil Nadu (719) followed by Uttar Pradesh, Madhya Pradesh and Maharashtra. In the state of Uttar Pradesh, there are 628 urban local bodies. Out of these there are 12 municipal corporations, 193 Nagar Palika Parishads and 423 Nagar Panchayats. About 40 per cent population lives in Nagar Palika Parishads while 37 per cent population lives in Municipal Corporations. (Table - 1.6).

Table – 1.6
Urban Local Bodies in U.P.

Category	Number	Population		Area (sq. km.)
		(2006)	(1991)	(2001)
Nagar Nigams	12 (1.91)	9714982 (39.01)	131.96 (36.87)	1326.56 (26.34)
Nagar Palika Parishads	193 (30.73)	10711425 (43.01)	134.83 (37.67)	1971.33 (39.11)
Nagar Panchayats	423 (67.36)	10397028 (41.75)	91.09 (23.21)	1741.40 (33.88)
Total	628 (100.00)	24905754 (100.00)	357.88(100.00)	5039.29 (100.00)

Source: Directorate of Urban Local Bodies, Lucknow

The task of improving urban services is constantly more challenging due to the large increase in population. This will put a strain on the present management and delivery systems. In many cases delivery mechanisms would need to be redesigned to meet the large demand. If urban population growth is to be accelerated, it will need even greater acceleration in urban infrastructure investment. With the rapid urbanization that is now expected

in ensuing decades in India, it would be better to decentralize the instruments of infrastructure provision so that the agencies providing such infrastructure services are able to finance themselves and can respond flexibly to the changing demand of growing city. It would be better if private agencies are given more opportunities to perform the functions of financing, planning and management of urban infrastructural services and amenities. There is strong demand for (I) wider coverage of urban infrastructure services, which is a daunting task given in the expected huge growth in urban population and (II) improvement in the quality of urban infrastructure services especially in large cities, making the demand for urban infrastructure more heterogeneous than what has been witnessed in the past. The Tenth Plan had in the context of urban development, laid stress on improving the functional and financial autonomy of urban local bodies, strengthening of their finances through smooth implementation of SFC's awards, rationalization of property taxation system and levy of user charges. The Plan advocated broad based urban sector reform measures and emphasized that public private partnership should be brought on urban agenda in order to improve the efficiency and delivery of services.

The growth of population has put urban infrastructure and services under severe stress. Smaller cities have found it particularly difficult to cope with the increasing demands on services because of inadequate financial resources. Urban India presents a firm picture with regard to availability of basic infrastructure:

About 21 per cent of the urban population is living in squatter settlements, where access to basic services is extremely poor.

Although 89 per cent of the urban population is reported to have access to safe drinking water but there are severe deficiencies with regard to equitable distribution of water.

Nearly 46 per cent of urban households have water toilets, but only 36 per cent of the urban households are connected to the public sewerage system.

Average per capita generation of waste is estimated at 0.4 kg. per capita per day in cities ranging from 1 lakh to 50 lakh population and the garbage collection efficiency ranges between 50 to 90 per cent of the solid waste generated.

City roads are inadequate for traffic requirements, leading to congestion and fast deterioration in quality of roads due to excess loads.

Keeping in view the above facts, the present study has been conducted with the following main objectives:

- to study the emerging trends and patterns in urbanization in India and their implications on urban infrastructure;

- to review urban infrastructure development in the context of plans, policies and programmes;

- to review the existing status of urban infrastructure development in Lucknow city;

- to examine the emerging system of governance and institutional arrangements of municipal sources in Lucknow city;

- to review the changing system of infrastructure financing in Lucknow city;

- To examine the strategic issues of urban infrastructure development and management;

To suggest policy measures for improving the coverage and quality of urban infrastructure and mobilization of resources for investment in infrastructure development.

Present study is empirical in nature and based on mainly secondary data collected from published and documented sources. The internet sources have also been tapped to get pertinent literature on the subject of research. The previous surveys, reports, studies etc. have been consulted and reviewed critically to get in-sights on the topic of research. The City Development Plans prepared under JNNURM have also been consulted and information has been used accordingly. The study is confined to Lucknow city only, however, trends, patterns and issues pertaining to urbanization, urban development, particularly development and management of infrastructure, governance and financing etc. are in the state and national perspective. The results and conclusions drawn so far may be useful for the policy makers in developing and managing urban infrastructure.

CHAPTER - II

INFRASTRUCTURE DEVELOPMENT IN INDIA

Infrastructure development has a key role in economic growth and development of the region. Progress in creating new infrastructure has been slow while demand for infrastructure services is burgeoning. As society changes the demand for infrastructure also changes. As society progress, the process of economic development and resulting urbanization get momentum which in turn creates demand for urban services and infrastructure facilities. The gap between demand and supply of essential urban services and infrastructure deteriorates the physical environment and quality of life in urban areas. The process of urbanization has created a huge gap between demand and supply of urban services and infrastructure. The pressure on infrastructure due to the existing demand is directly linked with the consumption pattern of the people. The escalating demand for basic services in urban centres is resulting in a serious deterioration of service quality

across housing, transport, health care, power, water supply, sanitation and education. The benign neglect of urban sprawls by civic authorities has led cities to be vulnerable to natural disasters.

The Ninth Plan Working Group on Housing has estimated the investment requirement for housing in urban areas at Rs. 52,600 crores. The India Infrastructure Report estimated the annual investment need for urban water supply, sanitation and roads at about Rs. 28035 crores for the next ten years. The Central Public Health Engineering has estimated the requirement of funds for 100 per cent coverage of urban population under safe water supply and sanitation services by the year 2021 at Rs. 172.905 crores. Estimates by Rail India Technical and Economic Services indicates that the amount required for urban transport infrastructure investment in cities with population 100,000 or more during the next 20 years would be of the order of Rs. 207000 crore. Such a big quantum of highest investment for supply of urban infrastructure cannot be allocated within the budgetary resources of the Central and State Government. Therefore, private sector participation is being envisaged. The government of India has merged all its urban improvement schemes into three schemes viz. (i) Jawaharlal Nehru National Urban Renewal Mission (JNNURM); (ii) Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), (iii) Integrated Housing and Slum Development Programme (IHSDP). While JNNURM deals with 63 selected cities, the other two schemes cover the remaining urban local bodies.

The Jawaharlal Nehru National Urban Renewal Mission - a centrally sponsored scheme - covering seven mega cities, 28 million plus cities and 28 other identified important urban centres, was launched by the government in December, 2005. The JNNURM has two submissions namely (i) Urban

Infrastructure and Governance under the Ministry of Urban Development,
(ii) Basic services for urban poor, implemented by Ministry of Urban
Employment and Poverty Alleviation.

A key assumption in designing the scheme is that urban infrastructure
should be financially self sustaining. The JNNURM has the following
features:

Ensure that cities generate outcome oriented pro-poor plans
through participatory processes.

Pool all relevant programmes/schemes into a centralized Mission
Fund.

Secure effective linkages between asset creation and asset
management so that the infrastructure services created in the cities
are not only maintained efficiently but also become self sustaining
over the time.

Development of the cities is well planned including peri-urban
areas, outgrowths, urban corridors, so that urbanization takes place
in a dispersed manner.

Water supply, sanitation, sewerage, solid waste management,
hospital waste management, etc. are priority areas of development.

Construction of working women hostels, marriage halls, old age
and destitute children's home, night shelters with community
toilets.

Reforms oriented vision based implementation of infrastructure
projects.

Strengthening urban local bodies through reforms and resource
mobilization.

In order to be eligible for assistance, respective ULB's and state governments have to undertake a set of mandatory reforms. In case of ULBs such reforms include full (O&M) cost recovery over 5 years, accrual accounting, e-governance, pro-poor budgeting. Similarly, mandatory reforms for states include repeal of Urban Land Ceiling and Regulation Act, reform of Land Control Laws, independent regulators for urban services etc. In addition, status and ULB's are required to implement any five optional reforms, such as VRS, by laws for rain water harvesting and computerization of land title system, in the first year. Each assistance seeking ULB would also be required to prepare a City Development Plan, based on a Rapid City Assessment. The Assessment is expected to help the ULB to (a) develop a vision for its city; (b) ascertain gap between infrastructure and investments and (c) set out priorities, sequencing and time lines for undertaking various reforms and investments. While preparing its CDP, the ULB is expected to pay particular attention to three key aspects, namely, delivery of services, governance, and financing, and identify investment projects for assistance under the Mission.

In view of the problems faced by urban local government bodies, the Rural-Urban Relationship Committee was set up by Government of India in 1963, which pointed out that local governments should not merely remain instruments of political education and civic conscience but should play a role in the promotion of social and economic development of local communities as well as be an integral part of the national government. Committee also made significant recommendations on the criteria's for constitution of municipal bodies with clear delineation of powers, functions, and resources. However, until recently, urban local governments were weak and powerless. The 74th Constitution Amendment Act, 1992 proposed to

form a uniform structure of Municipal Corporations, Municipal Councils, and Nagar Panchayats. The Constitutional Amendment Act seeks to introduce fundamental changes in urban local bodies. Its salient features are:

1. Introduction of the Twelfth Schedule which lists the functions of the urban local bodies, covering planning, regulation and developmental aspects.
2. Establishment of District and Metropolitan Planning responsible for the election of representatives for the preparation of development plans at district and metropolitan levels.
3. Holding of periodic and timely elections in ULB's with specification by law of powers and responsibilities.
4. Specifying by law the sources of municipal finance and their periodic review by a statutorily constituted SFC and by making it obligatory on the part of Central Finance Commission to recommend increases needed to augment state resources to assist the municipal governance.
5. Restrictions on the power of state governments to do away with democratically elected municipal governments, and reservation of the third seats for woman and weaker sections in municipal bodies.

At the dawn of independence the government of India was faced with the challenge of rehabilitating the trans border migration due to partition. The first few plans had a strong housing focus and significant resources were allocated for the purpose. In the First Five Year Plan (1951-56), the emphasis was on construction of houses for government employees and weaker sections. The Ministry of Works and Housing was constituted and National Building Organization and Town and Country Planning Organization were set up at the central level. The scope for housing

programme for the poor was expanded in the Second Plan (1956-61). Slum clearance and sweepers housing schemes were introduced. Town and Country Planning legislation was enacted in many states and necessary organizations were set up for preparation of Master Plans for important towns. Third Plan (1961-66) emphasized on coordination of efforts to concerned agencies and targeting of programmes to the needs of low income groups. The Fourth Plan (1969-74) stressed the need for decongestion or dispersal of population to prevent further crowding in large cities. This was to be achieved by creation of smaller towns and planning the spatial location of economic activity. The Fifth Plan (1974-79) reiterated the policies of proceeding plans to promote smaller towns as new urban centres in order to ease the pressure of increasing population migration. The thrust of the planning in the Sixth Plan (1980-85) was on integrated provision of services.

Along with shelter, particularly for the poor, centrally sponsored scheme called Integrated Development of Small and Medium Towns (IDSMT) was launched in towns with population below one lakh population for provision of roads, pavements, minor civic works, bus stands, markets, shopping complexes etc. The Seventh Plan (1985-90) stressed on the need to entrust the major responsibility of housing construction on the private sector. National Building Organization was reconstructed and a new organization called BMTPC was set-up for promoting commercial production of innovative building materials. The Plan recognized the problems of the urban poor and for the first time an urban poverty alleviation scheme was launched known as the Urban Basic Services for the Poor. The Eighth Plan (1992-97) aimed at increased funding to existing urban services delivery institutions to meet the enormous backlog in terms of service delivery capacity. The Ninth Plan (1998-2002) identified the key urban

concern of growing gap between demand and supply of basic services. The scheme-wise outlay of the Ministry is shown in Table 2.1. The Tenth Five Year Plan made a provision of Rs. 7,000 crores for development in urban areas while under JNNURM Rs. 50,000 crores have been earmarked for the period of seven years.

The coverage of Central assistance in the past has been uneven and inadequate. The achievements of the infrastructure development schemes in the Ninth Plan were as follows:

AUWSP: Initiated in 1993-94, 575 schemes sanctioned with Central release of Rs. 265.57 crores.

Table 2.1
Scheme-wise Outlays of Ministry of Urban Development During 10th Plan (2002-07)

	Scheme	10th Plan Outlays	First 3 years of Plan Expenditure (2002-3 to 2004-05)	
			Amount	Utilization
A. Urban Development				
1.	IDSMT	1304.65	394.57	30.24
2.	Mega City	1050.0	536.59	51.10
3.	NCR Planning Board	350.0	162.0	46.29
4.	Mission Mode on IT	0.0	5.00	-
5.	Urban Mapping	20.0	-	-
6.	Research in Urban & Regional Planning	15.0	1.93	12.87
B. Urban Transport		736.0	384.45	52.23
C. Water Supply & Sanitation				
1.	Extension of AVWSP to Small Towns	900.0	408.24	45.36
2.	Low Cost Sanitation	200.0	-	-
3.	Solid Waste Management	99.4	40.99	41.26
4.	Training in PHE	10.0	3.96	39.60
5.	Equity to HUDCO for Water Supply	100.0	30.0	30.0

D.	Public Works	595.0	30.0	30.0
E. New Schemes				
1.	National Urban Information System	20.0	6.05	30.25
2.	Pooled Finance Development Fund	400.0	10.0	2.50
3.	City Challenge Fund	500.0	10.00	2.0
F.	NE Lumpsum Provision	700.0	281.64	40.23
	Grand Total	7000.00	6087.73	86.97

Source: Planning Commission, Government of India

IDSMT: 1058 towns assisted since inception (1979-80) and Rs. 44.94 crores of central assistance released.

Mega City Scheme: The scheme initiated in 1993-94 is limited to the cities of Mumbai, Kolkata, Chennai, Hyderabad and Bangalore. Central assistance released was Rs. 578.01 crores

NCR Plan: Till March, 2001, Rs. 360.92 were released as central contribution.

Urban Infrastructure Development scheme for Small and Medium Towns (UIDSSMT) has been launched by central government which subsumes the existing schemes of IDSMT and AUWSP. The schemes aim at improving infrastructural facilities and helping to create durable public assets and quality oriented services in cities and towns. It also envisages enhancing public private partnership in infrastructure development. The duration of the scheme is for seven years from 2005-06. The schemes are applied in all the cities and towns except the cities covered under JNNURM.

The scheme covers the following components:

1. Urban renewal of inner city
2. Water supply and sanitation
3. Sewerage and solid waste management
4. Communication improvement of drains/storm water drains

5. Construction/upgradation of roads, high ways/express ways
6. Parking lots/spaces on public private partnership basis
7. Development of heritage areas
8. Prevention and rehabilitation of soil erosion/landslides
9. Preservation of water bodies.

The main thrust of the schemes to ensure improvement in urban governance so that ULBs and parastatal agencies become financially sound with enhanced credit rating and ability to access market capital for undertaking new programmes and expansion of services. The scheme equally emphasizes on implementing reforms in the local bodies and concerned states.

The scheme is expected to achieve the following outcomes:

1. Modern and transparent budgeting, accounting, financial management systems designed and adopted for all the urban services and governance functions.
2. City-wise framework for planning and governance.
3. Energy access to basic urban services to all the residents
4. Financially self sustaining agencies for urban governance and service delivery
5. Transparency and accountable governance
6. Introduction of e-governance in core-functions of ULBs.

Integrated Housing and Slum Development Programme aims at combining the existing schemes of VAMBAY and NSDP under the new IHSDP scheme for having an integrated approach in ameliorating the coordination of the urban slum dwellers that do not possess adequate shelter and reside in dilapidated conditions. The scheme is applicable to all the cities and towns except the cities and towns covered under JNNURM. The

scheme seeks to enhance public and private investments in housing and infrastructural development in urban areas. The components for assistance under the scheme include all slum improvement/up-gradation/relocation projects including up-gradation/new construction of houses and infrastructural facilities like water supply and sewerage, community toilets, community centres etc. The main thrust of the revised strategy is to ensure strengthening of local bodies to maintain and sustain the services and infrastructure created. Thus, the scheme is reforms oriented and highlights on augmenting the role of private sector and community based organizations in infrastructure development and improving the living standards of urban slum dwellers.

Privatization, partnership arrangements and community based projects have emerged as the major options for undertaking investments in infrastructure and amenities. The changed perspective and the decline in the public investment likely to accentuate the disparity in the levels of basis amenities across the states and local bodies. Thus, efforts are being made to develop the capital market so that the parastatal and local agencies can mobilize resources by issuing bonds and credit instruments. Moreover, public-private partnership is viable option for development and management of infrastructural projects is being encouraged and promoted by urban local governments in different corners of the country.

CHAPTER - III

PROFILE OF LUCKNOW CITY

Lucknow, being the capital of Uttar Pradesh, the most populous state of India, has several unique characteristics. The city is known as cultural heritage city. It is situated as the bank of river Gomti. The more densely populated areas of the city are on the southern bank of the river and several planned residential colonies have been developed to the north of the river.

The city is one of the oldest Indian cities with its un-paralled composition of culture and historical buildings. The city was developed by the Shaikhs, Pathans, Nawabs and Mughals around the mosque and the shrine of Peer Mohammad Shah over a 'teela' located near the present CSM Medical University. The origin of the name Lucknow is not definitely traceable, and whatever traditions are available, are of extremely doubtful historical authenticity. There were a number of stories regarding the historical development of the city. According to Ain-e-Akbari, a general of Mohammad Ghazanavi Syed Salar Masud came with his followers between 1031-1033 AD and his forces also settled at Bijnor Pargana about 10 km. south of Lucknow. The new comers were called Shaikhzadas and they built a stronghold which was called Quila Khana or the site of Teela Kothi Maszid

and shrine where only a village of Ahirs had existed. The Quila and the town was named after an Ahir called Lakhna and with passage of time, the town came to be associated with its present name. The other story is related to the well known Hindu Scripture - Ramayan. According to which the town had been named after Lord Ram's brother Lakshman. Traditions assert that it was originally allied Lakshmanpur after Lakshman. The Lakshman teela an artificial mound within the Macchi Bhawan area is said to be the site of the fort. Lakshman built for the defence of his capital. This teela later on became a place of reputed sanctity around which those existed a regular habitation. Some European authorities date the fort to about 5000 BC, thus claiming Lucknow to be of greater antiquity than Indraprastha. Till 1850 was the golden period when apart from unparalleled construction and gardens, the city was recognized for its inherent cultural richness. After 1857, the traditional culture and glory of the city was shattered by the British rulers. Yet Lucknow remained an important seat for administration.

Former capital of United Province of Oudh and present seat of State Government of Uttar Pradesh, the Lucknow city is situated in between 26°52' North and 80°56' East on the banks of river Gomti. It is junction of Northern and North Eastern Railways. It was the largest city in the United Province of Oudh and the fourth largest in the British India. Lucknow is almost on a level plain with a few distinguished features. The climate of city is a mean between that of the cooler sub monstrance districts and the dry hot tracts south and west of it. The city has a humid subtropical climate with a cool dry winter from December to February and a hot summer from April to June. The city receives about 100 cm of annual rainfall mostly from the south west monsoons between July and September.

The city has expanded gradually. The geographical area of the city in 1951 was reported just 48 sq. km. which has increased to 310 sq. km. in 2001. However, it is expected that city will be further expanded upto 500 km² in the coming years, if the increasing population is to be accommodated (Table 3.1).

Table 3.1
Expansion of Urban Areas in Lucknow

Year	Area (km ²)	Population (lakh)
1951	48	4.4
1981	118	9.2
1991	310	16.69
2001	310	22.07

Source: Census Reports

Table 3.2
Expansion of Municipal Corporation Area in Lucknow

Particular	(Sq. km)				
	1961	1971	1981	1991	2001
Urban Agglomeration	135.43	127.66	145.94	337.50	-
Municipal Corporation	103.60	95.83	114.11	310.10	310.0

Source: Census Report

Expansion of Municipal Corporation area in Lucknow is shown in table 3.2. Most of the geographical areas fall within the boundary of

corporation area. The geographical area has increased about 3 fold during 1961 and 2001.

Lucknow Urban Agglomeration became a million plus city in 1981. Besides the Lucknow cantonment, Census, 2001 reported the population of the Lucknow Agglomeration to be 22.67 lakh. This is included an estimated population of about 60,000 of Lucknow cantonment and 22.07 lakh population of Lucknow city (Table 3.3). The urban population growth during 1991-2001 was reported 35.80 per cent while it was recorded as high as 65.66 per cent in 1981-1991 decade. The Master Plan: 2021 of Lucknow city has projected urban population to be 3.23 million in 2011 and 4.50 million in 2021. The estimated population of the Lucknow Municipal Corporation would be 3.17 million and 4.44 million in 2011 and 2021, respectively. The decadal growth of population is likely to be about 40 per cent (Table 3.4).

Table 3.3
Population of Urban Agglomeration in Lucknow

Decade	Population of Municipal Corporation	Population of Urban Agglomeration	Rate of Growth
1901	256239	256239	-
1991	252114	252114	-1.60
1922	240566	240566	-4.80
1931	251097	274659	14.17
1941	354560	381777	39.00
1951	444711	496861	30.14
1961	595640	655673	31.96
1971	749239	813982	24.14
1981	916254	1007604	23.78
1991	1619000	1669204	65.66
2001	2207340	2266933	135.80

Source: Census Reports, Government of India

Table 3.4
Projected Population of Lucknow City

Particulars	1981	1991	2001	2011*	2021*
Lucknow Urban Agglomeration					
Population	1007604	1669204	2245509	3226000	4500000
Decadal Growth	23.79	65.66	34.53	43.66	39.49
Lucknow Municipal Corporation					
Population	947990	1619116	2185927	3166000	4440000
Decadal Growth	22.38	70.79	35.00	44.84	40.24
Lucknow Cantonment					

Source: Master Plan 2021,

*Projected figures.

Migration into city accounts for 36 per cent increase in population over the last decade. Thus, natural increase in population accounted for 64 per cent. Of the total migrants, 56.6 per cent persons were from rural areas. The main reasons of migration are related with economic factors such as employment and business. The city comprises of people practicing various religions. Besides Hindu and Muslims, the city has Buddhists, Christians, Jains, Sikhs and others. About one third population in Municipal Corporation area belonged to the Muslim community. About 10 per cent population of the city comprises of scheduled castes and tribes. The sex ratio, as per 2001 census was reported to be adverse since 893 women against 1000 males were reported, though number of women against 1000 men has risen from 829 in 1971 to 862 in 1991 and to 893 in 2001. The population density of the city is gradually increasing while 67 per cent were found living in a hectare in the city in 2001.

Based on the definition, estimates of slum population vary. The Census, 2001 originally did not report any slums and then later revised its findings. DUDA follows the definition as stated in U.P. Slum Areas Act, 1962. SUDA/UNCHS do not follow this definition but define poverty in terms of vulnerability as does OXFAM. Thus, the estimates of slum population of Lucknow city vary significantly. (Table 3.5)

Table 3.5
Slum Population of Lucknow City
(lakhs)

Particular	1971		1981		1991		2001	
	Slum Population	Total Population	Slum Population	Total Population	Slum Population	Total Population	Slum Population	Total Population
Census	2.33	9.47	2.85	16.19	6.97	21.85	1.79	
Master Plan 2021	-	9.47	2.85	16.19	6.97	21.85	1.79	
DUDA (2005)						21.85	6.70	
OXFAM (2005)						21.85	10.18	
SUDA						21.85	11.00	
UNCHS (2000)								

Source: Feedback Ventures, 2006

SUDA/UNCHS reported slum population to be 1.1 million while census reported just 0.18 million in 2001. DUDA (2005) in its survey found that 0.67 million people are slum dwellers in the city. It is estimated that more than one fourth of urban population is living in slums. The slum population of the city has increased from 1.86 lakh in 1979 to 6.53 lakhs in 2001-02 while it further increased to 6.70 lakh in 2005. (Table 3.6). Zone wise slum population of Lucknow is shown in table 3.7. There were 531 slum pockets scattered in 98 wards of the city.

Table 3.6
Growth of Slum Population in Lucknow

(Lakh)

Year	Total Urban Population	Slum Population	Percentage of Slum Population
1979	-	1.86	-
1981	10.07	2.85	28.30
1990	13.2	3.94	29.84
1994	-	2.76	-
1997-98	-	6.53	-
2001-02	22.67	6.18	27.26

Source: District Urban Development Authority, Lucknow.

Table 3.7
Zone-wise Slum Population of Lucknow

Zone	No. of Slum Pockets	No. of Wards	Total Population
I	144	26	129658
II	177	38	275560
III	210	34	212873
Total	531	98	618091

Source: District of Urban Development Authority, Lucknow

There are a number of educational institutions in the city. Since 1991, there has been massive growth of professional institutions. Some of these include Jaipuria Institute of Management, Institute of Integral Technology (now University), Sherwood Institute of Management and Technology, CSM Medical University, K.G. Dental University, Babu Banarsi Das Institute of

Engineering and Technology, Amity University, etc. Even the number of degree colleges has increased from 20 in 1991 to about 35 in 2006 (Table 3.8).

Table - 3.8
Educational Institutes of Lucknow City

Particular	1981		1991		2001 (District)
	IA	MC	UA	MC	
Primary School	80 6	792	96 6	960	-
Jr. Basic Schools	10 1	99	16 9	165	1329
Senior Basic Schools					242
Higher Secondary	10 7	105	20 0	190	321
Polytechnic	5	5	5	5	-
Management and Engineering College	-	-	1	1	32
Degree Colleges	20	20	20	20	35
Universities	1	1	1	1	6

Source: Municipal Corporation, Lucknow

The district is also well covered by the network of health and medical institutions. Recently, Trauma Centre has been established in CSM Medical University to provide trauma health and medical care to the road accidents victims. Moreover, Sahara, Mayo and other private sector managed health centres are providing health and medical care services. This has attracted migration of rural people as well. (Table 3.9).

Literacy is an important social indicator of human development. As per 2001 census, 68.6 per cent population of the city is literate. The literacy rate has increased significantly from 50.90 per cent in 1971 to 68.62 in 2001 (Table 3.10).

Table 3.9
Health Centres in Lucknow

Health Centre	Number
Medical Institutions (Allopathic Medical)	144
Community Health Centers/PHC'S	54
Ayurvedic/Unani Hospitals	3
Homeopathic Hospitals	42

Source: Uttaranchal and U.P. At a Glance, 2005 Jagaran Research Centre, Kanpur

Table 3.10
Literacy Rates in Municipal Corporation of Lucknow

Year	Total Population ('000)		Literacy Rate		Urban
	U.A.	M.C.	U.A.	M.C.	
1971	813.98 (368.71)	749.24 (339.64)	51.04	50.90	N.A.
1981	1007.60 (457.50)	916.95 (421.05)	57.04 (49.28)	56.81 (49.10)	45.88 (35.43)
1991	1669.20 (776.90)	1619.12 (751.71)	60.27 (53.42)	60.35 (53.41)	48.68 (40.72)
2001	2266.93	2207.34	68.78	68.62 (62.82)	70.61

Source: Census, 2001

The major industries in the Lucknow include aeronautics machine tools, distillery, chemicals furniture and chikan embroidery. Lucknow has traditionally been associated with chikan embroidery work on readymade garments, sarees etc. with most units being small scale and household based and located in old city and adjoining villages/towns of the district. The market size of the chikan craft is estimated to be about Rs. 250 crores annually with the annual growth of 15-20 per cent. More than 6 lakh woman, children and others are engaged in this craft for their sustenance. Lucknow is also a major centre for research and development. The prominent institutions including CDRI, NBRI, CIMAP, ITRC, NHDC,

RDSO, Birbal Shahni Institute of Palaeo Botany, IIM, SGPGIMS, Central BR Ambedkar Central University, CSM Medical University, etc.

The work participation ratio has been reported to be significantly high in Lucknow since more than one fourth population is working (27.51 per cent). This includes only main workers while marginal workers also account a large number. The working population is likely to increase in the coming decade (Table 3.11). Again, majority of the main workers are engaged in tertiary sector i.e. services sector for employment (79.93 per cent). Only 18 per cent workers were found engaged in industry sector. The contribution of agriculture sector in employment is likely to decrease in the coming years (Table 3.12). About 27 per cent workers were found graduates and above while one fourth workers were matriculation but below graduation.

Table 3.11
Working and Non-working Population of Lucknow city

Categories	1981	1991	2001	2011	2021
Working	279295 (27.71)	442450 (26.51)	617664 (27.51)	919410 (28.5)	1350000 (30.00)
Non-Working	728705 (72.29)	1336754 (73.49)	1627845 (72.49)	2306590 (71.5)	3150000 (70.00)
Population	1008000 (100.00)	1669204 (100.00)	2245509 (100.00)	3226000 (100.00)	4500000 (100.00)

Source: Master Plan: 2021

Table 3.12

Working Population by Major Occupation Categories

Particular	1981	1991	2001	2011	2021
Primary	8706 (3.12)	32208 (7.28)	12783 (2.07)	9194 (1.0)	6750 (0.50)
Secondary	54474 (19.50)	93632 (21.16)	111180 (18.00)	174687 (19.0)	270000 (20.0)
Tertiary	216115 (77.38)	316610 (71.56)	493701 (79.93)	735524 (80.0)	1073250 (79.5)
Total	279295 (100.00)	442450 (100.00)	617664 (100.00)	919410 (100.00)	1350000 (100.00)

Source: Master Plan: 2021

The current land use is shown in table 3.13. About 67.2 per cent land is under residential purposes. The residential land use has grown dramatically in comparison to all other issues, although there has also been notable growth in commercial, industrial and public service land use. With the radial growth of the city, the cantonment has gradually been engulfed and is today more centrally located while the illegal land-use in the city has caused problems in development and maintenance of urban services (Table 3.14).

Table 3.13
Land Use Plan in Lucknow

S.No.	Type of Activities	Land Proposed in 1970 Master Plan (Hectares)	Percentage	Proposed Land Plan in 2001 (Hectares)	Percentage
1.	Residential	7105.7	48.73	159238	67.2
2.	Commercial	377.4	2.58	936.2	3.9
3.	Residential-cum-Commercial	-	-	47.0	0.2
4.	Govt. or Semi Govt. Officers	160.6	1.10	378.5	1.7
5.	Industrial	1514.5	10.39	731.0	3.1
6.	Recreational (Parks, Play	1630,00	11,17	1868,5	7,9

	grounds, gardens)				
7.	Community Facilities	901.1	6.19	1537.0	6.5
8.	Traffic and Transportation	2891.4	19.04	2260.0	9.5
	Total	14580.7	100.00	23682	100.00

Source: Town & Country Planning Organization, Lucknow.

Table 3.14
Illegal Land use in Lucknow City

Land Use	Hectare Land
Residential	34.66
Commercial	54.89
Transportation	148.06
Parks-open space	192.58
Agriculture	642.09

Source: Dainik Jagaran, Lucknow April 8, 2003

In absence of adequate measures taken to protect the environment, urban development and expansion has resulted in steady deterioration of the city's environment and ecology. Even the dumping of untreated sewerage and uncollected wastes in - to river and water bodies has caused concern vehicular emissions are also causing air pollution in the city. The vehicular density has rapidly risen and has caused traffic congestion and road fatalities.

The declining of ground water has also caused concern since surface water quality has already deteriorated. It is difficult to provide water supply though deep tube wells in the near future since the water table is gradually declining. There is already a huge deficit of water during summer. Importantly, the cultural city is losing its glamour since proper maintenance and conservation of heritage sites are not ensured. The water bodies (tanks,

ponds, kunds, talab, jheels etc.) are in very poor shape. Some of these have already deserted. Thus, sustainable development of city is called for.

The above analysis simply demonstrates that urbanization has led the growth of business and employment opportunities in the city. This has caused growth of slums and deterioration of the quality of life in the city as there is stress on physical and social infrastructure. The unchecked migration of people from rural areas has increased the problems of municipal governance. Thus, the city needs huge investment for developing infrastructure and delivering services to urban dwellers.

CHAPTER - IV

STATUS OF INFRASTRUCTURE AND SERVICES IN LUCKNOW CITY

Urban settlement is a part of the settlement fabric. It is treated as an organic whole with a distinction in build and structure etc. The urban activities are expressed in physical forms. Thus, the study of form or morphology of urban settlement is very important. The physical structure of the urban settlement is represented by the mode of arrangement of buildings

and streets. Towns vary widely in their forms. They reflect the physical and cultural factors of the site and situation. Physical factors are not so important in determining the forms of town, as all towns are located along the rivers, sea or water bodies. Consequently, the cultural factors, such as forts, old market place, roads, railway stations and administrative offices are more important in determining the form of the towns. Lucknow is situated at the bank of river Gomati. The main markets are located in old city - Aminabad, Chowk, Kaiserbagh, while modern market centres have evolved in new areas such as Hazratganj, Kapoorthala, Gomati Nagar, Alambagh, Aliganj, Indira Nagar etc. The food grain markets are located in Mohillapur and Gosainganj while fruits and vegible markets are centred at Balaganj, Kaisherbagh, and Jankipuram.

Lucknow, the capital of state is second highly populated city of the state after Kanpur. Till the advent of railways, the Gomati river served as an important Channel of transportation. The city of Lucknow is favourably located in the heart of Gangetic Plain thus connecting the city by various trade routes from all directions. Lucknow has been a flourishing city of the state since 1775, when Asaf-Udalla made it the capital of Oudh. From 1775 till 1856 it remained the capital city. Again, in 1922 it became the capital of United Provinces of Agra and Oudh. Even now it is the seat of state of Uttar Pradesh. The landscape of city is well marked with huge paratial buildings and parks. The architecture of the old city buildings is typically Muslim. Other structures in the various parts of the city are of the representatives of different parties. The Imambaras, Bhool Bhulaiya, Chhattar Manzil, Kaiserbagh, Baradari, Shah Najaf etc. represent the Muslim architecture. The Council House, Raj Bhawan, Secretariat, Charbagh Railway Station, General Post Office, etc are the products of the

British period. Although, Lucknow is called the city of Gardens, it also carries the burden of dirt, congested areas, ill planned residences, narrow streets and blink alleys in its western part. The increasing population of the city has changed the urban morphology of the city. Even the non-regulation of housing construction and non-engineered buildings have increased the housing density in vulnerable areas.

Urban local bodies have a crucial role to play in urban development and managing the local affairs. The over increasing urban population and rapid growth of urbanization have put tremendous pressure on urban local bodies for the provision of urban civic services. They have to provide and maintain basic infrastructure for civic services like sanitation, health, drainage, drinking water, sewerage, lighting etc. and the related supplementary services. The present state of urban services is over stretched and there are very large gaps between the demand for the services and the supply situation.

The Uttar Pradesh Municipalities Act, 1916 and the U.P. Municipal Corporation Act, 1959 has already assigned the function of water supply to the local bodies as a prime function. The 74th Constitutional Amendment Act in addition, makes provision for water supply for domestic, industrial and commercial purposes as legitimate duty of the local bodies. Out of 628 local bodies in U.P., 610 urban local bodies have been provided with piped water supply in their municipal limits. The situation of water supply in many of the towns is erratic. The water supply scenario is quite grim so far as the provision of adequate infrastructure for water supply is concerned.

Piped water supply was first commissioned in Lucknow Town in 1895 with the construction of one in take works at Gaughat on river Gomati.

Raw water from Gomati was pumped and supplied through Aishbagh water works in CIS Gomati area. Presently city has been divided into various zones for water supply. With the support from World Bank, state government improved water supply infrastructure in the city. Water supply network extends over most of the core city and peripheral areas but it does not meet the consumer demand. The U.P. Jal Nigam estimated that about half of the produced water is lost due to leakages and pilferage. As there is no watering of water supply, it is difficult to estimate the wastage of water. Surface water is the main source of water supply to the city. However, available discharge in the river Gomati is around 500 mld in lean period. The city has around 407 tube wells which produce about 190 mld of water. The average depth of tube wells installed is about 350-400 meters, but since the strata is over exploited, the yield is likely to decrease. The hand pumps are in use for water supply in slums, however, in almost all the parks, such pumps are installed to facilitate dwellers in access to drinking water. The demand of drinking water is estimated to be 468 mld which is likely to increase upto 546 mld in 2011 and 766 mld in 2021 (Table 4.1).

Table 4.1
Water Production in Lucknow City

Particular	No./Capacity
River Water	
200 mld from Aishbagh water works	240 mld capacity
70 mld from 2nd water works	90 mld capacity
Total 270 mld	330 mld capacity
Ground Water	
190 mld from 407 tube wells	15 mld from 6150 hand pumps
Total 205 mld	
Water Demand in mld	
2006	468
2011	546

Source: Lucknow Jal Sansthan

The present status of sewerage and sanitation in urban areas of the state are grossly inadequate. As a matter of fact no town in the state at present has been able to ensure sewerage facilities for all the houses. Even the largest Municipal Corporations have a huge backlog both in terms of percentage and absolute figures. Status of sewerage presents a very dismal picture of the population covered by the sewerage in U.P. More than half of the population in Nagar Panchayats is not covered under proper municipal sewerage system. There are only 55 towns in the state which have partial sewer system and this is also crippling down under tremendous population pressure. Out of 55 towns/cities which have some form of sewer system, only 5 towns/cities situated on the bank of river Ganga have sewerage treatment plants commenced under Ganga Action Plan. Under the Yamuna Action Plan, sewerage treatment plants in 6 towns have been completed.

The sewerage system in Lucknow was first provided in 1918. In 1948-49 a comprehensive drainage scheme for the city was prepared to cater the demand. The works under the scheme were completed in 1955. The flood of 1960-61 damaged the sewerage systems of the city. In 1987-88 another sewerage Master Plan was prepared. The present installed sewerage capacity is about 303 mld only (Table 4.2).

Table 4.2
Installed Capacity of Sewerage Pumping Stations in Lucknow City

Pumping Station	Capacity (mld)
CIS-Gomati Sewerage	250
Pumping Station	4
Trans Gomati Sewerage Station	40

Mahanagar Intermediate Pumping Station	7
Daliganj Intermediate Pumping Station	40
Paper Mill Sub-Pumping Station	3
Total	303

Source: U.P. Jal Nigam

The existing network of sewerage is categorised into (I) CIS-Gomati Trunk Sewer, (II) Trans Gomati Trunk Sewer; (III) the Eastern Inter-Capacity Sewer. The sewer network extends across the main city areas on the CIS-Gomati side as well as newly developed colonies on the CIS-Gomati and trans Gomati sides. However, only 45 per cent of house-holds in the core areas of the city and 35 per cent of households in the peripheral areas were connected to the network. There are a large number of service latrines in the city area. These service latrines discharge into nearby open drains. About 82 thousand households are connected to the sewer network. While a significant number of septic tanks with overflowing leach-pits usually discharge into roadside drains. The city has about 135 operational community toilet complexes, mainly in the slums. The city discharge about 356 mld waste water while only 42 mld waste water is treated and rest is being directly discharged into river without treatment.

Most of the urban areas in the state are without sewer system and also have houses without any toilet facility. About one-third houses in urban areas in the state do not have toilet facility. The number of public toilets in various towns and cities is highly inadequate. In the smaller towns and cities, the manual scavenging is still prevalent, though any new construction of dry latrine has been made a cognizable offence under the law.

One of the most important civic convenience and a basic civic service, which unfortunately is quite neglected, is the street and the storm water drainage. Surprisingly, no municipal body in the state has 100 per cent area covered with the drains, which is a very sad state of affairs. The reason behind this is probably the lack of foresight and shortage of funds at the level of urban local bodies. But the recent floods have clearly demonstrated the crucial importance of the drainage system to the city life. The total city life came to a grinding halt due to heavy rains in the catchment areas resulting in unprecedented floods.

Like other towns located along rivers storm run off drains into the river. The Lucknow main city has over 20 nallahs (drains) with a combined length of around 70 km. On the eastern side of the city, there is a canal that was built during the rule of Nawabs. The canal runs from the southeastern side of the city towards the northeast and drains into the river downstream. The canal now carries most of the storm water run off during the rains. There are 25 major drains. Most of the drains are made of bricks. The discharge of waste water by these drains is shown in table 4.3. It is expected that discharge quantity will increase over the period with the increase in population. The discharge of sewerage in Lucknow was reported 230 mld in 1993. It is expected that it will reach to 529 mld in 2021 and 596.20 mld in 2031. (Table 4.4)

Table 4.3
Drains and their Discharge in Lucknow City
(in mld)

S.No.	Drain	1996	1998	2001	2008	2011	2021	2031
1.	Gaughat	1.0	1.30	1.36	1.50	1.54	1.78	1.99
2.	Sarkata	35.1 8	24.0 0	24.87	26.9 0	27.86	30.88	33.89
3.	Pata	21.2 8	17.5 0	18.15	19.7 0	20.43	22.72	25.00

4.	NER upstream	-	0.60	0.66	0.80	0.88	1.10	1.32
5.	NER down stream	-	0.60	0.66	0.80	0.88	1.10	1.32
6.	Wazirganj	64.11	58.0 0	60.10	65.0 0	67.35	74.61	81.86
7.	Ghasyari Mandi	14.7 6	13.5 0	13.95	15.0 0	15.50	17.05	18.60
8.	China Bazar	6.68	2.70	2.79	3.00	3.26	3.41	3.72
9.	La Place	1.56	1.30	1.36	1.50	1.57	1.78	1.99
10.	Jopling Road	1.27	1.30	1.36	1.50	1.57	1.78	1.99
11.	G.H. Canal	69.1 4	98.0 0	101.6 0	110.0	120.2 3	126.4 4	138.86
12.	Jiamau	3.00	0.60	0.66	0.80	0.99	1.10	1.32
13.	La-Martinier	3.00	0.50	0.52	0.80	0.84	0.94	1.15
14.	Maheshganj	4.57	0.50	0.52	0.80	0.73	0.94	1.15
15.	Rooppur Khadra	0.65	0.60	0.66	0.80	0.88	1.10	1.32
16.	Mohan Meakin	8.45	4.00	4.15	4.50	4.67	5.19	5.71
17.	Daliganj No.1	9.93	8.80	9.82	12.2 0	13.61	17.41	21.2
18.	Daliganj No. 2	0.65	1.30	1.36	1.50	1.57	1.78	1.99
19.	Arts College	0.50	0.60	0.66	0.80	0.88	1.10	1.32
20.	Hanuman Setu	5.24	0.60	0.66	0.80	0.88	1.10	1.32
21.	TGPS	5.40	1.30	1.36	1.50	1.57	1.78	1.99
22.	Kedarnath	4.18	2.80	2.72	3.00	3.14	3.56	3.98
23.	Nishatganj	2.21	1.30	1.36	1.50	1.57	1.78	1.99
24.	Kukrail	47.6 8	39.9 0	40.44	43.8 0	45.37	50.40	55.37
25.	Babu ka Purwa	0.05	0.50	0.52	0.80	0.73	0.94	1.15

Source: Lucknow Nagar Nigam

The responsibility of draining rainwater into Gomati lies with 42 Flood Pumping Stations. However, the condition of these pumping stations is very poor. The installed capacity of these stations is about 3500 Quebec. It needs to add 1200 Quebec as per standards. Thus in absence of adequate facility of drainage, the problem of water logging in the city during rainy season is very common.

Table 4.4
Discharge of Sewerage in Lucknow

Drainage system	Discharge in 1993 (MLD)	Discharge Adopted in PER (MLD)		Anticipated Discharge (MLD)				
		1998	2008	2001	2021	2016	2021	2031
CIS Gomati Drains	163.50	219.90	257.30	239.24	282.22	284.69	284.69	325.21
Trans-Gomati Drains	46.50	61.10	72.00	64.23	75.60	81.37	87.08	98.49
Sewerage Flow from Sewers	20.00	30.00	45.00	34.50	51.75	60.38	69.00	130.50
Gomati Nagar	-	-	-	25.00	44.00	52.00	60.00	69.00
Total	230.00	311.00	374.30	362.97	439.24	475.97	529.00	596.20

Source: U.P. Jan Nigam

The Municipalities Act 1916, and Municipal Corporation Act of 1959 of Uttar Pradesh entrust the urban local bodies with the obligatory functions of conservancy, cleaning and scavenging work. Solid waste management is a holistic term incorporating the total system but in place to cover all the processes from the collection of solid waste at the point of refuse to its safe disposal practices. It is estimated that 400 gms. per capita solid waste is generated in urban areas. It is assumed that local bodies of the state produce about 13.91 million tonnes garbage daily.

Lucknow city generates about 1500 mt. of solid wastes daily. It is estimated that there are around 2000 Kabariwallas in city who pick up waste from the households and sell to retail traders. In addition to this, there are about 8000 rag pickers who collect recyclable paper, plastic and metal wires from the garbage. The recycling industry is worth of Rs. 25 crores per annum handling about 200 tonnes daily. Around 60-70 per cent of waste

generated comprises of biodegradable matters. Lucknow Nagar Nigam has the prime responsibility of solid waste management. There are about 3800 Safai Karmacharies working in the Corporation. The Municipality has a solid waste transport fleet of 75 vehicles. The fleet collects an estimated 850 to 1000 tonnes of waste per days from about 500 depots. Some NGO's have ventured upon the task of vermin composting in some wards and charge households a nominal amount per month for delivering services. Besides, about 2000 cleaners who charge individual households for service and clean service latrines in the city. The only plant of waste to energy established in the city earlier, is defunct presently, however efforts are being made to revive it.

A scientifically designed and well laid down road net work is a basis civic necessity for today's cities, where vehicular traffic has already grown out of proportion and there is widespread congestion and traffic jams. In fact, it is assured that in the coming years, it would be faster to walk than drive, if the traffic continues to grow at the same pace and no concrete efforts are made to develop new roads, bridges and flyovers in big cities. It is the responsibility of the urban local bodies to plan for the movement, regulation and flow of traffic. The traffic bottlenecks and jams have become a great hindrance for the smooth flow of traffic in metropolitan cities.

Lucknow has grown all around in a radius of 25 km. The growth of the city has resulted in vastly increased demand for transport and a dramatic rise in the number of vehicles. During 1994 and 2005, there has been 16.88 per cent growth in the registration of vehicles in Lucknow. The highest growth has been reported in the registration of car/jeep/vans (23.14 per cent). During 2005, 0.75 million vehicles were registered in Lucknow alone (Table 4.5). Out of total vehicles, more than 80 per cent vehicles were two

wheelers. U.P. Transport Corporation operates a fleet of 98 buses with the estimated load of 47000 persons daily on ten different routes of the district. In absence of a proper public transport system, many inefficient modes of transport have emerged in the city. However, CNG based three wheelers are running on important routes which provide cost effective and clean transport facility to dwellers.

Table 4.5
Registration of Vehicles in Lucknow

Type of Vehicles	1994	1998	2005	Annual Growth (1994-255)
Two Wheelers	21277 4	285511	601745 (80.30)	16.62
Car/Jeep/Vans	27608	42855	98978 (13.06)	23.14
Bus	1126	1340	3553 (0.49)	19.59
Truck/HCV's	4219	5264	7742 (1.03)	7.59
Tractor and LCV's	10077	11014	19985 (2.67)	8.94
Three Wheelers	6487	8579	9567 (1.28)	4.32
Others				
Total	26229 1	35457 9	749395 (100.00)	16.88

Source: U.P. State Transport Department, 2006

Street lighting has traditionally been an important function of the municipal administration and has become all the more important in the present scenario. The tremendous increase in the number and movement of the vehicular traffic, significant changes in life styles with an increased emphasis on high life, and a good network of internal roads have significantly increased the movement of citizen in nights as well. Therefore, street illumination has acquired the character of an estimated service for comfort, safety and feeling of security in addition to facilitating swift

movement of the traffic among the night hours. The present status of street lighting in most of the towns and cities is not up-to the mark and therefore needs to be improved.

There are multiple agencies responsible for urban governance and provision and management of infrastructure and services. Lucknow Nagar Nigam, Lucknow Jal Sansthan, Lucknow Development Authority and U.P. Jal Nigam are the key institutions of urban service delivery. Other prominent Departments/Institute includes Central and State Public Works Departments, Transport Department, Department of Environment etc. These departments lack coordination and institutional arrangements in urban infrastructure development and services delivery. The roles and responsibilities of officials and non officials of various agencies, on the basis of accountability, transparency and efficiency required for sustainable development, are also not defined. The City Development Plan of Lucknow, has proposed Rs. 11855.9 crores for investment on urban infrastructure and services under Jawahar Lal Nehru Urban Renewal Missions scheme (Table 4.6). A large sum of investment has been earmarked on water supply, sewerage, drainage and roads.

Table 4.6
City Investment Plan

(Rs. Crores)

Sector	Phase I (2006-12)	Phase II (2012-31)	Total
Sub-Mission I (Urban Infrastructure and Governance)			
Water supply	675.6	602.0	1277.64
Sewerage	630.0	1429.0	2058.63
Drainage	444.3	111.0	1555.01

Construction of Roads			
Lohiya Path	69.0	-	69.0
Internal Roads	421.2	1053.0	1474.17
Road and Urban Transport	160.8	401.9	562.7
Parking Through PPP	21.79	109.6	153.36
Haider Canal Roads & Electrical Roadways		796.4	796.4
Solid Waste Management	46.14	43.2	89.34
City Beautification	11.11	27.77	38.88
River Front Development	16.21	-	16.21
Conservation of Ponds	-	170.0	170.0
Street Lighting	56.64	100.0	156.64
Conservation of Heritage Sites	15.97	144.03	160.0
Community Halls	3.47	-	3.47
Infrastructure Projects	845.0	507.0	1352.0
Water Supply, Sewerage, SWM, RWH	30.6	60.5	91.1
Sub-Total	3453.0	6555.0	10007.4
Sub-Mission II			
Basic Services for Urban Poor	1051.0	456.0	1506.5
Grand Total	4845.0	7011.0	11855.9

Source: City Development Plan Lucknow, Feedback Ventures, Delhi, 2006

The above analysis simply demonstrates that the urban infrastructure in Lucknow city is under stress due to increasing population pressure. The development and management of Urban Infrastructure and Services in the city requires a huge investment and thus resource mobilization is a main task of the government.

CHAPTER - V

**STRATEGIC ISSUES IN INFRASTRUCTURE
DEVELOPMENT**

Urban India is in the midst of transformation. In an era of economic reforms, liberalization, and globalization, cities and towns are fast emerging as centres of growth. It is estimated that by 2025, more than 50 per cent of the country's population will live in cities and towns. This is indicative of the likely increase in the demand of infrastructural facilities and services that could rise due to urbanization. This poses a serious challenge to urban

planners, policy makers, and managers. This is high time to mobilise resources for financing urban infrastructure and services. We need to expand physical infrastructure - roads, airports, ports, railways, drinking water and water networks and above all electrical power - to satisfy the aspirations and rising expectations of our citizens. Much of the existing infrastructure is old, worn, and over exploited. It needs to be rebuilt, refurnished and maintained. Though there are vast improvements in basic amenities such as access to telecom services, electricity, water supply and sanitation, however the quality of basic services is declining. Increasing coverage of infrastructure is not matched by improvement in the service levels. Despite low growth of urbanization, urban population is likely to expand and decline in urban services be more glaring in the coming years.

Thus urban sector suffers from the tremendous infrastructure deficiencies, despite significant emphasis has given in the successive five year plans for the orderly development of core infrastructure services. The problems are not only associated with the accessibility of basic services to all the urban population of the country, but also of their inequitable distribution among the different sections of population.

There has been considerable debate in India about the quality of public service delivery. Service delivery in India remains poor on a whole, however, a national survey of major public services by Public Affairs (2002) Centre conducted that India did well in terms of providing basic access to such services, but far less well in terms of ensuring their quality, reliability and effectiveness. Thus, concept of good governance has got momentum in order to improve service delivery. The instruments for improving service delivery include (i) promoting competition, (ii) simplifying transactions, (iii) restructuring agency process; (iv) decentralization; (v) building political

support for programme delivery; (vi) strengthening accountability mechanisms etc. It is the general assumption that competition improves services delivery outcomes. Simplifying transactions through greater use of e-governance is made easier for citizens to interact with the state governments. Similarly, restructuring agency processes involved change on several dimensions. Decentralization and strengthening of local governments have improved the functioning of public services in effective and efficient manner. Again, reducing premature transfers, fostering access to information, checking corruption through generating public pressure and public interest litigation may ensure accountability.

Public private partnership provides an opportunity for private sector participation in financing designs, construction and operations and maintenance of public sector programmes and projects. This is high time to forge a greater interface between the public and private sector in a wider range of activities in the country. The partnership falls into five main categories, viz. (i) contract services; (ii) privatization of services; (iii) designing, construction and operation of facilities; (iv) project financing, and (v) merchant facilities. The partnership in municipal services is expected to reduce cost of maintenance, increase efficiency and timely completion of new projects while community participation in operation and maintenance of services is expected to be of great importance. Government of India is committed to remove the roadblocks in delivery of services and creating infrastructure in collaboration with private sector under JNNURM. The Mission has two main submissions, focusing on infrastructure and governance and services to the urban poor respectively.

Report Card system is an effective tool and is useful in evaluating various aspects like people's participation, rule of law, transparency,

responsiveness, equity, effectiveness and efficiency, accountability and strategic vision etc. which may be utilized in general to promote good urban governance. Report Card System provides a mechanism to measure public opinion on quality of public services. The methodology of Report Card includes random sample surveys of households, focus group discussions, brief case studies of selected respondents, documentation of information provided to the public by service providers and interview with a sample of staff of the agencies. The Cards attempt to access, rank and benchmark the following parameters: (i) overall satisfaction with service delivery (levels of services), (ii) the extent and coverage of services; (iii) patterns of emerging problems, (iv) the response of agencies to reported problems and grievances; (v) the effectiveness of bribes in rectifying reported problems.

In order to remove road blocks in delivery of urban services, three types of triggers offer the potential for inducing reform in urban governance and services delivery. The first trigger could be fiscal flows. Second, decentralization has potential to spark change and create incentives for ensuring accountability in delivery of services. A third set of triggers would come from the demand side, essentially by making service providers directly accountable. The following issues of urban infrastructure development and management in Lucknow city are expected to help in understanding the dynamics of urban infrastructure development of the city:

Population growth in Lucknow city is likely to be higher due to high rate of migration from rural and smaller districts.

The demographic profile of city has shown an increase in the number of women and therefore, social and economic implications would need to be taken into consideration while planning and preparation of development projects.

The city has witnessed the rise of economic base, being the capital of largest state of India. There has been remarkable increase in retail trade, professional services - health, education, tourism, real state etc. Thus, there will be enormous need of infrastructure both physical and social to cater the emerging needs.

The city is well connected with rail network; however, existing levels of connectivity are inadequate for economic development. The city needs better connectivity of rail, roads, air and tele-communications etc.

The private sector is coming forward due to existing institutional environment, quality of infrastructure, and regulatory arrangements. Therefore, conducive environment, deregulations, and institutional reforms are to be ensured.

The city is growing rapidly in all directions but higher rate of growth along Faizabad road, in trans Gomati area, and south city has been reported. The new development areas will need additional infrastructure.

There has been significant increase in slum dwellers across the city. The encroachment on public places, roads and streets is also gradually increasing. Thus, alternative land would be required for relocation of urban poor.

The strict regulation of environmental laws would be required to reduce the air and water pollution.

The well known monuments are relatively better maintained, however, heritage sites need proper maintenance with required public toilets.

The city has grossly inadequate infrastructure for water supply, sewerage, drainage, solid waste management, and waste treatment. Thus the expansion of such infrastructure would be needed.

There are several water bodies within the city limits which have been encroached, polluted and defunct. Thus, these water bodies are to be revived for maintaining ground water recharging and supply of drinking water.

The city has intermediate and inadequate service delivery and management of water supply. The exploitation of ground water is expensive and unsustainable. The dumping of sewage into river Gomati through drains has caused concern and it would be difficult for managing water resources.

Sewerage and sanitation challenges are daunting. The existing capacity of drainage and coverage of sewer line is grossly inadequate. The mechanical and electrical equipments are poor, old and defunct in some cases. The damaged manholes, sewer line, nallahs and connections cause over flowing of waste water and sewerage on streets and roads. The frequent sewer blockage and leakages also cause contamination of drinking water and water borne diseases.

Despite the legal ban on dry latrines, there are about 4000 dry latrines who are managed by about 150 scavengers. Thus, the inhuman practice of manual scavenging is still prevailing in the city. These dry latrines discharge sewerage into open nallahs, drains or water bodies and cause water borne diseases.

There is no proper system of sewage treatment. The untreated sewage is being dumped into the water bodies, causing serious concern for environment and ecology of the city.

The present arrangements for maintenance of drains are inadequate. Thus, planning and management issues are to be addressed. The water logging pockets are needed more attention for proper drainage so that during rains, there will be no problem of water logging. The encroachment and blockages of nallahs, drains, and water bodies are to be cleared.

There is short fall of infrastructure for solid waste management. The sustainable availability of quality raw materials - wastes to project plant is difficult task and therefore, it is quite impossible to run mega power plant, based on wastes. The shortcomings in vehicles, equipments, tools and depots pose serious challenges in management of solid wastes. The institutional inefficiencies exist. There is also no proper coordination between the various departments, agencies and stakeholders for managing the urban wastes.

Rapid development of the peripheral areas of the city has increased demand for new connections, networks and transport facilities to deal the emerging challenge.

The condition of roads requires attention for its widening, removing encroachments, constructing flyovers, developing parking places, and improving smooth movement of traffic.

With the expansion of the city, there will be a rise in private vehicles which will increase traffic congestion. It will require

construction and expansion of by pass high ways and express ways.

There are many agencies and institutions responsible for service delivery in urban areas. Functional overlapping and lack of coordination among them create hindrance in development and management of infrastructural services in the city.

The revenue base of the institutions and agencies involved in development and management of urban infrastructure and services delivery is weak resulting in high dependence on government for grants.

The improvement of financial status of key institutions involved in urban development and governance is imperative. This may be ensured through increased level of public private partnership and introducing reforms - accounting, property tax, e-governance etc.

The strategy for achieving the goals and objectives of city development stands on three pillars - infrastructure and service delivery, improvements, basic services for urban poor and institutional reforms for strengthening local governments.

CHAPTER -VI

POLICY RECOMMENDATIONS

The process of urbanization has gathered considerable momentum over the last decades. The growth of population has put urban infrastructure and services under severe strain. Urban areas in India present a grim scenario with regard to availability of basic infrastructure. The democratic decentralization of local bodies as envisaged in 74th Constitution Amendment Act, 1992 is still to be accomplished. Functional and financial autonomy of urban local bodies remains a distant dream. The Tenth Plan acknowledged that there is a pressing need for capacity building of municipalities through training of elected and appointed officials and

representatives and by restructuring of ULB's for efficient management of civic services. This is also well reflected in the newly launched urban infrastructure development schemes of Government which are reforms oriented and emphasize on public private partnership building. It is daunting challenge for municipal governments to mobilize resource for financing urban infrastructure development projects.

Against this view point present study has been conducted in Lucknow city. The study purports to review the status of urban infrastructure and raise the issues of its sustainable development and management. The study has been planned in six chapters. Chapter 1st is introductory one which highlights urbanization and its implication on infrastructure development. Chapter II deals with infrastructure development while chapter III is related with city profile of Lucknow. Chapter IV provides review of existing infrastructure in Lucknow city while in chapter V strategic issues pertaining to infrastructure development have been raised. Chapter VI is concluding one.

Recommendations:

In face of mounting fiscal pressures on the local bodies and the rapid demand for urban services and infrastructure, the present institutional arrangements for provision of services and development of infrastructure are unlikely to sustain. The policy regime, oriented towards market based economy led growth objectives, would entail significant contribution of the urban sector and efforts would be needed to reduce infrastructure bottlenecks and increase urban productivity and employment.

Privatization of municipal services is an option to improve service levels in urban areas and attract private capital and management skills in provision and maintenance of urban services. However, the local government staff and officials will need to be trained properly for institutional arrangement for delivery of services with private sector.

Innovative strategies are required to be developed by the local bodies to finance urban infrastructure and services. The existing funds available from plan allocation, institutional finance and other sources could be supplemented by private sector as also through accessing the capital market.

Public Private Partnerships should be promoted specially in projects with e-governance, water, sanitation, solid waste management etc.

Government should conduct functional review of service providing agencies in order to examine road blocks in delivery of services and improving the coverage and quality of services.

Better coordination mechanism should be created to foster inter agency collaboration for effective implementation of reforms and delivery of services as well as implementing of urban infrastructure projects.

Report Card System should be introduced by private independent agencies to assess the performance and quality of services as well as governance. The feedback of citizens regarding quality and coverage of services provided by agencies may increase accountability and efficiency in service delivery.

Municipalities should limit its role to regulation of services, however private sector participation may be taken for monitoring, direction, auditing and performance evolution of services by municipalities.

Public utilities need to reinvent rather than just reform. A new governance structure for services sector needs to be evolved.

Community participation in delivery of urban services may be augmented through strengthening NGO's, local bodies, public associations and SHG's. However, orientation and training will be required for creating awareness and sensitizing representatives of these associations and organizations.

Experiences of best practices in the field of water supply, rainwater harvesting, water resources management, solid waste management, sewerage, drainage etc. should be documented and also used in planning and implementation of urban infrastructure projects.

Ground water depletion can be checked by under taking rain water harvesting in all the urban centres. Specific programmes, schemes should be initiated for aquifer recharge. These schemes and programmes should be based on decentralized approaches of water resources management and water harvesting.

All the urban local bodies should be made compulsory to impose user charges for urban basic services such as water supply, drainage, solid waste management, parking, street sweeping, sewerage etc. However, the quality of service has to be improved in order to augment financial resources though imposing user charges.

Improving cost recovery should be linked with grants or fiscal transfers. Financial incentives may also be given to urban local bodies showing improved cost recovery.

Private sector participation should be encouraged. Unbundling of services may improve efficiency of urban local bodies. The regulatory role of urban local bodies should be given to them while other functions may be given to private sector. Private sector may also be encouraged for participation in urban infrastructure projects.

Rationalization of tariff structure would require necessary legislative changes and developing a system of incentives and sanctions at state level to encourage reforms.

Reforms are also needed for restructuring water bodies - Jal Nigam and Jan Sansthan by disaggregating them by function separating service provision from regulatory and policy responsibilities, commercializing the service provision entities and evolving the private sector in management of new commercialized entities.

The urban local bodies are also supported to develop best practices and procedures in areas of accounting, auditing, procurement, tariff rationalization, customer consultation, and integrating service to disadvantaged groups with maintenance of service delivery.

The state government should facilitate urban local bodies for preparation of City Development Plan, Detailed Project Reports as well as their timely approval in order to avail the benefits of JNNURM, UIDSSMT and IHSDP schemes.

All the properties and holdings should be brought into the tax net of local bodies. This may be ensured through application of GIS in larger cities and towns while timely and regular enumeration of houses may be ensured by local bodies. This will improve the financial health of local bodies.

The local bodies need help and assistance for having access to capital market and mobilization of resources for meeting out the desired expenses in terms of share in centrally sponsored urban infrastructure development projects - JNNURM, UIDSSMT and IHSDP.

The Master Plan of cities should also contain the details of urban infrastructure services, urban transport system, development of new townships and other public utilities. Detailed Plans for power, water supply, sewerage, drainage, roads, street lights transportation system, communication, environment, parks, parking zones and other basic needs of civic life must be integral part of the Master Plan.

People should be made to realize that unless they make timely payment of all the taxes and charges, the civic services and their maintenance cannot be kept as per their expectations.

Wastage of drinking water, pilferage and theft of power, misuse of public land and roads cost very heavily on the already inadequate resources of the city. The people should be made to understand that those resources belong to them and they have to act as custodians.

It is imperative to create an enabling legal institutional framework for the planning, financing, management and regulation of urban

development with the objectives of sustainable augmentation of housing, infrastructure and civic services to the people without deteriorating to the living environment.

Suitable financing systems with a view to building the basic foundation for city productivity and economic growth be adopted for undertaking sustainable expansion of urban infrastructural facilities.

In order to meet out the travel demand and manage urban traffic, Mass Rapid Transport System should be developed and a Cell of Urban Transport Management be established in the Department of Urban Development.

Urban Infrastructure Development Fund be created for the resource pool and development of urban infrastructure. Urban Development Company/Corporation may also be established for the development and management of urban infrastructure.

In order to ensure effective and efficient functioning of urban infrastructure development schemes, a unit of project management be established at the Department of Urban Development. The specialists, consultants, engineers should be associated with the unit for managing the urban infrastructure projects and facilitating urban managers including development functionaries.

River Conservation and River Front development should be ensured in order to mitigate water pollution and sustaining the rivers.

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