

# 8

# City Investment Plan and Financing

## 8.1. Introduction

The CIP actually entails three capital investment plans and action plans over two phases: one for the current phase of JNNURM, viz. the seven-year period, 2006-2012, and the balance for the second phase (2011-2031), a perspective of 25 years. It sets out briefly key messages from the city assessment and the sector priorities for the two missions of the JNNURM. The sections on each sector explain the need for intervention, describe proposed projects and their budget implications, identify the institutions responsible and outline issues and further priorities to be addressed.

## 8.2 Key Messages from the City Assessment

The preceding chapters highlighted the problems that need to be overcome to take Lucknow into the future. These are as follows:

- Significant infrastructure needs clearly exist, arising not only out of the physical growth of the city but also from increasing demands for better services. Addressing these infrastructure needs includes augmentation and renewal of infrastructure including provision for the operations and maintenance of existing and new infrastructure.
- Needs for infrastructure investment and O&M are citywide and includes both economic infrastructure as well as basic services to the poor. The issue is not just about coverage levels and quantities but it is ultimately about improving the quality and reliability of services.
- The CDP proposes priority areas for interventions on a citywide scale on the basis of extensive consultations. These have then sorted on the basis of key areas of intervention in the first phase of JNNURM. The priority areas are water supply, sewerage and sanitation, solid waste management, urban transportation and basic services to the poor (in many ways a focused combination of the others). Interventions are proposed because infrastructure and service levels are inadequate; the city is not functioning as efficiently as it should and because slums are spread across the city.
- There are also important investment requirements around the issue of heritage. The unique blend of modernism and heritage that Lucknow offers is dear to all residents and is to be preserved. Investments around heritage also provide opportunities for improving tourism as a contributor to the economy.
- No amount of investments in infrastructure will have a positive outcome without focusing on issues of behaviour change; this is especially true of solid waste management, sewerage and sanitation. Attention to and funding of behaviour change campaigns followed up by a system of incentives and penalties is needed for sustainability of interventions as well as expected outcomes of investments in infrastructure.
- Capacity enhancement of the key institutions is critical for financial sustainability of investments. This should entail policy interventions to enhance the financial base of local institutions and increase their abilities to raise resources in capital markets. Internally,

institutions will have to improve their overall operational efficiencies and work on a reform path to become more accountable.

- The availability of finance at local level is key to the overall sustainability of investments. At the moment with the exception perhaps of the Lucknow Development Authority, none of the other city level institutions have a demonstrated ability to raise adequate resources.
- Institutional reform is fundamental to sustainability. All consultations around the CDP highlighted the overlapping of roles and responsibilities of institutions and the need for clarity and role separation. In this environment it is not possible to hold any agency properly accountable. The JNNURM provides an opportunity and ample scope for designing and implementing a reform agenda. The CDP is a starting point and is a working document for the city to revisit frequently in the implementation process and be used as a consultation tool in the design and implementation of the reform agenda.

## 8.3 Sub Mission I: Urban Infrastructure and Governance

The priority sectors identified for interventions in Phase 1 of the JNNURM for Sub Mission 1 and Sub Mission 2 are as follows:

### a) Sub Mission 1: Urban Infrastructure and Governance

The **critical areas** for intervention are:

1. Water Supply, Sewerage and Sanitation
2. Drainage and Storm water drains
3. City transportation and traffic
4. Solid Waste Management
5. Governance and institutional reform (discussed in Chapter 9 and included in the budget figures below)

The **other areas** are:

1. Inner City Renewal
2. Conservation of river, ponds and lakes
3. Conservation of heritage

The investment details are discussed sectorally.

### 8.3.1 Critical Priority Areas

#### 8.3.1.1 Water Supply, Sewerage and Sanitation

##### **Water Supply**

###### **(i) Need for intervention**

The importance of this sector needs no reiteration. As has been discussed in Chapter 3, coverage, access and levels of service are inadequate. This has led to rising dependence on ground water to satisfy unmet demands. The rising level of ground water withdrawal is a cause for concern in the absence of any regulation on use. Water quality is being adversely affected

and is a major issue of concern for consumers of all backgrounds. The earlier discussion also highlighted the poor quality of infrastructure, the lack of preventive maintenance, and the incomplete networks that compromised service levels and sector efficiency and the lack of reliable data upon which to base planning, financial management (including cost recovery) and operations.

The interventions proposed under JNNURM focus on augmentation of infrastructure, on some degree of improvements to existing infrastructure, and include specific interventions in the Inner City Area and the newly developed areas. The projects proposed hope to significantly reduce ground water withdrawal since all the new water works are based on surface sources, provide access to and coverage by a network and reduce pollution of the River Gomti. Given the importance of this sector, it is proposed that interventions be taken up in Phase 1 with spillovers to Phase 2.

### **(ii) Proposed projects**

The proposed water supply project under JNNURM includes:

1. The construction of three water works at Gomti Nagar, Mohaan Road and Ghaila.
2. The construction of four zonal pumping stations in the four planning districts
3. The construction of nine overhead tanks in the different zones
4. The upgradation and renovation of the Aishbagh and Balaganj water works
5. A series of interventions for the improvement and rehabilitation of the existing systems mainly through the replacement of worn out pipelines
6. Improvement works in each of the planning districts to cover parts of the Inner City
7. Construction of new systems in the newly developed areas
8. Provision for ground water recharge

The phasing and costing of the interventions is shown in the following table:

(Rs. in Crore)

Work	Total Cost	Phase 1 2006-12	2006 -07	2007- 08	2008- 09	2009- 10	2010- 11	2011- 12	Phase 2
Gomtinagar Water Works	252	237	32.55	36.2	50.2	55.2	33.5	29.35	15
ZPS, reservoir, water works mohan road	229	5	0	1	1	1	1	1	224
Water works Ghaila	151	0	0	0	0	0	0.00	0	151
Aishbagh upgradation	52.5	52.5	2.75	10	15	10.5	10.25	4	0
Balaganj water works and remodelling etc.	153.25	114.75	5.2	19.5	29.25	29	19.15	12.65	38.5
Inner-city areas	100	70	0.25	20.2	25	15.55	5	4	30
Water works in new areas	77.75	57.75	0.75	11.25	12.5	13	10	10.25	20

Work	Total Cost	Phase 1 2006-12	2006 -07	2007- 08	2008- 09	2009- 10	2010- 11	2011- 12	Phase 2
<b>Total</b>	<b>1015.5</b>	<b>537</b>	<b>41.5</b>	<b>98.15</b>	<b>132.95</b>	<b>124.25</b>	<b>78.9</b>	<b>61.25</b>	<b>478.5</b>
Recharge, centage, training	262.03	138.56	10.71	25.33	34.31	32.06	20.36	15.80	123.47
<b>Grand Total</b>	<b>1277.53</b>	<b>675.56</b>	<b>52.21</b>	<b>123.48</b>	<b>167.26</b>	<b>156.31</b>	<b>99.26</b>	<b>77.05</b>	<b>601.97</b>

The total project cost is estimated at Rs. 1277.53 crore with an almost 50-50 split over the two phases – Rs.675.56 crore in Phase 1 and Rs. 601.97 crore in Phase 2. Investment requirements in Year 1 (2006-07) are Rs. 52.21 crore and rise steadily over the next three years and then reducing in the last two years of Phase 1 of JNNURM. The focus in Year 1 is the construction of the Third Water Works at Gomtinagar with minor amounts being spent on upgradation of the two existing water works at Aishbagh and Balaganj.

The levels of proposed investments for the Inner City Areas are clearly inadequate when measured against the total investment requirements. These localities are served mainly by the Aishbagh Water Works and through tube wells with about half the total demand being met. Storage reservoirs catering to these areas have outgrown their capacities compounding the problem of water shortage. Most of the distribution mains are very old and need replacement. In some areas the size of the mains is less than that required for meeting current demands and there are complaints of low pressure. This results in a situation where people draw water by exposing the house connection main. Further, due to the intermittent supply, it is observed that people do not turn off taps leading to wastage. Some of the house connection lines and distribution mains pass through drains and compromise the quality of water at the tap end.

Tackling the problems facing the water sector is a huge task and requires a complete reorganisation of the distribution system as well as extension of distribution mains in areas where they do not exist. The age of the existing infrastructure also contributes to leakages and pollution. The old tube wells need rejuvenation; water storage tanks need augmentation including new construction. The tanks also need cleaning, repairs and repainting along with proper security arrangements to prevent unauthorised entries. These problems are aggravated in the Inner City Areas. There is need for focused interventions in the Inner City Areas and this could well require that the State Government draw up a separate project.

### (iii) Institutions Responsible

The UP Jal Nigam has key responsibility for implementation of the project. Once the project is completed, it will be handed over to the Lucknow Jal Sansthan for operations and maintenance.

#### **Sewerage and Sanitation**

##### **(i) Need for Intervention**

As has been discussed in Chapter 3, existing network connections are woefully inadequate as are treatment facilities. This has led to as much as 316 mld of sewage being discharged directly into the River Gomti. The problems of service latrines, latrines opening directly into sewers all combine towards adverse health impacts arising out of contamination of water sources. The earlier discussion also highlighted the fact that the city has not undertaken any major sewerage works since the 1948 Master Plan.

Reducing pollution levels in the River Gomti was a need highlighted by all stakeholders just as there is need to augment existing infrastructure. The projects proposed focus on the creation of infrastructure including four sewage treatment plants, improvements to existing infrastructure and construction of zonal sewers.

It is hoped that through the projects, pollution levels in the River Gomti will reduce significantly. The phasing of the projects is such that the majority of interventions are proposed towards the latter part of the JNNURM.

### (iii) Proposed Projects

The proposed projects for sewerage (map overleaf) under JNNURM are as follows:

1. The construction of four sewage treatment plants. One of these plants will be constructed in Phase 1 with the remaining three being deferred to Phase 2 of the programme.
2. The construction of sewage pumping stations in all the four planning districts.
3. Improvements to the existing sewers.
4. The Lucknow Development Authority also proposed to construct 30.55 km of zonal sewers in newly developed areas.

The phasing and the costing of the interventions is shown in the following table:

Work / Districts	Total Cost	2006-11	2006-	2007-	2008-	2009-	2010-	(Rs. in Crore)
			07	08	09	10	11	
<b>Sewage Treatment Plants</b>								
I	6.44	6.44	3.22	3.22	0.00	0.00	0.00	0.00
II	45.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
III	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IV	98.40	30.00	0.00	0.00	0.00	0.00	30.00	68.40
<b>Sub Total</b>	<b>150.44</b>	<b>36.44</b>	<b>3.22</b>	<b>3.22</b>	<b>0.00</b>	<b>0.00</b>	<b>30.00</b>	<b>114.00</b>
<b>S.P.S., Sewers &amp; Other Works</b>								
I	216.42	10.00	2.00	2.00	2.00	2.00	2.00	206.42
II	430.11	0.00	0.00	0.00	0.00	0.00	0.00	430.11
III	428.80	131.88	30.61	26.40	26.16	20.00	30.70	296.93
IV	828.86	447.65	87.57	71.42	52.10	114.14	126.42	381.21
<b>Sub Total</b>	<b>1904.19</b>	<b>589.53</b>	<b>120.18</b>	<b>99.82</b>	<b>78.26</b>	<b>136.14</b>	<b>159.12</b>	<b>1314.67</b>
<b>Total</b>	<b>2054.63</b>	<b>625.97</b>	<b>123.40</b>	<b>103.04</b>	<b>78.26</b>	<b>136.14</b>	<b>189.12</b>	<b>1428.67</b>

The phasing and costing of the construction of the zonal sewers is shown in the table below. This is to be taken up by the Lucknow Development Authority.

Work	Total Cost	2006-	2006-	2007-	2008-	2009-	2010-	2011-	(Rs. in Crore)
		12	07	08	09	10	11	12	
Zonal Sewer 30.55 km	31.00	20.00	5.00	10.00	5.00	0.00	0.00	0.00	11.00
<b>Grand Total</b>	<b>42.00</b>	<b>20.00</b>	<b>5.00</b>	<b>10.00</b>	<b>5.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>11.00</b>

The total project cost for the first set of projects is estimated at Rs. 2054.63 crore with the bulk of investments proposed in Phase 2 of the JNNURM. Phase 1 proposes an investment of Rs. 625.97 crore and Phase 2 proposes Rs. 1428.67 crore. Investments in Year 1 (2006-07) are estimated at Rs. 123.40 crore with a drop in investment requirements in the next two years and then steadily rising investment requirements towards the end of Phase 1.

The LDA project is smaller and estimates a total investment of Rs. 42 crore with Rs. 20 crore being the requirements in Phase 1 and Rs. 11 crore in Phase 2. Investment requirements in Year 1 (2006-07) are estimated at Rs. 5 crore. The project will be completed in the first three years of Phase 1.

### **(iii) Institutions responsible**

Different institutions will carry out the two sets of interventions. The UP Jal Nigam and the Lucknow Jal Sansthan will be implementing the first set of projects and the Lucknow Development Authority the second project. It will be important to ensure effective coordination between the institutions to achieve the desired outcomes.

### **(iv) Issues and further priorities**

There are a number of observations on the proposals. These are highlighted separately first for the water supply sector and then for the sewerage and sanitation sector.

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

The focus of the water supply projects is on augmentation of capacity and improvements to existing infrastructure. With the inclusion of ground water recharging, there is a token of reform introduced. Infrastructure enhancement and improvements without corresponding attention to reforms will not be sustainable in the long run. Considering that high losses and low revenues plague current water supply systems, some reforms that definitely need to be implemented include:

- The introduction of comprehensive metering. This will require a policy change and it is highly recommended that action be taken at the earliest.
- Plugging the leaks through infrastructure interventions as well as effective penalties on those pilfering water.
- Tariff reforms that duly take account of cost recovery and affordability issues and that are supported by targeted subsidies and cross subsidies. There is need for subsidies especially to the poor but these needs to be clearly designed and targeted.

It will be difficult to implement volumetric charges for water but one possibility could be to increase the flat rates to such an extent that it is actually economical and beneficial for the consumer to switch to volumetric charges.

#### ***Sewerage and Sanitation***

A closer examination of the funding requirements and phasing for the first set of large projects reflects the limitations of the current plan. The four treatment plants proposed only begin to address the full gravity of the problem. Further the nature of institutional arrangements that will govern the implementation of the proposals poses a risk of lack of coordination. Particular attention needs to be paid to ensure that proposed interventions and possible future ones fit in to a programmatic approach.

While the first set of projects does not make a separate mention of sanitation related interventions, the problems are critical especially in the Inner City Areas. Though main and trunk sewers serve these areas, the number of branch sewers and laterals are inadequate as are house connections. These areas are also characterised by poor sanitation. Those who can afford have constructed septic tanks but these discharge into open drains. Flooding of these drains due to blockages aggravates the situation.

There is a lack of systematic and regular maintenance of sewers resulting in several of them being badly choked. There is need for regular desilting, cleaning and repairs. Household latrines are either single or twin pit pour flush. In the absence of systematic desilting of septic tanks and pour flush latrine pits, the sullage tends to be spread in the street or dumped into the nearby drain. Although manual carriage of the night soil is officially banned, some houses in this area have conservancy type of latrines. There are also some houses that have latrines near the drains or directly connected to them. Open defecation is a common problem in some of the poorer areas of this part of the city.

The State Government has ratified the project proposals in principle. The existing proposals need to be revisited inline with the issues identified in the CDP and specific attention needs to be paid to the Inner City Areas.

At a general level, the lack of data about detailed cost estimates, maps, the absence of metering makes financial and project planning difficult. It is therefore necessary to develop a comprehensive water sector review and plan which should be prepared in time for inclusion in a revised investment strategy by the beginning of financial year 2009. The sector review should deal with network issues, finances, and behavioural and institutional issues.

In the context of sewerage, there is an opportunity cost of changing from existing systems of disposal to a network system. The service provider can adopt a system of rewards and penalties to facilitate this change. One option that can be considered is to provide a window for consumers to convert to the network free of cost. Failing this, the consumer will be fined a steep amount that will be added to the water bill.

Tackling the sanitation issue will require substantial investment in behaviour change communication. The Government of India has in fact constituted a task force on urban sanitation that will focus on this issue. The State Government may wish to explore details of this task force. In the meanwhile, it will be very necessary to link with civil society organisations and mount a massive campaign against the ill effects of poor sanitation practices.

Implementing any of the reforms identified above will be challenging in the face of interests of various constituencies. However, for sustainability in the long run, hard decisions are necessary in the immediate term.

### **8.3.1.2 Drainage and Storm Water Drains**

#### **(i) Need for intervention**

Lucknow faces a severe problem of drainage. As has been discussed in Chapter 3, nallahs and embankments have been encroached in many places restricting their flow and causing floods. There is no regular maintenance of the nallahs and whenever some desilting work is undertaken, the encroachments do not allow an entire stretch of drain to be cleaned. Drains also suffer blockages from the indiscriminate disposal of solid waste in them. Additionally in the new colonies, the internal drains are not connected to the trunk drains leading to water logging.

In the Inner City Areas drains exist but most have been encroached making it difficult to clean them. In the absence of regular cleaning, most drains are badly silted and only a part of the drain

section carries the dry weather flow. During rains, these drains are unable to carry the storm water and water logging is common. Besides encroachments, the dumping of street sweepings into the drain and plastics blocking drains are common. Some of the major old drains pass through the area. The condition of these drains is similar to that of the others leading to backflow and storm water flooding in low-lying areas along the major drains. Broken and damaged sections of the drains are also observed. Some lengths of the smaller drains are kutcha resulting in stagnation of wastewater.

The proposed project is very small and focuses on a mix of new construction and improvements to existing infrastructure.

## (ii) Proposed Projects

The project proposed for funding under JNNURM is as follows:

- In Zone 1: improvement of 12.85 km of drains
- In Zone 2: construction of 11.90 km of drains but with the majority of them draining into the Moti Jheel
- In Zone 3: improvement of 33.60km of drains
- In Zone 4: improvement of 40.66 km of drains
- In Zone 5: construction of 79 km of drains
- In Zone 6: construction of 19.80 km of drains

Additionally the Lucknow Development Authority proposes to construct 29.55 km of zonal drains.

The phasing and costing of the interventions is shown in the following table:

Work	Total Cost	2006-07	2007-08	2008-09	2009-10	2010-11	(Rs. in Crore)
Zone 1	20.58	6.00	6.00	6.00	2.58	0.00	
Zone 2	47.43	12.00	12.00	12.00	11.43	0.00	
Zone 3	10.65	5.00	5.65	0.00	0.00	0.00	
Zone 4	139.72	30.00	30.00	30.00	30.00	19.72	
Zone 5	215.37	50.00	50.00	50.00	50.00	15.37	
Zone 6	10.54	5.00	5.54	0.00	0.00	0.00	
<b>Total</b>	<b>444.29</b>	<b>108.00</b>	<b>109.19</b>	<b>98.00</b>	<b>73.91</b>	<b>35.09</b>	

The phasing and costing of the Lucknow Development Authority project is shown in the following table:

Work	Total Cost	2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	Phase 2
Zonal Drains 29.55 km	100.00	55.00	15.00	20.00	10.00	0.00	0.00	45.00
<b>Grand Total</b>	<b>145.00</b>	<b>55.00</b>	<b>15.00</b>	<b>20.00</b>	<b>10.00</b>	<b>0.00</b>	<b>0.00</b>	<b>45.00</b>

The first project proposes a total investment of Rs. 444.29 crore and is only designed for Phase 1. The expected investment in Year 1 (2005-06) is Rs. 108.00 crore. The bulk of investments will be in Zone 5 where the focus is on construction.

The Lucknow Development Authority project proposes an investment of Rs. 145 crore – Rs. 55 crore in Phase 1 and Rs. 45 crore in Phase 2.

#### **(iv) Institutions responsible**

The Lucknow Nagar Nigam and the Lucknow Development Authority will carry out the two projects.

#### **(v) Issues and further priorities**

The proposed projects are only beginning to address the nature and scale of issues confronting the sector. It is critical that a clear strategy is drawn up for the removal of encroachments that is the main factor affecting the efficiency of the drains. It is recommended that the existing project proposal be revised in line with the issues identified in the CDP.

### **8.3.1.3 City Transportation and Traffic**

#### **(i) Need for the project**

Lucknow has seen a radial growth but the city centre continues to remain the hub of commercial activities. As has been discussed in Chapter 3, there is a problem of connectivity of the outlying areas with the commercial centre. There has also been a rise in the number of registered vehicles without corresponding increase in the carrying capacity of the roads and road width in turn has been reduced due to encroachment. The central part of the city also has a large number of railroad crossing and road crossings leading to traffic congestion. Parking facilities in the commercial and institutional areas is inadequate.

The focus of interventions under JNNURM is on bus transport, improving roads, constructing new roads, construction of parking facilities and rail over bridges. The projects are realistic in their assumption that these interventions will not offer the final solution to urban transport in the city.

#### **(ii) Proposed Projects**

The proposed projects under this broad category are described below:

##### **Roads**

###### **a) Municipal Roads**

(i) Improvement of 46.96 kms of roads in Zone 1; 58.70 kms in Zone 2; 52.15 kms in Zone 3; 119.03 kms in Zone 4; construction of 80 kms in Zone 5 and 93.60 kms in Zone 6

###### **b) PWD Roads**

(i) There are 620 kms of roads (PWD plus NH) in Lucknow. This includes 73 kms of NH; 12.5 kms State Highways (Rai Bareili, Hardoi and Mohaan Roads); 9 kms of Main District Roads, and 215 kms of other urban and district roads.

(ii) The key project to be completed in Phase 1 is the Lohiya Path from Kalidas Cauraha to Faizabad Polytechnic (6.2 kms). This will have the state's first cycle track. Work has started and will be completed by March 2007.

(iii) Construction of a sub arterial road on the Haider Canal in Phase II.

### **c) Zonal Roads**

(i) Construction of 80 kms of Zonal Roads. (ii) Widening of 65 kms of roads.

The Zonal roads to be developed will be in the Gomtinagar area, along with the Gomtinagar Extension, the Hitech city area and in the new areas that will be acquired.

### **d) Sub Arterial Road on the Haider Canal**

This is an ambitious project drawn up by the LNN. While its successful implementation will undoubtedly improve the environment of the city, it will be very difficult to implement. Haider Canal is one of the heavily encroached areas of the city and these have to be removed before implementation can begin. It is recommended that the proposed Rs. 796.40 crore project be deferred to Phase 2 with Phase 1 focusing on drawing up a plan for removal of encroachments without affecting livelihoods.

### **Road based bus transport**

(i) Construction of 600 bus shelters, 12 bus stands, 2 bus terminals and service stations.  
 (ii) Addition of 500 CNG buses to the fleet.  
 (iii) IT –enabled management of the entire bus network

### **Parking through Public Private Partnerships**

(i) Bhopal House parking in Lalbagh.  
 (ii) Hazratganj parking in front of Vidhyak Nivas.  
 (iii) There is a proposal to construct an underground car park at the Sarojini Naidu Park

### **Bridges**

Construction of 5 Rail Overhead Bridges, and two Bridges over Gomti. 3 over bridges are proposed in Gomtinagar, 1 on Bijnour Road and 1 at Uttratia. Additionally two new bridges are proposed to the east of Gomtinagar.

### **(iii) Projects**

The proposed projects and their phasing is as follows:

#### **a) Municipal Roads**

(Rs. in Crore)

Work	Total Cost	2006-07	2007-08	2008-09	2009-10
Zone 1	23.86	8.00	8.00	7.86	0.00
Zone 2	42.38	20.00	15.00	7.38	0.00
Zone 3	14.33	5.00	5.00	4.33	0.00
Zone 4	84.58	20.00	20.00	20.00	24.58
Zone 5	215.80	60.00	60.00	60.00	60.00
Zone 6	40.24	15.00	15.00	10.24	0
<b>Total</b>	<b>421.19</b>	<b>128.00</b>	<b>123.00</b>	<b>109.81</b>	<b>60.38</b>

The proposed financial outlay is Rs. 421.19 crore. The entire investment will be completed in Phase 1 and the proposed investment in Year 1 (2006-07) is Rs. 128 crore. Again, Zone 5 gets the highest allocations throughout the programme period.

### b) PWD Roads

The Lohiya Path is an important project for the state government. The project is scheduled for completion in March 2007 and will cost Rs. 69 crore.

### c) Zonal Roads

Work	Total Cost	(Rs. in Crore)								
		2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2	
Zonal Drains 29.55 km	519.00	319.00	75.00	100.00	64.00	20.00	30.00	30.00	200.00	
Widening of Roads 66 km	98.00	98.00	15.00	25.00	25.00	20.00	13.00	0.00	0.00	
<b>Grand Total</b>	<b>617.00</b>	<b>417.00</b>	<b>90.00</b>	<b>125.00</b>	<b>89.00</b>	<b>40.00</b>	<b>43.00</b>	<b>30.00</b>	<b>200.00</b>	

The proposed investment is Rs. 617 crore with Rs. 417 crore being the requirements in Phase 1 and Rs. 200 crore in Phase 2.

### Road based bus transport

The detailed costs are as follows:

Works	Cost (Rs. Lakhs)
Bus Shelters - 600	600
Bus stands - 12	3000
Parking places (acres)	
Parking for city buses	55
Parking for other private modes of urban transport	339
Parking for other private vehicles	523
Terminal and service stations - 2	2000
CNG buses - 500	9060
IT enabled management	500
<b>Total</b>	<b>16077</b>

The total investment is estimated at Rs. 16077 lakhs of which Rs. 2917 lakhs is estimated towards the cost of acquiring land for construction of parking, terminal and service stations. The JNNURM does not fund land – the government will need to explore other options for this funding.

### Parking through Public Private Partnerships

The laws in the state do not allow the destruction of parks for the construction of car parks. The JNNURM states that parking provisions should be through public private partnerships. The proposed projects and their costing is as follows:

Location	Total Cost	(Rs. in Crore)	
		2006-07	2007-08
Bhopal House, Lalbagh	16.77	10.00	6.77
Hazrat Ganj (in front of Vidhayak Nivas	5.02	5.02	0.00
<b>Total</b>	<b>21.79</b>	<b>15.02</b>	<b>6.77</b>

There is a long pending proposal for the construction of a parking facility in the Sarojini Naidu Park. This proposal ran into litigation and has been stalled. It is however possible to revive this and construct the facility underground. Given the fact that the government will need to identify partners and take forward the plan, there are two suggested options that the government can consider:

- Get in to a 50-50 Joint Venture with IL & FS.
- Explore the 'India Infrastructure Initiative' (III) that is a revolving fund of the IDFC available to State Governments to develop PPP options. The III is a 'no risk no cost' proposition to the government and can be used for project preparation and partnership management.

### Bridges

As has been described there are some bridges proposed. The details are as follows:

Work	Total Cost	(Rs. in Crore)								
		2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2	
Rail Overhead Bridges – 5	186.00	103.00	0.00	50.00	40.00	13.00	0.00	0.00	83.00	
Bridges over River Gomti - 2	88.00	40.00	0.00	20.00	15.00	5.00	0.00	0.00	48.00	
<b>Grand Total</b>	<b>247.00</b>	<b>143.00</b>	<b>0.00</b>	<b>70.00</b>	<b>55.00</b>	<b>18.00</b>	<b>0.00</b>	<b>0.00</b>	<b>131.00</b>	

An investment of Rs. 274 crore is proposed of which Rs. 143 crore is the outlay in Phase 1 and Rs. 131 crore in Phase 2. No interventions are proposed in Year 1 (2006-07).

### (iii) Institutions responsible

There are a number of institutions responsible for these projects. These are the Lucknow Nagar Nigam, the PWD, the UP State Road Transport Corporation and the Lucknow Development Authority.

### (iv) Issues and further priorities

The proposals are holistic but will have to be updated given the growth of the city. The most crucial aspect for greater efficiencies will be increasing the carriage width through removal of encroachments. Improving transport planning and circulation through better interventions like pedestrian zones, designated parking for smaller vehicles etc. will be important for overall improvement.

In order to keep pace with the growing public transport needs, the city may consider a multi modal mass rapid transport system – the various components of which will be defined following a thorough feasibility study. These proposals will require approvals at appropriate levels. Following on from an estimate of MRTS made by RITES for Lucknow in 1997, the likely investment levels is shown below:

Institutions	Total Cost 2006-12	(Rs. in Crore)					
		2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Special Purpose Vehicle	0.00	0.00	1000.00	1000.00	1000.00	1000.00	1000.00
<b>Total</b>	<b>5.000</b>	<b>0.00</b>	<b>1000.00</b>	<b>1000.00</b>	<b>1000.00</b>	<b>1000.00</b>	<b>1000.00</b>

This investment will need to be raised outside of the JNNURM therefore; a thorough financial analysis is a prerequisite.

#### 8.2.1.4 Solid Waste Management

##### (i) Need for intervention

As in other cities, Lucknow too has a problem of solid waste disposal. The key issues highlighted in Chapter 3 included the fact that there is a problem of final sanitary transportation and disposal of wastes. A system of house-to-house collection has been introduced in some wards but the scale of operations needs to be stepped up. The waste depots that are the first point in the systemic chain are few and far between encouraging indiscriminate dumping. In the waste depots, there is intermixing of wastes putting the rag pickers and the surrounding areas at risk. Currently Lucknow generates 1300MT of wastes per day and this is expected to double by the end of the Master Plan period (2021).

At the national level, the Supreme Court has passed a ruling on the handling of municipal wastes thus making it mandatory for all cities to develop systematic interventions in line with the ruling. The proposed project is in line with the Supreme Court ruling and will go some way towards tackling the problems.

##### (ii) Proposed project

The details of the project are as follows:

- (i) Management of Solid Waste in the city as per MSW Rules 2000, including collection, segregation, storage, transport, processing, treatment and disposal.
- (ii) Purchase of equipments like trolleys, bins, tricycles, handcarts.
- (iii) IEC for creating civic awareness for proper storage of solid waste and its segregation.
- (iv) Consideration of various means of final disposal of municipal wastes through various means like sanitary landfills, biomethanation, conversion of wastes to hydrocarbons.

The investment requirements and phasing is as follows:

Particulars	Total Cost	2006-07	2007-08	2008-09	(Rs. in Crore) Phase 2 (2009-21)
Collection of MSW	1.71	0.61	0.67	0.43	0.00
Segregation of MSW	0.30	0.15	0.08	0.07	0.00
Storage of MSW Containers	9.10	3.59	2.70	2.81	0.00
Transportation of Solid Waste	11.80	3.34	5.26	2.58	0.00
Processing of Waste	0.80	0.30	0.50	0.00	0.00
Treatment and Disposal – Land fills, Bio-medical Waste Treatment, Conversion of Wastes to Hydrocarbons	15.35	8.25	7.10	0.00	0.00
Integrated Waste Management	0.00	0.00	0.00	0.00	36.00
<b>Total</b>	<b>38.46</b>	<b>16.24</b>	<b>16.33</b>	<b>5.89</b>	<b>36.00</b>
Escalations and Administrative @ 20%	7.69	3.25	3.27	1.18	7.20
<b>Grand Total</b>	<b>89.35</b>	<b>19.49</b>	<b>19.60</b>	<b>7.07</b>	<b>43.20</b>

A total of Rs. 89.35 crore is proposed for the project in two phases. Rs, 46.15 crore is proposed in Phase 1 and Rs. 43.20 crore in Phase 2. The investment requirement in Year 1 (2006-07) is Rs. 19.49 crore.

### **(iii) Institution responsible**

The Lucknow Nagar Nigam is the institution responsible for this project.

### **(iv) Issues and further priorities**

This is an area that requires substantial investment in IEC to get people into the habit of segregation, refrain from indiscriminate dumping etc. There is also substantial scope for involvement of civil society organisations as partners in the initial collection and transportation to the waste depots. Given that solid waste is an area that will only grow in scale, it is critical that various options for quicker service delivery and final disposal are considered.

## **8.3.2 Other Priority Areas**

The **other areas** for intervention as defined in the initial prioritisation are discussed below.

### **8.3.2.1 Inner City Renewal**

The key issues and the need for focused interventions to address them have been discussed under the sectoral interventions.

### **8.3.2.2 Conservation of the river, lakes and ponds**

Lucknow has a number of lakes and ponds within its limits and of course the River Gomti flowing through it. The LNN has drawn up a project for the conservation of these water bodies. With the expansion of the LNN boundary, 124 villages have been included within its limits. The land records of the LNN show that there are 846 ponds in the LNN limits of which, a conservation plan

has been prepared for 256 ponds. The total cost has been estimated at Rs. 74 crore. In the first instance, 10 of the larger ponds will be taken up for conservation.

This project needs to be approached with caution. Given the pace of urbanisation and encroachments, it is unlikely that all the ponds identified in the land records are identifiable on the ground. It is recommended that the LNN first identify the number of ponds that are in a position to be conserved. Based on this identification, separate costs be determined depending on the size of the ponds and the nature of interventions necessary. It would be effective utilisation of funds for the LNN to concentrate on the larger water bodies that exist within the city limits like the Moti Jheel – that is under imminent threat following the construction of a series of nullahs discharging in to it – the Butler Palace Lake, the water body in the Imambara etc.

The LNN has also drawn up a project for river front development. The proposed financial outlay is Rs. 16.21 crore only to be utilised in Phase 1. Interventions include landscaping, setting up of an arts and crafts bazaar etc.

### 8.3.2.3 Conservation of Heritage

As has been reiterated throughout the CDP, heritage and its conservation are intrinsic to Lucknow. While recognising its importance, it is recommended that the bulk of activities be taken up in Phase 2 of the programme after revisiting the cost estimates. It is very critical for effective inter departmental coordination between institutions focusing on infrastructure development and the Tourism Department so that plans of the former do not adversely impact the ambience around heritage zones. The proposed activities that are specific to heritage conservation in Phase 1 are as follows:

Restoration Work	Total Cost	Phase 1	(Rs. in Crore)						
			2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2
Shaheed Smarak	4.51	4.51	1.00	2.00	1.51	0.00	0.00	0.00	0.00
Clock Tower	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Picture Gallery Husainabad	0.55	0.55	0.30	0.25	0.00	0.00	0.00	0.00	0.00
Sat Khanda	0.68	0.68	0.30	0.38	0.00	0.00	0.00	0.00	0.00
Management of Heritage Area	10.00	10.00	1.66	1.66	1.66	1.66	1.66	1.66	0.00
New Projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	144.03
<b>Total</b>	<b>156.64</b>	<b>16.02</b>	<b>3.54</b>	<b>4.29</b>	<b>3.16</b>	<b>1.66</b>	<b>1.66</b>	<b>1.66</b>	<b>144.03</b>

The Department of Tourism has outlined a series of plans for improving and conserving the heritage of the city. However, as discussed earlier, interventions have to be necessarily undertaken through the LDA and the LNN - not separately but together and in discussion with the State Government. The plans on the anvil along with their rough cost estimates are as follows:

Historic Buildings/Sites	Estimated cost (Rs. Lakhs)
<b>Bada Imambara Area</b>	
a) Setting – signage, pedestrian pathway, amenities, landscaping, façade lighting, street furniture, parking, removal of encroachments and rehabilitation	800

Historic Buildings/Sites	Estimated cost (Rs. Lakhs)
removal of encroachments and rehabilitation	500
b) Roomi Gate and Noubat Khana	500
c) Internal area development including restoration of baoli	500
d) Main building restoration	
<b>Chota Imambara</b>	
a) Setting	500
b) Building restoration	1000
<b>Important Buildings of Hussainabad Area</b>	
a) Satkhanda	100
b) Picture Gallery	150
c) Lake in front of Picture Gallery	50
d) Clock Tower	15
d) Sheesh Mahal	
e) Sarai	150
f) Setting of the area	50
g) Infrastructure development	500
	500
<b>Hazratganj</b>	
a) Architectural control and restoration of facade	1000
b) Street and façade lighting	200
c) Street furniture and setting	800
d) Underground parking	2500
<b>Kaiserbagh Heritage Zone</b>	
a) Land scaping	100
b) Façade restoration	200
c) Gate restoration	100
d) Amir-ud-Doulah library	200
e) Bharkhande building	100
<b>Dilkusha</b>	
a) Setting	300
b) Building	800
<b>Chowk</b>	
Rouza	500
<b>Preparation of architectural control precinct wise</b>	
a) Hazratganj	10
b) Sarrafa Bazar	10
c) Kaiserbagh	8
	8

Historic Buildings/Sites	Estimated cost (Rs. Lakhs)
d) Latouche Road	5
e) Victoria Street	
<b>Residency</b>	
a) Setting: parking, entrance development, encroachment removal, pathways, amenities, lighting	500
<b>La Martiniere</b>	
Landscape and Building restoration	500
<b>Important buildings in the corridor from Dilkhusha to Hussainabad along the River Gomti</b>	
Bibiapur Kothi	50
La Martiniere obelisk	10
Butler Palace Gate	20
Butler Palace Lake	50
Sikandar Bagh	20
Shahnajaf Imambara	30
Tara Wali Kothi	100
Chhattar Manjil	500
Lal Biraadari	200
Pucca Pul	50
Tikait Rai talab	200
Alambagh Gate	50
Preparation of Conservation Management Plan	500
<b>Total</b>	<b>160 Crore</b>

Heritage conservation will have a positive impact on tourism that in turn will improve the economic base of the city.

There are a few more small projects proposed by the Lucknow Nagar Nigam to be undertaken in Phase 1. They are unlikely to address the sectors in their entirety but have been included.

#### 8.3.2.4 Environmental Improvement and City Beautification

(i) Development of parks; (ii) Arboriculture; (iii) Conservation of water bodies; (iv) Development of River Front; (v) Construction of community halls.

Works	Total Cost	2006-07	2007-08	2008-09	(Rs. in Crore)
Boundary Wall	3.17	1.00	1.00	1.17	
Pathway	4.72	2.00	1.00	1.72	
Development Works	1.49	0.50	0.50	0.49	
Arboriculture	1.73	0.50	0.50	0.73	
<b>Total</b>	<b>11.11</b>	<b>4.00</b>	<b>3.00</b>	<b>4.11</b>	

The interventions will be to the parks in the different zones of the city. The distribution of parks in the city is as follows:

Zone 2: 110 parks Zone 3: 78 parks Zone 4: 10 parks Zone 5: 43 parks Zone 6: 55 parks	} 296 parks
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#### 8.3.2.5 Improvement in Street Lighting and maintenance

The interventions will focus on providing adequate lighting in the slums, community toilets and general street lighting to improve safety. Interventions are also planned in the newly developed areas that are either totally lacking in streetlights or are inadequately lighted. In addition to the lighting of specific roads, interventions include

1. Installation of electric poles in all 110 wards of the city;
2. Lighting arrangements in 50 crossings through semi high masts;
3. Installing 30 m high masts in 12 crossings;
4. Installation of 20 m high masts in 47 crossings and tri junctions;
5. Replacement of worn out sodium light fittings in all 110 wards.

The proposed investment outlay is as follows:

	(Rs. in Crore)				
	2006-07	2007-08	2008-09	2009-10	2010-11
Total Cost	56.64	10.00	11.00	11.00	12.00
					12.64

The LNN estimates that it requires about Rs. 10.29 crore per year for street lighting. In view of rising demands with growth of the city and regular maintenance of existing facilities, the fund requirements are likely to go up to double in Phase 2.

### 8.4 Sub Mission II: Basic Services for the Urban Poor - Priorities

The **critical areas** for intervention are:

1. In-situ integrated development of slums and basic services
2. Relocation of slums located in dangerous areas
3. EWS Housing

The **other areas** for intervention are:

1. Night shelters for the destitute
2. Community toilets in selected slums

#### (i) Need for intervention

As has been discussed in Chapter 4, Lucknow has a substantial slum population with very poor access to basic services. The slums are spread across the city and are growing because of rising migration. Various stakeholders voiced their desire to make Lucknow 'slum free' and slum dwellers expressed desire to work towards improving their quality of life. The earlier discussion

also highlighted the data discrepancies and the importance of clarity on tenure issues for designing specific interventions.

#### **(ii) Project details**

The estimates are on the basis of the slum population identified through the Oxfam 2005 survey i.e. for 11 lakh slum dwellers. Estimates for infrastructure development have been made on the basis of norm identified by SUDA. The suggested interventions are as follows:

- 1. Comprehensive Survey of Slums** – The need for a survey arises out of the fact that there are different sources for identification of slums and the people housed in them. Therefore, a comprehensive survey to ascertain the total population, housing conditions, infrastructure availability, land tenure status, affordability levels of the population etc. is critical. Based on the assumption that 11 lakh people are approximately 20,000 families, the cost of the survey is estimated at **Rs 50,00,000**
- 2. Integrated Slum Development and drinking water scheme aimed at improving the number of water points and hours of supply** - The basis for estimating the above interventions is as follows:
  - The Oxfam survey estimates that there are about 5.9 lakh slum dwellers that are residing either in urban villages or slums with multiple land ownership. For this group, in situ slum development is recommended.
  - Assuming the average family size to be 5, services are to be provided to 1.18 lakh households.
  - SUDA estimates the cost of basic service provision at Rs. 30,000 per family – total cost is therefore Rs. 354 crore
- 3. Housing for EWS** - In the short run, public agencies will have to play the role of provider of housing for the EWS. This need not be in the form of fully built houses but in the nature of sites and services. In this case smaller plots (25 to 30sq.m.) with pedestrian access and water and sewerage facilities are provided. Water tap and toilet seat are built on the plot. The person allotted the plot can then build the shelter and improve it as personal income improves. By ensuring water and sanitation, environmental hygiene is ensured. There are experiences of such schemes in India, and lessons from them can be applied in Lucknow. Taking stock of the situation at hand and considering the present status of the slums as reported above, it is suggested that the in-situ rehabilitation option be considered for the authorised slums and relocation (if at all necessary) be seen as an option for unauthorised colonies. This assumes that the developing authority has already acquired the land, and the cost of land will not form part of the total cost.

EWS housing has been proposed for a population of 5.1 lakh. With an average family size of 5, a total of 1.02 housing units will be required. Cost has been estimated at the rate of Rs. 80,000 – Rs. 50,000 for the house and Rs. 30,000 for basic infrastructure. Basic infrastructure includes piped water supply; sewer system and storm water drains. Additionally at cluster level there will be one building each for community hall, primary school and primary health centre with the costs being equated within the cluster. The total cost of EWS housing is estimated at Rs. 816 crore.

#### **4. Creation of additional housing stock**

To work towards making Lucknow slum free, there is need to build up EWS housing stock. SUDA estimates that there is need to create at least 7000 housing units per annum and at the rate of Rs. 80,000, the total cost is estimated at Rs. 336 crore. There is also a move to make it mandatory for all new housing developments to reserve 25% of housing stock for EWS groups.

The phasing of interventions and costs is as follows:

Project	Total Cost	(Rs. in Crore)								
		2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2	
Integrated Slum Development Scheme and Drinking Water Scheme	354.00	200.00	90.00	50.00	20.00	20.00	10.00	10.00	154.00	
EWS Housing	816.00	700.00	100.00	150.00	150.00	100.00	100.00	100.00	116.00	
Survey of Slums	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00	
Creation of Additional Housing Stock @7000 Units per Annum	336.00	150.00	10.00	15.00	20.00	25.00	30.00	50.00	186.00	
<b>Grand Total</b>	<b>1506.50</b>	<b>1050.50</b>	<b>200.50</b>	<b>215.00</b>	<b>190.00</b>	<b>145.00</b>	<b>140.00</b>	<b>160.00</b>	<b>456.00</b>	

The total investment for Sub Mission 2 is estimated at Rs. 1506.50 crore of which, Rs. 1050.50 crore is projected for Phase 1 and Rs. 456 crore for Phase 2. The Year 1 investment is estimated at Rs. 200.50 crore. EWS housing has been allocated the largest share of investment. The phasing of investments for the creation of additional housing stock is projected to rise Year 3 onwards with corresponding reductions in allocations for EWS Housing – this is because, the first objective before the state is to address the issues of access to basic services for the existing slums and therefore lesser funds will be available for creation of additional housing stock. The allocations for Phase 2 are significantly lower than that for Phase 1 because of two reasons – the fact that there is a directive requiring reservation of 20-25% housing in all new developments for the EWS sector and, through systematic interventions in Phase 1, the numbers of slums will reduce significantly.

#### (iv) Issues and other priorities

Public interventions will be required in providing basic services to the slums. To the extent feasible, community involvement may be secured in maintaining the facilities particularly community toilets, solid waste management etc. As has been pointed out in Chapter 2 slums have community groups active around specific issues and through mobilizing these groups it is possible to secure community participation.

Consultation with slum dwellers revealed their willingness to share responsibility in work execution and bring about transparency, accountability and quality of work. The following steps could be adopted to achieve community participation and ownership of interventions:

- Conducting group meetings on the need to take over the responsibility of works' execution in their own slums.
- Vigilance committees to be formed to monitor implementation of different works. These groups will not only ensure that there is a social audit but also make sure that the contractor does not degrade the quality of work in an attempt to make high profits out of the money allotted for slums.

- Identifying target beneficiaries and initiating efforts to form Community Based Organization (CBOs), covering the target population for participation in the implementation of JNNURM projects for slum rehabilitation.
- Designing specific programmes for the vulnerable groups - the socially under privileged, women and aged. Implementation of these programmes through effective IEC campaigns, thus improving the level of awareness among the communities and ensuring the participation of the vulnerable groups. This approach will ensure long-term sustainability of interventions. The activities of the CBOs should be monitored periodically. The involvement of local NGOs with experience in community empowerment activities will be beneficial to the promotion, formation and capacity building of CBOs.
- There needs to be better convergence between different urban poverty programmes, so that resources from the centre, state and local governments are all able to focus and make real change happen. A Town Development Plan/ Master Plan should be prepared with special attention to land tenure, basic services, housing and employment needs, including informal enterprise of the poor, of women and children. The urban poor's access to housing finance at affordable cost through micro-credit schemes and community-based lending needs to be facilitated.
- Granting security of land tenure to slums (individually or preferable to groups) will be a major intervention that would enable slum dwellers to access housing finance and improve slums over a period of time. An enabling environment will have to be created for this by co-ordination and liaison between the different departments/ organisations/ individuals owning the land on which the slums are located and proactive intervention by the state government in the form of a suitable G.O. on tenurial security to the slum-dwellers.

## 8.5 Lucknow Cantonment Board

There are three small projects proposed by the Lucknow Cantonment Board that have been included in the CDP. Although the Lucknow Cantonment is now surrounded by the city, it has separate institutions for governance and service delivery. Similarly, JNNURM funding patterns will differ from that of the other institutions. The discussion on these projects is therefore undertaken separately.

The project proposals for the Cantonment Board arises out of the inability of the State Government to provide bulk supplies to the civilian population living in the Cantonment Board area. The Cantonment Board has therefore proposed projects for water supply, sewerage, solid waste management and rainwater harvesting.

The water supply project will fund the boring of tube wells in different locations to supply water. According to Census 2001, the civilian population in the Cantonment Area was estimated at 53764 ad was spread across eight zones – RBI and Hata Ram Das, Sadar Bazar (the highest concentration), B.C. Bazar, R.A. Bazar, R.A. Line, Mal Avenue Colony, Dilkhusha Garden and Pipra Ghat Staff Colony, LBI Bazar, Kasturba Garden, Vijaya Park and RAK Marg Colony.

The sewerage project does not include the Mal Avenue since it has a well-developed sewer system and the Pipra Ghat Staff Colony since the area has a septic tank based system and few staff quarters. The plan also excludes the RAK Colony since it is classified as unauthorized as per the direction of the Cantonment Executive Officer of the Lucknow Cantonment Board.

A small project has been proposed for the execution of ground water recharging structures in the Kasturba Udyan, Gurmukha Singh Park, the school campus of RA Bazar and the school campus of BC Bazar. The proposed construction will cover 50566.25 sq m area and is estimated to cost a total of Rs. 0.20 crore.

The Cantonment Board is currently funding a feasibility study on solid waste management and plans to implement the recommendations at the earliest. The detailed costing of the various projects is as follows:

Work	Total Cost	(Rs. in Crore)								
		2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2	
Water Supply	4.70	4.70	2.00	2.70	0.00	0.00	0.00	0.00	10.00	
Sewerage	15.70	15.70	5.50	5.50	2.35	2.35	0.00	0.00	30.33	
Water Harvesting	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	
Solid Waste Management	10.00	10.00	0.00	2.00	2.00	2.00	2.00	2.00	20.00	
<b>Total</b>	<b>30.60</b>	<b>30.60</b>	<b>7.70</b>	<b>10.20</b>	<b>4.35</b>	<b>4.35</b>	<b>2.00</b>	<b>2.00</b>	<b>60.50</b>	
<b>Grand Total</b>					<b>91.10</b>					

The funds for these projects will be through the JNNURM and the Ministry of Defence and there is unlikely to be any resource gap.

## 8.6 Phasing of Capital Investment Plan (CIP)

Based on the above the total financial outlay under JNNURM is shown in the table below with the priority areas highlighted.

Sector	Total	Phase 1 2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2 2012-31	Institution Responsible
<i><b>Sub Mission 1: Urban Infrastructure &amp; Governance</b></i>										
Water supply	1277.54	675.6	52.2	123.5	167	156	99.3	77.1	602	UP Jal Nigam
Sewerage	2058.63	630	123	103	78.3	136	189	0	1429	Lucknow Jal Sansthan
Drainage	1555.01	444.3	108	109.2	98	94	35.1		1111	Lucknow Nagar Nigam
Construction of Roads	0	0	0	0	0	0	0	0	0	
Lohiya Path	69	69	69	0	0	0	0	0	0	PWD
Internal Roads	1474.17	421.2	128	123	110	60.4	0	0	1053	Lucknow Nagar Nigam
Roadbased urban transport	562.7	160.8	161	0	0	0	0	0	401.9	UPSRTC
Parking through PPP	153.36	21.79	15	6.77	0	0	0	0	109.6	Lucknow Nagar Nigam
Haider Canal Road & Elevated Roadway	796.4	0	0	0	0	0	0	0	796.4	Lucknow Nagar Nigam
Solid Waste Management	89.34	46.14	19.5	19.58	7.07	0	0	0	43.2	Lucknow Nagar Nigam
City Beautification	38.88	11.11	4	3	4.11	0	0	0	27.77	Lucknow Nagar Nigam
River Front Development	16.21	16.21	4	8	4.21				0	Lucknow Nagar Nigam

Sector	Total	Phase 1 2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Phase 2 2012-31	Institution Responsible
Conservation of Ponds	170	5	5	0	0	0	0	0	170	Lucknow Nagar Nigam
Street Lighting	156.64	56.64	10	11	11	12	12.64		100	Lucknow Nagar Nigam
Conservation of Heritage Sites	160	15.97	3.54	4.29	3.16	1.66	1.66	1.66	144.03	LDA, LNN
Community Halls	3.47	3.47	3.19	0.28	0	0	0	0	0	Lucknow Nagar Nigam
Infrastructure Projects	1352	845	110	275	234	133	53	40	507	Lucknow devp. Authority
Water supply, Sewerage, SWM, RWH	91.1	30.6	7.7	10.2	4.35	4.35	2	2	60.5	Lucknow Cantonment Board
<b>Sub Total</b>	<b>10007.4</b>	<b>3453</b>	<b>823</b>	<b>796.8</b>	<b>721</b>	<b>598</b>	<b>294</b>	<b>121</b>	<b>6555</b>	
<i><b>Sub Mission 2: Basic Services for Urban Poor</b></i>										
<b>Basic Services for Urban Poor</b>	<b>1506.5</b>	<b>1051</b>	<b>201</b>	<b>215</b>	<b>190</b>	<b>145</b>	<b>140</b>	<b>160</b>	<b>456</b>	<b>SUDA &amp; DUDA</b>
<b>Technical Assistance</b>	<b>342</b>	<b>342</b>	<b>57</b>	<b>62</b>	<b>52</b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>0</b>	
<b>Grand Total</b>	<b>11855.9</b>	<b>4845</b>	<b>1081</b>	<b>1363</b>	<b>1173</b>	<b>943</b>	<b>590</b>	<b>338</b>	<b>7011</b>	
<i>Critical Areas for Intervention highlighted: Phase 1 Expenditure Rs. 4845.21.21 crore of which Rs. 1080.82 crore is in 2006-07</i>										

In addition to the financial outlay, there is a substantial technical assistance/capacity building component that is proposed. This component is fully funded by the JNNURM.

(Rs. in Crore)							
Technical Assistance	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Feasibility studies (MRSST, SWM Traffic, Flyovers, etc.)	10	10					20
Miscellaneous surveys and development of MIS, e-gov.	15	15	15	15	15	15	90
Training and capacity building	10	10	10	15	15	15	75
GIS of various utilities and road network	5	10	10	10	10	10	55
Restructuring of institutions / constitution of SPVs	5	5	5	5	5	5	30
IEC Campaigns	12	12	12	12	12	12	72
<b>Total</b>	<b>57</b>	<b>62</b>	<b>52</b>	<b>57</b>	<b>57</b>	<b>57</b>	<b>342</b>

The total investment for Sub Mission I is estimated at Rs 11856 crore, out of which an amount of Rs 4645 crore is the cost of estimated works and technical assistance proposed in Phase-I of the Mission. The remaining work amounting to Rs 7006 crore would be undertaken in Phase-II.

For Sub Mission 2, the estimated fund requirement is Rs. 1506.50 crore of which Rs. 1050.50 crore is to be spent in Phase 1 with the remaining Rs. 456 crore being spent in Phase 2.

Investment Requirement	2006-12	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	(Rs. in Crore)
Infrastructure and Services (LNN, LDA, UPJN, LJS, LCB, PWD)	3452.71	823.32	796.83	721.23	597.85	293.51	120.71	
Basic Services to the Poor (LNN, SUDA, DUDA) <i>(These are projections for SUDA &amp; DUDA)</i>	1050.50	1023.52	1011.83	911.23	742.85	433.51	280.71	
<b>Total</b>	<b>4503.21</b>	<b>1023.52</b>	<b>1011.83</b>	<b>911.23</b>	<b>742.85</b>	<b>433.51</b>	<b>280.71</b>	

## 8.7 Financing Strategy

The Financing Strategy has been worked out by identifying the share of JNNURM and the State Government. Then depending on the financial assessment of the institution doing service delivery, an estimate has been made of the funds that are likely to be available from all sources. Estimates have been made separately for Sub Mission 1 and Sub Mission 2 since the financing pattern is different. It is assumed that the Ministry of Defence will provide the share of finances required by the Cantonment Board in addition to the JNNURM funding. The estimates for Sub Mission 1 are as follows:

Institutions	Investment requirements 2006-12	50% JNNURM / Govt. of India	20% Govt. of Uttar Pradesh	30% Local Body	Investment requirements 2012-31	(Rs. in Crore)
UP Jal Nigam and Lucknow Jal Sansthan	1305.53	652.76	261.11	391.66	2030.64	
Lucknow Nagar Nigam	1041.81	520.91	208.36	312.54	3664.20	
Lucknow Development Authority	845.00	423.00	169.00	254.00	507.00	
UP State Road Transport Corporation	160.77	80.39	32.15	48.23	401.93	
Public Works Department	69.00	34.50	34.50	0.00	0.00	
Lucknow Cantonment Board	30.60	30.60	0.00	0.00	60.50	
<b>Total</b>	<b>3452.71</b>	<b>1742.16</b>	<b>705.12</b>	<b>1006.43</b>	<b>6603.77</b>	

For Sub Mission 2, JNNURM will provide 50% of the funds and 50% will be the responsibility of the State Government and the Local Government. Further, in the State/Local government share,

beneficiaries will contribute to the tune of 12% for regular beneficiaries and 10% for SC/STs and physically handicapped. The estimates are as follows:

(Rs. in Crore)				
Institutions	Investment Requirements 2006-12	50% JNNURM	50% Govt. of Uttar Pradesh, Local Bodies	Investment Requirements 2012-31
SUDA / DUDA	1050.50	525.25	525.25	456.00

## 8.8 Financing Options for Institutions

From the above it is clear that local government has to generate substantial resources as their contributions towards project costs. Some of the institutions are relatively better placed to raise their share of resources. These institutions include the Lucknow Development Authority, PWD, Cantonment Board, UP State Roadways Corporation. Key institutions like the LNN, the UPJN and the LJS who are responsible for major infrastructure sectors in the city would find it difficult to raise their share of funds unless they improve their functioning and build their capacities following a major reform agenda.

Discussions with LNN indicate that they would generate surpluses through:

- Reforms in property tax and increasing revenue from the tax (identifying new properties by developing a GIS fro the city properties, improving tax administration, collection etc).
- Cost savings measures by way of reduction in fuel cost, savings in electricity cost by P-P-P of streetlights, and the manpower costs by good governance (e-governance).
- Developing partnership with private sector for to use its land assets for developing residential and commercial projects that would provide regular revenue to LNN. The partnership will be done in such a manner that the ownership of the land remains with the LNN.
- Recovering properties that have been encroached upon.
- Introducing new taxes such as profession tax, vacant land tax.
- Building capacity of its employees for efficient delivery of services and collection of taxes, fees etc.
- Introducing accrual based accounting system to improve financial management.

However, all the above reform measures may not be able to generate sufficient resources to cover the total requirement of funds. In such a situation, the LNN will have to mobilize additional resources through loans from financial institutions.

The LJS could improve its financial base through the implementation of the reform measures discussed earlier in the chapter.

The financing options available to the institutions of service delivery are shown below.

Options	Lucknow Nagar Nigam	Lucknow Development Authority	Lucknow Cantonment Board	UP State Road Transport Corporation	Public Works Department	UP Jal Nigam & Lucknow Jal Sansthan
Financial Requirement	1041.81	845.00	30.60	160.77	69.00	1305.53
Own Resources	100.00	253.00	0.00	0.00	0.00	0.00

Options	Lucknow Nagar Nigam	Lucknow Development Authority	Lucknow Cantonment Board	UP State Road Transport Corporation	Public Works Department	UP Jal Nigam & Lucknow Jal Sansthan
State Govt. Grants	208.36	169.00	0.00	32.15	34.50	261.11
Financing Institutions & Capital Markets	0.00	0.00	0.00	48.23	0.00	0.00
JNNURM	520.91	423.00	15.30	80.39	34.50	652.76
Other Central Grants	0.00	0.00	15.30	0.00	0.00	0.00
Private Sector	34.00	0.00	0.00	0.00	0.00	0.00
<b>Gap</b>	<b>178.54</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>391.66</b>

## 8.9 In Conclusion

Successful completion of the proposed works under JNNURM will lead to a qualitative improvement in life. The financing strategy as discussed above is indicative of the near sustainability of the projects under JNNURM framework. The challenge is to utilise the Phase 1 of the programme to make the local level institutions self-sustainable i.e. define a balanced approach between infrastructure development and reforms.

### SUMMARY

Different institutions have identified projects for support under JNNURM.
The scope of projects identified by the LNN – the key institution at city level – is limited. These do not inspire confidence in the ability of the institution to take the lead in the future.
Key institutions like the LNN; LJS have limited capacity to raise their share of resources.
Following a reform agenda is critical to make key institutions self-sustainable.