

Sector specific key issues identified during the situation analysis have been taken forward towards formulation of vision/ strategies and identification of projects. Various activities under the broad head of a project have then been identified. Each project has been attached with a weight vector by various stakeholders at the city and state levels, and the consultant himself, which reflects intensity of requirement/ significance of a particular infrastructure project in Allahabad. There is another vector attached to each project which is called as sign vector, meaning that a project would have positive or negative impacts in terms of social, economic, environmental, and visual image/appeal. The two vectors (sign vector and weight vector) taken together help quantify priority of a project in a manner as follows –

$$x = \sum_{a=1}^{n1} a_{n1} \cdot \sum_{b=1}^{n2} b_{n2}$$

where,
 a represents the sign vector,
 b represents the weight vector, and
 x is the aggregate score.

Using this equation, all projects have been valued on a ten-point scale against these two vectors and the quantified priorities achieved. In *Annex 8* are given classified projects for each sector. Depending on the aggregate score achieved, all projects have been put in three categories as follows:

- Low priority – aggregate score of 0-3;
- Medium priority – aggregate score of 4-6; and
- High priority – aggregate score of 7 and above.

21.0 Urban Renewal

- 21.1 Issues & Strategies** In Section 5.2.4 of the report are discussed characteristic features as well as problems of the old city area. While the old city has maximum densities, encroachments, mixed and dead slow traffic and other bottlenecks, it also happens to be the business centre where from most of the commerce (wholesale/ retail trade) is carried out. The old city area can be improved by way of –
- Decongestion of the core area;
 - Relocation of wholesale trade;
 - Creation of pedestrian friendly environment;
 - Improvement of linkages and connectivity; and
 - Facilitation of movement of residents and visitors by proper integration of the public transportation system.

An attempt has been made here in this section to seek strategies towards easing out the problem areas by way of attending to the identified issues, as follows:

Table 63: Issues and Strategies for Urban Renewal

Existing Issues	Strategies
through traffic on the GT Road	Construction of bypass for through traffic
presence of transport nagar in the core area	Shifting of truck terminals at identified locations in the peripheral areas
presence of wholesale market within the city	Shifting of wholesale market to the nearby peripheral areas/ proposed locations and integrating it with the truck terminals
inadequate parking provisions in commercial areas	Identification of parking areas in commercial areas for multi-level parking
poor public transportation system and lack of proper public transport parking facilities	Options for involving private sector players Setting up facilities for public transport/ provision of terminals for public transport
presence of two bus terminals in the BD area	Relocation of the existing bus terminals
inadequate capacity of roads	Removal of encroachments and widening of roads wherever feasible/ required
environmental pollution	Use of cleaner fuel to reduce pollution
large mix of traffic in the core city	Policy level intervention and traffic management schemes
lack of proper traffic management	Implementation of traffic management schemes
high degree of encroachment on the footpath	Removal of encroachments and construction of footpaths
bottlenecks at some points in the old city area	Widening of existing RUBs in the core areas.
improper road geometrics of intersections, absence of footpaths	Properly designed intersections

22.1 Project Phasing & Costing Based on the identified issues and strategies, several projects as follows, have been identified for urban regeneration/ renewal under different heads:

- Roads/ transport related –
 - Construction of southern bypass;
 - Widening of roads;
 - Construction of road dividers and footpaths;
 - Flyovers
 - Widening of existing RUB (at road level)
 - Intersection improvement
 - Signalisation of intersections
 - Zebra marking, lane marking and signages
 - Road lighting
 - Multi-level parking
 - Bus terminals
 - Truck terminals
- Trade and commerce related –
 - Shifting of existing wholesale market to Naini, Jhusi, Phaphamau, and Kanpur Road
- Environment related –
 - Removal of encroachments of all types

While all these projects shall help ease out congestion and traffic related bottlenecks, only projects relating to pedestrian movement, trade and commerce, and environment are focused in the Section. Majority of roads related projects find place in Section 28 concerning traffic and transportation (*Table 64*). Priorities are based on the technique discussed earlier. Aggregate scores are given in *Annex 8*. The total estimated cost of projects is Rs. 75.50 crores. Projects have varying spans ranging between one to six years.

Table 64: Projects and Their Phasing

Project Identified	Year							Total (Rs Lakh)	Priority
	2006-07	2007-08	2008-09	2009-10	2010-2011	2011-12	2012-13		
Construction of road divider and footpath	--	60	90	150	--	--	--	300.00	High Priority
Flyovers	--	1000	1000	--	--	--	--	2000.00	High Priority
Widening of existing RUB (at Road level)	--	128	--	--	--	--	--	128.00	Medium Priority
Zebra marking, lane markings and signages	15	--	--	--	--	--	--	15.00	Low Priority
Removal of encroachment	600	900	--	--	--	--	--	1500.00	High Priority
Shifting of wholesale market	359	359	584	718	718	852	--	3590.00	High Priority
Total	974	2447	1673.5	868	718	852	--	7533.00	
<i>Say</i>								75.50 crores	

23.0 Water Supply

23.1 Identification of Projects

The situation analysis suggests that 55% water supply of the city is being fulfilled by the ground water and only 45% is served by the surface water source even when surface water is abundant. Excessive use of groundwater should be checked which shall otherwise lead to depletion of underground water table. Proposals are based on the principle of optimum utilization of the surface source and reduction in use of sub surface (ground water) source to control the further depletion of the ground water table. DPR should be prepared based on the optimum utilization of the surface source and reduced dependence on the ground water.

Projects identified by JN and other concerned organisations for inclusion in the JNNURM have been taken into account, and given due consideration. The detailed list of these projects is, however, given as *Annex 9*. However, only those fitting into the city vision and found justified for the Mission have been proposed herein this report.

The vision for the city as regards water supply is to enhance the quality of life of urban people by providing safe, potable, accessible and affordable water to everyone. The following *Table 65* discusses presently pertinent issues in the sector and identifies strategies towards easing these out and achieving the vision.

Table 65: Issues and Strategies for Water Supply

Existing Issues	Strategies
<ul style="list-style-type: none"> ➤ Water supply level is poor; ➤ Water supply is irregular; ➤ Water supply system is insufficient and inadequate; ➤ Major coverage of water supply by the ground water; ➤ Deficient pipeline Distribution network of supply; ➤ Leakages in the pipeline results large quantity of water is lost; ➤ Poor quality of water; ➤ Condition of existing water treatment plant is poor; ➤ Fall in the water level of Yamuna during summer putting adverse affect on tube wells; ➤ Poor power situation leads to severe dislocation and damage to the system operation as well as operational schedule; 	<ul style="list-style-type: none"> ➤ Preparation of layout plan for the complete water supply network; ➤ Inventory of the existing system; ➤ Identification of the problematic areas; ➤ Identification of the non-served areas; ➤ Prioritization of projects/works based on the condition of the existing system and requirements; ➤ Detailed design of the network and preparation of DPR; ➤ Approval and technical sanction by the concerned authority; ➤ Implementation of the proposed projects/ schemes with strong construction supervision either by some qualified external consultant or by the department itself for the rehabilitation and construction of new schemes based on detailed design, drawing and priority as per the present and future requirement; ➤ Following activities are to be carried out for improving the service level and making the system adequate and sustainable – <ul style="list-style-type: none"> ○ Provision for tapping surface water availability ○ Renovation and rehabilitation of existing raw water pumping station including replacement of old pumps & pipe lines to increase the pumping capacity so that the full capacity of 135 mld of existing water treatment plant can be utilized

<ul style="list-style-type: none"> ➤ Inadequate facility for water supply during <i>Kumbh mela</i>; 	<ul style="list-style-type: none"> ○ Renovation and rehabilitation of existing water treatment plant ○ Renovation and rehabilitation of existing of existing pipe network and other city services like fire hydrant, <i>Pyaoos</i> etc ○ Provision of new intake works, rising mains, water works, storage and distribution system, city services etc ➤ Development of GIS system for the central monitoring to detect leakages, damages, theft control and management & transparency; ➤ Diesel generator sets to provide supply during the no supply hours of electricity; ➤ New construction of the services would be needed to enhance the water supply status of the city; ➤ Permanent facilitation in <i>Kumbh mela</i> ground.
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23.2 Projects for JNNURM

Proposals have been framed for the improvement of the water supply system in the city to enhance the quality of life of the urban people and make it accessible and affordable to all urban citizens for the future period of 25 years. Water supply system is already existing in the city but is very old and in poor condition. There are so many colonies/ areas in the city where water supply is not available even when the total water production is higher than the requirement. About 20% to 25% of the total population of the city is not getting the supplied water. In order to develop a water supply system that can fulfil the water requirement for the next 25 years, the following works are being proposed to be planned and executed in a phased manner –

- Renovation and rehabilitation of existing schemes; and
- Construction of new schemes.

For the implementation of activities under the heads of renovation/ rehabilitation and construction of new schemes concerning water supply including the *Kumbh* area, several preliminary activities need be carried out. Training and educational programs are required for the capacity building of the division. Provision of 1.5% of total work cost i.e. Rs. 3.64 crore has been made for training and capacity building, including information, education and awareness programs for the community/ user groups. All the projects, project activities and the likely benefits are discussed in the *Table 66* below.

Table 66: Project Activities and Percieved Benefits

Sl.No	Project	Benefits	Activity Undertaken
1	Renovation and rehabilitation of existing schemes	<ul style="list-style-type: none"> ➤ Enhance the quality of life of the urban people; ➤ Improvement of water quality, and supply system; ➤ Improvement in water quantity; ➤ Reduce the cost of operation & 	<ul style="list-style-type: none"> ➤ Raw water pumping station including replacement of old pumps and to enhance its capacity to 150 mld; ➤ Rising mains from intake works to water works to take the required load of 150 mld; ➤ Water works at khusrobagh which would include the following – <ul style="list-style-type: none"> ○ Settling tanks/ raw water storage tanks ○ Clariflocculators ○ Rehabilitate alum dosing plant

		<ul style="list-style-type: none"> ➤ Revenue generation will be increased; ➤ Unaccounted water supply will be taped; ➤ Slums will be properly served with water supply. 	<ul style="list-style-type: none"> ➤ Overhead tanks; ➤ Expired/ outgoing tube wells till the alternate/surface water arrangements have not been made; ➤ Old and damaged distribution lines to reduce the water losses; ➤ Protection of water supply lines crossing sewers and nallas; ➤ Repairing of existing deep bore hand pumps; ➤ Replacement and repairing of faulty meters, fire hydrants etc; ➤ Regulation of illegal connections; ➤ Rehabilitation/ renovation of ponds and lakes in the city.
2	Construction of New Schemes	<ul style="list-style-type: none"> ➤ Enhance the quality of life of the urban people; ➤ Provide water supply to the entire city; ➤ Adequate amount of water to the citizens to satisfy their daily water demand; ➤ Enhancement of water supply status in the city; ➤ Reduce the dependency from the under ground water; ➤ Prevent rapid depletion of ground water; ➤ Control of theft; ➤ Control of water losses; ➤ Will develop transparency in the system and effective management. 	<ul style="list-style-type: none"> ➤ Construction of new raw water pumping station/ intake works of 140mld capacity and one intake works of 40 to 45 mld for naini area; ➤ Rising mains to accommodate the required discharge; ➤ Construction of New water treatment plant of 125 mld capacity for Sulem sarai, civil lines, part of kydganj, and colonelganj. And one water treatment plant of 30 to 35 mld capacity for Naini area; ➤ Storage/ service reservoirs/ overhead tanks with 50% storage capacity of the entire demand at different location in the city; ➤ Construction of Clear water boosting pumps; ➤ Construction of Distribution system in the remaining portion of the city; ➤ Construction of new tube wells only in areas where surface water is not an option (Daraganj, Rasoolabad, Phaphamau); ➤ Construction of new hand pumps in areas where piped water supply is not feasible; ➤ Distribution system/ pipe network in the Kumbh mela areas; ➤ Providing new connections to the remaining population/ households of the city; ➤ Providing water meters to measure the flow; ➤ Construction of public stand posts and pyaaos for the urban poor; ➤ Interconnection with existing system; ➤ Provision of water meters at different specified locations; ➤ Development of GIS system for the central monitoring to detect leakages, damages and theft control; ➤ Diesel generator sets to provide supply during the no supply hours; ➤ Rainwater harvesting system needs to be developed to conserve/ recharge underground water by making rainwater harvesting structures, construction of ponds and lakes, and plantation etc. and making it mandatory for the big commercial and institutional establishments.

3	Training & Capacity Building	<ul style="list-style-type: none"> ➤ Efficient & motivated staff with department; ➤ Will develop awareness about the quality of water and its use among the community; ➤ Strengthening and capacity building of the divisions will be done. 	<ul style="list-style-type: none"> ➤ Conducting training and capacity building programs and Information, Education & Awareness activities to make the community aware and strengthening the capacity of the institutions responsible.
4	Implementation Schedule	<ul style="list-style-type: none"> ➤ Easy in allocation of funds; ➤ Easy and better planning of the project; ➤ Easy Project management & monitoring of Construction activities. 	<ul style="list-style-type: none"> ➤ Assessment of project requirement; ➤ Phasing & Preparation of DPR.

23.4 Project Phasing & Costing

The best method of rainwater harvesting would be its storage in ponds and lakes for natural recharging of ground water and storage in storage tanks/ reservoirs for domestic purposes other than drinking. Recharging by construction of bores and recharging structures can be an efficient method of ground water recharging but it can be dangerous for the contamination and destruction of ground water if rain water gets contaminated before reaching the boreholes by surface impurities on the rooftop (surface) and its way. It is nevertheless, to be ensured that there is no injection of contaminated wastewater or industrial effluents in the name of rainwater harvesting.

Quality control of the projects should be assured. Since the staff/ resource with the department is not sufficient to monitor and execute projects of such magnitude under temporal constraints/ timelines, it is advisable to hire some qualified and experienced external agency/ agencies for the project management, quality control and transparency.

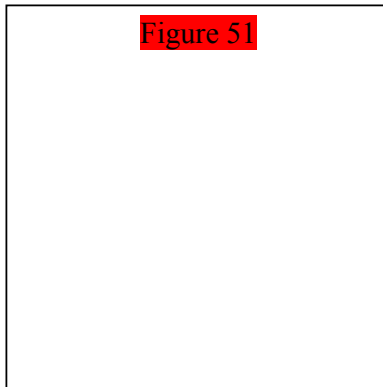
Priorities and aggregate scores of projects relating to water supply are discussed in Annex 8. While the break-down of costs towards estimating costs for city water supply is given as Annex 10, total cost of projects is estimated at Rs. 243.00 crores (Table 67).

Table 67: Phasing and Costing of Water Supply Projects

Project Identified	Year							Total (Rs Lakhs)
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	
Renovation/ rehabilitation & construction of new water supply schemes for the city	2500	3500	3500	3500	3500	3000	2500	22000.00
Estimated cost for the Kumbh mela area for the pilgrims @ 1.0 crore per mld	400	200	--	--	--	--	--	600
Rain water harvesting arrangement	100	100	100	100	100	50	50	600
Inventory survey of the existing scheme @ Rs. 2000.00 per km	15	--	--	--	--	--	--	15

Inventory survey of the existing scheme @ Rs. 2000.00 per km	15	--	-	-	-	-	-	15
Layout planning, designing, and preparation of DPR (LS)	40	--	-	-	-	-	-	40
Generator set to provide supply during the no of hours of electricity and all kinds of electro-mechanical equipments like pumps, panels etc	150	100	100	--	--	--		350
Unforeseen items	20	20	20	20	20	20		120
Sub-Total	3225	3920	3720	3620	3620	3070	2550	23725.00
Construction super vision @ 1.00% (assumed)	32	39	37	36	36	31	26.25	237.25
Training & Capacity building, asset creation, and information, education & awareness @1.5%	48	58.5	55.5	54	54	46.5	39.4	355.87
Grand Total								24318.12
	Say							243 crores

Figure 51 gives an indicative water supply network depicting tentative hierarchies in the network. The final overall network by incorporation of good features of the existing network shall emerge upon preparation of the DPR.



24.0 Sewerage and Sanitation

24.1 Identification of Projects

Since, Allahabad city is a religious place where millions of the people come to perform religious activities. An efficient and economical sanitation system needs be developed for the safe disposal of the wastewater and sludge. The objective is to provide an efficient, adequate and affordable sewerage system in the city to enhance the quality of life of the urban people. The system would be accessible and affordable to the urban poor for the present and future period.

Several projects have been identified by the JN under the Ganga Action Plan as also those to be undertaken under the Mission. This listing is given as *Annex 11*. Projects have also been identified for coverage (foreign funding) under JICA (*Annex 12*). Total cost of these projects is Rs. 574.21 crores. Some of these are:

- All main and trunk sewer lines;
- Branch sewers;
- Intermediate and main pumping stations;
- Replacement of M/E asset;
- Rising mains; and
- Sewage treatment plants.

All the components of the sewerage system of the city have been considered under the sewerage master plan of the Allahabad, prepared by JICA, to be executed in two stages. For this project is to be internationally funded (by JBIC), it cannot be proposed under the JNNURM project. JICA has considered the branch sewers in their report which as a policy matter, is not in their scope of work. Only branch sewers are to be considered under JNNURM. The following *Table 68* discusses presently pertinent issues in the sector and identifies strategies towards easing these out.

Table 68: Issues and Strategies for Sewerage & Sanitation

Existing Issues	Strategies
<ul style="list-style-type: none"> ➤ Poor operation/ service of the sewerage system ➤ Poor maintenance ➤ Poor collection system of the sewerage system ➤ Silting and surcharging ➤ Ageing infrastructure ➤ Damaged and blocked man holes. ➤ Damaged sewer lines ➤ Partial coverage of the sewerage system in the city ➤ Combined sewerage and drainage system in the city ➤ House connection in the open drains causing foul smell and unhygienic situation in the city ➤ Storm water and solid waste ingress to sewers 	<ul style="list-style-type: none"> ➤ Providing separate sewerage networking ➤ Preparation of layout plan for the complete sewerage network ➤ Inventory of the existing system ➤ Identification of the problematic areas ➤ Identification of the non-served areas ➤ Prioritization of projects/works based on the condition of the existing system and requirements considering the upcoming <i>Ardh Kumbh</i> in the next year and the <i>Maha Kumbh</i> in the year 2013 ➤ Detailed design of the network and preparation of DPR ➤ Approval and technical sanction by the concerned authority ➤ Implementation with strong construction supervision either by some qualified external consultant or by the department itself for the following works –

<ul style="list-style-type: none"> ➤ Disposal of untreated sewerage into Yamuna ➤ Sewerage system exists only in the central core of Allahabad city ➤ Poor sanitary condition in the slum areas ➤ No Sewerage system exists in kumbha area ➤ Poor record keeping and inadequate information for planning 	<ul style="list-style-type: none"> ○ Renovated and rehabilitated based on detailed design, drawing and priority as per the present and future requirement ○ Adequate new sewerage system is to be provided in non-served area ○ Modification and up gradation of existing sanitary facilities (community latrines and bathrooms etc) ○ An effective sewerage system needs to be provided and community latrines to be constructed for the safe and hygienic defecation to the poorest in the city ➤ Development of GIS-system for the central monitoring and management, to detect leakages & damages, to make the system transparent and accessible to every one etc ➤ Conducting training and capacity, and information, education & awareness activities to make the community aware about the safe management of sewage and strengthening the capacity of the institutions responsible ➤ Major works are to be completed within a period of first five years
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24.2 Projects for JNNURM

Proposals have been framed for the improvement of the sewerage system of the city to enhance the quality of life of the urban people and make it accessible and affordable to the urban citizens over the next 25 years. Existing sewerage system of the city is very old and poor which needs to be renovated and rehabilitated as per the present requirement. There are so many colonies/ areas in the city where sewerage system is not available and an adequate new sewerage system is to be provided.

To develop an effective sewerage system in the city which can provide a clean and healthy environment to the citizens for the next 25 years from now, following works are being proposed to be planned and executed in a phased manner –

- Renovation and rehabilitation work; and
- Construction of new works.

Table 69: Project Activities and Percieved Benefits

Project	Benefits	Activity Undertaken
Renovation/ Rehabilitation works	<ul style="list-style-type: none"> ➤ Adequate, Improved and sustainable sewer infrastructure ➤ Improved collection and transportation of sludge ➤ Improved and clean environment ➤ Avoid water logging in the city ➤ Reduce seepage in the ground 	<ul style="list-style-type: none"> ➤ Renovation/ Rehabilitation of existing branch Sewage collection network based on detailed design and drawing, which includes branch sewers only with complete sewer appurtenances ➤ Cleaning of existing sewers ➤ Renewal and upgradation of existing community latrines and bathrooms
New Construction/ Creation of facilities	<ul style="list-style-type: none"> ➤ Enhance the sanitation status of the city ➤ Effective collection, transportation, treatment, and disposal of the sewage generated in the city ➤ Upliftment of life standard and providence of healthy environment to urban poor ➤ Avoid water logging in the city 	<ul style="list-style-type: none"> ➤ Construction of new Sewage collection network in the entire city where the network does not exist like Naini, Ashok Nagar etc ➤ Interconnection with existing system ➤ Provide pumping systems wherever required as per the design and existing condition of the ground ➤ Construction of latrines and bathing facilities (paid/ unpaid) for the urban poor ➤ Develop GIS system for the central monitoring and management, to detect leakages & damages, to make the system transparent and accessible to every one etc ➤ Diesel generator set to provide supply during the no supply hours to operate the electromechanical units ➤ DPR shall be prepared based on the integrated design of the scheme for the entire area and analyzing the existing network

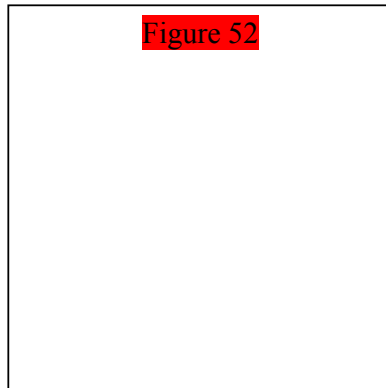
24.3 Project Phasing & Costing

Phasing of projects relating to sewerage and sanitation and their costs over the first five years is given in *Table 70*. This is based on priorities scores given in *Annex 8*. The total cost is estimated at Rs. 377.00 crores.

Table 70: Phasing of Projects & Cost Estimates

Project Identified	Year							Total
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	(Rs Lakhs)
Rehabilitation, renovation, construction of new Branch sewers, pumping stations etc, STP as per the requirement	2500	7500	7500	5000	5000	5000	2500	35000.00
Mechanical equipment needed for cleaning of Sewers (LS)	25	50	--	--	--	--	--	75.00
Construction of community latrines and bathing facilities	100	200	200	200	200	100	--	1000.00
Sewerage system for the Kumbh area	100	100	100	--	--	--	--	300.00
Inventory of the existing scheme, Layout planning, designing and preparation of DPR	60	--	--	--	--	--	--	60.00
Sub-Total	2855	7920	7845	5245	5245	5125	2500	36735
Construction super vision @ 1.00% (assumed)	28.55	79.2	78.45	52.45	52.45	51.25	25	367.35
Training & capacity building, asset creation, and information, education & awareness @1.5%.	42.825	118.8	117.675	78.675	78.675	76.875	37.5	551.025
Grand Total	2926.375	8118	8041.125	5376.125	5376.125	5253.125	2562.5	37653.38
Say								377.00 crores

It is believed that the estimated costs given above can be optimised by sound planning, effective and systematic implementation. *Figure 52* gives an indicative sewerage network depicting tentative hierarchies in the network. The final overall network by incorporation of good features of the existing network shall emerge upon preparation of the DPR.



25.0 Storm Water Drainage

25.1 Identification of Projects A separate and proper drainage network is required to be planned for the entire city to drain off the storm water, so that water logging happening in different parts of the city (Allahpur, the most) is avoided. This shall also prevent quantity and quality of sewage water from being affected from storm water and treated effectively. DPR shall consider an integrated design of the drainage network in the city. *Table 71* identifies existing issues and strategies to tackle the issues.

Table 71: Issues and Strategies for Storm Water Drainage

Existing Issues	Strategies
<ul style="list-style-type: none"> ➤ Only half of the city is covered by drainage facility; ➤ Drains are very old and in dilapidated condition; ➤ Due to combined system substantial quantity of silt and debris is drained into the sewer system; ➤ Blockage of drains in most parts of the city; ➤ Water logging is caused due to chocking of drainage lines in the residential area creating un healthy situation; ➤ Absence of roadside drains in some parts of city. 	<ul style="list-style-type: none"> ➤ Preparation of layout plan for the complete drainage network; ➤ Inventory of the existing network; ➤ Identification of the problematic areas; ➤ Identification of the non-served areas; ➤ Prioritization of projects/works based on the condition of the existing system and requirements; ➤ Detailed design of the network and preparation of DPR; ➤ Approval and Technical sanction by the concerned authority; ➤ Implementation with strong construction supervision either by some external consultant or by the department itself; <p>Following works are to be executed in the implementation phase –</p> <ul style="list-style-type: none"> ➤ Provision for separate drainage system/ network in the entire city; ➤ Augmentation and improvement of all the existing secondary drains; ➤ Augmentation of Storm water drainage network after studying city Contour maps; ➤ Scheduled cleaning should be implemented in the city; ➤ Strengthening of existing nallas & augmentation of Storm water drainage network after studying city Contour maps; ➤ Construction of new secondary drains along the road and street sides; ➤ Preparation of layout plan for the complete water supply network; and ➤ Construction of pumping stations to pump water from low lying areas.

25.2 Projects for JNNURM Proposals are called for the development of effective and dedicated storm water drainage network so that the serious water logging problem of several low lying areas in the city is solved. This shall ease out the tremendous pressure on the sewerage network caused by the storm water during the rainy season. The projects, project related activities and the perceived benefits of these projects/ project activities are detailed out in *Table 72* below.

Table 72: Project Activities and Benefits

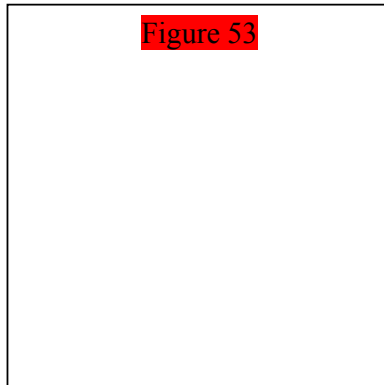
Sl. No	Project	Benefits	Activity Undertaken
1	<ul style="list-style-type: none"> ➤ Construction of new drains, pumping stations etc; ➤ Renovation and rehabilitation of existing network; ➤ Mechanical equipment for cleaning of drains. 	<ul style="list-style-type: none"> ➤ Frequent & Scheduled cleaning will be augmented in the city; ➤ Provision of drains lines in the slum areas; ➤ Proper drainage network will be augmented for the entire city; ➤ Laying of drainage network in the newly developed areas of the city; and ➤ Proper cleaning will prevent flooding at times of rainy season. 	<ul style="list-style-type: none"> ➤ Augmentation and improvement of all the existing secondary drains; ➤ Lining of the unlined/ kutcha secondary drains (along the road and street sides); ➤ Lining of the unlined primary drains/ <i>nallas</i>; ➤ Construction of new secondary drains along the road and street sides; ➤ Construction of pumping stations to pump water from low lying areas; and ➤ Augmentation and improvement of all the existing primary drains/ <i>nallas</i> and realignment wherever required.

25.3 Project Phasing & Costing Phasing of the projects is based on priorities done by use of project weight and benefit scores given in *Annex 8*. Projects assigned higher priorities are taken up in the early years so that these works are started and completed at the earliest in the interest of the city community. *Table 73* below details out year-wise split of funds (Rs. 355.00 crores) for various activities.

It is believed that the estimated costs of a network can be optimised by sound planning, effective and systematic implementation. *Figure 53* gives an indicative yet dedicated storm water drainage network with network hierarchies. The final overall network by incorporation of good features of the existing network shall emerge upon preparation of the DPR.

Table 73: Phasing of Projects & Cost Estimates

Project Identified	Year							Total (Rs Lakhs)
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	
Rehabilitation/ renovation and construction of new drainage network (LS)	5000	5000	5000	5000	5000	5000	5000	35000.00
Mechanical equipment needed for the cleaning of drains (LS)	25	50	--	--	--	--	--	75.00
Inventory survey of the existing drains, layout planning, designing, and preparation of DPR (LS)	50	--	--	--	--	--	--	50.00
Sub-Total	5075	5050	5000	5000	5000	5000	5000	35125
Construction super vision @ 1.00% (assumed)	50.75	50.5	50	50	50	50	50	351.25
Training & Capacity building, asset creation (LS)			5	5	5	5	5	25
Grand Total	5125.75	5100.5	5055	5055	5055	5055	5055	35501.25
Say								355 crores



26.0 Solid Waste Management

26.1 Identification of Projects

To provide aesthetic, clean, and healthy city environment by way of systematic and scientific system of SWM. A significant amount of solid waste garbage can through proper technology be converted into manure and/ or energy. Issues relating to SWM and strategies towards these are discussed in *Table 74*.

Table 74: SWM Issues and Strategies

Existing Issues	Strategies
<ul style="list-style-type: none"> ➤ Poor/ absence primary collection system of MSW. ➤ Poor temporary collection system of MSW. Solid waste remains spread over the roads and streets. ➤ Insufficient bins for storage of domestic, trade and institutional wastes at source. ➤ Clogging of sewers and storm water drains. ➤ No Segregation of solid waste i.e. biodegradable and non-biodegradable matters. ➤ Picking of soiled Solid waste by rag picker without separation/segregation. ➤ Poor transportation system of solid waste due to inadequate /insufficient man power and machineries. ➤ Absence of treatment unit for the treatment of biodegradable municipal solid waste ➤ Transport facility are not linked with collection of waste from different localities ➤ Absence of proper Land filling Sites ➤ In-proper functioning of different authorities. 	<ul style="list-style-type: none"> ➤ Segregation of recyclable materials like papers, polythene bags, glass pieces, wrappers, plastics, metallic substances etc. that can be reused. ➤ Development of primary collection system by introducing door-to-door collection with public private participation system ➤ Segregation of biodegradable and non-biodegradable matters ➤ Training to rag picker for the segregation/picking of the recyclable waste. ➤ Installation of treatment unit for the treatment of biodegradable municipal solid waste e.g. compost plant, vermiculture etc. ➤ Develop a separate system for municipal wastes collection, transportation, treatment and disposal of biomedical wastes form the hospitals, dispensaries, and medical shops and bio wastes from the slaughter houses, poultry & fish shops etc ➤ Identification and development of Land filling Sites ➤ Institutional and Organizational Strengthening of Nagar Nigam Allahabad and other related organizations

26.2 Projects for JNNURM

SWM is a subject being paid good attention in several cities in India. It is the need of the hour that an appropriate and effective SWM system is in place for the city of Allahabad. An exercise has been done towards identifying projects/ activities that shall help not only in effective handling and management of solid wastes but provide useful returns as well. The following *Table 75* enlists projects and the perceived benefits thereof.

Table 75: Projects and Percieved Benefits

Sl. No	Project	Benefits	Activity Undertaken
1	Development of solid waste management system in Allahabad city by providing an efficient collection, transportation, treatment and safe disposal system.	<ul style="list-style-type: none"> ➤ Will increase the capacity of sanitary workers and frequency of job; ➤ Door to door collection system will improve the waste collection and removal of waste from its source within 24 hours. ➤ Streets will be clean; ➤ Clogging of drains and sewers will be reduced with the provision of 	<ul style="list-style-type: none"> ➤ Deployment of sanitary workers as per the requirement and their ward wise allocation; ➤ Development of primary collection system of MSW (door-to-door); ➤ In slum areas, the Sanitary Workers will collect waste by announcement, bell ringing/ whistle system along the main access-lanes;
			<ul style="list-style-type: none"> ➤ Institutional and Organizational Strengthening of MCA and other related organizations; ➤ Enhancement of environmental education to gain city residents' awareness towards garbage; and ➤ Identification and development of land filling Sites.

			<ul style="list-style-type: none"> ➤ Institutional and Organizational Strengthening of MCA and other related organizations; ➤ Enhancement of environmental education to gain city residents' awareness towards garbage; and ➤ Identification and development of land filling Sites.
--	--	--	--

26.3 Project Phasing & Costing

Phasing of projects is based on weight and benefit based quantified priorities given in *Annex 8*. Project costs have been worked out taking into account various unit rates/ costs and quantities of activities. Higher priorities indicate higher requirements and these projects are thus to be taken up first in community's interest. *Table 76* details out year-wise split of funds for various projects totalling to Rs. 28.00 crores –

Table 76: Projects and Cost Estimates

Project Identified	Year							Total (Rs Lakhs)
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	
Dumper Placer with handle container of 4.5	50	100	100	50	50	50	--	400.00
Dumper Placer Containers of 4.5 cubic	2	5	5	--	--	--	--	12.00
Tractors	20	20	20	20	10	10	5	105.00
Hydraulic tractor tipping trolley	20	20	20	15	--	--	--	75.00
Platforms and ramping for tipping trolleys	5	5	5	5	--	--	--	20.00
Skip Lifter for construction debris	15	15	15	15	15	5	5	85.00
Skips of 7 cubic meter capacity	2	2	2	2	2	--	--	10.00
Hand Carts	10	10	10	10	10	10	--	60.00
Bulldozer	50	50	50	50	--	--	--	200.00
Fully equipped medical waste collection vehicle	10	12	10	10	--	--	--	42.00
Weigh bridge of 15 ton capacity for the landfill	5	10	10	5	--	--	--	30.00
Incinerator for hospital waste, complete with	5	15	15	15	--	--	--	50.00
Development of land fill sites for inert waste	10	25	25	25	15	--	--	100.00

produced as 400 MT per day (average)									
Finalization of conventional method of sludge dislodge area	5	10	5	--	--	--	--		20.00
Depot for the vehicle	10	20	20	--	--	--	--		50.00
Development of service at treatment site like road, drain etc	5	10	10	--	--	--	--		25.00
Energy production system	50	150	150	150	--	--	--		500.00
Compost plant at different locations with all the accessories	100	150	150	100	100	50	50		700.00
Sub-Total	374	629	622	472	202	125	60		2484.00
Capacity building and awareness programs @ 2.5%	9.35	15.725	15.55	11.8	5.05	3.125	1.5		62.10
Miscellaneous & unforeseen items @ 10%	37.4	62.9	62.2	47.2	20.2	12.5	6		248.40
Grand Total	420.75	707.625	699.75	531	227.25	140.625	67.5		2794.50
Say									28.00
									crores

The basis (units, rates, quantities etc) for arriving at the above costs is given as *Annex 13*.

27.0 Tourism and Heritage Conservation

27.1 Identification of Projects Tourism and heritage conservation related projects have been identified keeping in view the ensuing *Kumbh* in January 2007 and its efficient hosting with provision of adequate/maximum facilities to the *Teerth yatries* and with minimum inconvenience to the city dwellers. The following *Table 77* discusses presently pertinent issues in the sector and identifies strategies towards easing these out.

Table 77: Issues and Strategies

Existing Issues	Strategies
➤ Poor infrastructure facility on all major tourist sites	➤ Provision of public facility and provision of pre-paid booths
➤ Tourist circuit routes are missing in Allahabad leading to some of the important places unexplored by tourist	➤ Circuit routes can be designed & tourist buses for local site seeing can be promoted
➤ Absence of tourist information centres	➤ Development tourist information centre on railway station & Sangam area
➤ Absence of pre-paid ticketing booths on bus stands/ railway station	➤ Provision of pre-paid booths on <i>Kumbha Mela</i> ground, railway station
➤ Absence of public amenities on major tourist sites & Sangam area	➤ Provision of public facility like sheds, toilet, drinking water tab, street lighting etc.
➤ Absence of recreational areas in the city for local & domestic tourist	➤ Concept of River Front development should be promoted & designing of water circuit linking major ghats through Jetty to be done.
➤ River facing side of Allahabad is still unused, hold huge potential for River Front development	➤ Development of parks & open spaces in the town
➤ Provision of new ghats	➤ Development of ghats around Sangam & strengthening of existing one
➤ Absence of “Vishramsthal” around <i>mela</i> ground & entry point of the city	➤ Development of “Vishramsthal” in proposed <i>mela</i> ground & existing <i>Kumbha</i> area will help to stop Tourist on the entry points of town
➤ Development & identification of new <i>mela</i> grounds to share the thrust of <i>Kumbha</i> Ground	➤ Development of new <i>mela</i> ground can share the thrust of <i>Kumbha mela</i> area.
➤ Promotion of water sports activity in Allahabad	➤ Water sport activity can be developed in context to river front development
➤ Negligence in maintenance of heritage sites reduces historical relevance of Allahabad	➤ Renovation of heritages sites need to be done & walk-through can be planned
➤ Absence of facility like sound & light shows on major heritage sites in Allahabad	➤ Heritage buildings like Khusro Bagh, Allahabad fort, All Saint Church, proposed ghats can be provided with lighting effect
➤ Water circuits routes missing in Allahabad	➤ Proposed & existing ghats & areas of river front development can be linked through water routes with Sangam

27.2 Projects for JNNURM

This section discusses various projects identified for the development of tourism activity in Allahabad together with heritage conservation activities. The following *Table 78* enlists these projects and analyses benefits the city would be rewarded with. The activities associated with these projects and the demarcated areas/ locations for these are also discussed in the table.

Table 78: Project Activities and Associated Benefits

Project	Benefits	Activity Undertaken	Area
River Front Development	<ul style="list-style-type: none"> ➤ Release of prime land in the heart of the city ➤ Act as tourist attraction site ➤ Scope for development of water park ➤ Scope for development of water park ➤ Recharging of ground water aquifers of the city ➤ Elimination of flood hazard ➤ Provision of informal markets ➤ Beautification of the city ➤ City level recreational space 	<ul style="list-style-type: none"> ➤ Development of parks ➤ Restaurants ➤ Sheds for sitting purpose ➤ Provision for fountain & light shows ➤ Benches for sitting along River side ➤ Parking facility 	<ul style="list-style-type: none"> ➤ From Karel Bagh to fort area along Minto Road ➤ Along Ulta Kila on Sangam banks (Jhusi side) ➤ Upstream Ganga toward Jhusi (Tourism city)
Development of Ghats	<ul style="list-style-type: none"> ➤ Ease while taking bath ➤ Share the thrust of Sangam at times of <i>Kumbh</i> ➤ Concurrently Support the location "VishramSthali" ➤ Arthi on Ghaths on the pattern of Hridwar & Varanasi can be promoted. ➤ Increase the heritage & religious value of Allahabad 	<ul style="list-style-type: none"> ➤ Construction of permanent Ghats ➤ Development of facility zone along the Ghats (Shops, Changing room) ➤ Provision of Sheds & Public facility ➤ Beautification with proper provision of landscaping should be done on Ghats 	<ul style="list-style-type: none"> ➤ Ghats along Arial area (Naini side) ➤ Augmentation of ghats along Rasulgagh/ Narani Ashram/Shiv kulti ➤ Ustapur Mohamadbad down stream Sangam area
Construction of Vishram Sthali	<ul style="list-style-type: none"> ➤ Sheds for Tourist Round the year visiting Allahabad ➤ Distribute the load of Kumbha Mela ground 	<ul style="list-style-type: none"> ➤ Development of Public Facility like toilets, water tab, bathing Areas ➤ Internal Roads covering the area 	<ul style="list-style-type: none"> ➤ Sangam area near Sankar Viman Mandapam & Human Mindir

	<ul style="list-style-type: none"> ➤ Directional distribution of tourist is possible with the construction of "VishramSthali" along major highway. "VishramSthali" will also prevent the entry of Tourist vehicles in the city. ➤ Development of informal market around vishramsthali can be promoted, they can also be used for hat market in particular areas which will help in Space creation & Space utilization 	<ul style="list-style-type: none"> ➤ Parking facility for vehicles ➤ Proper Landscaping required 	<ul style="list-style-type: none"> ➤ Ustapur Mohamadbad mela area in Jhushi, Downstream Sangam ➤ Arail in Nahi side ➤ Rasulbagh toward Fafamau ➤ Prayag vishramsthali near prayag station ➤ Near Shastri Bridge upstream Sangam
Tourist Information Centre	<ul style="list-style-type: none"> ➤ Proper guidance to the tourist visiting Allahabad ➤ Information database under one roof ➤ Circuit routes can be designed & tourist buses for local site seeing can be promoted ➤ Provide Facility for booking of spaces & tents at times of <i>Kumbh</i> ➤ Single point tourist can get facility booked like Boating, Taxi & tourist circuit buses etc. ➤ Act as a information centre at times of <i>Kumbh</i> 		<ul style="list-style-type: none"> ➤ Sangam area ➤ Railway Station
Pre-Paid Counters	<ul style="list-style-type: none"> ➤ Provide ease to tourist & will create sense of Safety ➤ Will increase source of income for taxi drivers 	<ul style="list-style-type: none"> ➤ Construction of pre-paid booth ➤ Permanent person to be appointed 	<ul style="list-style-type: none"> ➤ Sangam area ➤ Railway station ➤ Bus stands ➤

	<ul style="list-style-type: none"> ➤ Create order & system. Pre-Paid system can evolve in the whole city in longer run. 		
Provision of decorative Signage board	<ul style="list-style-type: none"> ➤ Directional information ➤ Act as a source of revenue Generation through add hording ➤ Source of Information to tourists 	<ul style="list-style-type: none"> ➤ 	<ul style="list-style-type: none"> ➤ Sangam area ➤ Railway station ➤ Bus stands ➤ Along major routes ➤ Tourist places
Provision of Public Facility	<ul style="list-style-type: none"> ➤ Clean & Hygienic facility for tourist ➤ Promote cleanness in the tourist sites ➤ Can act as source of revenue generation, through Advertisement board & by Imposing small amount on the use 	<ul style="list-style-type: none"> ➤ Sulubh with a capacity of 8-10 toilet ➤ 24 hours facility for water & electricity ➤ Person for Cleaning, maintenance & revenue collection 	<ul style="list-style-type: none"> ➤ Sangam Area ➤ Bus Stands ➤ Important tourist places
Heritage & Conservation	<ul style="list-style-type: none"> ➤ Attraction point for tourist ➤ Preferable site for organizing sound & light shows ➤ Walkway can be development across major heritage sites ➤ 	<ul style="list-style-type: none"> ➤ Renovation of the heritage buildings & existing Temples ➤ Development of landscape around the sites ➤ Provision of public facility ➤ Separate space for parking around the sites 	<ul style="list-style-type: none"> ➤ Khusro Bagh ➤ All Saint Church ➤ Ulta Quila ➤ Hunman Mindir at Sangam ➤ Temple: Kalayani devi, ShivKulti, Allopi Devi, Mankamshwer Temple
Construction of Budget Hotels	<ul style="list-style-type: none"> ➤ Cheep & Better Accommodation Facility for tourist ➤ Cater the thrust of <i>Kumbh mela</i> ground at times of <i>Kumbh</i> 	<ul style="list-style-type: none"> ➤ Building of new dharamshalas/ hotels 	<ul style="list-style-type: none"> ➤ Along Nani Ghat (Arail) ➤ Near Sangam area ➤ Railway Station
Illumination of Heritage Buildings	<ul style="list-style-type: none"> ➤ Increase the aesthetic of the area ➤ Developed as recreational areas for local population reducing the thrust on Core areas ➤ Attraction point for Tourists 	<ul style="list-style-type: none"> ➤ Provision of proper lighting ➤ Identification of areas where lighting is required 	<ul style="list-style-type: none"> ➤ Allahabad Fort ➤ Khusro Bagh ➤ All St Cathedral church ➤ Proposed Ghats ➤ Azad Park

<p>Sound & Light Shows</p>	<ul style="list-style-type: none"> ➤ Attraction factor for tourist & local persons ➤ Organizing of sound & light Shows in heritage area will boost up the tourist inflow 		<ul style="list-style-type: none"> ➤ Khusro bagh ➤ Allahabad Fort
<p>Development of New Mela Ground</p>	<ul style="list-style-type: none"> ➤ Decentralize the load of <i>Kumbh mela</i> ➤ Area to be developed with a concept for Tourist town ➤ Space can be provided for different Ashram (religious group) ➤ Facility like Amphitheater, stage for religious speeches, Hawan ground, yoga ashram, meditation center, old age homes can be developed ➤ New housing scheme can be promoted around site ➤ Sealing of plots will generate revenue for the development authority 	<ul style="list-style-type: none"> ➤ Inclusion of land under development limits ➤ Linking with Allahabad main city through road transport ➤ Strengthen of Existing Railway Station on Varanasi route ➤ Provision of Public Facility ➤ Development of ghats & linking with Sangam Area ➤ River front development along the periphery ➤ Setting up of a committee for development & monitoring of area 	<ul style="list-style-type: none"> ➤ Toward Jhusi
<p>Development of water circuits in the city</p>	<ul style="list-style-type: none"> ➤ Link all proposed & existing ghats in the city with Sangam area ➤ Circuit boat routs can be developed for site seeing in the city ➤ Development of boat route will support the provision Vishramsthali & ghats ➤ Tourist can use these water routes at time of <i>Kumbh</i> for reaching Sangam ghat ➤ Provide opportunities for employment & revenue can be generated out of it ➤ Will become New point of attraction for foreign, domestic tourist 	<ul style="list-style-type: none"> ➤ Designing of boat Routes ➤ More no of boats will be required ➤ Pre-paid booth For ticketing 	

Provision for Jetty/ Speed Boats	➤ Water routes can be linked with different Jetty locations		➤ Along proposed River front development adjoining Minto Park
	➤ Jetty will add value to Riverfront development in the city		➤ Along proposed tourist site Jhusi area ➤ Along proposed ghats Arail area

27.3 Project Phasing & Costing

Phasing of development has been done depending upon the requirements of various facilities and accordingly priorities to the various identified projects/ activities identified. Discussion on prioritisation of projects is given as *Annex 8*. *Table 79* presents span for completion of various tourism and heritage related projects and their broad cost estimates. The total cost of tourism and heritage conservation projects is estimated at Rs. 122.00 crores. *Figure 54* is intended at plotting all tourism and heritage conservation related proposals/ activities to show the proposed locations etc in Allahabad.

Table 79: Phasing & Priorities to Projects

Project Identified	Year							Total (Rs Lakhs)
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	
Pre-paid Counters (taxi, auto, boats)	10	--	--	--	--	--	--	10.00
Tourist Information Centre	40	40	--	--	--	--	--	80.00
Provision of Public Facility	75	75	--	--	--	--	--	150.00
Construction of "VishramSthali"	175	85	85	85	85	--	--	515.00
Construction of New Ghats	--	250	250	250	250	250	--	1250.00
Illumination of Heritage Buildings	25	25	25	25	25	--	--	125.00
Development & maintenance of City park	50	50	50	35	35	35	35	240.00
Provision of Sound & Light Shows	50	100	50	--	--	--	--	200.00
Provision of decorative signages/ board	50	50	50	--	--	--	--	150.00
Conservation & Restoration of Old Temples	--	25	25	25	25	--	--	100.00
Heritage & Conservation	--	500	500	500	500	--	--	2000.00
Construction of Budget Hotels	--	--	--	--	--	--	--	--
Development of New Mela Ground	250	500	2000	1000	1000	1000	250	6000.00
River Front Development	100	300	300	200	200	100	--	1200.00
Development of water circuits & Jetty/speed boats	--	50	50	50	--	--	--	150.00
Total	815	2040	3375	2165	2115	1380	280	12170.00
	<i>Say</i>							<i>122.00 crores</i>



Figure 54

28.0 Roads and Transportation

28.1 Identification of Projects

The objective is to achieve a sustainable transport system that is adequate, safe, comfortable, equitable and efficient. The objective is also to providing relief to the city from the through traffic. Special arrangements have also been made to meet out the traffic demand during the *Kumbh mela*.

Pertinent issues relating to traffic and transportation situation in the city identified while situation analysis and the overall city and sector vision evolved thereafter have given rise to strategies and projects/ project activities, as discussed in the *Table 80* below.

Table 80: Issues and Strategies towards Projects

Existing Issues	Strategies	Projects
➤ Through traffic from the National Highways	➤ Construction of bypass for through traffic	➤ Construction of southern and northern bypass
➤ Improper road geometric	➤ Road and Junction Improvements. Use of ITS	➤ Improvement of 40 identified intersections.
➤ Inadequate parking provisions in commercial areas	➤ Identification of parking areas in the commercial areas for multi-level parking ➤ Options for involving private sector players	➤ 9 Multi-level parking lots identified
➤ Poor public transportation system operated by private owners	➤ Setting up facilities for public transport ➤ Capacity building in existing public transport	➤ 13 major routes identified with provision of bus stops and parking spaces at end points
➤ Low handling capacity of Bus terminals	➤ Augmentation of the existing bus terminals and relocation	➤ Augumentation of civil lines bus terminal ➤ Relocation of Zero Road and Louthur Road bus terminal
➤ Inadequate capacity of roads	➤ Widening of roads provision of flyovers/ RUB etc	➤ 5 flyovers and 4 RUB at selected locations ➤ Widening of the identified routes
➤ Environment pollution	➤ Use of cleaner fuel to reduce pollution	➤ Use of CNG based public transport vehicles
➤ Large mix of traffic in core city	➤ Policy level intervention and traffic management schemes	➤ Traffic management schemes for the core area
➤ Improper traffic management	➤ Implementation of traffic management schemes	➤ Enforcement

· Lack of pedestrian walkways and subways making safety an issue	➤ Provision of subways and footpath for safe movement of pedestrians	➤ Construction of 3 subways and foot path on the listed roads
· High migration or pilgrims during <i>Kumbh mela</i>	➤ Traffic management and identification of special routes to cater to pilgrim influx	➤ Bypass to directly shift the <i>mela</i> traffic to the Sangam area
· No provision for truck terminals	➤ Truck terminals to be provided	➤ Provision of four truck terminal located in the satellite towns of Allahabad

A large number of relevant and demanding projects have been identified in this sector for the purpose of easing the current traffic scenario as also the future traffic that would be generated in the city. The projects are also aimed at bypassing the through traffic that is destined for somewhere else and has nothing to do with it. The various projects identified to be implemented under the JNNURM have been identified under the broad heads as follows –

- Construction of Southern bypass
- Construction of Northern bypass
- Widening of Roads
- Flyovers
- Road Over-Bridges and Road Under-Bridges
- Widening of Rail Under-Bridge (at road level)
- Intersection Improvement
- Signalisation of Intersections
- Speed Breakers
- Zebra marking, lane marking and signages
- Road Lighting
- Multi-level Parking
- Bus Terminals
- Truck Terminals

Detailed project related activities under these heads are given as *Annex 14*.

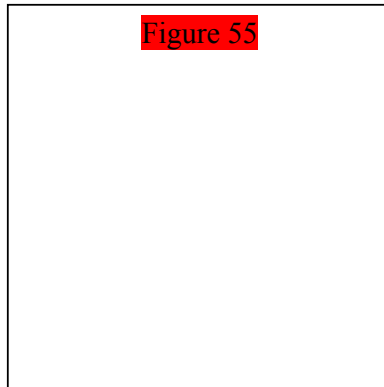
28.2 Project Phasing & Costing

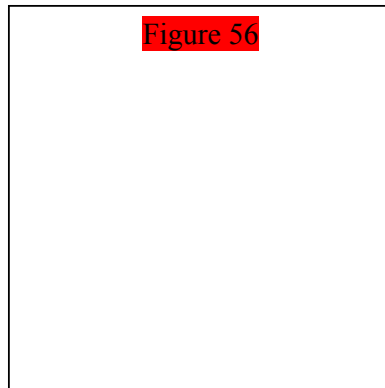
Phasing of development has been done depending upon the requirements of various facilities and accordingly priorities to the various identified projects/ activities identified. The quantification technique adopted towards computation of priorities is given as *Annex 8*. *Table 81* presents phasing of projects based on quantified priorities together with estimated costs. Projects relating to street lighting and their costs have also been dealt with in this section. The total cost of roads and transportation related projects is estimated at Rs. 1178.50 crores, including the cost of street lighting.

Figure 55 shows graphically the proposed road intersection improvements to take place. *Figure 56* depicts the transport land use.

Table 81: Project Span and Priorities

Project Identified	Years							Total (Rs Lakh)	Priority
	2006- 2007	2007- 08	2008- 09	2009- 10	2010- 2011	2011- 12	2012- 13		
Construction of Southern bypass	--	3,895	3064	7,000	7,000	9,000	9,000	38,959	High Priority
Construction of Northern bypass	--	2,606	5,212	6,515	6,515	--	--	20,848	High Priority
Widening of roads	2,000	3,349	3,565	--	--	--	--	8,914	High Priority
Flyovers	--	--	2,940	6,860	--	--	--	9,800	High Priority
Road Over Bridge/ Road Under Bridge	--	--	3,200	4,800	--	--	--	8,000	High Priority
Widening of existing RUB (at Road level)	--	--	448	--	--	--	--	448	Medium Priority
Intersection Improvement	240	345	--	--	--	--	--	585	Medium Priority
Signalisation of Intersection	--	--	153	--	--	--	--	153	High Priority
Speed breakers	--	6	9	--	--	--	--	15	Low Priority
Zebra marking, lane markings and signages	7.5	7.5	--	--	--	--	--	15	Low Priority
Road lighting	--	--	1923	2885	--	--	--	4,808	Medium Priority
Multilevel parking	--	5600	8400	--	--	--	--	14,000	High Priority
Bus terminal	--	613	1225	1538	1524	--	--	4,900	Medium Priority
Truck terminal	--	570	1415	1415	--	--	--	3,400	High Priority
Grand Total	2247.5	17,992	32,554	32,013	15,039	9,000	--	117,845	
			<i>Ssy</i>					<i>1178.50</i>	<i>crores</i>





29.0 Other Infrastructure/ Communities Facilities

29.1 Projects for JNNURM Discussion with various stakeholders at the city and state levels has revealed that there is requirement of certain community facilities to benefit elderly, women and the youth of the city. Infrastructure towards this has been identified as under –

- Home for the elderly;
- Youth hostels; and
- Working hostels for girls and for men.

29.1.1 Prayag Home for the Elderly It is proposed to build a 60-room home for the senior citizens that shall include separate office and a guardroom. There can be a mixed pattern in the building with provision of separate room and a big hall comprising of several beds and study tables. There can also be a provision for a garden on the campus with proper landscaping. Appropriate health facility also needs be provided on the campus to deal with any unforeseen situation. It is assumed that this shall require an area of 12000 m² of space for a constructable area of 2000 m² involving an estimated cost of Rs. 100.00 lakh.

29.1.2 Youth Hostels There shall be youth hostel, both for boys and girls considering the fact the Allahabad is a centre of advance learning and is also proposed to come up a knowledge hub in the future. This shall provide affordable and healthy environment for the student class of the society. A suitable site in proximity with the educational institutions is recommended. The youth hostel shall be spread over an area of 2500 m² involving an estimated cost of Rs. 120.00 lakh.

29.1.3 Working Hostels for Girls & Men Separate working hostels for girls and men have been proposed. There is a large influx of population into Allahabad from the neighbouring region and beyond for the purpose of education and employment. This influx is expected to grow over the years. Owing to this very fact, this facility is being recommended. A total of five hostels with a mix of 2 plus 3 for girls and men respectively is envisaged. Total area requirement is 1500 m². Each hostel shall involve an estimated cost of Rs. 75.00 lakh, and five hostels shall collectively cost Rs. 375.00 lakh.

29.2 Project Phasing & Costing All the above miscellaneous community facilities are proposed to be completed over the next five years with an estimated expenditure of Rs. 6.00 crores (*Table 82*).

Table 82: Phased Community Facilities and Estimated Costs

Project Identified	Years							Total (Rs Lakh)
	2006-2007	2007-08	2008-09	2009-10	2010-2011	2011-12	2012-13	
Home for the Elderly	25	25	25	25	--	--	--	100.00
Youth hostels	25	40	40	15	--	--	--	120.00
Working girls' hostel	25	50	50	25	--	--	--	150.00
Working men's hostel	25	75	75	25	--	--	--	225.00
Grand Total	100	190	190	90	--	--	--	595.00
	<i>Say</i>							6.00 crores

30.0 Environmental Aspects

30.1 Projects for JNNURM Few significant projects for the conservation of a healthy and liveable environment have been identified. This includes the following –

- Plantation along select roads;
- Slaughter houses;
- Rehabilitation of old electric crematoria (2 nos);
- Provision of new electric crematoria (2 nos); and
- Improvement and augmentation of graveyards (for Muslim and Christians).

30.2 Project Phasing & Costing

Project phasing and costing has been done in accordance with the requirements of the city as regards environmental conservation. All proposed projects are expected to complete in the next five years with an estimated expenditure of Rs. 14.60 crores (*Table 83*).

Table 83: Environmental Projects and Estimated Costs

Project Identified	Years							Total (Rs Lakh)
	2006-2007	2007-08	2008-09	2009-10	2010-2011	2011-12	2012-13	
Plantation along select roads	250	250	250	250	--	--	--	1000.00
Slaughter Houses	20	20	20	20	--	--	--	100.00
Electric Crematorium improvement (2)/ provision (2)	30	100	100	30	--	--	--	260.00
Grave yard improvement/ augmentation (LS)	25	25	25	25	--	--	--	100.00
Grand Total	325	395	395	325	0	0	0	1460.00
	<i>Say</i>							<i>14.60 crores</i>

31.0 Urban Basic Services

31.1 Integrated Slum Development There is no sufficient water to fulfil the water supply requirement in slum settlements. There are areas/ slum settlements in the city where water supply is not available even when the total water production is higher than the requirement. The slum dwellers are therefore made to make their own water arrangements. Projects identified by various agencies including the JN, MCA and the DUDA have been evaluated and incorporated as a proposal under the JNNURM where justified.

Improvement of slums is proposed to be taken up in an integrated manner. The integrated slum development project is proposed to focus on roads, water supply, sewerage and sanitation, drainage, and solid waste management for improving the living conditions and quality of life of the urban poor in Allahabad.

This program shall enhance quality of life of the urban poor and make it accessible and affordable for them over the next 25 years. The works indicated in *Table 84* concerning water supply are proposed to be executed in a phased manner –

Table 84: Water Supply Projects For Slums

Sl. No.	Proposed Project	Costs (Rs Lakh)	
		<i>In-situ</i>	<i>Ex-situ</i>
1	Distribution system in slum areas as an integrated part of the main water supply network of the city	600.00	500.00
2	Construction of public stand posts and <i>pyaooos</i>	30.00	25.00
3	Provision of cattle troughs at select locations in slum settlements	25.00	25.00
4	Provision of water meters at specified locations	300.00	17.50
Total		955.00	567.50

Old age people and women face problem in going for open defecation in the absence/ shortage of toilets/ community toilets. An effective sewerage system needs to be provided in these areas and community latrines to be constructed for the safe and hygienic defecation to the poorest. Towards this, projects as follows (*Table 85*) have been identified –

Table 85: Sanitation Projects For Slums

Sl. No.	Proposed Project	Costs (Rs Lakh)	
		<i>In-situ</i>	<i>Ex-situ</i>
1	Construction of community latrines and bathing facilities (paid/ unpaid) for the urban poor	450.00	300.00
2	Laying of sewer lines	300.00	250.00
Total		750.00	550.00

No separate costs are required to be taken for storm water drainage, SWM and other environmental aspects for these are given due consideration at the city level. The component of street lighting has been included in the roads and transport costs.

Table 86: Roads and Transport Projects

Sl. No.	Proposed Project	Amount (Rs Lakh)
1	Roads network improvement for authorised slum settlements (<i>In-situ</i> development)	15.00
2	Roads network improvement for <i>Ex-situ</i> development	23.00
	Total	38.00

31.2 Housing The parastatal agencies concerned with this sector will have to play a significant role in providing housing for the economically weaker sections (LIG/ EWS) of the society. This need not be in the form of fully built houses but in the nature of sites and services. In such a case, smaller plots (25-30 m²) with pedestrian accesses, and water and sewerage facilities need be provided, and a water tap and toilet seat built on the plot. The plot allottee can then build the shelter and improve it as his income improves. By ensuring water and sanitation, the environmental hygiene is ensured. There are experiences of such schemes in India, and lessons from them can be applied in Allahabad.

Taking stock of the situation at hand and considering the present status of the slums as reported above, it is suggested that *in-situ* rehabilitation option should be considered for the authorised slums and relocation (if at all necessary) should be seen as an option for the unauthorised colonies/ slums. In the Table 87 are worked out housing and other requirements, both for *In-situ* (authorized slums) and *Ex-situ* (unauthorized slums) development. A plot of 4000 m² shall house four dwelling units each at three floors (G+2).

Table 87: Housing Requirement & Other Details

	Development Details	
	<i>Ex situ</i>	<i>In situ</i>
Target Population	143878	168286
Target Households	23980	28048
Cover Area to be Provided (m ²)	25	25
No of Dwelling Units required	23980	28048
Min Plot Size for Group Housing (m ²)	4000	4000
Min Plot Size for Group Housing (ha)	0.4	0.4
Maximum FAR	133	133
Built up Area (m ²)	1320	1320
Dwelling Units per Floor	4	4
Area Covered per Floor (m ²)	100	100
Additional Area per Floor (m ²)	22	22
Area of Building at Ground Floor (m ²)	122	122
Maximum Buildings in One Plot	11	11
Constructable Area in a Single Building (m ²)	366	366
Total Constructed Floor Area (m ²)	3960	3960
Dwelling Units in 1 Plot	173	173
People to be Accommodated in 1 Plot	1039	1039
Population to be Accommodated	143878	168286
Number of Plots Needed (0.4 ha each)	139	139
Total Area Required (ha)	55	65

Total Area Required (ha)	55	65
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Major components in estimation of costs have been land development and construction costs. The costs have been worked out assuming usage of low-cost and average quality construction material. Costs of land (purchase/ acquisition etc) have not been taken into account for estimation. *Table 88* below gives details.

Table 88: Estimation of Costs

Component	Ex-situ Development Cost (Figs in Lakh)	In-situ Development Cost (Figs in Lakh)
Development Cost per ha	25	25
Construction Cost per m ²	0.35	0.35
Total Cost of Land Development	1385	1620
Total Floor Area to be Constructed	5.4	5.4
Total Construction Cost	19198	22455
Total Cost (Rs Lakh)	20584	24076

31.3 Community Participation

Public interventions shall 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.

The slum communities need to shoulder the responsibility of work execution and bring about transparency, accountability and quality of work. The women folk of the community will be empowered through training programs and discussions as the vital pillars of the work thereby converting the closed system of contractors into an open system of people. Following steps shall be adopted to bring this about:

- Conducting group meetings with the people about the need to take over the responsibility of execution of works in their own slums;
- Vigilance committees to be formed amongst the people as a cautionary measure to discharge the function of social audit. This will also ensure that the contractor does not degrade the quality of work in an attempt to make high profits out of the money allotted for slums;
- Identify the target beneficiaries and initiate efforts to form Community Based Organization (CBOs), covering the target population for participation in the implementation of JNNURM projects and State Reform Agency (SRA) projects for slum rehabilitation;
- The vulnerable groups are the socially under privileged, women and aged. Development programs are necessary for these vulnerable groups in the community, and they can be properly implemented and the services properly availed of, through the conduction of effective Information, Education and Communication (IEC) campaigns, thus improving the level of awareness among the communities and ensuring the participation of the vulnerable groups. This initiative aims at a long-term goal and needs sustained longstanding efforts on part of the CBOs. The activities of the CBOs shall be monitored through an evaluation procedure on a periodic basis. It would be expedient to involve local NGOs with experience in community empowerment activities in Allahabad, in the promotion, formation and capacity building of these CBOs;

- There needs a better convergence between different urban poverty programs so that resources from the centre, state and local governments are able to focus and make real change happen. A 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 their shelters over a period of time. An enabling environment will have to be created for this by co-ordination and liaison between the different departments/ organizations/ individuals owning the land on which the slums are located and proactive intervention by the state government in the form of a suitable GO, which will provide tenure rights (based on certain criteria which will have to be predetermined) to the slum-dwellers. Provision of basic services like paved streets, streetlights, community (or individual) water supply, and community toilets will also have to be extended to these settlements.

31.4 Project Phasing & Costing

As discussed elsewhere in the report, there are two types of slum settlements – authorised ones and those currently not authorised. It is proposed that the authorised be strengthened by way of providing a set of infrastructure as given in *Table 89* below. All activities under *in-situ* development of slums, some of which have been outlined in *Tables 84-86* above, are spread over the next 3-6 years incurring an estimated expenditure of Rs. 22.00 crores.

Table 89: In-situ Slum Development and Costs

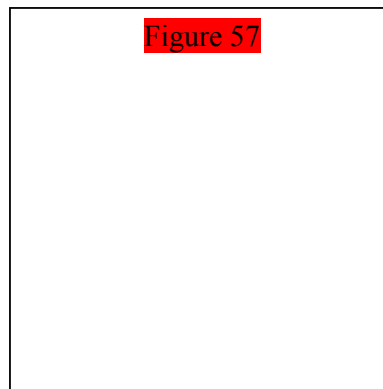
Project Identified	Year							Total (Rs Lakhs)
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	
Water supply	100	400	400	95	--	--	--	955.00
Sewerage & sanitation	50	300	300	100	--	--	--	750.00
Storm water drainage	<i>No separate costs for this component</i>							--
Solid waste management	<i>No separate costs for this component</i>							--
Roads & transport	5	5	5	--	--	--	--	15.00
Housing	20	75	75	50	15	5.76	--	240.76
Street Lighting	<i>No separate costs for this component</i>							--
Environmental aspects	<i>No separate costs for this component</i>							--
Sub-Total	175	780	780	245	15	5.76	--	1960.76
Awareness programs @ 2.5%	4.375	19.5	19.5	6.125	0.375	0.144	--	49.02
Other/ miscellaneous activities @ 10%	17.5	78	78	24.5	1.5	0.576	--	196.08
Total	196.875	877.5	877.5	275.625	16.875	6.48	--	2205.86
<i>Say</i>								22.00 crores

Likewise, it is proposed to rehabilitation the slum dwellers in unauthorised slum settlements by way of relocation to an identified site (*Table 90*). The proposed site shall have all the necessary infrastructure and utilities. Development is proposed in similar head as above. The development of new slum site is estimated to involve an expenditure of Rs. 15.20 crores and the activities shall complete in five years starting with the current financial year.

Table 90: Ex-situ Slum Development and Costs

Project Identified	Year							Total (Rs Lakhs)
	2006- 07	2007- 08	2008- 09	2009- 10	2010-11	2011- 12	2012- 13	
Water supply	75	200	200	50	42.5	--	--	567.50
Sewerage & sanitation	50	150	150	150	50	--	--	550.00
Storm water drainage	<i>No separate costs for this component</i>							--
Solid waste management	<i>No separate costs for this component</i>							--
Roads & transport	3	8	8	4	--	--	--	23.00
Housing	20	70	70	40	5.85	--	--	205.85
Street Lighting	<i>No separate costs for this component</i>							--
Environmental aspects	<i>No separate costs for this component</i>							--
Sub-Total	148	428	428	244	98.35	--	--	1346.35
Awareness programs @ 2.5%	3.7	10.7	10.7	6.1	2.45875	--	--	33.66
Other/ miscellaneous activities @ 10%	14.8	42.8	42.8	24.4	9.835	--	--	134.64
Total	166.5	481.5	481.5	274.5	110.6438	--	--	1514.64
	<i>Say</i>							15.20
								crores

Figure 57 shows the future land use of Allahabad covering all sectors/ infrastructure comprehensively in a single plan. this figure is primarily based on the Master Plan 2012 of Allahabad prepared by the ADA.



32.0 Institutional Reforms

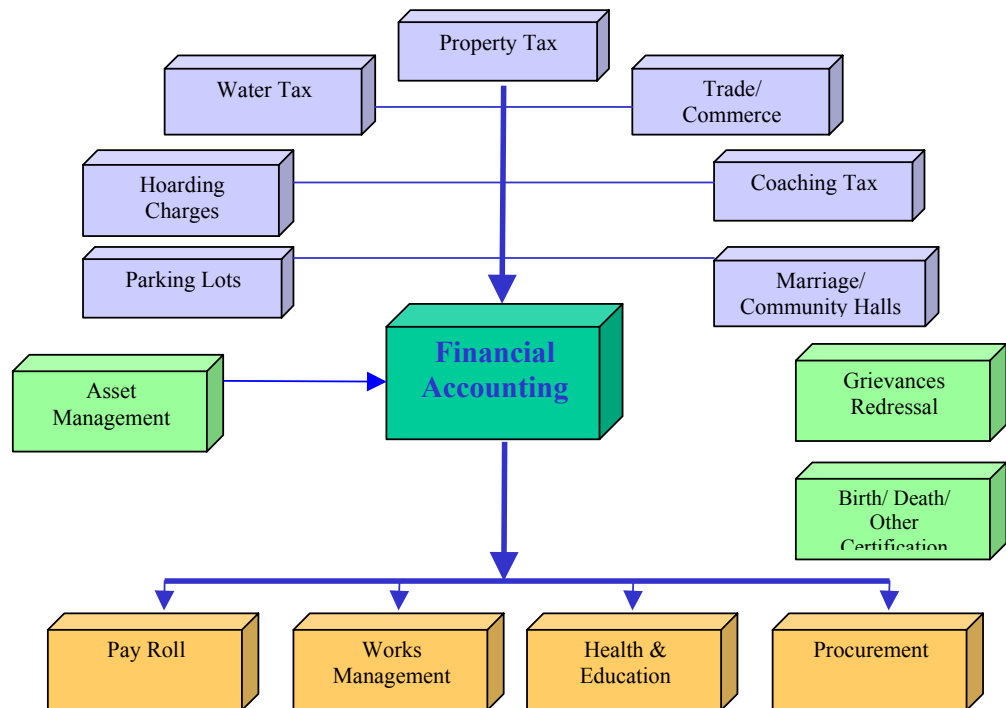
32.1 Introduction

Urbanization by itself is no cause for alarm; what is alarming are the gross inefficiencies and inequities that characterize urbanization ...
George Frie

The implementation of urban governance reforms is a difficult and long drawn out process. The experience of institutional reforms at various levels has shown that it is necessary to identify a ‘mix’ of activities – some short-term interventions that yield noticeable results and serve to keep up the interest in the reform process and the more long-term interventions. Keeping this in mind, it is necessary to identify reform interventions at two levels that serve the above purpose.

For effective urban governance, reforms will be necessary at the state level and the municipal level. Even at these two levels, the identified reforms can be further classified into ‘mandatory’ and ‘optional’ reforms. In implementing mandatory reforms, the focus is on the state creating the necessary enabling framework for the next lower tiers of government to enact the necessary mandatory reforms. While creating this enabling framework at the state and municipal level will be time consuming given that it will be heavily influenced by politics, certain smaller interventions will become necessary in preparation for the larger interventions. These smaller interventions will need to be designed and implemented in a manner that results are apparent in a relatively short time period and serve to keep up interest in the process. The following *Figure 58* shows a conceptual framework of institution building and accounting for better revenue collection, asset management, grievances addressal and service delivery etc.

Figure 58: Conceptual Framework for Institution Building



32.2 Mandatory Reforms at State Level

The majority of state level reforms can be classified as mandatory and are equally applicable to all the cities in the state that are preparing CDPs. These are fundamental reforms and necessary for the enabling framework for the municipal level reforms to take place. While all the reforms are necessary, their phasing will differ from city to city. In the case of Allahabad, the mandatory reforms identified to be undertaken at state level shall be as follows:

- Effective implementation of 74th CAA by way of –
 - Constitution of Ward Committees and DPCs
 - Complete transfer of funds, functions and functionaries to MCA
- Reform of rent control laws –
 - New development areas exempt from this law for next 10 years
 - Repeal of law across all areas
- Rationalisation of stamp duty by bringing it down
- Enactment of public disclosure law –
 - Effective implementation of Right to Information (RTI) Act
 - State level public disclosure law
 - Effective implementation of law empowering citizens to legal recourse
- Institutionalising community participation in decision making
 - Effective functioning of Ward Committees and DPCs through process of public consultations
 - Formulation of Citizens Charters that define time bound responses to community needs
 - Institutionalising system of undertaking ‘Report Cards’ across Wards
 - Enactment of Community Participation Law
- Better coordination between cities
 - City level coordination committee
 - Starting process of clear demarcation of roles & responsibilities across city level institutions
 - Clarity in roles & responsibilities across city level institutions thus eliminating functional overlaps
 - Effective participatory planning for city development through Ward Committees, District Planning Committees
 - Regular elections to local government institutions and creation of committees for effective decentralisation
 - Establishment of ‘Association of Municipalities’ at state level
 - Identification of common agenda that focuses on defining strategies for better city level planning

32.3 Urban Governance Reforms at Municipal Level

For the citizen of the city, the urban government is the ‘Government’, because all the basic urban services are provided by these agencies only. In the fast world of today, a normal citizen cannot spare too much time for deposit of taxes by inefficient means and for obtaining the simplest services he is not able to bear the unnecessary delays in execution. Under the present situation, a person has to visit the ULB so many times for calculation of property tax to be paid by him on his property. It is also not easy for him to obtain a birth or a death certificate effectively.

Few interventions towards improved urban governance can be implemented by the MCA at city level by way of adapting to some ad