



Chapter – 18 : Investment Framework



CHAPTER - 18 INVESTMENT FRAMEWORK

18.1 INTRODUCTION

The investment options projects to achieve the long term vision and strategies are done based on the assessment of short, medium and long term strategies. The chapter has been divided in to two parts. Part A describes the sector wise projects and investments for Sub-Mission-1: Urban Infrastructure and Governance and Part-B describes the investments for Sub-Mission-2: Urban Poor and Housing.

18.2 SECTOR WISE INVESTMENT OPTIONS

Sub-Mission-1: Urban Infrastructure and Governance

The sectors covered in **Sub-Mission-1: Urban Infrastructure and Governance** are (i) Water Supply; (ii) Sewerage and Sanitation; (iii) Storm Water Drainage; (iv) Road Network and Transport Projects; (v) Solid Waste Management Projects; (vi) Redevelopment of Core City Area; (vii) Heritage Conservation and (viii) Urban Governance. The investments to meet the normative requirement are presented below.

18.2.1 Water Supply

The water supply system in city has 50 per cent transmission and distribution losses and skewed inter & intra zone water distribution pattern. The strategies to overcome issues earlier are (i) Reduce Transmission and Distribution Loss (ii) Augmentation of Water Supply; and (iii) Efficiency in Service Delivery and cost recovery mechanism (Table 18.1).

Table 18.1: Investment Options-Water Supply (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A) REDUCE TRANSMISSION & DISTRIBUTION LOSSES AND EFFICIENCY IMPROVEMENT				
(i) Revamping and upgradation of internal water distribution network and pumping stations	75	-	-	75
(ii) Coverage of new colonies in outer areas of city	25	30	50	105
(iii) Interlinking of WJC with Wazirabad pond Laying of 2000 mm dia pipeline for supply of raw from WJC to Wazirabad pond	187	-	-	187
(iv) Supply and	30	10	2	42

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
Installation of Bulk and Consumer Meters				
(v) Modernization and up gradation of laboratory	20	-	-	20
(vi) Leak Detection Study	1	-	-	1
(vii) Energy Efficiency Study	2	-	-	2
B) AUGMENTATION OF WATER SUPPLY FROM 790 MGD TO 919 MGD				
(i) Construction of New Water Treatment Plants				
(a) 31 MGD Iron removal Plan	696	-	-	696
(b) 20 MGD WTP at Okhla				
(c) 40 MGD WTP at Dwarka				
(ii) Construction of 21 Nos. High Yield Tube wells in flood plain area of river Yamuna	1	-	-	1
(iii) Upgradation of Water Works- Chandrawal	35			35
(iv) Construction of UGRs/BPS in Various Part of Delhi	250	-	-	250
(v) Construction of 8 MGD recycling plants Chandrawal	20			20
(vi) To Connect UGR with Plants transmission lines of varying size-250kms	200	-	-	200
(vii) Construction of 1 MGD WTP at common wealth games village along with arrangement of raw water (To be achieved by 2009)	20	-	-	20
(vii) Explore Raw Water Resources, the surcharge of aquifers	50	-	-	50
C) EFFICIENCY IN SERVICE DELIVERY AND COST RECOVERY MECHANISM				
(i) Revamping DJB Customer Care Services Installation of system software for billing and customer information	20	-	-	20
GRAND TOTAL IN Rs CRORE	1632	130	122	1884

18.2.2 Sewerage System

Around 60 per cent population in outer areas, urban villages, unauthorized areas are not covered by the sewerage network. The sewage from these areas and inner city areas find it is way into the storm water drainage. The strategies

to improve the sewage disposal system in the city are (i) Extension and Up gradation of sewerage network; (ii) Provision of Sewer Network in unsewered area; (iii) Augmentation of Sewage Treatment Capacity. Table 18.2 presents the investment options for sewerage system.

Table 18.2: Investment Options-Sewerage System (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A) EXTENSION AND UPGRADATION OF SEWERAGE NETWORK FOR INTERCEPTING SEWAGE TO CONVEY TO STPS-POLLUTION CONTROL AND ABATEMENT OF POLLUTION				
(i) Revamping and up gradation of internal sewerage network including replacement of Old Sewer line	125	-	-	125
(ii) Refurbishment of Sewage Pumping Stations- 6Nos	20	-	-	20
(iii) Rehabilitation of Trunk Sewers in walled city area, north and west districts excluding trunk sewer under YAP-II	450	-	-	450
B) PROVISION OF SEWER NETWORK IN UNSEWERED AREA				
(I) Provision of Sewer in left out portion of colonies and rural villages	120	-	-	120
(ii) Laying of 250km of trunk sewer network to cater to uncovered area (regular colonies)	75	-	-	75
(iii) Provision of Sewerage Network in 30 urban villages	45	-	-	45
(iv) Provision of Sewerage Network in Unauthorized colonies	400	935	935	2270
(v) Diverting the sewer from uncovered area by constructing Sewage Pumping Stations (SPS) Punjabi Bagh, Nangloi extn, Preet vihar, Yamuna vihar and Jivan vihar	100	-	-	100
(vi) Laying of trunk sewers	70			70
C) AUGMENTATION OF SEWAGE TREATMENT CAPACITY				
(i) Construction of New STPs (Refer iii)	700	-	-	700
(ii) Construction of	150	-	-	150

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
Sewage Pumping Stations (Refer iii)				
(iii) Laying of Trunk Sewers (Interceptor along drain)	500	500	500	1500
TOTAL	2755	1435	1435	5625

18.2.3 Road Network and Transportation System

The strategies for improvement of road network and transportation system of the city are (i) safe and efficient public transport system; (ii) encourage use of intermediate public transport and non-motorised passenger transport; (iii) equitable use of space on roads, and priority to pedestrians; (iv) efficient use of existing infrastructure and provision of efficient parking facilities (v) redevelopment of Connaught Place and the Walled City Areas as special areas (vi) development of passenger and goods terminals based on directional needs (vii) enhancement of road infrastructure(viii) undertake awareness and enforcement drive. Table 18.3 presents the investment options for sewerage system.

Table 18.3: Investment Options-Transport System and Road Network (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A. CAPACITY BUILDING OF PUBLIC TRANSPORT SYSTEM				
i) Developing Light Rail Transport System - 74 km	2800	2320	800	5920
ii) Developing Monorail System - 48 km	2400	1440	-	3840
iii) High Capacity Bus System -294 km.	1305	420	2685	4410
B. DEVELOPMENT OF PASSENGER AND GOODS TERMINALS BASED ON DIRECTIONAL NEEDS				
i) Development of Interstate Bus Terminus at Bhartal, Dwarka, Holambi Kalan and Tikri Kalan	50	25	-	75
ii) Integrated Freight Complex at Madanpur Khadar, Gazipur and Narela	50	100	100	250
C. DEVELOP NEW LINK ROADS AND BRIDGES AS ALTERNATIVE ROUTES				
i) East-West Corridor from Rajghat to Panjabi Bagh-12km	120	300	300	720
ii) North-South Corridor from Majnu ka tila to Daula Kaun-15km	125	350	425	900
iii) Prem Bari Pul (Pritampura) to Outer Ring Road along Disused Western Yamuna Canal	30	20	-	50
iv) Sarita Vihar Intersection on Mathura Road to Okhla industrial Areas	30	-	-	30
v) Development of elevated ring road	300	2000	2300	4600
vi) Elevated section over Outer Ring road- NH 1 (Mukerba Chowk)	200	250	-	450

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
to wazirabad 7.5 Km.				
vii) Outer Ring Road Link from Okhla to Wazirabad - 13 km.	200	400	400	1000
viii) Missing Link of Outer Ring Road from NH 8 to Janakpuri through Cantonement Area - 13Km.	200	400	400	1000
ix) Wazirabad Signature Bridge over river Yamuna	464	-	-	464
x) Geeta Colony Bridge over river Yamuna	125	-	-	125
xi) Master plan road over disused Canal between Shastri Park and Karkari More	120	-	-	120
xii) Ring road bypass from Salim Garh Fort to Velodrome road	100	200	200	500
xiii) Link road from NH 24 to Lodhi road (Tunnel Bypass)	60	250	250	560
E. FULL DEVELOPMENT OF ROW OF ROAD				
i) Traffic Management and Area Traffic Control schemes at all Grade Separators and prominent commercial areas	50	-	-	50
ii) Improvement of road corridors spread over Delhi - 251.40 km.	500	1014	1000	2514
iii) Corridor improvement plan for Mehrauli Gurgaon Road (connecting Andheri Morh to Delhi-Haryana Border)	174	-	-	174
iv) Beautification of roads for Commonwealth Games	750	-	-	750
v) Flyover at Mukerba Chowk	195	-	-	195
vi) Grade Seperator at Azadpur	154	-	-	154
vii) Three Flyovers between IIT & NH 8 on Outer Ring Road	247	-	-	247
viii) Flyover at Naraina	125	-	-	125
ix) Bridge over Neela Hauz (Aruna Asaf Ali Marg	47	-	-	47
x) Flyover at Mangolpuri Chowk on Outer Ring Road	31	-	-	31
xi) Behera Enclave underpass on Outer Ring Road	55	-	-	55
xii) Flyover at Nagloi on NH 10	78	-	-	78
xiii) ITO Chungi - 4 no.'s cloverleaves and underpass	74	-	-	74
xiv) RUB connecting road no. 58 and 64	32	-	-	32
xv) Grade Separator at Shastri Park	65	-	-	65
xvi) Flyover at Apsara border on G.T.Road	88.5	-	-	88.5
xvii) Grade Separator at intersection of Raja Ram Kohli Marg & Pusta Road	97	-	-	97
xviii) Grade separator at Shastri Park Pushta Road Intersection	83	-	-	83
xix) Flyover on Road no 56 (ISBT Anand Vihar) & NH 24 (Gazipur drain)	150	300	-	450
xx) ROB on Road No. 63 level crossing	34	-	-	34

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
xxi) UP link road clover leaf	200	-	-	200
xxii) ROB at G.T.Road near Shyam Lal College	85	-	-	85
xxiii) BSZ - DDU - I.P.Marg Flyover	100	100	-	200
Xxiv) Grade separator along Rani Jhansi Road between Baraf Khana Chowk and Bara Hindu Rao Chowk	178	-	-	178
xxv) ROB at Samaipur Badli Level Crossing on Auchandi Road	40	-	-	40
xxvi) Construction of flyovers/underbridges at various level crossing sites.	250	250	-	500
F. MANAGEMENT AND CREATION OF NEW PARKING AREA				
i) Construction of Multi-Level Parking in Delhi	100	250	250	600
ii) Parking management & Regulation at 10 prominent locations	15	-	-	15
iii) Construction of underground parking in residential areas	50	-	-	50
G. PROVIDE EQUITABLE USE OF SPACE ON ROAD AND PRIORITY TO PEDESTRIANS				
i) Strenthening and improvement of footpaths along major arterial roads	100	50	-	150
ii)Construction of foot over bridges/ subways at ten critical locations	10	-	-	10
iii) Modernisation of Street lighting	125	-	-	125
H. PREPARE SPECIAL INTEGRATED SCHEMES FOR MOVEMENT IN CP AND OLD CITY AREA				
i) Improvement Major intersections like Ajmeri Gate, Fountain Chowk, Kaudia Pal, Khari Baoli etc. at 15 locations	3	-	-	3
ii) Pedestrianisation of inner circle in Connaught Place including parking below inner circle	20	-	-	20
iii) Pedestrianisation (partial) Chowk Area with heritage considerations	10	-	-	10
iv) Provisions of subways at nine locations in outer circle of Connaught Place	18	-	-	18
v) Developing Underground Parking at Connaught Place, Super Bazar, Mayur bhawan, Shivaji Terminal as part of redevelopment of Connaught Place	50	100	-	150
vi) Corridor improvement of S.P Mukherjee Marg	75	-	-	75
vii) Traffic management plan for areas around proposed Civic Center near Minto Road	188	-	-	188
I. ENCOURAGE USE OF INTERMEDIATE PUBLIC TRANSPORT AND NON-MOTORISED PASSENGER TRANSPORT (Including cycles and cycle rickshaws)				
i) Provision of Cycle Tracks at Sub-Arterial & Local Level roads and streets new areas and urban	15	50	50	115

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
extensions				
ii) Road improvements for use of cycle rickshaw in Karol Bagh/Lajpat Nagar and Trans Yammuna Area	30	20	-	50
iii) Development of Cycle Tracks in along major transport corridor near industrial nodes at seven routes	100	-	-	100
J. CREATE AWARENESS AND ENFORCEMENT DRIVE				
i) Public awareness and enforcement drive	3	-	-	3
ii) User Information System for transport systems	10	20	30	60
iii) Registration and Training of Transport Operators/drivers	3	-	-	3
TOTAL	13486.5	10629	9190	33305.5

18.2.4 Storm Water Drainage

The storm water drainage system in city is supported by 350km of natural drains and 1700km of manmade drains. On the basis of topographical characteristics and existing drainage network of city has been divided into five drainage basins namely Najafgarh, Alipur, Shahdara, Khushak nallah and Mehrauli. Three pronged strategy to improve the drainage system of city: (i) Comprehensive study of drainage systems; (ii) Short Term Improvement Measures (iii) Revival, waste water treatment and landscaping of the main drains (table 18.4). The projects needs to be implemented for improvement of city drainage system are presented in Table 18.5.

Table 18.4 : Cost of Drainage Revival and Management (Based on Estimated BOD Load)

S. No.	Drain	Approximate Cost of Wastewater Treatment (Rs Crores)	Term (short / medium / long term)
1.	Najafgarh Drain	30.00	S
2.	Magazine Road Drain	0.50	M
3.	Sweepers Colony Drain	0.30	M
4.	Khyber Pass Drain	0.10	M
5.	Metcalf House Drain	0.20	M
6.	ISBT Drain	1.50	M
7.	Tonga Stand Drain	0.45	M
8.	Moat Drain	0.05	M
9.	Civil Mill Drain	3.00	M
10.	Delhi Gate Drain	2.50	M
11.	Sen Nursing Home Drain	6.00	M
12.	Drain No. 12A	0.21	M
13.	Drain No. 14	4.50	M

14.	Barapulla Drain	3.50	S
15.	Maharani Bagh Drain	5.00	M
16.	Kalkaji Drain	0.18	M
17.	Tehkhand Drain	0.42	M
18.	Tughlaqabad Drain	0.22	M
19.	Shahdara Drain	12.00	M
20.	Sarita Vihar Drain	8.00	M
21.	Drain at LPG Bottling Plant	0.80	M
22.	Drain near Sarita Vihar Bridge	4.00	M
	Total	83.43	

Cross section modification cost = ~ 0.12 Crores / Km (in addition to treatment cost) For 400 km total length of these drains, the cost for cross section modification, as per above rate - Rs. 48 crore, **Grand total - Rs. 131.43 crore, (say Rs. 132 crore)**

Table 18.5: Investment Options-Storm Water Drainage System (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A. COMPREHENSIVE STUDY OF DRAINAGE SYSTEM				
i) Comprehensive study and GIS based drainage mapping and planning for all drainage systems within the NCT of Delhi	10	-	-	10
B. SHORT IMPROVEMENT MEASURES				
i) Remodeling of drains having outfall into Yamuna	42	40	40	122
ii) Provision of outfall treatment plants at outfall drains-15 Nos.	15	-	-	15
iii) Repair and Desilting of Drainage Network-2100km	20	12	20	52
iv) Provision of Pump houses in low lying areas with power backup	5	5	5	15
v) Augmentation of storm water drainage	40	48	40	128
C. REVIVAL AND MANAGEMENT OF MAJOR DRAINAGE NETWORK				
i) Revival and landscaping of major drains (on the line of South Delhi Greenways project)	54	78	-	132
ii) Design of Check dams and depressions for Ground Water Recharge	20	10	10	40
iii) Pilot project on Sub	25	10	10	45

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
wells to be developed under flyover for trapping rainwater				
TOTAL	231	203	125	559

18.2.5 Solid Waste Management

The strategy for reducing land requirement, improvement in service delivery and environment would be: (i) maximize waste processing with appropriate and proven technologies; (ii) The existing composting facilities may be re-engineered, revitalized and capacity augmented with technical inputs and marketing support to process 1075 tons per day; (iii) Closure, capping and landscaping of existing dump-sites along with a plan for disposal of waste during the intermittent period before new sanitary landfills are commissioned and actually operated and (iv) New facilities of waste processing including composting of 1500 TPD and other processing technologies to the maximum possible extent should be installed (for example, dry combustible waste can be processed as refuse derived fuel). The strategy wise projects to provide for better waste management are presented in Table 18.6.

Table 18.6: Investment Options-Solid Waste Management System (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A. RENEWAL OF EXISITING COMPOST PLANTS IN DELHI				
(i) Revival & Reengineering of Compost Plants at Okhla with New Plant; Machinery and Equipment (MCD+NDMC)	14	-	20	34
(ii) Bhalsawa & Tikri Khurd Compost Plant- Additional 3 hectare land required and complete renewal of the compost pad area and augmentation of Plant and Machinery (MCD+APMC)	9	-	20	29
B. CLOSURE, CAPPING AND LANDSCAPING OF EXISTING LANDFILLS				
(i) Re-grading, Closure, Capping, LFG extraction and Collection, Peripheral drain, internal roads, landscaping etc-Okhla,	109	-	-	109

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
Ghazipur and Bhalsawa				
C. PROPOSED WASTE PROCESSING FACILITIES				
(i) 2000 TPD C&D Waste processing plant at Ghumman Hera and Burari	25	10	30	65
(ii) Compost Plant of 1500 TPD at Ghumman Hera, Narela-Bawana	43	10	50	103
(iii) Waste to Energy plant at Okhla and Timarpur	100	20	100	220
D. PROPOSED SANITARY LANDFILL SITES				
(i) Development of Landfill sites at Jaitpur, Narela-Bawana and Bhatti Mines-138 Hectare	272	208	200	680
E. OTHER PROJECTS				
(i) Mechanical Street Sweeper-10 Nos	7	3	7-	17
(ii) IEC awareness programme	5	5	5	15
(iii) Training of Staff and Workers (52000) as part of Training of Trainers programme	5	5	5	15
(iv) Pilot Projects for Ragpickers for making them function in organized manner in Old City area; North Campus, East Delhi; West Delhi and South Delhi-17 Nos	3	3	3	9
(v) Study for Quantification and Development of management model for E-waste in City	1	-	-	1
vi) Pilot project for processing and disposal of e-waste	0	25	0	25
TOTAL	593	289	440	1322

18.2.6 Heritage and Conservation

The strategies for conservation of urban heritage involve (i) development of an information management system; (ii) capacity building and provision of technical support for conservation; (iii) area level conservation, revitalization and regeneration and (iv) heritage sensitive infrastructure up-gradation and (v)

heritage tourism. The projects needs to be implemented for improvement of city drainage system are presented in Table 18.7.

Table 18.7: Investment Options-Heritage and Conservation (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
A) DEVELOPMENT OF AN INFORMATION MANAGEMENT SYSTEM				
(i) Development and maintenance of a GIS based Cultural Heritage Information System integrated with overall land information management system.	20	2	2	24
(ii) Capacity Building of employees of the departments involved in heritage conservation	1	2	2	5
(iii) Provision for recording excavated remains and removal of artifacts to museums	2	2	2	6
B) ESTABLISHMENT OF A SELF-SUSTAINING TECHNICAL SUPPORT CONSERVATION CENTRE				
(i) Capacity building and provision of technical assistance by trained, qualified heritage professionals to owners of heritage buildings as well as buildings located within designated heritage zones- Mehrauli and Shahjehanabad	10	2	2	14
(ii) Ensuring Technical Support for conservation required for at area level	1	-	-	1
C) PRIORITISATION OF IDENTIFIED HERITAGE ZONES AND PRECINCTS				
(i) Development and implementation of a comprehensive regeneration and heritage management plan- Central Bazaar spine of Mehrauli; Adham Khans Tomb to Sohan Burj (Development of heritage area)	17	30	8	55
(ii) Community based Heritage Management	37	53	15	105

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
Plans for the Dargahs/ traditional Pilgrim destinations of Delhi (Development of heritage area)				
(iii) Upgradation of open space structure along with urban landscape of the walled city (Regeneration of old inner city area)	25	15	5	45
(iv) Area regeneration scheme for chowks and interface between historic components of the city with the Metro Stations (Regeneration of old inner city area).	20	10	-	30
(v) Heritage Management Plan and guidelines for development of the area around the Old Delhi Railway Station	2	-	-	2
(vi a. Guidelines for integrated conservation management of the area between Red Fort, Jama Masjid, Chandni Chowk and Darya Ganj (2	-	-	2
(vi) b. Revitalization of surroundings of Jama Masjid)	234	-	-	234
(vii) Restoration of Town hall and preparation of comprehensive heritage plan	6	-	-	6
(viii) Rehabilitation of historic and traditional housing stock within designated heritage zones and precincts (Regeneration of old inner city area)	45	25	25	95
(ix) Revitalization of inner (Old) city area	40	300	100	440
D) ADAPTIVE REUSE OF BUILDINGS OR PRECINCTS				
(i) Adaptive reuse of derelict 'havelis', heritage buildings, evacuee properties of	35	15	5	55

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
heritage significance in Shahjehanabad and 'shikargahs' in rural villages for provision of essential community facilities				
(ii) Retrofitting of services and rationalisation of space utilisation in heritage buildings currently used for community purposes	8	8	5	21
D) REINTEGRATING PREVIOUSLY OVERLOOKED HERITAGE COMPONENTS INTO THEMATIC HERITAGE TOURISM CIRCUITS				
(i) Development of thematic heritage tourism circuits as an integrated network with signage systems, heritage site linked interpretation centres/ site museums, tourist facilities, low speed circuit transport for tourists - battery buses, bicycle tracks	60	10	10	80
(ii) Revival and Revitalisation of historic water Systems and buildings including Baolis, Embankments, Sluiceways, Talaos, Catchment areas, Hauz, Sarais and Kos Minars of Delhi	12	7	7	26
(iii) Awareness generation materials and educational tools to enable children to form cognitive maps of Historic Delhi - linked with curriculum of Delhi schools	3	1	1	5
(iv) Adaptive reuse of heritage hotel at Kashmiri Gate	2	-	-	2
TOTAL	582	482	199	1263

18.2.7 Urban Environment

Broad strategies include (i) outreach and capacity building, (ii) enhancement of forests and green cover and (iii) mitigation of air, water, and noise pollution.

The best management practices for environment management in city are presented in Table 18.8.

Table 18.8: Investment Options- Urban Environment (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
A Outreach and Capacity Building				
i) Create awareness for water conservation and the techniques, training programmes for the RWAs, display & promotional material & schools, hospitals, change institutions.	16	17.6	19.2	52.8
B. Forest & Green Cover				
i) South Delhi Greenway Project	227	40	10	277
ii) Detailed study of the biodiversity and ecology of the city. To include a complete inventorisation of all the species of flora and fauna	0.7	1	1.5	3.2
(iii) Protection of Delhi ridge including restoration of ecology and for demarcation of bunds.	5	1	1	7
iv) GIS based Database of natural resources of the city including forest and vegetation cover, land use pattern, water bodies and others	2	0.8	1	3.8
C. Mitigation of Air, Water and Noise Pollution				
i) Installation of 9 web linked continuous air quality monitoring stations	15	2	10	27
ii) Action projects of the Master Plan for Dhobighats Sudhar Yojna under the YAP II. Creating alternate better infrastructure for the dhobis, treatment facility for the waste water and drainage in to the river	50	10	-	60
iii) Action projects for the collection, transport and treatment of the dairy waste under the YAP II.	50	15	-	65

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
This would include installation of treatment plants, methane generation plants and drainage system for the dairy waste				
iv) Upgradation of the crematoria in the city to make them environmentally better (air pollution treatment equipment). Master plans under the YAP II to be implemented	10	-	-	10
v) River Front Development including walkways, recreation facilities, kiosks, water sports etc	50	40	5	95
vi) Installation of 2 water quality stations for monitoring and gauging.	5	-	-	5
TOTAL	430.7	127.4	47.7	605.8

18.2.8 Urban Governance

Projects related to urban governance mainly involve development of management information system and capacity building of urban local bodies and parastatal departments. The investment options to strengthen the monitoring mechanism are presented in Table 18.9.

Table 18.9: Investment Options-Urban Governance (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
(i) Development of GIS/MIS based database system for Land and Building Records	5	-	-	5
(ii) Development of E-governance for various services of ULBs	1	-	-	1
(iii) Capacity building of the MCD and Parastatal departments	3	-	-	3
TOTAL	9	-	-	9

18.2.9 Other Development Projects

The other development projects are decentralization of trade fair from core city area and redevelopment of low density government housing estates. The projects details are presented below.

Table 18.10: Investment Options-Urban Environment (2021)

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
(i) Development of Trade Centres in North-East and West of City-2 Nos	15	-	-	15
(ii) Study for Identification and Development options in Government Land in Core City area-5 Nos	5	-	-	5
TOTAL	20	-	-	20

Sub-Mission-2: Basic Services and Poor

18.2.10 Urban Slums and Poor

The strategy for slum up gradation & improvement involves (i) In-situ redevelopment at existing JJ clusters and Slums; (ii) Development of serviced plots; (iii) development of night shelters; (iv) infrastructure up gradation in 44 resettlement colonies; (v) provision of housing on an on-going basis for urban poor and (vi) in-situ reconstruction of Katras. Table below presents the short term, medium term and long term investments for Slum Improvement and up gradation.

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
A) IN-SITU REDEVELOPMENT OF SLUMS				
(i) In situ redevelopment of Slums- providing water supply, road network, drainage and Housing etc.	783	950	-	1733
(ii) Upgradation of Street Lighting system	300		-	300
(iv) Construction of Community Toilets- 1200 Nos.	17	6	6	29
(v) Development of Site for Transit Camps-10 Nos	80			80

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
B. DEVELOPMENT OF SERVICED PLOT AT RELOCATION SITES				
(i) Relocation of 5000 JJ Units	30	-	-	30
(ii) Development of Relocation Sites at Kanjhawala, Ghogha and Bapraula	217	-	-	217
(iii) Development of plots at Savda Gevra-20000JJ	250			250
C. DEVELOPMENT OF NIGHT SHELTERS				
(i) Development of Night Shelters in Walled City area and Industrial Complexes-5 Nos	15	-	-	15
D. INFRASTRUCTURE UPGRADATION IN RESETTLEMENT SITES & COLONIES				
(i) Infrastructure up gradation in resettlement colonies	85	270	270	625
(ii) Infrastructure upgradation of 11 existing relocation sites	239	-	-	239
(iii) Revival Plan for Community Work Centres (22383 m ²)	30	-	-	30
(iv) Civic amenities like Community halls	200	-	-	200
D. PROVISION OF HOUSING FOR URBAN POOR				
(i) Multi-Storeyed Tenements at Rohini-1770 DUs	50	-	-	50
(ii) Multi-Storeyed Tenements at Dwarka-2550 DUs	73	-	-	73
(iii) Construction of 13510 EWS houses at village Siraspur and Sector-26, Rohini	400	-	-	400
(iv) Worker Housing with cost effective technologies at Narela, Bhorgarh and Bawana	101	-	-	101
(v) Housing for Urban Poor through development of EWS Housing	750	1000	1200	2950

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	Rs in Crore			
(vi) Rehabilitation & resettlement of slum dwellers at Narela Phase II and Rohini	710	-	-	710
D. IN-SITU RECONSTRUCTION OF KATRAS				
(i) Reconstruction of Katras in old city areas	70	200	270	540
TOTAL COST in Rs Crore	4400	2426	1746	8572

18.3 SUMMARY OF COSTS

The total investment under JNNURM is Rs 24140 Crore. The investment for Sub-Mission-1 is Rs 19740 Crore and Sub-Mission-2 is Rs 4400 Crore. The details of sector wise investment are presented below.

Strategy/Project	Short Term Investments (2007-12)	Medium Term Investments (2012-2017)	Long Term Investments (2017-21)	Grand Total
	RS IN CRORE			
SUB-MISSION-1: URBAN INFRASTRUCTURE AND GOVERNANCE				
Water Supply	1632	130	122	1884
Sewerage System	2755	1435	1435	5625
Road Network and Transport	13487	10629	9190	33306
Storm Water Drainage	231	203	125	559
Solid Waste Management	593	289	440	1322
Urban Heritage	582	482	199	1263
Urban Environment	431	127	48	606
Urban Governance	9	0	0	9
Other Projects	20	0	0	20
Sub-Total	19740	13295	11559	44594
SUB-MISSION-2: BASIC SERVICES AND POOR				
Urban Poor, Slum and Housing	4400	2426	1746	8572
Total	24140	15721	13305	53166