

NAME OF ULB- LUCKNOW

SLIP OF WATER SUPPLY OF LUCKNOW CITY

1. Assess the Service Level Gap

The first step is to assess the existing situation and service levels gaps for Water Supply (AMRUT Guidelines; para 3 & 6). This will also include existing institutional framework for the sector. AMRUT is focused on improvement in service levels. The zone wise data shall be used in identifying the gaps. These zone-wise gaps will be added to arrive at city level service gaps. While assessing service level gap reply following questions not more than word indicated against each question.

- What kind of baseline information is available for water supply system of the city? Detail out the data, information, plans, reports etc related to sector. Is zone wise information available? (75 words)

City development plan (CDP), city sanitation plan (CSP), Master plan, DPR and detail available with UP Jal Nigam related to water supply, are available with Lucknow Municipal Corporation (LMC). Yes. Zone wise information is available with Lucknow Municipal Corporation

- Have you collected census 2011 data? Are you aware of baseline survey data of MoUD? Have you correlated data from these and other sources? (75 words)

Yes. We have collected the information from census 2011 data. As per Census 2011 and CDP of LMC, Lucknow city have the population of 28.17 Lakhs, 5,12,519 House Hold (HH) and out of which 4,21,938 HH lies within the premises of water supply line and only 3,30,772 HH have the tapped water supply from treated source. Yes we have correlated census data with DPR data and data available with the Lucknow Municipal Corporation. As per LMC record, at present, total No. of HH are 4,82,258 Nos and out of which 323,585 HH with water supply connection from treated source.

- What are existing services levels for water supply in the city? What is the coverage of water supply Connections? What is per capita supply of water? How much is the extent of metering? How much is non-revenue water? Provide information in table 1.1

Table 1.1 Status of Water Supply service levels

Sr. No.	Indicators	Present status	MOUD Benchmark	Reliability
1	Coverage of water supply connections	63.14%	100%	D
2	Per capita supply of water (with 0% water loss in system)	189 LPCD [#]	135 LPCD	D
3	Extent of metering of water connections	0	100%	D
4	Extent of non-revenue water	40	20%	D
5	Quality of water supplied	95	100%	D
6	Cost recovery in water supply services	73	100%	D
7	Efficiency in collection of water supply related charges	60	90%	D

[#] Per capita supply of water vary from 100 LPCD to >200 LPCDwith across the city (CDP report).

- What is the gap in these service levels with regard to benchmarks prescribed by MoUD?(75 words)

As per above table it is clear that gap in service levels is as under: 1. Gap in coverage of water supply is 33% 2. Gap in Per capita water availability is about 0 LPCD. 3. Gap in Metering is 100%. 4. NRW is about 20% which include leakage and free water supply to social gathering festivals along with water supply through stand posts. 5. 5% gap in Quality of supplied water as per PHE norms. 6. Gap in Cost recovery is 27% with expenditure on electricity and power. 7. Gap in efficiency of water charges/tax collection is about 30% .

Source of Water and Water Treatment System

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- What is the existing source of water? Is it surface water source or underground water source? What is the capacity of these sources?

**Source of water-Surface water(Gomti River and Sarda Canal)-----360MLD
Ground Water -636 Tube wells-Avg. Discharge-0.5 MLD-Total -----318 MLD
Total Capacity -----360+318=678MLD (Installed capacity)
At 90% efficiency of water works and TW's, total capacity is $678 \times 0.90 = 610.2\text{MLD}$**

- Is there any treatment provided to water from these sources? How much water is required to be treated daily? What is the treatment capacity installed in the city?

Yes. For surface water LNN has three water works and for underground water chlorination is being done. Treatment capacity of surface water is 360 MLD.

- What per capita water supply in LPCD (liter per capita per day) comes out, if you divide total water supply by the total population.

As per Census 2011, Lucknow city's total population is 28.17 lakh and decade growth is 28.87%. Projected population of Lucknow city for year end 2015 is $28.17 \times 1.1444 = 32.24$ lakh.

Per Capita watersupply= $610.2/3.224 = 189$ LPCD**

(without considering any loss of water thru leakage)**

Distribution Zones

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- City is divided in how many zones for water supply?

As per LMC, Lucknow city is divided in 8 zones.

- Provide details of total no of Households (HH) in each zone, no of HH with and without water tap connections in the Table 1.2.

Table 1.2: Zone Wise Coverage of Households

Zone No	Total No of Households(A s per census)	Total No of Households(A s per municipal)	Households with Water tap Connection	Households without water tap connections

1	53536 HH	43815 HH	33592 HH	19944 HH
2	57107 HH	44508 HH	35833 HH	21274 HH
3	87723 HH	89696 HH	55043 HH	32680 HH
4	42567 HH	36727 HH	26709 HH	15858 HH
5	55554 HH	47798 HH	34858 HH	20696 HH
6	92063 HH	94213 HH	57767 HH	34296 HH
7	68141 HH	70222 HH	42756 HH	25385 HH
8	55828 HH	51795 HH	37027 HH	18801 HH
Total	512519 HH (100%)	482258 HH (94.10%)	323585 HH (63.14%)	188934 HH (36.86%)

Storage of Water

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- What is the total water storage capacity in the city ? What is capacity of elevated and ground water reservoirs?

Total Water Storage Capacity- 169 MLD
Elevated Water Reservoirs-----103 Nos-----capcity-----102 MLD
Ground Water Reservoir-----19 Nos-----capacity ---67 MLD

- In case of surface water, does city need to have ground level reservoirs to store raw treated water?

Yes.Lucknow city require ground level reservoir to store raw treated water.

- Is water being supplied to consumers through direct pumping or through elevated reservoirs?

Water is supplied to consumers through direct pumping and elevated reservoir both.

- Is storage capacity sufficient to meet the cities demand?

No, capacity is not sufficient.

Distribution Network

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- What is the total length of water supply distribution pipe line laid in the city?

Total Length-----2748 KM (CDP 2015)

- What is the total road length in the city? Is the pipe lines are laid in all streets? Is the objective of universal coverage of water supply pipe line is achieved?

(a) As per LMC, Total road Length in the Lucknow city 3850KM.

(b) No.pipe lines are not laid in the road length of 1102 Km.

(c) No.

- What are the kinds of pipe materials used in distribution lines?

PVC, GI, DI and HDPE Pipe materials are being used.

- Provide zone wise details of street length with and without water distribution lines in the Table 1.3.

Table 1.3: Zone Wise length of distribution network

Zone No	Total Street Length(As per LNN data)	Street length with water distribution pipe line(LJS data)	Street length without water distribution pipe line
1	477.45 Km	336 Km	141.45 Km
2	500.65 Km	375 Km	125.45 Km
3	650.78 Km	474 Km	176.78 Km
4	329.81 Km	237 Km	92.72 Km
5	482.85 Km	305 Km	177.85 Km

6	588.28 Km	407 Km	181.28 Km
7	531.78 Km	417 Km	114.78 Km
8	287.90 Km	197 Km	90.9 Km
Total	3850 Km (100%)	2748 Km (71.37%)	1102 Km (28.63%)

Institutional Framework

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- Define role and responsibilities in terms of O&M, policy planning, funding, service provision in table 1.4.

Table 1.4: Functions, roles, and responsibilities

Planning and Design	Construction/ Implementation	O&M
Lucknow Municipal corporation & UP Jal Nigam	Lucknow Municipal corporation & UP Jal Nigam	Lucknow Municipal corporation

- How city is planning to execute projects ?

Smaller projects likelaying of branch pipe lines, laying of pipe lines in gaps, metering, domestic connection and rehabilitation of existing resources will be executed by Lucknow Municipal corporation and capital projects will be executed by UP Jal Nigam.

- Shall the implementation of project be done by Municipal Corporation or any parastatal body? Please refer para 8.1 of AMRUT guidelines.

Implementation of the small projects shall be done by Lucknow Municipal Corporation and of capital project shall be done by Parastatal Agency UP Jal Nigam. Lucknow Municipal Corporation will follow the para 8.1 of the AMRUT Guidelines while execution of the project.

2. Bridge the Gap

Once the gap between the existing Service Levels is computed, based on initiatives undertaken in different ongoing programs and projects, objectives will be developed to bridge

the gaps to achieve universal coverage. (AMRUT Guidelines; para 6.2 & 6.3, Annexure-2; Table 2.1). Each of the identified objectives will be evolved from the outcome of assessment and meeting the opportunity to bridge the gap.

- List out initiatives undertaken in different ongoing programs and projects to address these gaps. For this provide details of ongoing projects being carried out for sector under different schemes with status and when the existing projects are scheduled to be completed? Provide information in Table 1.4

Table 1.4: Status of Ongoing/ Sanctioned:

S. No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on ddmm 2015)
No project is going on					

- How much the existing system will able to address the existing gap in water supply system? Will completion of above will improve the coverage of network and collection efficiency? If yes, how much. (100 words)

No ongoing project

- Does the city require additional infrastructure to improve the services? What kind of services will be required to fulfill the gap?

(a) Yes, Lucknow city require additional infrastructure as well as refurbishment of existing infrastructure to improve the water supply services.

(b) To fulfill the gap, services are required like enhancement in coverage network, reduction of NRW, uniform LPCD, quality improvement, minimize O/M cost, improvement in efficiency of charges collection etc.

- How does the city visualize to take the challenge to rejuvenate the projects by changing their orientation, away from expensive asset replacement programs, to focusing on optimum use of existing assets?

Lucknow city is more focusing on maximizing the use of existing assets by –

(a) Improving the efficiency of less efficient assets thru refurbishment,

(b) Removing bottleneck in the system,

- (c) Reduction in NRW
- (d) Atomization,
- (e) Technological enhancement,
- (f) Capacity building of human resources through training programs and
- (g) Public awareness etc.

- Has city conducted assessment of Non Revenue Water? If yes, what is the NRW level? Is city planning to reduce NRW?

No. NRW Level 40%. Yes city is planning to reduce NRW in AMRUT.

- Based on assessment of existing infrastructure and ongoing / sanctioned projects, calculate existing gaps and estimated demand by 2021 for water supply pipe network, number of household to be provided with tap connections, and required enhancement in capacity of water source/ treatment plant (MLD). Gaps in water supply service levels be provided as per Table 1.5.

Table 1.5 Demand Gap Assessment for Water Supply Sector

Component	2015			2021	
	Present	Ongoing projects	Total	Demand	Gap
Source (MLD) Surface +Ground	678 MLD	0	678 MLD	746 MLD as per CDP 2015	68 MLD
Treatment capacity(MLD)	360 MLD surface water	0	360 MLD	746**	386
Elevated + underground Storage capacity (MLD)	169 ML	0	169 ML	250 ^{\$} ML	81 ML
Distribution network coverage (KM)	2748 KM (CDP2015)	0	2748 KM	3850+163(CDP)=4013 KM	1265 KM

** Lucknow Municipal corporation is planning to meet the completed demand of water supply through surface water sources in 2021 as ground water source is continuously depleting and draining. \$ 1/3rd of total demand.

Objectives

Based on above, objectives will be developed to bridge the gaps to achieve universal coverage. While developing objectives following question shall be responded so as to arrive at appropriate objective.

- Does each identified objectives will be evolved from the outcome of assessment?

Objects are identified from the gap and these objectives will be evolved from the outcome of the assessment. Details are in table

- Does each objective meet the opportunity to bridge the gap? Please provide List out objectives to meet the gap in not more than 100 words

Yes

Objectives:-

- A) To achieve universal coverage .**
- B) To make system efficient by NRW reduction**
- C) Maintain of LPCD**
- D) To improve the quality of water**
- E) Energy efficient system**
- F) To rehabilitate water bodies**
- G) Efficiency in charges collection**

3. Examine Alternatives and Estimate Cost

The objective will lead to explore and examine viable alternatives options available to address these gaps..These will include out of box approaches. (AMRUT Guidelines; Para 6.4 & 6.8 & 6.9).This will also include review of smart solutions. The cost estimate with broad source of funding will be explored for each. While identifying the possible activities, also examine the ongoing scheme and its solutions including status of completion, coverage and improvement in

O&M. Please provide information on the above responding to (however not limited to) following questions.

- What are the possible activities and source of funding for meeting out the objectives? (75 words)

Objectives and its respective activities:-

- A) To achieve universal coverage through Public awareness programs capacity building, assessment study of domestic connection**
- B) To achieve universal coverage by bridging the gaps in existing distribution network and expansion of distribution network in covered pockets along with domestic connections.**
- C) To make system efficient by NRW reduction through leakage detection and its removal, replacement of damage, leaked defunct, choked water supply lines, sluice valve, water supply zoning, 100% metering system and atomization using SCADA.**
- D) Maintaining of LPCD by enhancement in efficiency of existing water works, ZPS, CWR,OHT, re boring of Tube wells and new ZPS, CWR,OHT and Tube wells. Shifting of water supply sources from ground water to surface water by augmentation of new water works**
- E) To improve the quality of water by establishing and rehabilitation of water testing lab, online water testing and monitoring system and testing vans.**
- F) To make Energy efficient system by replacing inefficient pumps.**
- G) To rehabilitate existing new water bodies (lake, pond, talabsetc)**
- H) To enhance Efficiency in charges collection by implementing online billing system, spot billing, rehabilitate and expansion of payment collection centers.**

- How can the activities be converged with other programme like JICA/ ADB funded projects in the city etc? (100 words)

At present, there is no ongoing project in the city

- What are the options of completing the ongoing activities? (75 words)

NA

- What are the lessons learnt during implementation of similar projects? (100 words)

In earlier projects, there was a focus on increasing the capital infrastructure and no effort has been made to enhance service level.

- Have you analyzed best practices and innovative solutions in sector? Is any of the practice be replicated in the city?(75 words)

Yes, We have analyzed best practices in automation of Tube wells. Earlier operation of 100 Tube wells is being done through SCADA. Therefore, there is need to replicate these practices.

- What measures may be adopted to recover the O&M costs?(100 words)

Regularize of illegal connection, enhancement of coverage area, house hold connections and use of ICT in collection of tax/charges

- Whether reduction in O&M cost by addressing NRW levels be applied?(75 words)

Yes, we are planning to reduce the O&M cost by make system efficient by NRW level reduction through removal of leakage, replacement of damage, leaked, defunct, choked, sluice valve, water supply zoning, 100% metering and atomization using SCADA.

- Are different options of PPP such as Design-build-Operate-Transfer (DBOT), Design Built Finance Operate and Transfer (DBFOT) are considered?(100 words)

These options will be explored while framing the DPR

The alternative activities to meet these activities be defined as per Table 1.6

Table1.6 Alternative Activities To Meet Objectives

S.No	Objectives	Activities to be performed to bridge the gap	Cost (Cr)
1	To achieve universal coverage	1. Bridging the gaps in existing distribution network with domestic connections(approx. 400 Km)	1. 140 Cr
		2. Public awareness programs, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc	2. 3 Cr
		3. Expansion of distribution network in covered pockets along with domestic connections(Approx 865 Km)	3. 302 Cr
		Sub Total (1)	445 Cr
2	To make system efficient by NRW reduction	1. Leakage detection and its removal.	1. 10 Cr
		2. Replacement of old damage, leaked defunct, choked supply lines and sluice valveetc (Approx300 Km)	2. 105Cr
		3. Zoning of water supply network.	3.60 Cr
		4. 100% metering system	4.500 Cr
		5. Atomization of resources using SCADA.	5. 40 Cr
		Sub Total (2)	715 Cr
3	Uniform distribution and Maintaining of LPCD	1. Enhancement in efficiency of existing water works.	1. 120 Cr
		2. Refurbishment of existing ZPS, CWR, OHT etc.	2. 50 Cr

		3. Reboring of Tube wells. 4. Installation of new Tube wells. 5. Installation of new ZPS, CWR, OHT etc 6. Shifting of water supply sources from ground water to surface water by augmentation of new water works	3. 30 Cr 4. 36 Cr 5. 156 Cr 6. 500 Cr
		Sub Total(3)	892 Cr
4	To improve the quality of water	1. Establishing and rehabilitation of water testing lab. 2. Online water testing and monitoring system. 3. Mobile water testing vans	1.15 Cr 2. 5 Cr 3. 2 Cr
		Sub Total(4)	22 Cr
5	To make Energy efficient system	1. Replacing of inefficient pumps	1. 12 Cr
		Sub Total(5)	12 Cr
6	To rehabilitate water bodies	1. Rehabilitation of existing water sources 2. Restoration of water bodies (lake, ponds, talabsetc)	1 60 Cr 2 60 Cr
		Sub Total(6)	120 Cr
7	To enhance Efficiency in charges collection	1. Implementing online billing system, spot billing 2. Rehabilitate and expansion of payment collection centers	1. 10 Cr 2. 8 Cr
		Sub Total(7)	18 Cr
		Grand Total	2224 Cr

4. Citizen Engagement

ULBs will organize and conduct city level citizen consultation and receive feedback on the suggested alternatives and innovations. Each alternative will be discussed with citizens and activities to be taken up will be prioritized to meet the service level gaps. ULB will prioritize these activities and their scaling up based on the available resources. (AMRUT Guidelines; Para 6.6, 6.7 & 7.2). Please explain following questions in not more than 200 words detailing out the needs, aspirations and wishes of the local people.

- Has all stakeholders involved in the consultation?

Yes, all stakeholders is being involved in the consultation thru board meeting on 17th sep 2015, departmental meeting on 21st& 22nd sep 2015 and correspondence.

- Has ward/ zone level consultations held in the city?

Yes, ward/ zone level consultations is being held in the city on 21st& 22nd sep 2015

- Has alternative proposed above are crowd sourced?

No

- What is feedback on the suggested alternatives and innovations?

Yes, Feedback on the suggested alternatives and innovations are being considered.

- Has alternative taken up for discussions are prioritized on the basis of consultations?

Yes, alternatives taken up for discussions are prioritized on the basis of consultation

- What methodology adopted for prioritizing the alternatives?

Through departmental and public consultation.

5. Prioritize Projects

Based on the citizen engagement, ULB will prioritize these activities and their scaling up based on the available resources to meet the respective objectives. While prioritizing projects, please reply following questions in not more than 200 words.

- What are sources of funds?

AMRUT/State/ULB/PPP

- Has projects been converged with other program and schemes?

As no projects is going on so above projects cannot be converges with other schemes.

- Has projects been prioritized based on “more with less” approach?

Yes

- Has the universal coverage approach indiated in AMRUT guidelines followed for prioritization of activities?

Yes

6. Conditionalities

Describe in not more than 300 words the Conditionalities of each project in terms of availability of land, environmental obligation and clearances, required NOC, financial commitment, approval and permission needed to implement the project.

Formalities of availability of land, environmental clearance and other NOC have been completed and financial commitment of state and ULB provided in following tables for all Activities described in Table No. 1.6

7. Resilience

Required approvals will be sought from ULBs and competent authority and resilience factor would be built in to ensure environmentally sustainable water supply scheme. Describe in not more than 300 words regarding resilience built in the proposals.

Environmental and Disaster related factor will be considered while preparation of DPR.

8. Financial Plan

Once the activities are finalized and prioritized after consultations, investments both in terms of capital cost and O&M cost has to be estimated. (AMRUT Guidelines; para 6.5) Based on the investment requirements, different sources of finance have to be identified. Financial Plan for the complete life cycle of the prioritized development will be prepared. (AMRUT Guidelines; para 4, 6.6, 6.12, 6.13 & 6.14). The financial plan will include percentage share of different stakeholders (Centre, State and City) including financial convergence with various ongoing projects. While preparing finance plan please reply following questions in not more than 250 words

- How the proposed finance plan is structured for transforming and creating infrastructure projects?

As per the guidelines of the AMRUT, the structured plan of the project has been developed.

- list of individual projects which is being financed by various stakeholders ?

There is no such individual project.

- Has financial plan prepared for identified projects based on financial convergence and consultation with funding partners?

Yes, financial plan prepared for identified projects are based on financial convergence and consultation with funding partners.

- Is the proposed financial structure is sustainable? If so then whether project has been categorized based on financial considerations ?

Yes, the proposed financial structure is sustainable and project has been categorized based on financial considerations.

- Have the financial assumptions been listed out?

Yes, financial assumptions have been listed out

- Does financial plan for the complete life cycle of the prioritized development?

yes, financial plan has been done for the complete life cycle of the prioritized development

- does financial plan include percentage share of different stakeholders (Centre, State, ULBs and)

Yes, financial plan include percentage share of different stakeholders (Centre, State and ULB)

- does it include financial convergence with various ongoing projects.

Yes, it includes financial convergence with various ongoing projects

- Does it provide year-wise milestones and outcomes ?

Yes, year-wise milestones and outcomes have been provided.

Details in financial plan shall be provided as per Table 1.7,1.8,1.9,1.10 and 1.11. These tables are based on AMRUT guidelines tables 2.1, 2.2,2.3.1,2.3.2, and 2.5.

Table 1.7 MasterPlan of Water Supply Projects for Mission period
(As per Table 2.1of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No	Objective	Project Name	Priority number	Year in which to be implemented	Year in which proposed to be completed	Estimated Cost (Cr)
1	To achieve universal coverage	1. Bridging the gaps in existing distribution network with domestic connections.	2	2015	2017	140
		2. Public awareness programs, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc-AMRUT	1	2015	2016	3
		3. Expansion of distribution network in covered pockets along with domestic connections.	3	2015	2018	302
					Sub Total	445
2	To make system efficient by NRW reduction	1. Leakage detection and its removal connection i.e illegal connections, untapped etc-	4	2015	2017	10
		2. Replacement of old damage, leaked defunct, choked supply lines and sluice valve etc.	5	2016	2018	105
		3. Atomization of resources using SCADA.	6	2016	2017	40
		4. Zoning of water supply network	7	2016	2019	60
		5. 100% metering system	22	2015	2021	500
					Sub Total	715
3	Uniform distribution and Maintaining of LPCD	1. Enhancement in efficiency of existing water works	8	2016	2018	120
		2. Refurbishment of existing ZPS, CWR, OHT etc.	9	2016	2018	50
		3. Reboring of Tube wells	10	2016	2020	30

		4. Installation of new Tube wells	11	2016	2021	36
		5. Installation of new ZPS, CWR, OHT etc	12	2016	2019	156
		6. Shifting of water supply sources from ground water to surface water by augmentation of new water works	13	2016	2021	500
					Sub Total	892
4	To improve the quality of water	1. Establishing and rehabilitation of water testing lab.	14	2016	2017	15
		2. Online water testing and monitoring system.	15	2016	2017	5
		3. Mobile water testing vans	16	2016	2016	2
					Sub Total	22
5	To make Energy efficient system	1. Replacing of inefficient pumps	17	2016	2017	12
					Sub Total	12
6	To rehabilitate water bodies	1. REHABILITATION OF EXISTING WATER SOURCES (SURFACE SUBSURFACE)	18	2016	2018	60
		2. RESTORATION OF WATER BODIES (LAKE,PONDS,TALABS)	19	2016	2020	60
					Sub Total	120
7	To enhance Efficiency in charges collection	1. Implementing online billing system, spot billing	20	2016	2017	10
		2. Rehabilitate and expansion of payment collection	21	2016	2018	8
					Sub Total	18
					Grand Total	2224

Table 1.8 Master Service Levels Improvements during Mission Period

(As per Table 2.2 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr N	Objective	Project Name	Physical component	Change in Service Levels			Estimated Cost (Cr)
				Indicator	Existing (As-Is)	After (To-be)	
1	To achieve universal coverage	2-Bridging the gaps in existing distribution network with domestic connections	400 Km distribution line	Coverage of water supply connection	60%	94%	140
		1-Public awareness programs, IEC, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc-AMRUT A&OE	Survey		60%	82%	3
		3-Expansion of distribution network in covered pockets along with domestic connections.	865 Km water line		60%	100%	302
						Sub Total	445
2	To make system efficient by NRW reduction	1-Leakage detection and its removal connection i.e illegal connections, untapped etc-	Repair of water line	Extend of NRW	40%	35%	10
		2-Replacement of old damage, leaked defunct, choked supply lines and sluice valve etc.	300 km water line		40%	28%	105
		3-Atomization of resources using SCADA.	atomization		40%	20%	40
		4-Zoning of water supply network	Zones		40%	20%	60
		5-100% metering system	Meter		40%	20%	500
						Sub Total	715
3	Uniform distribution and Maintaining of LPCD	1-Enhancement in efficiency of existing water works	Water works	Per capita supply of water (LPCD)	189 LPCD	189 LPCD	120
		2-Refurbishment of existing ZPS, CWR, OHT etc.	Storage		189 LPCD	189 LPCD	50
		3-Reboring of Tube wells (TW)	TW		18 LPCD	189 LPCD	30
		4-Installation of new Tube wells	TW		189 LPCD	189 LPCD	36

		5-Installation of new ZPS, CWR, OHT etc	Storage		189 LPCD	189 LPCD	156
		6-Shifting of water supply sources from ground water to surface water by augmentation of new water works	Water works		189 LPCD	189 LPCD	500
						Sub Total	892
4	To improve the quality of water	1-Establishing and rehabilitation of water testing lab.	lab	Quality of water supplied	95%	98%	15
		2-Online water testing and monitoring system.	Testing equipment		95%	99%	5
		3-Mobile water testing vans	Testing van		95%	100%	2
						Sub Total	22
5	To make Energy efficient system	1-Replacing of inefficient pumps	Motor pump	Cost recovery of water supply services	73%	85%	12
						Sub Total	12
6	To rehabilitate water bodies	1-REHABILITATION OF EXISTING WATER SOURCES (SURFACE SUBSURFACE)	Water bodies	Cost recovery of water supply services	73%	95%	60
		2-RESTORATION OF WATER BODIES (LAKE,PONDS,TALABS)	Water bodies		73%	100%	60
						Sub Total	120
7	To enhance Efficiency in charges collection	1-Implementing online billing system, spot billing	Online system	Efficiency in collection of water supply charges	60%	75%	10
		2-Rehabilitate and expansion of payment collection	Collection center		60%	90%	8
						Sub Total	18
						Grand Total	2224

Table 1.9 Annual Fund Sharing Pattern for Water Supply Projects

(As per Table 2.3.1 of AMRUT guidelines)

(Amount in Rs. Cr)

S	Objective	Project Name	Total Cost (Cr)	Share				
				GOI	State	ULB	Other	Total
1	To achieve universal coverage	2-Bridging the gaps in existing distribution network with domestic connections.	140	46.67	93.33	0	0	140
		1-Public awareness programs, IEC, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc-AMRUT A&OE	3	1	2	0	0	3
		3-Expansion of distribution network in covered pockets along with domestic connections.	302	100.67	201.33	0	0	302
		Sub Total	445	148.33	296.67	0	0	445
2	To make system efficient by NRW reduction	1-Leakage detection and its removal connection i.e illegal connections, untapped etc-	10	3.33	6.67	0	0	10
		2-Replacement of old damage, leaked defunct, choked supply lines and sluice valve etc	105	35	70	0	0	105
		3-Atomization of resources using SCADA.	40	13.33	26.67	0	0	40
		4-Zoning of water supply network	60	20	40	0	0	60
		5-100% metering system	500	166.67	333.33	0	0	500
		Sub Total	715	238.33	476.67	0	0	715
3	Uniform distribution and Maintaining of LPCD	1-Enhancement in efficiency of existing water works	120	40	80	0	0	120
		2-Refurbishment of existing ZPS, CWR, OHT etc.	50	16.67	33.33	0	0	50
		3-Reboring of Tube wells (TW)	30	10	20	0	0	30
		4-Installation of new Tube wells	36	12	24	0	0	36
		5-Installation of new ZPS, CWR, OHT etc	156	52	104	0	0	156

		6-Shifting of water supply sources from ground water to surface water by augmentation of new water works	500	166.67	333.33	0	0	500
		Sub Total	892	297.33	594.67	0	0	892
4	To improve the quality of water	1-Establishing and rehabilitation of water testing lab.	15	5	10	0	0	15
		2-Online water testing and monitoring system.	5	1.67	3.33	0	0	5
		3-Mobile water testing vans	2	0.67	1.33	0	0	2
		Sub Total	22	7.33	14.67	0	0	22
5	To make Energy efficient system	1-Replacing of inefficient pumps	12	4	8	0	0	12
		Sub Total	12	4	8	0	0	12
6	To rehabilitate water bodies	1-REHABILITATION OF EXISTING WATER SOURCES (SURFACE SUBSURFACE)	60	20	40	0	0	60
		2-RESTORATION OF WATER BODIES (LAKE,PONDS,TALABS)	60	20	40	0	0	60
		Sub Total	120	40	80	0	0	120
7	To enhance Efficiency in charges collection	1-Implementing online billing system, spot billing	10	3.33	6.67	0	0	10
		2-Rehabilitate and expansion of payment collection	8	2.67	5.33	0	0	8
		Sub Total	18	6	12	0	0	18
		Grand Total	2224	741.33	1482.67	0	0	2224

Table 1.10 Annual Fund Sharing Break-up for Water Supply Projects

(As per Table 2.3.2 of AMRUT Guidelines)(Amount in Rs.Cr)

S. No	Objective	Projects	GOI	State			ULB			Convergence	Others	
				14 th FC	Others	Total	14 th FC	Others	Total			
1	To achieve universal coverage	1-Bridging the gaps in existing distribution network with domestic connections.	46.67	0	93.33	0	0	0	0	0	0	140
		2-Public awareness programs, IEC, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc-AMRUT A&OE	1	0	2	0	0	0	0	0	0	3
		3-Expansion of distribution network in covered pockets along with domestic connections.	100.67	0	201.33	0	0	0	0	0	0	302
		Sub Total	148.33	0	296.67	0	0	0	0	0	0	445
2	To make system efficient by NRW reduction	1-Leakage detection and its removal connection i.e illegal connections, untapped	3.33	0	6.67	0	0	0	0	0	0	10
		2-Replacement of old damage, leaked defunct, choked supply lines and sluice valve etc	35	0	70	0	0	0	0	0	0	105
		3-Atomization of resources using SCADA.	13.33	0	26.67	0	0	0	0	0	0	40
		4-Zoning of water supply network	20	0	40	0	0	0	0	0	0	60
		5-100% metering system	166.67	0	333.33	0	0	0	0	0	0	500
		Sub Total	238.33	0	476.67	0	0	0	0	0	0	715
3	Uniform distribution and Maintaining of LPCD	1-Enhancement in efficiency of existing water works	40	0	80	0	0	0	0	0	0	120
		2-Refurbishment of existing ZPS, CWR, OHT etc.	16.67	0	33.33	0	0	0	0	0	0	50
		3-Reboring of Tube wells (TW)	10	0	20	0	0	0	0	0	0	30
		4-Installation of new Tube wells	12	0	24	0	0	0	0	0	0	36

		5-Installation of new ZPS, CWR, OHT etc	52	0	104	0	0	0	0	0	0	156
		6-Shifting of water supply sources from ground water to surface water by augmentation of new water works	166.67	0	333.33	0	0	0	0	0	0	500
		Sub Total	297.33	0	594.67	0	0	0	0	0	0	892
4	To improve the quality of water	1-Establishing and rehabilitation of water testing lab.	5	0	10	0	0	0	0	0	0	15
		2-Online water testing and monitoring system.	1.67	0	3.33	0	0	0	0	0	0	5
		3-Mobile water testing vans	0.67	0	1.33	0	0	0	0	0	0	2
		Sub Total	7.33	0	14.67	0	0	0	0	0	0	22
5	To make Energy efficient system	1-Replacing of inefficient pumps	4	0	8	0	0	0	0	0	0	12
		Sub Total	4	0	8	0	0	0	0	0	0	12
6	To rehabilitate water bodies	1-REHABILITATION OF EXISTING WATER SOURCES (SURFACE SUBSURFACE)	20	0	40	0	0	0	0	0	0	60
		2-RESTORATION OF WATER BODIES (LAKE,PONDS,TALABS)	20	0	40	0	0	0	0	0	0	0
		Sub Total	40	0	80	0	0	0	0	0	0	120
7	To enhance Efficiency in charges collection	1-Implementing online billing system, spot billing	3.33	0	6.67	0	0	0	0	0	0	10
		2-Rehabilitate and expansion of payment collection	2.67	0	5.33	0	0	0	0	0	0	8
		Sub Total	6	0	12	0	0	0	0	0	0	18
		Grand Total	741.33	0	1482.67	0	0	0	0	0	0	2224

Table 1.11 Year wise Plan for Service Levels Improvements (Amount in Rs.Cr)

(As per Table 2.5 of AMRUT guidelines)

S.No	Objectives	Proposed Projects	Project Cost (Cr)	Indicator	Base line	Annual Targets (Increment from the Baseline Value)					
						2016		FY 2017	FY 2018	FY 2019	FY 2020
						H1	H2				
1	To achieve universal coverage	1. Bridging the gaps in existing distribution network with domestic connections.	1. 140 Cr	Coverage of water supply connection	67%	--	82%	90%	95%	100%	
		2. Public awareness programs, IEC, capacity building, assessment study of domestic connection i.e illegal connections, untapped etc-AMRUT A&OE	2. 3 Cr								
		3. Expansion of distribution network in uncovered pockets along with domestic connections.	3. 302 Cr								
		Sub Total (1)									
2	To make system efficient by NRW reduction	1. Leakage detection and its removal.	1. 10 Cr	Extend of NRW	40%	--	38%	35%	25%	20%	
		2. Replacement of old damage, leaked defunct, choked supply lines and sluice valve etc.	2. 105 Cr								
		3. Zoning of water supply network.	3. 60 Cr								
		4. 100% metering system	4. 500 Cr								
		5. Atomization of resources using SCADA.	5. 40 Cr								
		Sub Total (2)									
3	Uniform distribution and Maintaining of LPCD	1. Enhancement in efficiency of existing water works.	1. 120 Cr	Per capita supply of water (LPCD)	189 LPCD	--				189 LPCD	
		2. Refurbishment of existing ZPS, CWR, OHT etc.	2. 50 Cr								
		3. Reboring of Tube wells.	3. 30 Cr								
		4. Installation of new Tube wells.	4. 36 Cr								
		5. Installation of new ZPS, CWR, OHT etc	5. 156 Cr								
		6. Shifting of water supply sources from ground water to surface water by augmentation of new water works	6. 500 Cr								
		Sub Total(3)									
4	To improve the quality of water	1. Establishing and rehabilitation of water testing lab.	1. 15 Cr	Quality of water supplied	95%	--	97%	98%	100%		
		2. Online water testing and monitoring system.	2. 5 Cr								
		3. Mobile water testing vans	3. 2 Cr								
		Sub Total(4)									

5	To make Energy efficient system	1. Replacing of inefficient pumps	1. 12 Cr	Cost recovery in supply of water services	73 %	--	75%	85%	90%	100%	
		Sub Total(5)	12 Cr								
6	To rehabilitate water bodies	1. Rehabilitation of existing water sources 2. Restoration of water bodies (lake, ponds, talabsetc)	1. 60 Cr 2. 60 Cr	Cost recovery in supply of water services	73%	--	75%	85%	90%	100%	
		Sub Total(6)	120 Cr								
7	To enhance Efficiency in charges collection	1. Implementing online billing system, spot billing 2. Rehabilitate and expansion of payment collection centers	1. 10 Cr 2. 8 Cr	Efficiency in collection of water supplied charges	60%	--	70%	80%	90%	100%	
		Sub Total(7)	18 Cr								
		Grand Total	2224 Cr								