

# NAME OF ULB - VARANASI

## Water Supply

### 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.

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)

**JalkalVibhagNagarNigam Varanasi maintains water supply of the Varanasi city. Revised CDP & study on NRW as base line information are available. In the revised CDP, formation of CDP committees for policy and technical, health, stress on infrastructural management aspects, revenue enhancement initiatives,expenditure& asset management initiatives, emphasis on PPP projects etc are covered .Yes zone wise information is available.**

Question: 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)

Location of source of drinking water	Total Number of Households	Tapwater from treated source
Total Population- 1198491		
Total H.H	180805	127940
Within the premises	157084	120331
Near the premises	16867	6022
Away	6854	1587
Departmental Data	Total Population 1600000	
H .H	150236	100208

2011 census data is available. Yes. The data is correlated.

What are existing service 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

Table: Status of Water Supply service levels

Sr. No.	Indicators	Present Status	MOUD Benchmark	Reliability
1	<u>Coverage of water supply connections</u> 100208/180805	67%	100%	D
2	<u>Per capita supply of water</u> 330 MLD/16	206 LPCD	135 LPCD	D
3	<u>Extent of metering of water connections</u>	0 %	100%	A
4	<u>Extent of non-revenue water</u>	58 %	20%	D
5	<u>Quality of water supplied</u>	96 %	100%	D
6	<u>Cost recovery in water supply services</u>	61 %	100%	D
7	<u>Efficiency in collection of water supply related charges</u>	60 %	90%	D

Question: 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 44.58 %
2. No Gap in Per capita water supply
3. Gap in Metering is 100%.
4. NRW is about 38% which include leakage and free water supply to social gathering festivals along with water supply through stand posts.
5. Gap in Quality of supplied water is 4% as per PHE norms.
6. Gap in Cost recovery is 39% 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.

Question: What is the existing source of water? Is it surface water source or under ground water source? What is the capacity of these sources?

Question: 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?

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

There are surface & ground water sources both. About 330 MLD water is supplied to the city and the per capita consumption is 206 with NRW LPCD. The water demand of the city is met by combination of

Surface water(125 MLD) from the Ganga river and  
Ground (205 MLD) from 226 tubewells.

Yes, treatment is provided to the water from surface source. For ground water only chlorination is done for disinfection. Installed capacity of treatment is 250 MLD. On the basis of produced water per capita daily supply comes out 206 LPCD whereas after deducting wastage,  $330 \text{ MLD} \times 38/100 = 125.4 \text{ MLD NRW}$  Total water availability is 330 MLD – 125.4 MLD NRW = 204.6 MLD/ Total population 1600000 = 127.87 daily per capita supply without NRW.

## DISTRIBUTION ZONES

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

Question: City is divided in how many zones for water supply ?

**The water supply system of Varanasi is divided into 5 ADMINISTRATIVE zones,**

Table: Zone Wise Coverage of Households

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

Zone NAME	Zone No.	Total No. of Households	Households with Water Connection	Households without Water tap Connection
ADAMPUR	1	27863 HH	18683 HH	9180 HH
BHELUPUR	2	38685 HH	27222 HH	11463 HH
DASHASHMEDH	3	32435 HH	20542 HH	11893HH

Zone NAME	Zone No.	Total No. of Households	Households with Water Connection	Households without Water tap Connection
KOTWALI	4	14974 HH	10421 HH	4453 HH
VARUNA PAR	5	36279 HH	23240 HH	13039 HH
	Total	150236 HH	100208 HH	50028 HH

## STORAGE OF WATER

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

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

**The total storage capacity is 79.8 ML. The capacity of elevated & ground water reservoirs is 21.3 ML & 58.5 ML respectively.**

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

**Yes. In order to introduce 24x7 water supplies, there will be need of ground level reservoir of 100 ML and land is available for construction.**

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

**Water is being supplied to consumers through elevated reservoirs as well as direct pumping.**

Question: Is storage capacity sufficient to meet the cities demand?

**Storage capacity demand is 110 ML and availability is 79.9MLcapacity. No, storage capacity is insufficient to meet the cities demand.**

## DISTRIBUTION NETWORK

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

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

**The total length water supply distribution pipe line in the city is 858Km.**

Question: 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) Total Road Length 1180.046 KM.NO.  
(b) No. 322 Km road is not having pipe pine.**

**(c) No Universal coverage of water supply is not achieved.**

Question: What are the kind of pipe materials used in distribution lines?

**CI, DI, PVC, AC & GI materials are used in distribution pipe lines.**

Question: Provide zone wise details of street length with and without water distribution lines in the Table?

Table: Zone Wise length of distribution network

<b>Zone No.</b>	<b>Total Street Length</b>	<b>Street length with water distribution pipe line</b>	<b>Street length without water distribution pipe line</b>
1	187.72 KM	155 KM	32.72 KM
2	214.525 KM	193 KM	21.525 KM
3	233.325 KM	220 KM	13.325 KM
4	93.635 KM	90 KM	3.635 KM
5	450.841 KM	200 KM	250.841 KM
Total	1180.046 KM	858 KM	322.046 KM

## INSTITUTIONAL FRAMEWORK

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

Question: Define role and responsibilities in terms of O&M, policy planning, funding, service provision in table

Table: Functions, roles, and responsibilities

<b>Planning and Design</b>	<b>Construction/ Implementation</b>	<b>O&amp;M</b>
U.P. Jal Nigam and Varanasi Municipal corporation	U.P. Jal Nigam	Varanasi Municipal corporation (VMC)

Question: How city is planning to execute projects ?

Varanasi Nagar Nigam is the owner of the infrastructure and the Jalkal Department is the provider of water and sewerage services in the City while UP Jal Nigam is the parastatal to do the work. On required demand by ULB the U.P Jal Nigam plans, designs & executes the project.

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

Ongoing projects of JnNURM is being executed by UP Jal Nigam parastatal body of ULB. According to para 8.1 of AMRUT guidelines, projects will be executed by state ULBs. As the Jalkal Department has been merged with VMC, therefore, all the projects proposed under AMRUT will be executed by VMC through its Jalkal Department. If requires, resolution may be passed by VNN to engage parastatal agency, UP Jal Nigam for execution of work.

## 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.

Question: 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

Table: Status of Ongoing/ Sanctioned

S.No.	Name of Project	Scheme Name	Cost	Month of Compilation	Status (as on dd mm 2015)
1	Water supply reorganization priority-1,phase-1	JnNURM	139.79 cr.	Dec.2015	95%
2	Water supply reorganization priority-1,phase-2	JnNURM	110.50 cr.	Mar. 2017	70%
3	Water supply reorganization priority-2(Trans Varuna)	JnNURM	268.36 cr.	Mar. 2017	60%

Question: How much the existing system will be 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)

The existing infrastructure or the infrastructure under development is sufficient to meet the requirements up to year 2021 as far as water source, distribution network, storage and treatment capacity are concerned. Gaps in components connected to delivery of water supply. The primary need is to cover all households with water supply, which is also a goal of AMRUT. After completion of ongoing projects, the coverage will reach 100%; Importantly, in order to deliver services governance reforms are required to reduce the NRW levels to 30%. At the same time cost-recovery has to reach 90%.

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

Yes. 100% metering, NRW reduction, Complete SCADA system, skilled and infrastructure development, online water quality control system, e-governance, strengthening of online billing/collection system & rejuvenation of treatment works will be required to fulfill the gap which has already been indicated in revised CDP.

Question: 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?

**A major strength of the water supply system in Varanasi is that three projects under JnNURM are at different stages of implementation and early completion of these projects will lead to achieving the target of universal coverage (100%). Moreover, the per capita water supply is greater than 200 LPCD (norm 135) and the NRW is 58%. According to the standards set by the National Mission for Sustainable Habitat (NMSH) the City of Varanasi is in the red (degraded) category as (i) per capita water supply is more than 200 Lpcd and (ii) extent of NRW is also more than 20%. High level of NRW is a weakness of water supply system as it seriously affects the financial viability and sustainability of water utilities. Reading these two together shows the forward. By reducing NRW to 30 % from current 58%, the VMC will be able to manage with only 200 MLD water, as opposed to 410 MLD at present. Handling of less water (nearly 50%) will lead to huge savings in O&M cost making the water supply system viable and sustainable. Therefore, the challenge is to change the focus of projects, away from expensive asset replacement program, to optimum use of existing assets through rejuvenation. The transformation will occur when water supply is managed and operated by an operator whose role extends from source to tap, including water treatment, and the target is to achieve service delivery to citizens. The reason is that service delivery to citizens is a key goal of the AMRUT Mission and real transformation will only occur when operations (non-investment) contract is given using a PPP model. In such a PPP model, typically, the capital costs of projects will be fully funded by the Centre/State/ULBs/others with the city retaining**

**the right to set and revise tariffs, as set out in the AMRUT Reforms, say on a telescopic volumetric tariff with adequate protection for the poor.**

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

**Assessment of NRW has been conducted. NRW level is 58%. Yes, city is planning to reduce NRW.**

Question: 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

Component	2015			2021	
	Present	Ongoing	Total	Demand	Gap
Source	330 MLD	200 MLD	530 MLD	338 MLD	Surplus
Treatment capacity	250 MLD	100 MLD	350 MLD	338 MLD	Surplus
Elevated Storage capacity+CWR	21.3ML+58ML =79.9ML	80 ML	159.9 ML	112.6 ML	Surplus
Distribution network coverage	1500 K.M.	700 K.M.	2200 K.M.	2410 KM	210 KM

## OBJECTIVES

PBased 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.

Please provide List out objectives to meet the gap in not more than 100 words.

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

**Yes. From the above analysis following objectives emerge: 1. To complete the ongoing projects of JnNURM 2. Improvement in O&M in order to reduce NRW Level through an appropriate management model 3.Rejuvenation and refurbishment of intake works and treatment plant.**

Question: Does each objective meet the opportunity to bridge the gap?

Yes, each objective meets the opportunity to bridge the gap

### 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.

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

**1.Complete the ongoing Projects with funds sourced from AMRUT and 14th Finance Commission 2. Improvement in O&M in order to reduce NRW Levels by converging Metering Cost (Rs 67.03 Crore) with Project II of JnNURM where procurement of 2 lakh meters are already proposed. Improvement in O&M through a performance based NRW reduction Project S.No Component Basis Amount in Rs.Cr A Infrastructure improvements 1 Distribution and Feeder Networks Improvements Estimate 79.44 2 Metering existing and providing new house connections Estimate 67.03 3 Connections to High Revenue Customers Estimate 7.78 3 SCADA system with MIS Estimate 2.20 4 Contingencies 3% 4.69 Subtotal 161.14 B Management costs linked to performance 1 General Requirements Estimate e 2.33 2 Management Improvements Estimate 9.61 3 Management fee for NRW reduction for 7 years Estimate 75.33 4 Leak repair and road restoration for 6 years Estimate 43.25 Subtotal 130.52 C Implementation overheads for Jalkal department 1 Contract Management by Jalkal 1.50% 4.37 2 Independent technical auditor 0.3% 0.87 Subtotal 5.24 Total investment required 296.90 Rounding off 3.10 total project cost in RsCrore 300 D. Refurbishment of Intake works and treatment plant 169 (Source - Revised CDP) GRAND TOTAL 469 Crores.**

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

**The activities considered above are conceptualized in synchronization with the use of existing infrastructure created/being created under JnNURM/13TH FINANCE COMMISSION.**

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

**Alternative A – Capacity building of Jalkal staff and in-house implementation by Jalkal:** This is default option wherein a structured capacity building program can be developed through which the existing Jalkal staff can be trained. **Alternative B – Capacity building of UPJN staff and in-house implementation by UPJN:** UPJN had been the main implementation organization for all capital works including the recent service improvements undertaken under JnNURM and Ganga Action Plan. Considering their long lasting experience in project implementation, it might be possible for UPJN to undertake implementation of NRW reduction program. **Alternative C – Improvement in O&M through a performance based NRW reduction Contract:** A performance based NRW reduction contract can be structured for hiring an experienced agency through competitive bidding and entrusted with the task of reducing certain volume of NRW in a given time frame. The contractor can be paid a fee for each cubic meter of NRW reduced and the fee could be linked to achievement of performance with added incentives for higher performance and penalties for under-performance. This contract could be at least for 8 to 10 year duration covering entire city. **Alternative D – Improvement in O&M through a Comprehensive Performance based Operating Contract for entire operations of Jalkal:** Under this option an experienced water operator can be hired to provide senior specialist managers in the areas of water service delivery, production, network management, NRW control, customer commercial services. The operator would be paid a periodical fixed fee and a variable fee linked to achievement of performance targets. This contract could be of at least 5 year duration. Specifying clear and indisputable targets is often difficult; especially when information about a system's current performance is limited. To address this, during the pre-contract phase the utility should ensure that water quality, pressure and operating efficiency standards that they want to identify in the contract can in fact be enforced.

Question: How to address the bottlenecks in the existing project and lessons learnt during implementation of these projects? (75 words)

**Regular efforts will be made to address the following bottlenecks. dispute on land earmarked for WTP, the completion of project is affected. road cutting permission from local authorities as well as NHA and Forest Department.**

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

**By improving service standards and coverage as well as revision of user charges, full O&M costs can be recovered. The O&M cost shall be recovered by: 1. Increasing the coverage of water supply to unserved areas, 2. By increasing user charges 3. By reducing NRW**

Question: Will metering system for billing introduced?

Installation of domestic meter has been proposed in JnNURM. Billing will be done by metering.

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

Yes, O&M cost will certainly reduce after reduction in NRW.

Question: Does each objective meet the opportunity to bridge the gap?

Yes, objectives have been identified to bridge the current service level gaps

THE ALTERNATIVE ACTIVITIES TO MEET THESE ACTIVITIES BE DEFINED AS PER TABLE

Table: Alternative Activities To Meet Objectives

Sr. No.	Objective	Activities	Financing Source
1	Complete the ongoing Projects	Under JnNURM for water Supply projects namely (i) Priority I phase I of Varanasi (Rs.111.02 Cr)(ii) Priority I Phase-II of CisVaruna Area (Rs.86.10 Cr) physical progress of 90 % and 60% has been achieved respectively. VMC has to come forward in addressing the hurdles being faced by these projects and put all efforts in completing projects in time. As per AMRUT guidelines JnNURM projects which has achieved more than 50% progress till ..... are eligible for funding under AMRUT. Therefore VMC has to move proposals for these projects to MoUD for funding under AMRUT.	AMRUT
2	Improvement in O&M in order to reduce NRW Levels	For improvement in O&M following four implementation alternatives may be considered. Alternative A – Capacity building of Jalkal staff and in-house implementation by Jalkal: This is default option wherein a structured capacity building program can be developed through which the existing Jalkal staff can be trained. Alternative B – Capacity building of UPJN staff and in-house implementation by UPJN: UPJN had been the main implementation organization for all capital works including the recent service improvements undertaken under JnNURM and Ganga Action Plan. Considering their long lasting experience in project implementation, it might be possible for UPJN to undertake implementation of NRW reduction program. Alternative C – Improvement in O&M through a performance based NRW reduction Contract: A performance based NRW reduction contract can be structured for hiring an experienced agency through competitive bidding and entrusted with the task of reducing certain volume of NRW in a given time frame. The contractor can be paid a fee for each cubic meter of NRW reduced and the fee could be linked to achievement of performance with added incentives for higher performance and penalties for under-performance. This contract could be at least for 8 to 10 year duration covering entire city. Alternative D – Improvement in O&M through a Comprehensive Performance based Operating Contract for entire operations of Jalkal: Under this option an experienced water operator can be hired to provide senior specialist managers in the areas of water service delivery, production, network management, NRW control, customer commercial services. The operator would be paid a periodical fixed fee and a variable fee	AMRUT

Sr. No.	Objective	Activities	Financing Source
		linked to achievement of performance targets. This contract could be of at least 5 year duration. Specifying clear and indisputable targets is often difficult; especially when information about a system's current performance is limited. To address this, during the pre-contract phase the utility should ensure that water quality, pressure and operating efficiency standards that they want to identify in the contract can in fact be enforced.	
3	Refurbishment of Intake works and treatment plant	Refurbishment of Intake works and treatment plant	AMRUT

## 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.

Question: Has all stakeholders involved in the consultation?

Yes. All stakeholders is being involved in the consultation. Chopal/ public meeting organized on 14/8/2015, 21/8/2015, 28/8/2015, 04/09/2015, 11/09/2015 and 19/09/2015. Board meeting held on 23/09/2015 and 06/10/2015.

Question: Has ward/ zone level consultations held in the city?

Yes, ward/ zone level consultations is being held in the city, Before submission /execution, activities considered under objectives ward level/ zone level consultations will be held.

Question: Has alternative proposed above are crowd sourced?

No

Question: What is feedback on the suggested alternatives and innovations?

Feedback on the suggested alternatives and innovations are being considered to complete all the ongoing projects on time and the work proposed for future should also be planned in such a way that during the work the hazards faced by citizens must be minimized to a tolerable extent.

Question: 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 consultations

Question: What methodology adopted for prioritizing the alternatives?

Alternatives have been prioritized based on demand raised through consultation with citizens, officials and parastatal agencies.

## 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.

Question: What are sources of funds?

AMRUT, 14th Finance commission, HRIDAY, State Government Funds, ULB's.

Question: Has projects been converged with other program and schemes?

Yes. The convergence factor has been considered while designing and funding of project.

Question: Has projects been prioritized based on "more with less" approach?

Yes, The projects are being prioritized based on "more with less" approach

Question: Has the universal coverage approach indicated in AMRUT guidelines followed for prioritization of activities?

Yes, Universal coverage approach indicated in AMRUT guidelines has been followed for prioritization of activities

## 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.

Except ongoing project under JnNURM, activities taken under objectives do not require land and environmental obligation and clearance. So far as financial commitment is concerned, state government and ULB will contribute their respective share.

## 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.

Yes, Resilience factor would be built in to ensure environmentally sustainable water supply scheme ULB is well known to local topology and bottlenecks of the city. Therefore during the execution of the project considering the area wise status of the city possible changes can be carried out considering the environmentally sustainable water supply and minimized hazards to the citizens. Also the

approval from the competent authority is must to have good control on the works to have sustainable water supply.

## 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

Question: 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.

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

Presently, JNNURM is financed by following stakeholders:- 1- GOI 33% 2-GoUP 33% 3-ULB 34%

Question: 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. Reduction in non revenue water (NRW) project costing Rs. 300.00 crores has been sanctioned. The DPR's of refurbishment of water supply which includes intake works, rejuvenation of treatment works, online water quality control system, e-governance, strengthening of billing/collection system and SCADA are to be prepared.

Question: 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.

Question: Have the financial assumptions been listed out ?

Yes, Financial assumptions have been listed out

Question: 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

Question: does financial plan include percentage share of different stakeholders (Centre, State, ULBs)

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

Question: Does it include financial convergence with various ongoing projects.

Yes, it includes financial convergence with various ongoing projects

Question: 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 8.1, 8.2, 8.3, 8.4 AND 8.5. THESE TABLES ARE BASED ON AMRUT GUIDELINES TABLES 2.1, 2.2, 2.3.1, 2.3.2, AND 2.5.

Table 8.1 Master Plan of Water Supply Projects for Mission period (As per Table 2.1 of AMRUT guidelines)

(Amount in Rs. Cr)

S.No.	Objective	Project Name	Priority number	Year in which to be implemented	Year in which to be completed	Estimated Cost (Cr)
1	Ongoing project under JnNURM	Ongoing project under JnNURM (a) Water supply reorganization priority-1,phase-1 (b) Water supply reorganization priority-1,phase-2 (c) Water supply reorganization priority-2(Trans Varuna)	1	under progress	2015 2017 2017	139.79 110.50 268.36 <b>Total= 518.65</b>
2	<b>To achieve universal coverage</b>	a) To provide house service connection.	2	2015	2016	75 Cr
		b) Bridging the gap in existing network		2016	2019	71.47 Cr
3	<b>To make system efficient by NRW reduction</b>	a) Implementation of SCADA with MIS. b) Survey, 100% metering and Leak detection and repair	3	2017	2019	2.20 151.33 <b>Total = 153.53</b>
4	<b>To enhance per capita water supply</b>	a) Development of new water sources, strengthening of water treatment plant, replacement of rising and distribution main.	4	2018	2019	169 Cr

S.No.	Objective	Project Name	Priority number	Year in which to be implemented	Year in which to be completed	Estimated Cost (Cr)
5	To improve quality of water	a) Strengthening of lab and online water quality monitoring system.	5	2016	2019	0.7Cr
					<b>Total</b>	<b>988.35</b>

### MASTER SERVICE LEVELS IMPROVEMENTS DURING MISSION PERIOD

(As per Table 2.2 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Objective	Project Name	Physical Components	Change in Service Levels			Estimated Cost (Cr)
				Indicator	Existing (As-Is)	After (To-be)	
1	To achieve universal coverage	a) To provide house service connection.	Water pipe line HH connection	Coverage network,	67%	85%	75 Cr
		b) Bridging the gap in existing network.					71.47 Cr
2	To make system efficient by NRW reduction	a) Implementation of SCADA with MIS. b) Survey, 100% metering and Leak detection and repair	Sluice valve/TWetc Meter, pipe line	NRW reduction	58%	30%	2.20 151.33 <b>Total = 153.53</b>
3	To enhance per capita water supply	b) Development of new water sources, strengthening of water treatment plant, replacement of rising and distribution main.	Water sources and WTP.	NRW Reduction	58%	20%	169.0 Cr
4	To improve	Strengthening of lab and online water quality	Lab equipment	Water quality	96%	98%	0.7 Cr

Sr. No.	Objective	Project Name	Physical Components	Change in Service Levels			Estimated Cost (Cr)
				Indicator	Existing (As-Is)	After (To-be)	
	<b>quality of water</b>	monitoring system					
<b>Total</b>							<b>469.7 Cr</b>

## ANNUAL FUND SHARING PATTERN FOR WATER SUPPLY PROJECTS

(As per Table 2.3.1 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Objective	Project Name	Total Project Cost	Share (Cr)			
				GOI	State +ULB	Others	Total
1	<b>To achieve universal coverage</b>	a) To provide house service connection.	75 Cr	25	50	0	75 Cr
		b) Bridging the gap in existing network.	71.47 Cr	23.34	48.13		71.47
2	<b>To make system efficient by NRW reduction</b>	a) Implementation of SCADA with MIS. b) Survey, 100% metering and Leak detection and repair	2.20 151.33 <b>Total = 153.53</b>	50.66	102.87	0	153.53Cr
3	<b>To enhance per capita water supply</b>	a) Development of new water sources, strengthening of water treatment plant, replacement of rising and distribution main.	169 Cr	55.77	113.23	0	169.0Cr

Sr. No.	Objective	Project Name	Total Project Cost	Share (Cr)			
				GOI	State +ULB	Others	Total
4	<b>To improve quality of water</b>	Strengthening of lab and online water quality monitoring system	0.7 Cr	0.23	0.47	0	0.7Cr
<b>Total</b>			<b>469.7Cr</b>	<b>155.0 Cr</b>	<b>314.7 Cr</b>		<b>469.7 Cr</b>

## ANNUAL FUND SHARING BREAK-UP FOR WATER SUPPLY PROJECTS

(As per Table 2.3.2 of AMRUT guidelines)

Sr. No.	Project		GOI	State+ULB			Convergence	others	Total
				14th FC	Others	Total			
1	<b>To achieve universal coverage</b>	To provide house service connection.	33%	0	67%	0	0		100%
		Bridging the gap in existing network.	33%	0	67%	0	0		100%
2	<b>To make system efficient by NRW reduction</b>	c) Implementation of SCADA with MIS. d) Survey, 100% metering and Leak detection and repair	33%	0	67%	0	0		100%
3	<b>To enhance per capita water supply</b>	Development of new water sources, strengthening of water treatment plant, replacement of rising and distribution main.	33%	0	67%	0	0		100%
4	<b>To improve</b>	Strengthening of lab and	33%	0	67%	0	0		100%

Sr. No	Project	GOI	State+ULB			Convergence	Others	Total
			14th FC	Others	Total			
	<b>quality of water</b>	online water quality monitoring system						

## YEAR WISE PLAN FOR SERVICE LEVELS IMPROVEMENTS

(As per Table 2.5of AMRUT guidelines)

Objective		Project Cost	Indicator	Baseline	Annual Targets (Increment from the Baseline Value)					
					FY 2016		FY 2017	FY 2018	FY 2019	FY 2020
					H1	H2				
<b>To achieve universal coverage</b>	a) To provide house service connection.	75 Cr	Coverage network,	67%	68%	71%				
	b) Bridging the gap in existing network.	71.47 Cr				71%	76%	79%	85%	
<b>To make system efficient by NRW reduction</b>	a) Implementation of SCADA with MIS. b) Survey, 100% metering and Leak detection and repair	153.53 Cr	NRW reduction	58%	--	--	40%	35%	30%	
<b>To enhance per capita water supply</b>	a) Development of new water sources, strengthening of water treatment plant, replacement of rising and distribution main.	169 Cr	LPCD	127 LPCD	--	--	--	132 LPCD	135 LPCD	
<b>To improve quality of water</b>	Strengthening of lab and online water quality monitoring system	0.7 Cr	Water quality	96%	--	96.5%	97%	97.5%	98%	

