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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.

• 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), Census data-2011, SECC data-2011, Economic census-2013, Slum survey data (USHA), Ward wise house hold data and Water Pipeline survey report.

Zone Wise information is available.

• 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)

Census 2011 data has been incorporated.

Baseline survey data of MoUD is not available.

Data has been correlated with all available source.

• What is 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 1.1

Sr.	Indicators	Present	MOUD
No.		status	Benchmark
1	Coverage of water supply connections	43%	100%
2	Per capita supply of water	50 LPCD	135 LPCD
3	Extent of metering of water connections	0 %	100%
4	Extent of non-revenue water	95%	20%
5	Quality of water supplied	40%	100%
6	Cost recovery in water supply services	5%	100%

Table 1.1 Status of Water Supply service levels

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7	Efficiency in collection of water supply related charges	5%	90%	
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• What is the gap in these service levels with regard to benchmarks prescribed by MoUD?(75 words)

Coverage of water supply connections - 57% Per capita supply of water - 85 LPCD Extent of metering of water connections - 100% Extent of non-revenue water -75% Quality of water supplied - 60% Cost recovery in water supply services - 95% Efficiency in collection of water supply related charges - 85%

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?

Ground Water Source.

6.156 MLD from Under Ground Water Source of 27 nos of Deep Tube Wells (21 nos Tube Wells were commissioned long back and design period has been already expired). .Total- 6.156 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?
 According to physical situation of 2015: No.
- What per capita water supply in LPCD (liter per capita per day) comes out, if you divide total water supply by the total population.
 50 lpcd.

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?

City is divided in five water supply zones.

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• 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.

Zone No	Total No of Households	Households with Water tap Connection	Households without water tap connections
Ι	4256	1005	3251
П	5093	1861	3232
III	6225	3179	3046
IV	5341	2955	2386
V	3995	1681	2314
Total	24910	10681	14229

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 350000 gallon

There are three Over Head reservoirs, total capacity 350000 gallon (three OHRs are in dilapidated condition as those were commissioned long back and design period has already expired. So three reservoirs need to be replaced with new ones) We have no ground water reservoir.

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

An ongoing project is commissioned & run by P.H.E. Dte. Govt. of West Bengal i,e surface water from Bhagirathi will be treated and supplied to this town hence we required ground level reservoirs.

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

Water is being supplied to consumers mostly through direct pumping and partly through elevated reservoirs.

Is storage capacity sufficient to meet the cities demand?
 Storage capacity is not sufficient to meet the cities demand. Both elevated reservoir and ground level reservoirs are required.

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 of water supply distribution pipe line laid in the city is 131 km.
- 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?

The total road length in the city is 243 km. The pipe lines are not laid in all streets. The objective of universal coverage of water supply pipe line is not achieved.

- What are the kinds of pipe materials used in distribution lines?
 The kind of pipe materials used in distribution lines are Asbestos (AC), PVC, UPVC, & Cast Iron (CI) and pipes are OLD & SMALL DIA.
- Provide zone wise details of street length with and without water distribution lines in the Table 1.3.

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Table 1.3: Zone Wise length of distribution network

Zone No	Total Street Length	Street length with water distribution pipe line	Street length without water distribution pipe line
1	52 km	17 km	35 km
2	55 km	30 km	25 km
3	50 km	35 km	15 km
4	44 km	27 km	17 km
5	42 km	22 km	20 km
Total	243 km	131 km	112 km

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.

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Table 1.4: Functions, roles, and responsibilities

Planning and Design	Construction/ Implementation	O&M
 Finding out whether all the people in the ULB (considering Census 2011 data) are getting treated water and what is the present quantum (LPCD) of supply. Identification of existing Source of Water For shortage of water i.e less than 135 LPCD further planning is required to augment the water supply and at the same time planning& designing as per CPHHEO norm & AMRUT guideline considering source as surface water utilizing the existing infrastructure as much as possible. Identification of available land at intake point, for water treatment plant, electrical sub station, for zonal Under Ground Reservoir etc. & design accordingly. Cost effective designing for replacement/reuse of old usable pipelines and rising main & distribution network. To assess the additional power requirement for augmentation of the system, if necessary. Cost analysis as per latest PHE/PWD schedules and market rate for framing estimates to derive at project cost. To find out the annual O&M cost and ways of recovering the same. To supply adequate safe drinking water. 	 All formalities for tendering would be completed within a period of 6 months from the sanctioning of DPR by SLTC. Construction/Implementation to be done within specific time period i.e. within 2-3 years including commissioning & trial run. Sequential presentation of project implementation through bar charts and adhering to it for timely completion of the project. 	• The tender will include O&M for 5 years based on recovery of expenditure by the ULB.

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- How city is planning to execute projects ?City is planning to execute the projects engaging professional agency through e-tendering and technical support from Municipal Engineering Directorate under Municipal Affairs Department, Government of West Bengal, other parastatals like Dev. Authorities, Water & Sanitation Authorities.
- Shall the implementation of project be done by Municipal Corporation or any parastatal body? Please refer para 8.1 of AMRUT guidelines.

In most cases the projects will be implemented by the concerned municipalities / Municipal Corporations. In few cases KMDA, other Development Authorities or KMW&SA may implement the project after signing tripartite agreement as per guideline.

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

S. No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on ddmm 2015)
1	Laying of UPVC Pipe Line	JnNURM/ IHSDP	Rs. 96.01 lakh	Dec-2015	95% completed on dt30/9/2015.

Table 1.4: Status of Ongoing/ Sanctioned/ committed projects

• 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)

The existing system is very insufficient to address the existing gap in water supply system.

Completion of the above ongoing project is too negligible/insufficient to meet the present demand as per national standard. Moreover due to the environmental concern and as per the

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Centre directives use of ground water will be stopped in a phased manner i,e our existing system is ground water dependent.

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

Total Infrastructure is required, like, additional land, machinery, reservoirs, power, pipe line and manpower.

The New Water Supply system is required through surface water to fulfill the Gap.

• 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?

Some orientation like the following may have to be implemented, if possible:

For distribution pipelines, further network analysis will be made on trial & error basis to achieve the revised target utilizing the existing assets. For example, one lower diameter DI pipe of 100 mm diameter may have to be replaced by 150 mm DI pipe in such eventuality the 100 mm dia replaced pipe would be utilized in a non covered area following the road map of the ULB.

For Pumping Machinery, if shortage of floor area arise inside the pump house, the installation arrangement may have to be reoriented to cater the additional equipment (if design permits).

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

No, NRW level information does not arise.

Planning to reduce NRW is under consideration.

• 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.

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		2015	2021		
Component	Present	sent Ongoing projects		Demand	Gap
Source	6.156 MLD	00.00 MLD	6.156 MLD	19.70 MLD	13.544 MLD
Treatment capacity	00.00 MLD	00.00 MLD	00.00 MLD	19.70 MLD	19.70 MLD
Elevated Storage capacity	0.35 MG (OLD)	0.00	0.35 MG	4.93 MG	4.93 MG
Distribution network coverage	131 Km (OLD & SMALL DIA)	02.00	133 Km	243 Km	110Km

Table 1.5 . Demand Gap Assessment for Water Supply Sector

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?

Yes, in most of the cases.

• Does each objective meet the opportunity to bridge the gap?

Yes

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

- To switch over the supply of surface water to the tune of 135 LPCD
- To ensure supply of arsenic/other toxic element free drinking water
- To provide safe 24x7 drinking water supply to every household

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- To lay the pipelines for the non-covered areas.
- To switch over from ground water to surface water in phases.
- To construct new or augment the intake raw water station, sub station, water treatment plant, underground & overhead reservoirs, pipelines etc.
- Mandatory rain water harvesting structure in all commercial, public building and new buildings on plots of 300sq.m. and above.
- Minimisation of the wastage of treated water and reuse of domestic waste water.

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. (AMRUTGuidelines; 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.

• Source of Funding: Central, State Government, ULB, External Assistance, Loan from financial institution, dovetailing MPLAD, MLALAD. Activities: Setting up of necessary infrastructure, awareness generation for minimization of wastage of water, statutory orders, amendments of laws/ rules.

- What are the possible activities and source of funding for meeting out the objectives? (75 words)
- How can the activities be converged with other programme like JICA/ ADB funded projects in the city etc? (100 words)
- What are the options of completing the ongoing activities? (75 words)
- What are the lessons learnt during implementation of similar projects? (100 words)
 - 1. Preparation of Work Plan to be done realistically and the tendering of activities to be done accordingly, so that work can be completed set by step by step on time.
 - 2. O&M should be the part of project implementation.
 - 3. Prior identification of land having ownership with the concerned local ULB in order to avoid in delay in execution.
 - 4. O&M should be the part of DPR
 - 5. Technical person with the sound knowledge to be placed at the implementation level.

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- Have you analysed best practices and innovative solutions in sector? Is any of the practice be replicated in the city?(75 words)
- What measures may be adopted to recover the O&M costs?(100 words)
 Lavy of charges for supply of water in Commercial Establishment, industrial establishment including ceremonial occasions.
- Whether reduction in O&M cost by addressing NRW levels be applied?(75 words) No
- Are different options of PPP such as Design-build-Operate-Transfer (DBOT), Design Built Finance Operate and Transfer (DBFOT) are considered?(100 words) No.

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

Table1.6 Alternative Activities To Meet Objectives

Sr. No.	Objective	Activities	Financing Source
	Cost recovery of O&M	Establishment of packaged water Bottling Plant	Capital Investment - State / ULB / own fund/ financial institution/ PPP

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 the stakeholders were involved in the consultation.

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- Has ward / zone level consultations held in the city?
 Yes, ward/ zone level consultations were held in the city.
- Has alternative proposed above are crowd sourced?
 Yes, all the alternatives have been proposed above are crowd sourced.
- What is feedback on the suggested alternatives and innovations? Citizen appreciated on the suggested alternatives and innovations.
- Has alternative taken up for discussions are prioritized on the basis of consultations? Yes, alternative has been taken up for discussions are prioritized on the basis of consultations.
- What methodology adopted for prioritizing the alternatives? Yes, projects been prioritized based on "more with less" approach.

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?
 Sources of funds are Central Government (50% Share), State Government (45% Share) and ULB (5% Share).
- Has projects been converged with other program and schemes? There is no such project for convergence.
- Has projects been prioritized based on "more with less" approach?
 Yes, projects been prioritized based on "more with less" approach.
- Has the universal coverage approach indicated in AMRUT guidelines followed for prioritization of activities?
 Yes, the universal coverage approach has been indicated in AMRUT guidelines 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.

For all the Projects, land shall be available with the ULB, along with ownership deed, adequate surface water would be available, power requirement would be available from West Bengal Electricity Distribution Company

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Limited, all Statutory clearances will be sought for as per requirement say from Port Trust, Railways, pollution Control Board, State Water Investigation Department, Irrigation & Water Ways Department etc. Approval & Permission from State Level Technical Committee/State High Powered Steering Committee will be taken.

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.

Adequate steps will be taken during structural design considering earth quake, storms, lightning etc. All structures especially current sensitive structures would be constructed above the highest flood level.

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 AMRUT Guideline
- list of individual projects which is being financed by various stakeholders ?
- Has financial plan prepared for identified projects based on financial convergence and consultation with funding partners? Yes
- Is the proposed financial structure is sustainable? If so then whether project has been categorized based on financial considerations ?

Yes

• Have the financial assumptions been listed out ? Yes

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- does financial plan for the complete life cycle of the prioritized development? Yes
- does financial plan include percentage share of different stakeholders (Centre, State, ULBs and)

Yes

- does it include financial convergence with various ongoing projects.
- Does it provide year-wise milestones and outcomes ?

Yes

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.

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 Table 1.7 Master Plan of Water Supply Projects for Mission period

(As per Table 2.1of AMRUT guidelines)

		(
Sr. No	Project Name	Priority number	Year in which to be implemented	Year in which proposed to be completed	Estimated Cost (Cr)
Nev	w Water Supply System through surface water within Ashokenaga	ar- Kalyangarh Mun	icipality on whole town	approach	
1	Clear Water Rising Main(15.93km)	1	2016	2018	12.07
2	Pump Motor & Accessories and Sub-Station & Transmission Line at Delivery Point & Intermediate GLR.	2	2016	2018	4.53
3	OHR i/c pipe connection around head works / Distribution System / Road Restoration (243.00Km).	3	2016	2018	47.65
4	Construction of GLR/CWR and Intermediate GLR.	4	2016	2018	7.73
5	Construction of OHR (5 Nos 0.3 MG)	5	2016	2018	6.83
6	Infrastructure Works and other works.	6	2017	2019	12.50
7	House Service Connection (30000 Nos)	7	2017	2019	18.69
Gra	nd Total				110.00

(Amounting Rs. Cr)

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 Table 1.8 Master Service Levels Improvements during Mission Period

(As per Table 2.2 of AMRUT guidelines)

(Amount in Rs. Cr)

S1.			Change in Se	Estimated Cost			
No	Project Name Physical Components		Indicator	Existing	After	(Cr)	
110			mulcator	(As-Is)	(To-be)		
			Coverage of water supply connections	43%	100%		
			Den conite complex of motor	50	125 L DCD		
	New Water Supply System through surface water within Ashokenagar- Kalyangarh Municipality on whole town approach	1. Distribution System i/c	Per capita supply of water	LPCD	155 LPCD		
		2. GLR/CWR	Extent of metering of water connections	0 %	100%	110.00	
1		 OHR Infrastructure Works 	Extent of non-revenue water	95%	20%	110100	
		5. House Service Connection	Quality of water supplied	40%	100%		
			Cost recovery in water supply services	5%	100%		
			Efficiency in collection of water supply related charges	5%	90%		

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 Table1.9 Annual FundSharing Pattern for Water Supply Projects

(As per Table 2.3.1 of AMRUT guidelines) (Amounting Rs. Cr) **Total Project** SI. Share **Name of Project** GOI ULB Total State Others Cost No. New Water Supply System through surface water within Ashokenagar- Kalyangarh Municipality on whole town approach Clear Water Rising Main(15.93km) 12.07 6.035 5.432 0.603 12.07 1 Pump Motor & Accessories and Sub-Station 2 & Transmission Line at Delivery Point & 4.53 0.226 2.265 2.039 4.53 Intermediate GLR. Distribution System i/c Road Restoration 3 23.825 21.442 2.383 47.65 (140.00Km) 47.65 Construction of GLR/CWR (1 No.- 0.2 4 7.73 0.387 3.865 3.478 MG) 7.73 Construction of OHR (3 Nos.- 0.3 MG) 0.341 5 3.415 3.074 6.83 6.83 Infrastructure Works 12.50 6 6.25 5.625 0.625 12.50 7 House Service Connection (30000 Nos) 18.69 9.345 8.411 0.934 18.69 110.00 110.00 Total 55.00 49.50 5.50

1.1

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

(As per Table 2.3.2 of AMRUT Guidelines)

(Amounting Rs.Cr)

Sr.	Project	GoI	State ULB		Convergence	Others	Total				
No.			14 ^t	Others	Total	14 th	Others	Total			
			h			FC					
1	New Water Supply System	55.00	г		49.5			5.50			110.00
	through surface water within										
	Ashokenagar- Kalyangarh										
	Municipality on whole town										
	approach.										
	Total	55.00			49.50			5.50			110.00
											110.00

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Table 1.11Year wise Plan for Service Levels Improvements

(As per Table 2.5 of AMRUT guidelines)

Proposed Projects	Project Cost	Indicator	Baseline	Annual Targets (Increment from the Baseline Value)					
				H1	H2	2017	2018	2019	2020
				New Water Supply System through surface water within Ashokenagar- Kalyangarh Municipality on whole town approach.	Rs. 110.00 Crore	Coverage of water supply connections	43%	43%	43%
Per capita supply of water	50LPCD	50 LPCD	50 LPCD			70 LPCD	95 LPCD	135 LPCD	
Extent of metering of water connections	0 %	0 %	0 %			30%	60%	100%	
Extent of non-revenue water	95%	95%	95%			70%	50%	20%	
Quality of water supplied	40%	40%	40%			80%	100%	100%	
Cost recovery in water supply services	5%	5%	5%			40%	70%	100%	
Efficiency in collection of water supply related charges	5%	5%	5%			40%	70%	90%	



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