

City Name - Ghaziabad

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)

Master Plan of Ghaziabad city is available. NCR delhi Plan with Town planning department and Jalkalvibhag Nagar Nigam Ghaziabad maintains water supply of the Ghaziabad city. data pertaining to existing system e.g - no. of tube well , over head tanks, clear water reservoir, zonal pumping station etc are available. U.P.Jal Nigam is the state level body entrusted work of planning, implementation of water supply scheme. Only departmental level information is available from previously handed over schemes . The 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)

Source Of Information	Location of source of drinking water	Total Number of Households	Tapwater from treated source
As per census 2011 available	Total Population = 1648643		
	Total Households	323380	189955
	Within the premises	277484	181128
	Near the premises	31287	6606
	Away	14609	2221
Departmental Data of GNN	Total Population(2015) 1790000		
	Total Households	275998	222573

Yes we have Census data and the current format is being filled after procuring data. The baseline survey data is not available at ULB level.

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>	68.82%	100%	D
2	<u>Per capita supply of water 214/1.79</u>	119.5	135 LPCD	D
3	<u>Extent of metering of water connections</u>	0	100%	D
4	<u>Extent of non-revenue water</u>	30	20%	D
5	<u>Quality of water supplied</u>	93.88	100%	D
6	<u>Cost recovery in water supply services</u>	71.33	100%	B
7	<u>Efficiency in collection of water supply related charges</u>	78.53	90%	B

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 31.18%
 2. Gap in Per capita water availability is about 15.5 LPCD.
 3. Gap in Metering is 100%.
 4. NRW is about 10% which include leakage and free water supply to social gathering festivals along with water supply through stand posts.
 5. Gap in Quality of water supplied is 6.12 .
 6. Gap in Cost recovery is 28.67% with expenditure on electricity and power.
 7. Gap in efficiency of water charges/tax collection is about 11.47

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.?

Ans. 1: There are both ground water and surface water sources.

The capacity for ground water is 158 MLD and

The capacity of surface water is 56 MLD.

Total capacity of Water source 214 MLD

Ans. 2: There is a water treatment plant for surface water and ground water. The daily treatment requirement for water is 214 MLD. The treatment capacity installed in the city is 56MLD.(SW) & 158MLD (GW)

Per Capita of water availability is $214 \text{ MLD} / 1.79 = 119.5 \text{ LPCD}$ With 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 city is divided into 5 zones namely City Zone, Kavi Nagar Zone, Vasundhara Zone, Vijay Nagar Zone and Mohan Nagar Zone.

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 No.	Total No. of Households (GNN)	Households with Water tap Connection (GNN)	Households without Water tap Connection
1	56047 HH	40198 HH	15849 HH
2	52721 HH	37516 HH	15205 HH
3	28456 HH	22948 HH	5508 HH
4	103854 HH	93751 HH	10103 HH

Zone No.	Total No. of Households (GNN)	Households with Water tap Connection (GNN)	Households without Water tap Connection
5	34920 HH	28160 HH	6766 HH
Total	275999 HH	222573 HH	53431 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 water storage capacity in the city is 124 ML elevated storage while 76ML of underground storage is available. Total Capacity of storage is 200 ML

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

No city has no need of ground level reservoirs because barrage having sufficient water storage capacity.

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

Water is being supplied to the consumers in both ways elevated reservoir and direct pumping.

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

Storage capacity is sufficient for population of the year 2021. We have 200 ML storage capacity is available. In 2021 population will be Approx -2300000 and water demand is 310 MLD/3 103 ML

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 of water supply is 1911 KM pipe line is laid in the city.

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?

The total road length is 2547 KM.No universal coverage of water supply is not achieved due to pipe lines are not laid in all streets.

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

PVC, AC, CI & DI material pipes are used in the city.

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

Table: 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	460km	345km	115km
2	429km	322km	107km
3	263km	197km	66km
4	1073km	805km	268km
5	322km	242km	80km
Total	2547km	1911km	636km

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

Planning and Design	Construction/ Implementation	O&M

Planning and Design	Construction/ Implementation	O&M
UPJN	UPJN	ULB

Question: How city is planning to execute projects?

Zone wise fulfillment of GAPs would be done through DPRs prepared by JAL NIGAM which will be executed by the same and O&M would be done by ULB Ghaziabad

Question: 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 project shall be done by State Level Parastatal Agency U.P. Jal Nigam. Nagar Nigam Gaziabad 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.

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.	Trans Hindan area-1	UIDSSMT	44.29Cr.	April 2015	100%
2.	Cis Hindan Area - I	UIDSSMT	78.83 Cr.	February 2017	52%

Question: 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)

Completion of the project will provide 15.20ML of storage capacity to the city & would increase the distribution network coverage by 178 Kmsieabout 7% of Coverage will be increase.

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

Yes, Water supply scheme would be required to be developed from both surface water and ground water source to bring about an improvement in filling up of gaps in existing and MoUDstandards.
Present days we are supply alternate day in mohannagertrans-hindan area.

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?

Already the city has optimized use of existing resources.

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

No. Corporation 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	214MLD	77MLD	291 MLD	310MLD	19MLD
Treatment capacity Ground Water -158 ML Surface Water-56 ML	214 ML	77 ML	291ML	310ML	19ML
Elevated Storage capacity	123.735 ML	24.600ML	153.335ML	103 ML	Surplus
Distribution network coverage	1911km	285km	2196km	2600km(due to future expansion expected in city)	404km

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.

Following are the objectives:-

1. To complete the ongoing activities
2. To achieve Universal Coverage
3. To improve the quality of water
4. To improve the LPCD
5. To make system Energy Efficient
6. To reduce NRW levels

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

Yes each identified objective will be evolved from the outcome of assessment

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

Yes, each objective meets 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)

The source of funding of activities shall be: 1. AMRUT, 2. 14th Finance Commission 3. State Government

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

No on going projects such as JICA/ ADB

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

AMRUT would be the source of funding for ongoing activities

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

Major lesson learnt from the implementation of the projects is the more from less approach

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

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 Increase in water tax and water charges may be adopted to recover O&M cost

Question: Will metering system for billing introduced?

Yes, Metering System will introduced.

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

Yes, NRW levels will be reduced to enhance O&M Cost .

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

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
1	To complete the ongoing activities	1. Water Supply Scheme for CIS Hindon Area (TW-30 OHT-8nos CWR-5nos Distribution System-180km)under UIDSSMT(Extended phase)	AMRUT

Sr. No.	Objective	Activities	Financing Source
2	To achieve Universal Coverage	<ol style="list-style-type: none"> 1. Increase House Hold connections at ward level. 2. Filling up of Gaps in existing water supply network 3. Expansion of water supply Distribution with House connections 	AMRUT
3	To increase per capita supply(LPCD)	<ol style="list-style-type: none"> 1. Rehabilitation of existing OHT 2. Installation of WTP for surface source 3. Construction of new ZPS & CWR 	AMRUT
4	To improve the quality of water	<ol style="list-style-type: none"> 1. Establishment/Rehab of water testing lab 2. Implementing of online water testing & monitoring system 3. Water testing devices 	AMRUT
5	To make system Energy Efficient	<ol style="list-style-type: none"> 1. Replacement of inefficient pumps 	AMRUT
6	To reduce NRW levels	<ol style="list-style-type: none"> 1. Leakage detection & repair 	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.
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Question: Has ward/ zone level consultations held in the city?

Yes, ward/ zone level consultations is being held in the city.

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.

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. Feedback from holders & Crisis/emergency requirements area/indicators have been taken up on priority.

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?

The source of funding of activities shall be: 1. AMRUT, 2. 14th Finance Commission 3. State Government Funds

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

The convergence factor has been considered while designing and funding of project. No, Convergence has been done as of now.

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 indiated in AMRUT guidelines followed for prioritization of activities?

Yes, universal coverage approach indiated 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.

For the projects requiring Land ie projects listed at priority no. 2 & 3, the land is available with Nagar Nigam Ghaziabad for these projects. Moreover non of the projects require Environmental clearance.

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.

Proper care would be taken up to ensure environmentally sustainable schemes at the time of preparing Detailed project reports.

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?

The source of funds would be from ULB , State Government and Govt of India

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

Projects would be jointly financed by ULB, Govt. of UP and Govt. of India

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.For the purpose meetings have been done with the local representatives and other stakeholders on dates 13/08/2015 & 17/08/2015

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. Financial plan is sustainable though it will show improvement in SLIP only after completion of project

Question: Have the financial assumptions been listed out?

Yes, financial assumptions have been listed out like the labor rates & material rates are 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 and development for 30 yrs life cycle has been taken up for the project.

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), it includes percentage share of all stake holders

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

Yes, it includes financial convergence with various ongoing projects and it includes convergence with the ongoing projects like reorganization of water supply scheme CHA-1 Ghaziabad.

Question: Does it provide year-wise milestones and outcomes ?

Yes, it includes year wise milestones but SLIP improvement would only be possible after completion & commissioning of scheme.

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 2.1of AMRUT guidelines)

(Amount in Rs. Cr)

S.No.	Project Name	Priority number	Year in which to be implemented	Year in which to be completed	Estimated Cost
1	To complete the ongoing project (GZB. Reorg. Of water supply Cis Hindon Area-part-1)-78.83 Cr. Legth-80Kms OHT-7-partial complete, 1- yet to be.	GOING	2014	2017	43.83 Cr
2	UNIVERSAL COVERAGE:- Distribution Network for GZB Cis / trans Hindon Area[approx 404Km]	4	2016	2019	45.39cr
3	To increase per capita supply [LPCD] 1.Surface water supply scheme for Mohan nagar zone GZB Trans Hindon Area [Installation ofWTP ,Intake well with row water gravity main and it's components] 2.Installation of Tube Wells& CWR atmohannagar&vijaynager	3 2	2016 2015	2020 2016	820.00Cr 26.00Cr
4	To make system efficient by NRW AMRUT/UP/GZB/Water supply-House Connection	5	2015	2016	12.83cr

S.No.	Project Name	Priority number	Year in which to be implemented	Year in which to be completed	Estimated Cost
5	To make system efficient by NRW AMRUT/UP/GZB /Water Supply-Metering	6	2016	2020	27.50cr

MASTER SERVICE LEVELS IMPROVEMENTS DURING MISSION PERIOD

(As per Table 2.2 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Project Name	Physical Components	Change in Service Levels			Estimated Cost
			Indicator	Existing (As-Is)	After (To-be)	
1	To complete the ongoing project (GZB. Reorg. Of water supply Cis Hindon Area-part-1)-78.83 Cr. Legth-80Kms OHT-7-partial complete, 1-yet to be.	GOING				43.83 Cr
2	AMRUT/UP/GZB (C.H.A)/WS	Dis. Network- 370.38 Km O.H.T.-28 Nos. T.W.-145 Nos. R/M-71.115 Km Five year Maintenance	4	119.5km	MOUD Standard	45.39
3	AMRUT/UP/GZB (Trans Hindon Area)/WS	Intak works, W.T.P. 245 MLD, Raw Water conveyance main 200mm dia 14 KM, C.W.R. &	per	119.5km	MOUD Standard	820.68

Sr. No.	Project Name	Physical Components	Change in Service Levels			Estimated Cost
			Indicator	Existing (As-Is)	After (To-be)	
		O.H.T. -15 Nos., Distribution main, Rising Mains. Five Year Maintenance				
4	AMRUT/UP/GZB /WS-HC	House Connection	3	68.82%	MOUD std	12.83
5	AMRUT/UP/GZB /WS-M	Installation of water meters	5	0%	MOUD stnd	27.50
6	Installation of Tube Wells&CWR	Installation of tube wells for mohannagar.	1	119.5	129.5	26.00

ANNUAL FUND SHARING PATTERN FOR WATER SUPPLY PROJECTS

(As per Table 2.3.1 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	name of Project	Total Project Cost	Share				
			GOI	State	ULB	Others	Total
1	To complete the ongoing project (GZB. Reorg. Of water supply Cis Hindon Area-part-1)-78.83 Cr. Legth-80Kms OHT-7-partial complete, 1-yet to be.	43.83 Cr					
2	AMRUT/UP/GZB (C.H.A)/WS	45.39	15.13			30.26	45.39
3	Intak works, W.T.P. 245 MLD, Raw Water conveyance main 200mm dia 14 KM, C.W.R. & O.H.T. -15 Nos., Distribution main, Rising Mains. Five Year Maintenance	820.68	273.33			547.12	820.68
4	House Connection	12.83	4.28			8.56	12.83
5	Installation of water meters	27.50	9.17			18.34	27.50
6	Installation of tube wells for mohannagar.	26.00	8.67			17.34	26.00
	Total	932.40	310.58			621.62	932.4

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	14th FC	Others	Total			
1	To complete the ongoing project (GZB. Reorg. Of water supply Cis Hindon Area-part-1)-78.83 Cr. Legth-80Kms OHT-7-partial complete, 1-yet to be.	43.83 Cr									
2	Dis. Network-370.38 Km O.H.T.-28 Nos. T.W.-145 Nos.	15.13	-	30.26	30.26	-	-	-	-	-	45.39

Sr. No.	Project	GOI	State			ULB			Convergence	others	Total
			14th FC	Others	Total	14th FC	Others	Total			
	R/M-71.115 Km Five year Maintenance										
3	Intak works, W.T.P. 245 MLD, Raw Water conveyance main 200mm dia 14 KM, C.W.R. & O.H.T. -15 Nos., Distribution main, Rising Mains. Five Year Maintenance	273.56	-	547.12	547.12	-	-	-	-	-	820.68
4	House Connection	4.27	-	8.56	8.56	-	-	-	-	-	12.83
5	Installation of water meters	9.16	-	18.34	18.34	-	-	-	-	-	27.50
6	Installation of tube wells for mohannagar.	8.66	-	17.34	17.34	-	-	-	-	-	26.00
	TOTAL	310.78		621.62	621.62						932.40

YEAR WISE PLAN FOR SERVICE LEVELS IMPROVEMENTS

(As per Table 2.5of AMRUT guidelines)

