# 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)
Baseline information is taken from JAL SANSTHAN, JAL NIGAM and DPR prepared by UUSDIP for overhead service reservoirs . Zone wise information is partially available Clear water supply Zone are to be proposed after detailed survey.
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)
Yes, we have collected census data 2011. Yes, aware of baseline survey data of MOUD Population of city 171351 (census 2011). In 2021 population will be 228239. In addition to this the present floating population is 19400
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 | Coverage of water supply connections | 80 | 100% | B |
| 2 | Per capita supply of water | 133 | 135 LPCD | B |
| 3 | Extent of metering of water connections | 0 | 100% | B |
| 4 | Extent of non-revenue water | 40 | 20% | B |
| 5 | Quality of water supplied | 70 | 100% | B |
| 6 | Cost recovery in water supply services | 55 | B | |
| 7 | Efficiency in collection of water supply related charges | 70 | 90% | B |

Question: What is the gap in these service levels with regard to benchmarks prescribed by MoUD? (75 words)
1. Gap in the coverage of water supply connection is due to inadequate distribution system. 2. Gap in per capita availability is due to insufficient availability of water and weak distributions network. 3. Lack of funding and lack of IEC Activities there is no metering system. 4. Gap in NRW due to water distribution system and supply of water through old/ damaged / weak distribution system and supply of water through tankers. 5. Gap in quality of water due to old filter plant, Non availability of sedimentation unit, open water intake channel. 6. Gap in cost

recovery is due to non metering and water charges are not sufficient to meet out cost recovery. 7. Gap in collection is due to old / pending dues and non metering system.

## 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.?
1. Surface water gaula river - 15.83 MLD 2. Surface water sheetlahat gadhera - 2 MLD 3. 20 nos. tube well - 17.28 MLD Out of the total 17.83 MLD surface water available as raw water considering 10% intake losses and backwash at treatment unit, available water through surface source is 16.05 MLD and total available water is 33.33 MLD. After considering the 20% distribution losses with the net availability is 26.67 MLD. Hence, the per capita availability of water is 133 lpcd. Yes,16 MLD Water is being treated daily. The treatment capacity installed in the city is 19.5 MLD, however additional 15 MLD treatment unit in available for peri urban area. The treatment system is 55 year old hence renovation is required. During rainy season the supply of water from Gaula river discontinued for several hours along with very high turbidity. Hence a pre sedimentation tank along with raw water storage reservoir is required.

## 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 ?
NO Zone system available.

**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 | Households with Water tap Connection | Households without Water tap Connection |
|---|---|---|---|
| city | 33206 | 26566 | 6640 |

## 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 18.61 MLD. Elevated is 12.00 MLD and ground water reservoirs 6.61 MLD.
Question: In case of surface water, does city need to have ground level reservoirs to store raw treated water?
Yes we need a raw storage water reservoir.
Question: Is water being supplied to consumers through direct pumping or through elevated reservoirs?
Both System existing.
Question: Is storage capacity sufficient to meet the cities demand ?
The current location of storage is not distributed according to the dwellings hence needed to relocate the storage capacity for few areas.

## 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 distribution pipe line 128 Km.
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?
160 Km total road length in the city. 80% streets are covered with pipe line. Objective not achieved.
Question: What are the kind of pipe materials used in distribution lines?
Pipe line materials used in distribution lines AC/GI/PVC/CI/DI
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 |
|---|---|---|---|
| city | 160 Km | 128 Km | 32 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 responsibilitis**

**Planning and Design Construction/ Implementation O&M**

UJS, UJN, UUSDIP UJS, UJN & UUSDIP JAL SANSTHAN

Question: How city is planning to execute projects ?

The municipal corporation is planning to execute the projects covered under universal coverage through Uttarakhand Jal Sansthan and other works through both the agencies viz. UJS and UJN.

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

Implementation by Uttarakhand Peyjal Nigam/ Uttarakhand Jal Sansthan .

## 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 | WSS.01 HL (ADB) UUSIDP | Construction of OHT, Rising mains etc. | 20.22 Cr. | nov. 2015 | 90% |
| 2 | 8 No TW HLD URBAN (CM Declaration) | Construction of 8 Nos tubewells and conecting mains. | 20.16 Cr. | march 2016 | 75% |

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)

Approximate 60% of existing system will address the gap in water supply system. Yes will in improve coverage of network & collection efficiency 90 %.

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

Yes additional infrastructure required which includes, augmentation in supply main distribution system, arbitrary distribution system and at few place additional Storage capacity has to be generated along with 100% metering.

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?

Yes we are using all serviceable assets.

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

Yes, in all distribution system adequate water is not reaching at the tail end or elevated places level of NRW- 40%, reorganization of old and damaged distribution system along with 100% metering system will 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 | 35.11 MLD (20-TW, 02-surface water sources. Out of above 5 no tubewells have already been completed their design age, hence a total of 4.8 MLD water sortage will be sought upto 2021 ) | 1.92 MLD (2 TW) | 37.03 MLD | 36.49 MLD | 0 |
| Treatment capacity | 21.5 MLD | - | 21.5 MLD | 21.5 MLD | 0 |
| Elevated Storage capacity | 0.75 MLD | 11.25 MLD | 12.00 MLD | 12.00 MLD | 0 |
| Distribution network coverage | 128 Km | - | 128 Km | 240 Km | 112 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, the identified obejctives evolved from the outcome of the assessment and are as follows- 1- To complete ongoing projects . 2- To achieve universal coverage. 3- To make system efficient by NRW reduction. 4- To increase per capita supply. 5- To improve quality of water. 6-To make system energy efficient. 7-To increase cost recovery.
Question: Does each objective meet the opportunity to bridge the gap?
Yes, the each identified obejctive will meet the opportunity to bridge the gap as follows- 1- To complete ongoing projects - through ongoing State sector / ADB Fund. Cost Rs 40.38 Cr. - ADB/State Sector 2- To achieve universal coverage - Extension of existing distribution system, rejuvenation of old treatment unit and augmentation of tubewell. Cost Rs 40.00 Cr. - AMRUT 3- To make system efficient by NRW reduction - The rejuvenation/ replacement of old and damaged distribution network along with augmentation of existing treatment unit. Cost Rs 70.00 Cr. - AMRUT 4- To increase per capita supply- Enhancement of storage capacity from existing

GLSR to OHSR Cost Rs 10.00 Cr. - AMRUT 5- To improve quality of water - Augmentation of existing treatment unit, Cost Rs 20.00 Cr. - AMRUT 6-To make system energy efficient - Replacement of old motor /pump sets along with Automization of T/W & Pumping stations. Cost Rs 10.00 Cr. - AMRUT 7-To increase cost recovery - 100% metering Cost Rs 10.00 Cr. - AMRUT

## 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)
Rejuvenate existing treatment, distribution system and metering system. (AMRUT)
Question: How can the activities be converged with other programme like JICA/ ADB funded projects in the city etc? (100 words)
NOT APPLICABLE
Question: What are the options of completing the ongoing activities? (75 words)
NOT APPLICABLE
Question: How to address the bottlenecks in the existing project and lessons learnt during implementation of these projects? (75 words)
Coordination of all government Department in necessary.
Question: What measures may be adopted to recover the O&M costs? (100 words)
By increasing service level and the quality of supply water along with 100% metering and reducing NRW with appropriate system to recovery.
Question: Will metering system for billing introduced?
Yes
Question: Whether reduction in O&M cost by addressing NRW levels be applied? (75 words)
YES
Question: Does each objective meet the opportunity to bridge the gap?
Yes

**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 | To achieve universal coverage Cost Rs 50.00 Cr. - AMRUT | Extension of existing distribution system, rejuvenation of old treatment unit and augmentation of tubewell. Cost Rs 40.00 Cr. | AMRUT |
| 2 | To make system efficient by NRW reduction | The rejuvenation / replacement of old and damaged distribution network along with augmentation of existing treatment unit. Cost Rs 70.00 Cr. | AMRUT |

| Sr. No. | Objective | Activities | Financing Source |
|---|---|---|---|
| 3 | To increase per capita supply | Enhancement of storage capacity from existing GLSR to OHSR. Cost Rs 10.00 Cr. | AMRUT |
| 4 | To improve quality of water | Augmentation of existing treatment unit, Cost Rs 20.00 Cr. | AMRUT |
| 5 | To make system energy efficient. | Replacement of old motor /pump sets along with Automization of T/W & Pumping stations. Cost Rs 10.00 Cr. | AMRUT |
| 6 | To increase cost recovery. | 100% metering. Cost Rs 10.00 Cr. | 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, Meeting chaired by Mayor Haldwani along with Parshads, line departments and different society members.
Question: Has ward/ zone level consultations held in the city?
Yes
Question: Has alternative proposed above are crowd sourced?
Yes
Question: What is feedback on the suggested alternatives and innovations?
As per the suggestion given by different members, the work of rejuvenation of existing water supply system will be taken on first priority along with the augmentation of existing treatment unit.
Question: Has alternative taken up for discussions are prioritized on the basis of consultations?
Yes.
Question: What methodology adopted for prioritizing the alternatives?
Meeting chaired by Mayor Haldwani along with Parshads, line departments and different society members. After a detailed discussion the priority for different proposed works has been finalized.

## 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
Question: Has projects been converged with other program and schemes?
NO
Question: Has projects been prioritized based on “more with less” approach?
YES

Question: 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.**

N.O.C will be required from P.W.D for road cutting. Land is available with govt. Department.

## 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.

## 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 AMRUT guideline 50% is the share of GOI, 20% minimum is of State Govt. and 30% by ULB or other financial institution. ULB is unable to bear above share, therefore it is requested that above 30%, ULB share is to be borne by state govt.
Question: list of individual projects which is being financed by various stakeholders ?
N/A
Question: Has financial plan prepared for identified projects based on financial convergence and consultation with funding partners?
N/A
Question: Is the proposed financial structure is sustainable? If so then whether project has been categorized based on financial considerations ?
YES
Question: Have the financial assumptions been listed out ?
YES
Question: Does financial plan for the complete life cycle of the prioritized development?
YES
Question: does financial plan include percentage share of different stakeholders (Centre, State, ULBs)
YES
Question: Does it include financial convergence with various ongoing projects.
N/A
Question: Does it provide year-wise milestones and outcomes ?

YES

**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 | Augmentation of existing treatment unit Part- I | 1 | 2015 | 2017 | 10.00 |
| 2 | Extention of ation of existing distribution system for coverage of newly developed area. | 2 | 2015 | 2017 | 30.00 |
| 3 | Augmentation of existing treatment unit Part- II | 3 | 2016 | 2018 | 20.00 |
| 4 | Rejuvenation of existing distribution system Part- I | 4 | 2016 | 2018 | 40.00 |
| 5 | Rejuvenation of existing distribution system Part- II | 5 | 2017 | 2020 | 30.00 |
| 6 | 100 % metering | 6 | 2015 | 2020 | 10.00 |
| 7 | Source augmentation | 7 | 2015 | 2019 | 10.00 |
| 8 | Enhancement storage capacity from existing GLSR to OHSR | 8 | 2018 | 2020 | 10.00 |

**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-ls) | After (To-be) | |
| 1 | Augmentation of existing treatment unit Part- I | Rejuvenation of Old Treatment Unit. | Quality of water | 70% | 80% | 6.00 |
| 2 | Extension of existing | Laying of Pipe line | 1. Per capita water | 133 | 133 | 6.00 |

| Sr. No. | Project Name | Physical Components | Change in Service Levels | | | Estimated Cost |
|---|---|---|---|---|---|---|
| | | | Indicator | Existing (As-ls) | After (To-be) | |
| | distribution system for coverage of newly developed area. | etc. | supply 2. Extent of NRW | LPCD ,40% | LPCD 38% | |
| 3 | 100 % metering | meter etc. | Extent of Metering of water connection, Cost recovery in water supply service | 0, 55% | 10, 60% | 2.00 |
| 4 | Source augmentation | Replacement of old motor /pump sets along with Automization of T/W & Pumping stations. | Coverage of water supply connection | 80% | 85% | 2.00 |

## 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 | Augmentation of existing treatment unit Part- I | 6.00 | 3.00 | 3.00 | - | - | 6.00 |
| 2 | Extension of existing distribution system for coverage of newly developed area. | 6.00 | 3.000 | 3.00 | - | - | 6.00 |
| 3 | 100 % metering | 2.00 | 1.00 | 1.00 | - | - | 2.00 |
| 4 | Source augmentation | 2.00 | 1.00 | 1.00 | - | - | 2.00 |

## 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 | | | |
| 11111 | Augmentation of existing treatment unit Part- I | 3.00 | 0 | 3.00 | 3.00 | 0 | 0 | 0 | 0 | 0 | 6.00 |
| 2 | Extension of existing distribution system for coverage of newly developed area. | 3.00 | 0 | 3.00 | 3.00 | 0 | 0 | 0 | 0 | 0 | 6.00 |
| 3 | 100 % metering | 1.00 | 0 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 2.00 |
| 4 | Source augmentation | 1.00 | 0 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 2.00 |

## Year wise Plan for Service Levels Improvements

**(As per Table 2.5of AMRUT guidelines)**

| Proposed Projects | Project Cost | Indicator | Baseline | Annual Targets (Incremet from the Baseline Value) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FY 2016 | | FY 2017 | FY 2018 | FY 2019 | FY 2020 |
| | | | | H1 | H2 | | | | |
| Augmentation of existing treatment unit Part- I | 10.00 | Quality of water | 70% | 0 | 75% | 80% | 0 | 0 | 0 |
| Extension of existing distribution system for coverage of newly developed area. | 30.00 | 1. Per capita water supply | 133 , 40% | 0 | 133 LPCD, 39% | 133 LPCD, 38% | 0 | 0 | 0 |
| Augmentation of existing treatment unit Part- I | 20.00 | Quality of water | 70% | 0 | 0 | 85% | 100% | 0 | 0 |
| Rejuvenation of existing distribution | 40.00 | 1. Per capita water supply | 133 , 40% | 0 | 0 | 134 LPCD,35% | 134 LPCD,30% | 0 | 0 |

| Proposed Projects | Project Cost | Indicator | Baseline | Annual Targets (Incremet from the Baseline Value) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FY 2016 H1 | FY 2016 H2 | FY 2017 | FY 2018 | FY 2019 | FY 2020 |
| system Part-II | | | | | | | | | |
| Rejuvenation of existing distribution system Part-II | 30.00 | 1. Per capita water supply | 133 , 40% | 0 | 0 | 0 | 135 LPCD, 27% | 135 LPCD, 25% | 135 LPCD, 20% |
| 100 % metering | 10.00 | Extent of Metering of water connection | 0, 55% | 0 | 10, 60% | 25, 65% | 40, 70% | 80, 80% | 100, 90% |
| Source augmentation | 10.00 | Replacement of old motor /pump sets along with Automization of T/W & Pumping stations. | 80% | | 85% | 90% | 95% | 100% | 0 |
| Enhancement storage capacity from existing GLSR to OHSR | 10.00 | Coverage of water supply connection | 80% | 0 | 0 | 0 | 0 | 90% | 100% |