SECTOR WISE SLIP TEMPLATE: 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)

  The baseline information for population projections, water supply demand and supply, water storage and distribution network details are available as per the following documents:

  Sectorial report:

  1. Water Supply System for Panaji Urban Agglomeration (DPR under JNNURM for water supply project, Jan 2012)

  City Wide Plans:

  2. Holistic Master Plan for Panaji, 2013
  3. Revised City Development Plan (CDP) for Panaji, 2014

  Yes, zone wise information is available for basic parameters in the Water Supply DPR as above.

- 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. The holistic Master plan for Panaji as well as Panaji CDP and its data are co-related to Census 2011. The Water Supply DPR is per census

2001.The census data and related projections take into account co-relations with available data sources for water supply sector.

- 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 1.1

Table 1.1: Status of Water Supply service levels

Sr.no.	Indicator	Present status	MOUD Benchmark	Gap
1	Coverage of water supply connections	79%*	100%	21%
2	Per capita supply of water	310 LPCD	135 LPCD	Negative
3	Extent of metering of water connections	50%	100%	50%
4	Extent of non-revenue water	35%	20%	15%
5	Quality of water supplied	100%	100%	Nil
6	Cost recovery in water supply services	95%	100%	5%
7	Efficiency in collection of water supply related charges	80%	90%	10%

* Ongoing Water Supply Project will ensure 100% coverage.

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

The present coverage of household connections w.r.t the number of household is only 79% subject to reach 100% by way of ongoing Water Supply Project for Panaji. The percentage of NRW is considerably high which indicates water losses due to leakages and through transmission and presence of unauthorized connections within the city. In addition in many areas, the supply lines are old and dilapidated and are in need of replacement.

1.1 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?

The main source of Opa water supply scheme is River Khandepar which originates in Karnataka and flows through Dudhsagar water fall. The other tributary joining the 'Khandepar River' is 'Kalem River' which flows from Sanguem. The OpaWSscheme is situated at OpaKhandepar in Pondataluka about 37 km from Panaji. The raw water capacity of River Khandepar is 123.0 million liters per day (MLD) while the quantity drawn at present is 115.0 MLD. Further augmentation from this source is not feasible in future.

The Opa weir was constructed in 1972 to raise the water level and also as storage reservoir during lean period from March to June. The weir height is 2.42 m with a total length of about 82 m across the river. The existing water supply to Panaji city region is 24.2 MLD out of which 15.0 MLD is supplied to CCP area. The present gross water supply to the city region is 308litres per capita per day (lpcd). However these estimates should not be considered as accurate as the substantial portion of the water supplied to the region caters to the floating as well as the tourist population.

- 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?

The Opa scheme consists of four WTPs which are classified as per their capacity viz. 8 MLD plant, 12 MLD plant, 55 MLD plant and 40 MLD plant. The original 8 MLD capacity plant in Opaas been augmented with capacities of 12 MLD in 1967, and subsequently 55 MLD in 1972 with allocation of 35 MLD water for Ponda and 40 MLD of water for Tiswaditaluka.

The raw water is treated by conventional treatment processes comprising of aeration, clariflocculation, rapid sand filtration and disinfection with chlorine. The raw water of River Khandepar is highly turbid with presence of Manganese and Iron, etc. Hence, the existing treatment plant has been equipped with aeration, coagulation, filtration, chlorination, etc., to meet the

drinking water standards of central public health and environmental engineering organization (CPHEEO).

The treated water from the treatment plant is collected in the underground reservoir of capacity 1350 m3 at Opa and pumped to master balancing reservoir (MBR) at Curti for distribution. The treatment plants along with the clear water reservoirs of Opa scheme are located at hillock of Curti which is at 160 m reference level (RL) and about 2 km from Opa. The high altitude location of storage reservoir at Curti enables 95% of water supply through gravity. The treated water is pumped from the plant to Curti and subsequently it flows through gravity to Altinho and to Panaji city.

Table 1.2: Details of Water Treatment Plants at Opa water works

S. No.	Details	Year of Commission	Capacity
			MLD
1	Water Treatment Plant 1 at Opa	1954	8
2	Water Treatment Plant 2 at Opa	1967	12
3	Water Treatment Plant 3 at Curti	1972	55
4	Water Treatment Plant 4 at Curti	2004	40
	Total		115

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

Parameter	Details
Location	Opa, Khandepar in Pondataluka
Type of Source	Surface Water - River Khandepar
Capacity	123.0 MLD
Quantity drawn	115.0 MLD
Quantity supplied to Panaji City Region (CCP +OG)	**24.2 MLD**
Present per capita supply (Gross) for Panaji city region (CCP and its urban agglomeration)	308 lpcd
Quantity supplied to Panaji CCP	**15.0 MLD**
Present per capita supply (Gross) for CCP area	375 lpcd

Source: Water Supply Project DPR for Panaji City

1.2 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 ?

  The city is divided into three water supply zones as given below:

  1. Zone 1: Altinho
  2. Zone 2: Ribandar
  3. Zone 3: Taleigaon

- Provide details of total no of Households (HH) in each zone, no of HH with and without water tap connections in the Table 2.

  The Census-2011 provides data for the combined population of the CCP and the 7 Out-growths on the outskirts. The break-up under various sources of supply is provided in the table below. Available information is for administrative zones as given below and not as per the Water supply zones.

Table 2: Household Level Water Supply Status across Panaji Town andThe Out-Growths

Administrative Zones	Total number of HH	HH with taps	HH without tap
CCP	10158	8829	1329
CCP +OG	17807	15534	2273

Source: Panaji CDP, 2014

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?

Panaji City consists of 14 numbers of storage reservoirs and the overall storage capacity of the existing reservoirs is 12800 m3. The city is divided into three water supply zones viz. Altinho, Ribandar and Taleigaon.

- The Zone 1 in Altinho consists of six GSLRs and two OHTs with total capacity of 10100 m^3. It covers major area under Panaji CCP.
- The Zone 2 consists of 2 GLR located in Ribander with total capacity of 450 m^3.
- The Zone 3 consists of 3 OHTs located in Taleigao area with a total storage capacity of 2250 m^3.

The water from these service reservoirs is supplied to the city through gravity. The storage tanks at Altinho are in dilapidated condition and require rehabilitation and repairs works. The water is distributed to the service connections in the city by gravity using the topography of the region. The details of the storage reservoirs in Panaji CCP area and adjoining areas are presented in the Table below.

Table 3: Details of Service Reservoirs in Panaji city region

Reservoir Type	Zone	Location	Capacity in m^3	Quantity of water Supplied
Water Storage Tank No 8	Zone1	Altinho	5000	15.0 MLD
ground level service reservoir (GLSR) 1	Zone1	Altinho	800	
GLSR 2	Zone1	Altinho	800	
GLSR 3	Zone1	Altinho	800	
GLSR 4	Zone1	Altinho	800	
GLSR 5	Zone1	Altinho	800	
Overhead tank (OHT) No 6	Zone1	Altinho	450	
OHT No 7	Zone1	Altinho	650	
Ribandar (GLSR)	Zone 2	Ribandar	150	1.2 MLD
Ribandar (GLSR)	Zone 2	Ribandar	300	
Nagali (sump and OHT)	Zone 3	Nagali	200	8.0 MLD
Taleigao (2 nos. of	Zone 3	Caranzalem, Dona	1600	

Reservoir Type	Zone	Location	Capacity in m^3	Quantity of water Supplied
OHTs)		Paula and part of CCP area in Taleigao.		
Taleigao (OHT)			650	
Total storage capacity			13000	24.2 MLD

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

  Yes, 7 ground level service reservoirs are being used as mentioned in the above table.

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

  The water is distributed to the service connections in the city by gravity using the topography of the region from the GLSR and OHTs.

- Is storage capacity sufficient to meet the cities demand?

  Storage capacity is 100% for the present supply of 24.2 MLD.

1.3 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?

  The total length of Water Supply distribution network is 80 kmpart existing and part to be taken up in the Water Supply Project for Panaji).

- 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 of the city is 77km.The coverage of water supply distribution pipeline network w.r.t. the existing road length in the city to be taken up is 100% within the CCP area and presently 79% of the households within the CCP area are provided with HSCs.The present supply to the Panaji CCP is 15.0 MLD while 24.2 MLD for the city region (CCP+ OG). With this

project under execution, universal coverage of water supply pipe line is to be achieved.

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

The following guidelines are adhered to in general:

- 1000 mm Ø – M.S. Pipe per IS 1916-1963 and IS: 3589 – 2001
- >350 mm< 1000 mm Ø – Centrifugally cast (spun) DI pipes K-9 per IS 8329-1990
- >110 mm < 315 mm Ø – HDPE pipes per IS:4984-1995

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

Water distribution lines to be taken up as per the Water Supply Project w.r.t street length isfor 100% coverage. However in addition, some areas such as Mala, in Altinho ZoneWS pipelines need to be renovated.

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
CCP +OG (3 WS zones: Altinho +Ribandar+Talegaon)	77 km	80km(total pipelines to be laid incuding OHR and GLR connections)	Nil after complete execution of Water Supply Project by CCP. Only Part renovation required in Altinho zone as given below.
Altinho	-	-	0.6 km (Requires renovation)

1.4 Institutional Framework

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

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

Table 1.4: Functions, roles, and responsibilities

Planning and Design	Construction/	O&M

	Implementation	
CCP with the help of consultants	PHE (PWD) by tendering process	PHE (PWD)

- How city is planning to execute projects?

  The ULB has taken up sectorial DPR as per the present requisites and the project is under execution in phases.

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

  The ULB will implement the project and also undertake the operation and maintenance of the project created in AMRUT.

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

  The CPHEEO Manual suggests 135 lpcd on urban areas, whereas presently water is supplied at 308 in CCP+OG. However, the supply is with intermediate supply timings. Hence, to improve the service level, it is proposed to supply water 24 x 7 and accordingly a scheme for construction of new 27 MLD WTP and laying of distribution network for most part of the city 24 x 7 hasbeen undertaken. On completion of aforesaid project, the gap between the existing and proposed service levels will be reduced to minimal.

Table 1.4: Status of Ongoing/ Sanctioned

S. No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on dd mm 2015)
1.	Water Supply Network Project for Panaji City	Earlier under JnNURM. Taken up by state government.	174 CR	Expected completion by 2017.	60% work executed.

- 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)

  Presently the existing system is unable to meet equality in supply. On completion of the project under JNNURM, the distribution network is designed for zoning as per the topography of the land and hence it is expected to increase coverage to 100%.

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

  On completion of the project under JNNURM, Panaji city is expected to supply water 24 x 7. However, in some parts of the city, water supply lines are in damaged condition which requires to be renovated.

- 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?

  The project under execution shall take care of future requirements for the different zones in Panaji. Phasing and priority for these projects have been decided after public consultations.

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

  Presently, NRW on Panaji city are in the region of 35%. Studies are carried out by special teams formed under NRW cell to conduct household surveys and detect leakages and replace damaged supply lines, non

performingmeters etc to reduce real and apparent losses. This will bring the NRW share to match the MOUD guidelines.

- 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.

  Currently water supply network in Panaji is made of narrow and old pipes, with high rate of leakages. It doesn´t cover the entire area of the city. To have 24x7 water supply it is estimated that wider pipes would be needed and about 20 MLD water supply.

Table 1.5 . Demand Gap Assessment for Water Supply Sector

Component	2015			2021	
	Present	Ongoing projects	Total	Demand	Gap
Source	Opa (Khandepar river)	Opa (Khandepar river)	-	-	-
Treatment capacity	40 MLD (for TiswadiTaluka)	27 MLD	27 MLD (for Panaji+OG)	27 MLD (for Panaji+OG)	0%
Elevated Storage capacity (GLR+OHT)	1300 m3	1650 m3	2950 m3	2950 m3	0%
Distribution network coverage	79%	21%	100%	100%	0%

According to DPR, water demand for 2045 in Panaji is 27 MLD. This is sufficient as per available capacity.

3 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. New storage capacities proposed in the form of GLR of 5000 m3 – 2 nos. and 40 hrs of 650 m3 is proposed to be constructed at Taleigao and Kadamba Plateau. Besides, a mobile laboratory for testing water is proposed. Also, AMR water meters can be fixed to improve revenue collection. Package water treatment plants to treat water from sources e.g. Chimbellake and Bondval lake are needed. These however, are not urgent and will be taken up in phased manner.

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

  Yes, each objective will meet the opportunity to bridge the gap to provide sustainable water supply in Panaji.

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

The following objectives will be achieved by way of execution of the Water Supply Network Project for Panaji Urban Agglomeration:

- Equality in distribution of drinking water for the core city of Panaji and the outgrowth areas
- Reduction of NRW down to MoUD guidelines and even lower if possible
- Increase in revenue collection of the ULB by way of metered connections
- Improved service levels

4 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.

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

  The water supply project addresses the needs of the city for 100% coverage and service delivery. However, the renovation of old and damaged distribution pipelines in Mala/ Altinho area needs to be taken up on priority basis. The source of funding is expected under AMRUT for this project.
- How can the activities be converged with other programme like JICA/ ADB funded projects in the city etc? (100 words)

  For the proposed renovation of 0.6 km of water supply pipeline at Altinho, which is not covered in any other programme, it is expected that all the activities proposed in this project will be funded under AMRUT.

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

  The ongoing Water Supply Network Project, which was partly funded under JnNURM, and now taken up by the state Govt.

  The project of renovation of 0.6 km of pipeline at Altinho is expected to be completed with the help of AMRUT funds.

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

  Implementation is dependent on inter departmental coordination and timely decisions in tackling the onsite challenges.

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

Yes. International best practices shall be followed for planning, design, its timely execution and project management. An underground utility corridor will be implemented as per the Holistic Master Plan as proposed for pan city basis. This project will also take into account safety measures, signage and barricading etc during execution. The work is proposed to be executed in a phased member adopting PERT and reduce the public inconvenience to minimum.

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

  Incremental user charges and smart meters wherever applicable.

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

  Yes. Ongoing JICA funded project for target NRW reduction to meet MOUD guidelines in the next 20 years and this will help is cost recovery.

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

  Functions, roles and responsibilities remain with the concerned department.PPP option may be explored in future.

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	Cost in RsCrores	Financing Source
1	To improve service delivery and NRW reduction.	Renovation of old and damaged pipelines in Mala and Altinho area.	0.36	AMRUT

5 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 are involved in the consultation.

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

  Yes, city level consultations were held covering all zones.

- Has alternative proposed above are crowd sourced?

  Yes. The most probable and high priority projects have been proposed.

- What is feedback on the suggested alternatives and innovations?

  Positive feedback received from all stakeholders for renovation of pipelines in Altinho area.

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

  Yes. The alternatives considered and prioritized the projects accordingly.

- What methodology adopted for prioritizing the alternatives?

The alternatives considered were prioritized as per stakeholder consultations, demand and financial viability.

6 Prioritize Projects

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

- What are sources of funds?
  AMRUT
- Has projects been converged with other program and schemes?
  No.
- Has projects been prioritized based on “more with less” approach?
  Yes.The proposed project is prioritized based on more with less approach.

- Has the universal coverage approach indiated in AMRUT guidelines followed for prioritization of activities?
  Yes. The universal coverage approach indicated in AMRUT guidelines has been followed for prioritization of activities.

7 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.

Land is available for the proposed project and there are no pending obligations. All permissions and clearances from concerned departments have been considered and are in alignment. There are no environmental obligations and the project is environmental friendly and in public interest. The finance for the project is expected from AMRUT and the ULB is committed to their share of finances.

8 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.

All water supply installations will be provided with proper security and safety. Necessary steps will be taken to provide potable drinking water and care will be taken during preparation of DPR duly following IS codes and other specifications as per norms.

9 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?
  The project is proposed to be financed under AMRUT. The project cost is Rs 0.36 Cr.

- List of individual projects which is being financed by various stakeholders ?
  Not applicable.

- Has financial plan prepared for identified projects based on financial convergence and consultation with funding partners?
  The project is expected to be executed under AMRUT, hence, it has not yet been consulted with other funding sources/agencies.

- Is the proposed financial structure sustainable? If so then whether project has been categorized based on financial considerations?
  Yes. The financial structure is sustainable and compliant to AMRUT guidelines.

- Have the financial assumptions been listed out?
  Yes. As provided in the table below.

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

  Yes. Financial Plan includes execution but doesnot include O&M cost.

- does financial plan include percentage share of different stakeholders (Centre, State, ULBs and)
  Yes. Financial plan includes the following percentage share into account:
  GOI : 50%
  State Govt: 50%

- does it include financial convergence with various ongoing projects.

  There is no financial convergence for this project.

- Does it provide year-wise milestones and outcomes ?
  Yes. As per details provided in subsequent tables.

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

Table 1.7 MasterPlan of Water Supply Projects for Mission period (FYs 15-16 to 19-20)

(As per Table 2.1of AMRUT guidelines)

Sr. No.	Project Name	Prioritynumber	Year inwhichto beimplemented	Year in which proposed to be completed	Estimated Cost (In Cr)
1.	Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement in Mala	1	2015-2016	2016-2017	0.36
Grand Total					0.36

(Amountin Rs. Cr)

Table 1.8 Master Service Levels Improvements during Mission Period

(As per Table 2.2 of AMRUT guidelines)

Sr. No.	Project Name	PhysicalComponents	Change in Service Levels			Estimated Cost
			Indicator	Existing(As-Is)	After(To-be)	
1	Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement in Mala	Providing HDPE pipes	Improved service delivery through Renovation and up-gradation.	-	-	0.36 Cr

(Amountin Rs. Cr)

Table1.9 Annual Fund Sharing Pattern for Water Supply Projects (FY 15-16)

(As per Table 2.3.1of AMRUT guidelines)

(Amountin Rs. Cr)

Sr. No.	Name of Project	Total Project Cost	Share				
			GOI	State	ULB	Others	Total
1	Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement in Mala	0.36Cr	0.18 Cr	0.18Cr	0	0	0.36 Cr
	Total	0.36Cr	0.18 Cr	0.18Cr	0	0	0.36 Cr

Table 1.10 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	Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement in Mala	0.18	-	-	0.18	-	-	-	-	-	0.36
	Total	0.18	-	-	0.18	-	-	-	-	-	0.36

(Amountin Rs.Cr)

Table 1.11Year wise Plan for Service Levels Improvements

(As per Table 2.5 of AMRUT guidelines)

Proposed Projects	Project Cost	Indicator	Baseline	AnnualTargets (Incrementfrom theBaselineValue)					
				FY2016		FY 2017	FY 2018	FY 2019	FY 2020
				H1	H2				
WaterSupply									
Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement in Mala	0.36 Cr	Improved service delivery through Renovation and up-gradation.	-	-	-	100%	-	-	-

Annexure – 1: Proposed Water Supply components in DPR under JNNURM funding

Scheme Components	Details	Cost (in Rs lakhs)
Construction of WTP at Curti and Intake at Opa as well as rising main	Part A – construction of new 50 MLD WTP including treated water reservoir and electro mechanical equipment for plant	3,976
	Part B – Intake facilities, rising main and all required electromechanical works	3,512
Sub Total		**7,488**
Distribution system Management	Part A – Providing and laying additional distribution pipeline for uncovered area including rehabilitation of old/damaged lines/ replacement	4,858
	Part B – Construction of 1 nos. 10000 cu. m. M.B.R. at Altinho	348
	Part C – Construction of 1250 cu. m. O.H.R.at Altinho	117
	Part D – Construction of 2 nos. 10000 cu. m. each GLSRs at Talegao	675
	Part E – Construction of 1250 cu. m. O.H.R. at Talegao water tank	117
	Part F – Repairs work to reservoirs at Altinho	109
	Part G – Construction of 1000 cu.m. GLR at Ribandar	81
	Part H – Construction of 1000 cu. m.GLR at Nagali	97
	Part I – Construction of 300 cu. m. GLR and 500 cu. m. OHR at Miramar	120
Sub Total		**6,522**

Scheme Components	Details	Cost (in Rs lakhs)
NRW Reduction programme and Capacity Building	Part A – Replacement of existing water meters by quality and durable water meters having AMR (Auto meter reading) including booster, solar repeater solar cell fixed rear EMMR PC – IBM and 110 V GPRS + antenna set, including replacement of all service connection pipe line along with accessories including flow control valves.	1,908
	Part B _ development of asset management and accounting system including necessary software. Implementation computerized pipeline network hydraulic design/analysis with necessary software/ hardware and training	49.4
	Part C – Supply of equipment such as geophones, corelators, acoustic data logger, ground microphones, ultrasonic flow meters, pressure gauges, pipe locators, sounding rods, tanker and other peripheral equipment	120
	Part D: Services and manpower for leak detection including all activities performed for a period of six months	30
Sub Total		**2107.4**
	Creation of GIS Based online consumer grievance redressal module with all the necessary software for development and installation and integration with SCADA	20
	Development of online bill payment systems. Creation of online consumer billing module with bank payment gateways and web hosting	18.5
	Construction and establishment of well-equipped quality control laboratory for effective management of consumer water supply	125
	Cost of Project Management Consultancy including tender document preparation for turnkey works, tender evaluation, construction supervision and quality control as well as	1000

Scheme Components	Details	Cost (in Rs lakhs)
	capacity development for Panaji JNNURM project for a 3 years period including a team of design engineers and construction supervisor totaling 10 nos. and a team leader cum expert of 15 years' experience.	
Sub Total		**17280.9**
	Environmental Compliance Cost	10
	Rehabilitation and Resettlement Cost	0
	Cost of surveys and investigations (lump sum cost)	80
	Cost of shifting utilities	20
	Cost of statutory compliance cost	5.5
	Finance/ Interest cost during construction	0
	Contingency (above estimate cost are inclusive of contingency)	0
	Any other (5% for price escalation)	0
	GRAND TOTAL	**17,396**