



Ministry of Housing & Urban Affairs
Government of India



Urban Development
& Housing Department



SERVICE LEVEL IMPROVEMENT PLAN OF WATER SUPPLY

NAGAR PARISHAD BAGAHA

PREPARED BY
Regional Centre for Urban and
Environmental Studies Lucknow
IN CONSULTATION WITH
Bagaha Nagar Parishad
&
Bihar Raj Jal Parshad

CITY NAME – BAGAHA NAGAR PARISHAD

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 not available for water supply system of the city because no DPR related to water Supply of Bagaha Nagar Parishad has been prepared. There are only PHED provided hand pumps for drinking water.

Urban Development and Housing Department Government of Bihar had conducted a survey to collect information from household level and all the information is categorized ward and Zone wise.

In that Survey information related to the existing condition and the requirement raised by the citizens regarding the essential Services provided by Urban Development and Housing Department, Government of Bihar have been categorized ward and Zone wise.

The Primary and Secondary Data available with the Nagar Parishad and Parastatal Agencies have been utilized for the baseline information based on which the Service Level Improvement Plan for Water Supply Scheme for Bagaha Nagar Parishad has been prepared.

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 the Census 2011 data from Census of India website. No there is no baseline survey data of MoUD but data related to a baseline survey done by Urban Development and Housing Department, Govt of Bihar is available.

Yes we have correlated the data available in Nagar Parishad and other Parastatal Agencies that were involved in urban development schemes while preparing the Service Level Improvement Plan.

Total population (census 2011)	Location of source of drinking water Population	Total number of house holds	Tap water from treated source
	Total Population -1,12634	20,931	902
	Within the premises	14,647	682

	Near the premises	5,124	150
	Away	1,160	70
Departmental data 2015		21931	0
Departmental data 2017		21931	0

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	
		2015	2017		2015	2017
1	Coverage of water supply connections	0%	0%	100%	D	D
2	Per capita supply of water	0 LPCD	0 LPCD	135 LPCD	D	D
3	Extent of metering of water connections	0%	0%	100%	D	D
4	Extent of non-revenue water	0%	0%	20%	D	D
5	Quality of water supplied	0%	0%	100%	D	D
6	Cost recovery in water supply services	0%	0%	100%	D	D
7	Efficiency in collection of water supply related charges	0%	0%	90%	D	D

QUESTION: WHAT IS THE GAP IN THESE SERVICE LEVELS WITH REGARD TO BENCHMARKS PRESCRIBED BY MOUD? (75 WORDS).

S.No	GAP IN SERVICE LEVELS IS AS UNDER:	Year 2015	2017-Existing
1.	Gap in coverage of water supply Connection	100%	100%
2.	Gap in Per capita water availability	135 LPCD	135 LPCD
3.	Gap in Metering	100%	100%
4.	Gap in NRW which include leakage and free water supply to social gathering festivals along with water supply through stand posts.	80%	80%
5.	Gap in Quality of supplied water as per PHE norms.	100%	100%
6.	Gap in Cost recovery with expenditure on electricity and power.	100%	100%

7.	Gap in efficiency of water charges/tax collection	90%	90%
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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 underground water source? What is the capacity of these sources?

Existing source of water supply is only underground water and capacity of these sources (Total Nos of tube wells x Average discharge of each tube well) is 0x 0MLD= 0 MLD

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?

No, chlorination of underground water supply is done. Chlorinator Dozers are provided for this purpose. 15.21 MLD water is required to be treated daily. Total treatment Capacity installed in the city is 0 MLD

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?

Groundwater is existing source of water. Water treatment facility is available. Per capita water supply is $=(\text{Total water available} / \text{present Population})$ 0 MLD/ 1,26,158 Population = 0 LPCD

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 work of Water Supply in Rural and Urban areas of Bihar is done by the Public Health and Engineering Department of Bihar Government and same is maintained by Gram Panchayat and Urban Local Bodies for smooth supply to the citizens but due to lack of proper infrastructure and shortage of funds it is impossible to achieve the desired results. Ministry of Urban Development, Government of India introduced its flagship scheme AMRUT for enhancement of infrastructure related to water supply scheme and ensuring universal coverage. In line with the same Urban Development and Housing Department Government of Bihar took initiative and involved Bihar Raj Jal Parshad and BUIDCO as the Parastatal Agencies for preparation of Detailed Project Report and Implementation of the project under AMRUT. In this above context, Bihar Raj Jal Parshad visited Bagaha Nagar Parishad and conducted a survey to collect information based on which the city is divided into 7 zones.

TABLE: ZONE WISE COVERAGE OF HOUSEHOLDS

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

Zone No.	Total No. of Households	Households with Water tap Connection			Households without water tap connections		
		2015	2017	Total	2015	2017	Remaining gap
1.	2588	0	0	0	2588	2588	2588
2.	3501	0	0	0	3501	3501	3501
3.	2242	0	0	0	2242	2242	2242
4.	4500	0	0	0	4500	4500	4500
5.	2489	0	0	0	2489	2489	2489
6.	2381	0	0	0	2381	2381	2381
7.	4230	0	0	0	4230	4230	4230
Total	21931	0	0	0	21931	21931	21931

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?

Storage capacity of in the city is as follows:-

Total - 0

Elevated reservoir capacity- 0 KL

Groundwater reservoir - 0KL

Total Storage Capacity – Total number of Over Head Tank proposed 09 and Capacity is 7755 KL

Proposed capacity :7755 KL

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

As per the existing situation, the city is using only ground water and there is no need of ground level reservoirs for storage of treated raw water.

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

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

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

No, storage capacity is not sufficient to meet the city demand.

DISTRIBUTION NETWORK

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

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

The total length of water supply distribution pipeline laid in the city is 0 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?

The total road length in the city is 174.76 KM. Pipe lines are not laid in all the streets. The objective of universal coverage of water supply is not achieved as pipe line is not laid in all streets.

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

NA

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 In KM	Street Length With Water Distribution Pipe Line In Km			Street Length Without Water Distribution Pipe Line(In Kms)		
		2015	2017	Total	2015	2017	Remaining Gap
1	18.01 KM	-	-	-	18.01 KM	18.01 KM	18.01 KM
2	21.5 KM	-	-	-	21.5 KM	21.5 KM	21.5 KM
3	34.89 KM	-	-	-	34.89 KM	34.89 KM	34.89 KM
4	21.12 KM	-	-	-	21.12 KM	21.12 KM	21.12 KM
5	20.22 KM	-	-	-	20.22 KM	20.22 KM	20.22 KM
6	34.75 KM	-	-	-	34.75 KM	34.75 KM	34.75 KM
7	24.27 KM	-	-	-	24.27 KM	24.27 KM	24.27 KM
Total	174.76 KM	-	-	-	174.76 KM	174.76 KM	174.76 KM

INSTITUTIONAL FRAMEWORK

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

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

Table: Functions, roles, and responsibilities

Planning and Design	Construction/ Implementation	O&M
Bihar Raj Jal Parshad	Bihar Raj Jal Parshad	Nagar Parishad Bagaha

Question: How city is planning to execute projects?

As per AMRUT Mission guidelines city is planning to achieve universal coverage by undertaking projects of water supply scheme to focus the activities under regularization of unauthorized water connection, branch distribution pipelines, gaps between pipelines, replacement of old pipeline, storage facility, metering and 24x7 water supply, SCADA etc...

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

Yes, implementation of the project will be done by parastatal Agencies in consultation with Urban Local Bodies

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 PROJECTS

2015-16 & 2016-2017

S.No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on dd mm 2015)/2017
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S.No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on dd mm 2015)/2017
1.	3 Tube Well, 3 Over Head Tank-1362 KL, Distribution 28.35 KM, House Hold Connection-2600	State Scheme	15.86 Cr	30/07/2017 But ongoing	80%

Question: How much the existing system will be able to address the existing gap in water supply system? Will completion of above will improve the coverage of network and collection efficiency? If yes, how much. (100 words).

The existing system is unable to address the existing gap in water supply system. After the completion of State Sector Water Supply Scheme, there will be improved infrastructure along with coverage of household connection.

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

Yes, the city requires additional infrastructure to improve the services. The following kind of services will be required to fulfill the gap:

1. Better coverage of water supply system by increasing length of pipelines and creating awareness among people towards proper usage of municipal water.
2. Regularization of unauthorized water connections.
3. Reduction in NRW water by replacement of old & damaged pipelines.
4. Automation of tube wells
5. Metering of water supply.

Question: How does the city visualize taking the challenge to rejuvenate the projects by changing their orientation, away from expensive asset replacement programs, to focusing on optimum use of existing assets?

Vision of the City is to optimize the current infrastructure and identify the grey areas by reducing the NRW and mainstreaming the illegal connections. City is bound to provide universal coverage by including the unserved areas in the second phase of development through parastatal agencies.

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

No, City has not conducted any assessment related to Non-Revenue Water but is planning to conduct a study on NRW for the purpose of reducing it.

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	2017	Total		Demand	Gap
	Present	Ongoing	2015	2017 Ongoing		
						2021
Source	0 MLD	4.2 MLD	0 MLD	4.2 MLD	30.8 MLD	26.6 MLD
Treatment capacity	0 MLD	4.2 MLD	0MLD	4.2 MLD	30.8 MLD	30.8 MLD
Elevated Storage capacity	0 KL	1362 KL	0 KL	1362 KL	7755 KL	6393 KL
Distribution network coverage	0 KM	0 KM	0 KM	0 KM	174.76 KM	174.76 KM

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.

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 objective is to increase the coverage to un-served areas and to reduce NRW and enhance storage capacity.

1. Universal coverage of water connections by laying of water supply pipe lines in shortfall areas and legalization of unauthorized water connections.
2. To reduce NRW, provision of replacement of old pipe lines, leakage detection machines and automation of tube wells will be made.

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

Yes, each objective meet the opportunity to bridge the gap.

3. Examine Alternatives and Estimate Cost

The objective will lead to explore and examine viable alternatives options available to address these gaps.. These will include out of box approaches. (AMRUT Guidelines; Para 6.4 & 6.8 & 6.9). This will also include review of smart solutions. The cost estimate with broad source of funding will be explored for each. While identifying the possible activities, also examine the ongoing scheme and its solutions including status of

completion, coverage and improvement in O&M. Please provide information on the above responding to (however not limited to) following questions.

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

The source of funding of activities shall be:

1. AMRUT,
2. 14th Finance Commission
3. State Government Funds

The funding for meeting out each objective will 50% from GOI and remaining 30% from state government and 20% from ULB.

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

There are no ongoing projects funded by JICA/ADB running in the city.

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

There are no ongoing projects.

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

Bagaha Nagar Parishad had to face many a bottlenecks while executing the existing projects, primary being the lack of skilled workers, technically trained staff, lack of innovative technology, etc.

Under the capacity building component of the AMRUT scheme the corporation is making headway into creating a skilled and technically sound human resource for upcoming projects. The corporation has also felt the need to speed up their work by automation of Tube Wells.

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. Regularization of unauthorized water connections.
3. By increasing user charges
4. By reducing NRW

Question: Will metering system for billing introduced?

Yes, Metering System will be introduced.

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

Yes, Bagaha Nagar Parishad will minimize NRW level to enhance O&M Cost by regularizing of unauthorized connections and replacement of old pipe lines with new ones.

To enhance Efficiency of water charges collection metering system in water supply system and online billing, tracking system and spot billing machine will be introduced.

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

Yes, each objective meet the opportunity to bridge the gap.

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	Universal Coverage	Household Connection along with laying of Water Supply Line in uncovered areas	AMRUT
2	Per Capita of Water Supply	Installation of Tube-Well	AMRUT
3	Reduction of NRW	Replacement of Old-line along with Metering	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 are involved in the consultation process of formulation of Service Level Improvement Plan.

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

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

Question: Has alternative proposed above are crowd sourced?

Yes, alternative proposed above are crowd sourced.

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

Feedbacks are regularly taken each month both in monthly Board meetings and at ward level meetings. Feedbacks 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?

On the basis of consultation made in Board of Bagaha Nagar Parishad, firstly regularization of water connections, replacement old pipelines, laying of new pipelines in uncovered areas, as per requirement Installation of tube wells then metering of water connections and automation for increasing service efficiency.

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
4. ULB

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

The convergence factor shall be considered while designing and funding of project.

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

Yes, the projects are being prioritized based on “more with less” approach.

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

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

6. Conditionalities

Describe in not more than 300 words the Conditionalities of each project in terms of availability of land, environmental obligation and clearances, required NOC, financial commitment, approval and permission needed to implement the project.

Activities which are proposed to be taken do not require land and NOC.

7. Resilience

Required approvals will be sought from ULBs and competent authority and resilience factor would be built in to ensure environmentally sustainable water supply scheme. Describe in not more than 300 words regarding resilience built in the proposals.

Yes, resilience factor, disaster and environmental related factors would be built-in, to ensure environmentally sustainable water supply scheme.

8. Financial Plan

Once the activities are finalized and prioritized after consultations, investments both in terms of capital cost and O&M cost has to be estimated. (AMRUT Guidelines; para 6.5) Based on the investment requirements, different sources of finance have to be identified. Financial Plan for the complete life cycle of the prioritized development will be prepared. (AMRUT Guidelines; para 4, 6.6, 6.12, 6.13 & 6.14). The financial plan will include percentage share of different stakeholders (Centre, State and City) including financial convergence with various ongoing projects. While preparing finance plan please reply following questions in not more than 250 words

Question: How the proposed finance plan is structured for transforming and creating infrastructure projects?

As per the guidelines of the AMRUT, the structured plan of the project has been developed in which a sharing of fund as follows is adopted: 50% from GOI and remaining 30% from State Govt and 20% from ULB.

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

Water Supply Phase I and Phase II.

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 i.e. GOI, state government and ULB.

Question: Is the proposed financial structure is sustainable? If so then whether project has been categorized based on financial considerations?

Yes, the proposed financial structure is sustainable and project has been categorized based on financial considerations.

Question: Have the financial assumptions been listed out?

Yes, financial assumptions have been listed out.

Question: Does financial plan for the complete life cycle of the prioritized development?

Yes, financial plan has been done for the complete life cycle of the prioritized development.

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

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

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

Yes, it includes financial convergence with various ongoing projects

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

Yes, year-wise milestones and outcomes have been provided.

DETAILS IN FINANCIAL PLAN SHALL BE PROVIDED AS PER TABLE 8.1, 8.2, 8.3, 8.4 AND 8.5. THESE TABLES ARE BASED ON AMRUT GUIDELINES TABLES 2.1, 2.2, 2.3.1, 2.3.2, AND 2.5.

Table 8.1 Master Plan of Water Supply Projects for Mission period

(As per Table 2.1of 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	Water Supply Scheme Phase-1	1	March ,2017	March 2019	29.70Cr
2	Water Supply Phase-2	2	August ,2018	August,2020	70.97 Cr

MASTER SERVICE LEVELS IMPROVEMENTS DURING MISSION PERIOD

S.No	Project Name	Physical Components	Indicator	Change in Service Levels			Estimated Cost
				2015	2017	2020	
1	Water Supply Scheme Phase-1	Tube well-02,Over Head Tank-3000 KL, Distribution line-46.40 KM, House Connection with Meter-8730,	Coverage	0%	0%	100%	29.70 Cr
			Per Capita of Water Supply	0 LPCD	0 LPCD	135 LPCD	

S.No	Project Name	Physical Components	Indicator	Change in Service Levels			Estimated Cost
				2015	2017	2020	
		SCADA, Pump House and Transformer -02,	NRW	0%	0%	20%	
			Quality	0%	0%	100%	
2	Water Supply Scheme Phase-2	Distribution Network-101.02KM, Tube Wells-14, Over Head Tank -3393 KL, Household Connection with meter -10601 SCADA, Pump House and Transformer	Coverage	0%	0%	100%	70.97 Cr
			Per Capita of Water Supply	0 LPCD	0 LPCD	135 LPCD	
			NRW	0%	0%	20%	
			Quality	0%	0%	100%	

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 Approved By SHPSC	Share				Total
			GOI	State	ULB	Others	
1	Water Supply Scheme Phase-1	02/03/2016	14.85Cr	8.91 Cr	5.94 Cr	-	29.70 Cr
2	Water Supply Scheme Phase-2	17/01/2018	35.49 Cr	21.29 Cr	14.19Cr	-	70.97 Cr
Total			50.34 Cr	30.2 Cr	20.13 Cr		100.67 Cr

ANNUAL FUND SHARING BREAK-UP FOR WATER SUPPLY PROJECTS

(As per Table 2.3.2 of AMRUT guidelines)

DATA COLLECTION , DISCUSSION AND VALIDATION BY	
Name of the officer deputed in ULB	
Designation	Municipal Commissioner /Executive Officer/ Chief Engineer/.....
Signature	
Name of Parastatal Agency	Bihar Raj Jal Parshad
Officer of Parastatal Agency deputed for the task	Er. Rajneesh Kumar Assistant Engineer Bihar Raj Jal Parishad Contact Number-7766985431
Signature	
Date of Finalization	