

4.2.5 Drinking Water and Domestic Use

4.2.5.1 Rural Water Supply and Domestic Use

1. Subject Matter

- a. Drinking water supply points in the state - Rural area (Table 1).
- b. Un-served and partially served/ Stress areas Households and population (Table 4).
- c. Water consumption, management and quantity monitoring (Table 4a & 4b).
- d. Status of access, coverage & slippages (if any) of DW supply provision for the Rural population (Table 6).
- e. Water quality measurement at Supply end (Source) (Table 7)
- f. Water treatment plants with capacity and treatment methods (Table8).
- g. Sewage treatment and recycling (Table 9)
- h. Water conservation program (Table 10)
- i. Technologies for emerging pollutants (Annexure 11).
- j. Drinking Water Vulnerability Table.14
 - Guiding data Available on format B 1 of IMIS of MDWS
 - Guiding data Available in format B6 of IMIS of MDWS
 - Guiding data Available in Format C 17of IMIS of MDWS
 - For Guiding data refer link www.indiawater.gov.in/MISC/Homebp.aspx
 - (www.indiawater.gov.in)

2. Availability, Utilizable, Supply (Sector wise and Source wise), Demand (Sector wise and Source wise), Consumption (Sector wise and Source wise). Temporal & Spatial basis is to be considered

- a) Current drinking water demand, supply, gap and time trends. (Table 3a & 3b, 5).

3. Issues and Challenges

4. Problem Tree / Root cause Analysis: Cause, Effect and Interventions

5. Governance / Management

- a) Statute / Law / Policy/ Regulations if any
- b) Institutions governing / managing / monitoring the resources and Institutional structure.
- c) Areas of Peoples/Private Participation if any
- d) Water Financing & Schemes (Table11)

6. Measurement, Monitoring and Data Constraints/ Management

7. Performance Indicators

- a) Bench Marks/ Norms/ Standards and deviation from the norms/benchmarks/standards currently.
 - i. Water Quality: Conformity to quality of water supplied for drinking purpose as per (BIS 10500:2012) (Table6c).
 - ii. Guiding data Available in Format C17A priority contaminants of IMIS of MDWS (www.indiawater.gov.in)
- b) Status of various Performance Indicators – for comparison across Districts/ Plants/ Units/ Products etc.

Category of Indicators (Illustrative)	Indicator	Bench Mark/ units	District.1/	District.2/
Water Measurement	No. of Rural bodies fully covered with piped water supply connections	100%		
	No. of Rural bodies partially covered with piped water supply connections			
	No. of Rural bodies not covered with any piped water supply connections			
	Total number of sources for Rural Water Supply			
	No. of Rural bodies that have installed water meters at all sources / withdrawal points	100%		
	% of Sources installed and operational water meters at source			
	% of households installed with water meters			
	% of establishments (other than households installed with water meters)			
	% population covered with W/S	100%		
Sources of DW	% Rural bodies served only from GW			
	% Rural bodies served only from Surface WR			
	% Rural bodies served only from RWH			
	% Rural bodies served only from Recycle Water			
	% Rural bodies served only from GW and SW			

	% Rural bodies served only from GW, SW and RWH			
	% water sources geo-tagged			
Access	% bodies covered by single piped Water Supply			
	% bodies covered by multi-habitations piped Water Supply			
	% households accessing drinking water through PWS with household connections			
	• Metered			
	• Un-metered			
	% of households accessing DW through public taps			
	% of households accessing DW through hand pumps throughout the year			
	% of households accessing DW through other means throughout the year			
	% of Govt. Schools / Universities covered Water Supply			
	% of Govt. Health Institutions covered Water Supply			
	% of Private Schools / Universities covered Water Supply			
	% of Private Health Institutions covered Water Supply			
	% of Anganwadies, crèches having safe WS			
Water Conservation	% of Rural bodies not having Water management / security plans	20%		
	Number of Rural bodies not taken up RWH			
	Number of Rural bodies taken up behavioral change awareness campaign on responsible & safe use of water	90%		
	No. of Rural bodies undertaking GW recharge			
	No. of Rural bodies ensured the institutions to use micro irrigation for landscaping	80%		
Water Demand Management	% of Rural bodies having mechanism to accommodate seasonal water demand variations	Available		
	Gap between Demand and Supply	0		
	Gap between Supply and consumption	0		
	Gap between Demand and Consumption	0		
	No. of unserved (with respect to piped W/S) Households	0		
	No. of partially served Households			
	% of population in unserved Households	0%		
	% of population in partially served Households	20%		
	WMI: Proportion of total Rural Households fully covered with drinking water supply as on 31.03.2016			
	WMI: Proportion of total rural Households fully covered with drinking water supply as on 31.03.2017			
	% of cities/ towns covered with SCADA System	100%		
	% of household covered with leakage detecting devices	100%		
	% of households covered with metered water supply	100%		
	% of population served with other sources (other than piped)	100%		
	Water supply consistency- hours of Water Supply	24 hours a day		
	Water Stress Index			
Volume of water supplied at Source vis-a-vis volume of water received by the end users				
Days of operation at required standards				

Water Efficiency	% Non-revenue water (leakages)	0		
	Average time for correcting water leakage points	4 Hours		
	Rural bodies (in numbers) that have installed water meters at all sources / withdrawal points	100%		
	% of Sources installed and operational water meters at source	100%		
	% of households installed with water meters	100%		
	% of establishments (other than households installed with water meters)	100%		
	Repair times for high priority inoperative lines			
Equity	Number and % of SC and ST households not provided with PWS			
	Number and % of Minority households not provided with PWS			
	Number and % of Women Head households not provided with PWS			
	% of slums not covered with PWS			
Water Service levels	% of population with 135-150 lpcd water supply			
	% of population with 70-135 lpcd water supply			
	% of population with less than 70 lpcd water supply			
	% of population in unserved areas			
	% of population in partially served areas			
	% of population served with other sources (other than piped)			
	Water supply consistency- hours of Water Supply			
Water Stress Index	Volume of water supplied at Source vis-a-vis volume of water received by the end users			
SDG	Proportion of population using safely managed drinking water services (SDG)	100%		
	Volume of Utilization of fresh water vis-a-vis volume of Treated Water uses in domestic purpose other than drinking			
Sewage treatment and recycling	No. of sewage releasing points			
	% of sewage release points geo tagged			
	Total sewage generated	100%		
	% of Sewage treated	20%		
	% of treated sewage recycled in the Industry	20%		
	% of treated sewage is used for other purposes	0%		
	% of un treated sewage is discharged	0%		
	No. of points where sewage is mixed with drinking water			
Water treatment plants with capacity and treatment methods	Gap between the Water Treatment Design capacity and actual capacity	0 mcm		
	Volume of Utilization of fresh water vis-a-vis volume of Treated Water uses in domestic purpose other than drinking			
Water Quality Monitoring	Districts having Water Quality testing lab			
	No. of Sub-divisions without Water Quality testing labs			
	% of Rural bodies not undertaking Quality surveillance (in terms no. of samples) as prescribed.	%		
	Number of Rural bodies not undertaking Quality surveillance (in terms no. of samples) as prescribed.	Number		
	Total number of samples taken during the last year			
	Households	% of coverage		
	Schools			

	Universities	%		
	Industry	%		
	Establishments	%		
	Bus Stops	%		
	Railway stations			
	Number of samples per 1000 population			
	No. of Rural bodies that have not undertaken quality sampling as per prescribed norm			
	% of samples not qualified for BIS Norms- physio-chemical properties	10%		
	% of samples not qualified for BIS Norms- Bacteriological	0%		
	% of Households whose water sources at availability is not as per set norms/ standards	0%		
	% of Households whose water sources at supply end are not as per set norms/ standards	10%		
	% of public DW sources with chemical contamination			
	% of private DW sources with chemical contamination			
	% of public DW sources with bacteriological contamination			
	WMI: % reduction in rural Households affected by Water Quality problems during the Financial Year 2015			
	WMI: % reduction in rural Households affected by Water Quality problems during the Financial Year 2016			
Water Productivity	Per capita water supply			
	No. of Rural bodies failing to supply standard per capital water supply			
	Volume of water supplied at Source vis-a-vis volume of water received by the end users			
	Total volume of Fresh water supply and volume of Tertiary treated water Supply			
Waste Water	Total estimated generation of waste water in the Rural areas as on 1 st June WMI			
	Capacity installed in the state to treat the Rural waste-water as a proportion of the total estimated waste water generated in the Rural areas of the state as on 31 st June WMI			
	% Waste water treated in CY WMI			
	% Waste Water treated in previous Year WMI			
Environmental sustainability and Water Quality	Quality of water supplied as per BIS 10500:2012	100%		
Participatory Water Management	No. of public grievances pending	80%		
Financing	% Cost recovery through water supply systems	90%		
	Total cost of operations per MCM			
	No. of PPP contracts if any			
Impact	% reduction in prevalence of Diarrhea in children under 5 from base year.			
	% reduction in IMR from base year			
Monitoring	Operationalization of online Water Quality test results information and feedback	Yes/No		
	No. of studies undertaken and shared with local bodies			

Core water supply performance indicators %

Sr. No.	Water Supply Services	Bench Mark	Existing status		
			District 1		Nth district
1	Coverage of water supply connections	100%			
2	Per capita water supply	40 lpcd			
3	Extent of metered water supply	100%			
4	Water supply consistency	24 hours a day			
5	Quality of water supplied as per BIS 10500:2012	100%			
6	Efficiency of redressal of customer complaints	100%			
7	Cost recovery through water supply systems	100%			

% Water supply performance TARGET can be alleged to those of SDG-2030 which is “Achieve UNIVERSAL & EQUITABLE access to SAFE & AFFORDABLE DRINKING WATER FOR ALL BY 2030” This target is monitored through following indicators – “% of population using safely managed drinking water services” i.e. : (a) located on premises (b) available when needed & (c) free from faecal & priority chemical contamination.

8. Reforms undertaken/ being undertaken/ proposed if any**9. Road map of activities / tasks proposed for better governance with timelines and agencies responsible for each task/activity.**

ANNEXURE

1. Rural population covered with w/s

District/basin	Rural Population	Point Sources		Piped water supply	
		No	Qty	No	Qty
Total					

Annexure 2: Drinking water sources in the state - rural area.

Sr. No.	Name of district/basin	Number of habitations	Source of water (Annual)								Total availability (MCM)
			River		Canal		Lake		Ground water#		
			Number	Quantity (MCM)	Number	Quantity (MCM)	Number	Quantity (MCM)	Number	Quantity (MCM)	

We can explain that groundwater consist of all water sources such as dug well with primary treatment, hand pumps (both country made and IM type or Tara hand pumps tube well/DTW)

Annexure 3a: Current drinking water demand, supply and gap.

Sr. No.	Name of district/basin	Number of habitations (2017)		Population (2017)		Annual demand (MCM)	Annual supply (MCM)	Annual gap, if any (MCM)
		Total	Covered with w/s	Total	Covered with w/s			

Annexure 3b: Drinking water demand trends for last 3 decades.

Sr. No.	Name of district/basin	No. of habitations	Population			Water Demand (BCM)			Water Supply based on actual (BCM)		
			2001	2011	2017	2001	2011	2017	2001	2011	2017

Annexure 4: Un-served and stress areas.

Sr. No.	Name of district/basin	Total no. of habitations	Total population	Stress areas (service level <30 lpcd)						
				0 – 10 lpcd		10 – 20 lpcd		20 – 30 lpcd		
				No. of habitations	Population	No. of habitations	Population	No. of habitations	Population	

Annexure 5: Water consumption and management.

Sr. No.	Name of district/basin	No. of habitations	Population Coverage (%)	Per capita water supply (lpcd)	Unaccounted water (%)	Leakages/losses (%)	Non-Revenue Water (%) (8 + 9)	Total Actual Water Supplied (KLD)	Total Actual Water Consumption (KLD)
(1)	(2)	(3)	(4)	(5)	(8)	(9)	(10)	(11)	(12)

Annexure 6: Status of access, coverage & slippages (if any) of drinking water supply provision for the rural population.

- As such in number of replies to Parliament, it has been stated that no parts of country are categorized as unserved and at least some minimum service level exist. Therefore, it is proposed to club unserved areas under Supply level of 0-10 lpcd.
- In rural aspect, the percentage of population with metering at house level and at village level is minuscule and therefore can be deleted/modified

Sr. No.	Name of district/basin	No. of habitations	Total Current Population	Total House s	Total House Connection	Total public stand post	Total hand pumps	Total population Coverage (%)	Total slippage (%)

Annexure 7a: Conformity to quality of water supplied for drinking purpose as per (BIS 10500:2012). : The relevant information is also available on format C-17 A of IMIS at www.indiawater.gov.in

Sr. No.	Name of district / basin	No. of w/s schemes		Water sources for w/s schemes (number)		Number of villages with Fluoride problem	Number of villages with Arsenic problem	Number of villages with TDS problem	Number of villages with Nitrate problem	Number of villages with Iron problem	Number of villages with Heavy Metals problem
		Non PWS	PWS	Surface	Ground						

Annexure 7b: Water quality monitoring for the last 3 years (*).

Sr. No.	Name of district/basin	Type of tests	No of samples								
			2015		2016		2017				
			Tested	Failed	Tested	Failed	Tested	Failed			
		Physical & Chemical									
		Bacteriological									

(*). All the failed samples results should be analyzed and suitable remedial measures adopted must be given in brief.

Table8: Availability of water treatment plants.

Name of district/basin	No of towns/cities	Total Demand	Design capacity of WTP MCM	Actual Treatment capacity, MCM	Gap, MCM

Annexure 9: Availability of sewage treatment plants.

Sr. No.	Name of district/basin	No of habitations	Availability of sewage treatment plant	Capacity (MLD)	Type of treatment (primary/secondary & tertiary)

Table10: Water conservation programs.

Sr. No.	Name of district/basin	No. of Rural bodies not taken water conservation	No. of Rural bodies taken up water Conservation Measures		
			Rain Water Harvesting	Use of all Institutions -Micro- Drip/ Sprinkler in Institutions	Behavioral change programmes for Responsible and safe use of Water

Annexure 11: Technologies available for the emerging pollutants (**).

Sr. No.	Name of district/basin	No. of habitations	Treatment technology for removal of		
			Pesticide	Trihalomethanes	Phenols

(**) If any other emerging pollutant is found, same should also be included.

Annexure 12: Status of water pricing and financial performance of the agencies supplying water in the rural area.

Sr. No.	Name of the District/ Basin	No of w/ schemes	Number of habitations covered	Total water Supplied (KLD)	Total Cost/Expenditure of water supply (annual)		Water Tariff collected	Total billed amount (annual)	Total Revenue Generated (annual)	Management Agency/Department
					Flat monthly charges	Volumetric charges based on metering				

WATER Financing, PRICING AND COST ACCOUNTING

Table.13.1 Investment on Water Schemes

District/ Basin	Scheme Name	Total No. of Rural bodies	No. of Rural bodies received money	Budget for the previous Year			Budget for CY BE
				Allocation	Expenditure	% Expenditure	

Table13.2: Status of water pricing and financial performance of the agencies supplying water in the Rural area.

Sr. No.	Name of the City	No of w/s schemes	Total water Supplied (KLD)	Water Tariff (Rs./KL)	Total Billed Amount (annual)	Total Cost/Expenditure of water supply (annual)	Total Revenue Generated (annual)	Gap of O & M expenditure and revenue generated	Management Agency/ Department

Annexure 14. Drinking water Vulnerability						
District	Number of Habitations	Number of Habitations in Quality affected	Number of Habitations located in coastal zones or flood prone	Number of Habitations located in areas vulnerable to drought	Is the Habitation in areas where ground water is over exploited	Number of habitations where any resilient drinking water supply measures promoted