

4.3.4.2 Schools

1.0 Subject Matter

(Present a brief historical background on the growth of industry – a bird's eye view picture and analysis of the schools using the information/ tables) provided in the annexure.

GIS based map depicting location of all schools (based on central government, state government, private/ others)

District level

Number of students at the schools in the State. (Refer Annexure Table-1).

Time trend of the number (growth) of schools. (Refer Annexure Table-2).

2.0 Details of Water Availability, Supply, Demand, Withdrawal & Consumption for the Schools

Water Supply & Demand for Schools in the State

Time trend of total water demand and actual current water supplied to the Schools along with growth of Schools in the state. (Refer Annexure Tables-2, 3)

Total Freshwater Withdrawal and Actual Water Consumption by School Sector in the State

Comparative trend of Total Freshwater Withdrawal Vs Actual Water Consumption by School Sector in a State:

State Water Budgeting: (Refer Annexure-3).

Schools (district-wise)	Previous Year / Average Annual Demand (MCM)	Previous Year/ Average Annual Supply & Consumptive Use (MCM)		Demand for the present Water Year (MCM)
		Supply	Consumptive Use	
All Districts				
GRAND TOTAL	Xxx	xxx	xxx	xxx

3.0 Issues and Challenges

Illustrative issues and challenges may include

- Waste water disposal and associated surface and ground water contamination
- Water demand and supply issues in the School sector in the state, provide details
- Capital investment related issues w.r.to wastewater treatment/ recycle/reuse, water conservation interventions etc.
- Issues related to water pricing in Schools
- Technology availability, affordability and efficiency related issues
- Issues & challenges relevant to the water supply & consumption
- Issues related to monitoring and reporting of data

(Supporting data & analysis for above points may also be furnished)

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

5.0 Governance / Management:

Statute / Law / Policy/ Regulations if any

- State level laws, policy and governance for the School sector in the state on water access, consumption and wastewater discharge.
- Any specific fresh and waste water regulation/ guidelines in state, provide details.

- Has the state notified any regulations including for zero liquid discharge for the School in state? Provide details.

Institutions governing / managing / monitoring the resources and Institutional structure.

- Institutions governing / managing / monitoring the water consumption and supply.

Governing body for Schools	Water allocation & Monitoring authority	Waste water discharge monitoring
<i>E.g. Department of School Education and Literacy</i>	<i>E.g. CGWA/ Water resource department/ Urban or Rural body</i>	<i>e.g. State pollution Control Board</i>

Schemes, Economics & Financing-

Existing schemes and programs along with financial allocations, expenditure etc.

- Water Tariff and procurement cost (*Refer Annexure Tables 6(a) & 6(b)*)
- Expenditure on Water management (*Refer Annexure Tables 6(c) & 6(d)*)

6.0 Measurement, Monitoring and Data Constraints/ Management

• **Water & Wastewater Measurement:**

Shall specify measurement methods and technologies at Raw water source, industrial process and Waste Water (generation, recycle/reuse & discharge) and Water Quality as per CPCB / SPCB

- **Monitoring** at State Government: Institution/ Agency/ Official responsible for Sustainable Water Management comprehensively for this Sector.
- **Data Management:** Should specify - Frequency of measurement, Frequency of Reporting to centralized agency, Water Quality Parameters monitored, how data is being used to improve Water Use Efficiency and ensure water quality parameters within the prescribed norms etc.
- **Constraints** with respect to the measurement & monitoring.

7.0 Performance Indicators:

a. **Benchmarks on water use** (*Refer table-10*)

b. **Status of various Performance Indicators– for comparison across Districts**

Category	Indicator	Bench Mark (<i>as applicable</i>)	District- 1	District- 2
Water Quantity Measurement	Water Quantity			
	% of schools with water flow meters			
	% of water sources of schools geotagged			
	% of schools undertaken internal water audit in the last year			
	% of schools undertaken external water audit in the last year			
Water Conservation	% of schools Undertaken Third party Water Audit in the last Year			
	% of schools with water harvesting structures?			
Water Use Efficiency (<i>Annexure- Table 7</i>)	% reduction of total water demand compared to the previous year.			
	Specific Water Consumption in Water consumption per student (L/student) (<i>refer Annexure Table-7(a),(b) & (c)</i>)			
	Have specific water consumption norms/benchmarks established	Yes/No		
Waste Water (<i>Annexure-Table 8</i>)	% of schools with specific water consumption within the norms/bench marks/standards			
	% reduction in wastewater generation as compared to previous year			
Water Quality (<i>Annexure-Table 9</i>)	% of schools with online water quality monitoring systems installed.			
	% of schools having compliance with the wastewater quality discharge norms.			
	% of schools discharging wastewater into open area/ earthen nallah /open drain/ municipal sewer?			

	% of schools notified for violating effluent discharge norms for discharge in natural resources (surface/ground)?			
Economics	Whether economic incentives are in place to encourage water efficiency & conservation?	Yes/No		
	Whether economic disincentive mechanisms like penalties etc. are in place to discourage water wastage & inefficient use?	Yes/No		
	Whether water use charges & tariff are revised regularly and are reflective of rational pricing mechanisms?	Yes/No		

8.0 Reforms undertaken/ being undertaken/ proposed if any**9.0 Road map of activities / tasks proposed for**

- Better governance
- Better source / supply management
- Better demand management /improved Water Use Efficiency
- Water Quality
- Water Economics and Financing
- Sustainable Water budgeting with timelines and agencies responsible for each task/activity.

ANNEXURE**1 Total number, types & capacity of Schools in the State**

Total Services from Schools in the State		
Type of School	No. of Schools	Total No. of students in all the Schools
Central Government Schools		
Kendriya Vidyalaya		
Navodaya Vidyalaya		
Other		
State Government Schools		
Elementary		
Secondary		
High		
Private Schools		
Others		
<i>Total</i>		

2 Growth Trend of Schools over a period and Water Demand and Supply position

Units	Years					
	1990	1995	2000	2005	2010	2017
Central Government Schools						
Kendriya Vidyalaya						
Navodaya Vidyalaya						
Other						
State Government Schools						
Elementary						
Secondary						
High						

Private Schools							
Others							
Total							
Water Demand and Supply							
Total Water Demand (MCM)							
Total Water Supply (MCM)	<i>GW</i>						
	<i>SW</i>						
	<i>Municipal Supply</i>						
	<i>Total</i>						
Demand-Supply Gap							

3Water Budgeting

3(a) Demand, Supply (Withdrawals) & Consumptive Use:

Schools: (MCM) Present Water Year: 1 st June to 31 st May next year									
INSTITUTIONS (within the Basin/ Sub-basin A)	Previous Year/ Average Annual Demand	Demand for Present Water Year	Previous Year/ Average Annual Supply				Previous Year/ Average Annual Waste Water Generated	Previous Year/ Average Annual Consumptive Use	Remarks
			Rain Water	Surface Water	Ground Water*	TOTAL SUPPLY			
Unit 1									
Unit 2									
GRAND TOTAL									

*GW Draft can be calculated from the number of GW abstraction structures & corresponding draft for each Industrial Use/ Process.

3(b) Source Wise: Previous Year/ Average Annual Water Supply

Schools: (MCM)										
Source	Sub Source	Unit 1	Unit 2	Unit 3	Unit 4					TOTAL
Rain Water	Directly Harvested Rain Water									
Total										
Surface Water	Springs, Nallahs									
	Major Projects									
	Medium Projects									
	Minor Projects									
	Ponds, Tanks									
	Wetlands									
	Sea Water /Desalinated Water									
Inter Basin Transfer										
Total										
Ground Water*	Dug wells (Total No. x Draft)									

(Dynamic / Static)	Dug cum Bore well (Total No. x Draft)										
	Bore/Tube wells (Total No. x Draft)										
	Others etc										
Total											
Treated Waste Water											
GRAND TOTAL											

*GW Draft can be calculated from the number of GW abstraction structures & corresponding draft for each Industrial Use/ Process.

3(c) Previous Year/ Average Annual Demand, Supply (Source wise) and Consumption for Basin/ Sub-basin A:

Source of Water	Demand of all Units in Basin/ Sub-basin A	Supply/ Withdrawal for all Units	Consumptive Use of all Units	Gap/Remarks
Rain Water (Directly Harvested)				
Springs, Nallahs				
Major Projects				
Medium Projects				
Minor Projects				
Ponds, Tanks				
Wetlands				
Desalinated Water/ Sea water				
Inter-Basin Transfer				
Ground Water (Dynamic)				
Treated Waste Water				
TOTAL (MCM)				

3(d) Previous Year/ Average Annual Demand, Supply (Source wise) and Consumption for Whole State:

Source of Water	Demand of all Units in the State	Supply/ Withdrawal for all Units	Consumptive Use of all Units	Gap/Remarks
Rain Water (Directly Harvested)				
Springs, Nallahs				
Major Projects				
Medium Projects				
Minor Projects				
Ponds, Tanks				
Wetlands				
Desalinated Water/ Sea water				
Inter-Basin Transfer				
Ground Water (Dynamic)				
Treated Waste Water				
TOTAL (MCM)				

3(e) Summary State Water Budget for Schools

Schools in state (district-wise)	Previous Year / Average Annual Demand (MCM)	Previous Year/ Average Annual Supply & Consumptive Use (MCM)		Demand for the present Water Year (MCM)
		Supply	Consumptive Use	
All Districts	Xxx	xxx	xxx	xxx

4 Proportion of Water withdrawal and consumption by Schools against total establishments in the State

Schools	Total Water Withdrawal by all Schools (%) (Refer Annexure-4(a))	Total water withdrawal by all the Establishments in state	Total Water Consumption by all Schools (%) (Refer Annexure-4(b))	Total water Consumption by all the Establishments in state
Central Government Schools				
Kendriya Vidyalaya				
Navodaya Vidyalaya				
Other				
State Government Schools				
Elementary				
Secondary				
High				
Private Schools				
Others				
Total				

4(a) Total Water Withdrawal/Abstraction by Schools in the State as percentage of Total water withdrawal by all the establishments in the State

$$\text{Total water withdrawal by School Sector (\%)} = \frac{(\text{Total water withdrawal by all the Schools in the State}) \times 100}{(\text{Total water withdrawal by all the establishments in the state})}$$

4(b) Total Actual Water Consumption by Schools in the state as percentage of Total water consumption by all the establishments in the State

$$\text{Total water consumption by School Sector (\%)} = \frac{(\text{Total actual water consumption by all Schools in State}) \times 100}{(\text{Total water consumption by all the establishments in the state})}$$

4(c) Total Freshwater Withdrawal by all Schools and Total Actual Water Consumption by all Schools in the State

	CY -11	CY -10	CY -9	CY -8	CY -7	CY -6	CY -5	CY -4	CY -3	CY -2	CY -1	CY / 2017
Total Fresh Water Withdrawal by all Schools (MCM)												
Total Actual Water Consumption by all Schools (MCM)												

5 Total Water Withdrawal (Abstraction) and Actual Water Consumption as percentage of total renewable freshwater resources

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
Total Fresh Water Withdrawal by all Schools (%) (Refer Annexure-5(a))						
Total Actual Water Consumption by all Schools (%) (Refer Annexure-5(b))						

5(a) Total Water Withdrawal/Abstraction by Schools in the State as percentage of Total available freshwater resources of the State

$$\text{Total water withdrawal by School Sector (\%)} = \frac{(\text{Total water withdrawal by all the Schools in the State}) \times 100}{(\text{Total available freshwater resources of the state})}$$

5(b) Total Actual Water Consumption by Schools in the state as percentage of Total available freshwater resources of the State

$$\text{Total water consumption by School Sector (\%)} = \frac{(\text{Total actual water consumption by all Schools in State}) \times 100}{(\text{Total available freshwater resources of the state})}$$

6 Water Economics & Financing:

6(a) Water Tariff (Rs./m³)

Source	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
GW						
Urban body						
Treated Waste Water for reuse						
Others						

6(b) Procurement Cost of Water (in Rs)

Year wise cost of procurement of Water				
CY-5	CY-4	CY-3	CY-2	CY-1

6(c) Expenditure on Water including Treatment and Management-Time trend at State level

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
Total Capex by schools on water treatment and management (Lakhs)						
Total O&M Expenditure by schools on water treatment and management (Lakhs)						
Total						
O&M Expense (%)						

6(d) Expenditure by each school at district level for the Current Year- CY

District	Capital Expenditure (Lakhs)	O&M Expenditure (Lakhs)	Total	O&M Expense (%)
District 1				
District 2				

District 3				
Total				

7 Water Use Efficiency:

Water use efficiency in terms of Specific Water Consumption (SWC) viz. amount of water used/consumed per unit. In case of Schools, it can be represented as the total volume of water used/consumed (Litre) per student.

Specific Water Consumption (water consumption per student) of schools:

$$\text{Specific Water Consumption (SWC); (Litre/student)} = \frac{\text{Volume of water consumed by the Schools, (Litre)}}{\text{(Total no. of students), (student)}}$$

7(a) Specific Water Consumption (SWC) for Current Year

	Vol. of Water Consumed(Litre)	Total no. Of students (students)	SWC (Litre/students)
District 1			
District 2			
District 3			

7(b) Average water consumption per student of School for the State – time trend (also represent through Graph)

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
Average water consumption per student in schools for State						

7(c) Specific Water Consumption (water consumption per student)

Trend of average Specific Water Consumption (water consumption per student) of Schools district level
Percentage of establishments having specific water consumption within the norms/bench marks/standards (*if applicable*)

8 Waste Water

	Bench Mark (<i>as applicable</i>)	District 1	District 2	District 3
Total Waste Water Generated from schools (m ³ /annum)				
% Total quantum of wastewater discharged after recycling				

9 Water Quality

	Bench Mark (<i>as applicable</i>)	District 1	District 2	District 3
% of schools with online water quality monitoring systems installed.				

% of schools with compliance of wastewater regulatory quality discharge norms.				
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Water Quality Time trend- Graphs: Compliance to Waste water discharge Quality norms (E.g. BOD / PH / COD / TSS etc.)

10 Bench Marks/ Norms/ Standards and deviation from the norms/bench marks/standards currently for schools in the state.

10(a) Benchmark for Water Consumption, Waste Water Generation etc.

	Parameters	Unit	Indian Bench Mark	International Bench Mark
1	Specific Water Consumption	L/student		
2	Waste Water generation	L/student		
3	Waste Water discharged	L/student		