

#### 4.2.3.19 Special Economic Zones (SEZs)

##### 1.0 Subject Matter

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

GIS based map depicting location of all the SEZs {based on central (specific sector, multi sector), state (specific sector, multi sector), private/ others} District level

Number of SEZs in the State. (Refer Annexure Table-1).

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

##### 2.0 Details of Water Availability, Supply, Demand, Withdrawal & Consumption for the SEZs sector

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

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

##### Comparative trend of Total Freshwater Withdrawal Vs Actual Water Consumption by SEZs Sector in a State

##### Comparative status of total water consumption by each SEZs level

State Water Budgeting: (Refer Annexure-3(e)).

SECTOR	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 SEZs				
<b>GRAND TOTAL</b>	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 SEZs sector in the state, provide details
- Issues related to water pricing in SEZs sector
- Technology availability, affordability and efficiency related issues
- 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 SEZs 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 SEZs sector 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 SEZs	Water allocation & Monitoring authority	Waste water discharge monitoring
<i>E.g. Ministry of commerce and industries</i>	<i>E.g. CGWA/ Water resource department/ Urban or Rural body</i>	<i>e.g. State pollution Control Board</i>

#### Areas of Peoples/Private Participation if any

- Water Projects set up by SEZ sector for the benefit of neighborhood/ local community/ Environment.

SEZs	Any OE <sup>31</sup> or critical block within the watershed	Water Conservation / Waste Water Treatment initiatives if any	Partnership			Sustainability of initiative
			Community Participation	PPP	Others	

SEZs	Any OE or critical block within the watershed	Water Reuse/ Recycle initiatives under PPP	PPP Yes/No	Sustainability of initiative

#### Schemes, Economics & Financing-

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

- Water Tariff and procurement cost (*Refer Annexure Table- 6(a) & 6(b)*)
- Expenditure on Water management (*Refer Annexure Table- 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, various processes 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-13*)

b. Status of various Performance Indicators– for comparison across Districts/ Plants/ Units/ Products etc.

Category	Indicator		Bench Mark/ Unit (as applicable)	SEZ 1	SEZ 2	SEZ 3
Measurement	<b>Water Quantity</b>					
	Measurement at Raw water source	Manual	Yes/No			
		Real Time/ Automatic	Yes/No			
	Measurement at major water usage areas	Manual	Yes/No			
		Real Time/ Automatic	Yes/No			
	Waste Water (generation, recycle/reuse & discharge)	Manual	Yes/No			
Real Time/ Automatic		Yes/No				

<sup>31</sup>Overexploited block of groundwater

	Undertaken internal Water Audit in the last Year?		Yes/No			
	Undertaken Third party Water Audit in the last Year?		Yes/No			
	Submitting monthly water balance to state pollution control board (SPCB)?		Yes/No			
<b>Management Plans</b>	Having Water Management Plans?		Yes/No			
	Whether Water Managements are operational		Yes/No			
<b>Water Conservation</b>	Have taken up RWH/ GW Recharge?		Yes/No			
	% of total Water requirement being met from Treated Waste Water					
	Have taken up Restoration measures?		Yes/No			
	% of reduction of water demand compared to the previous year.					
	Introduction of water efficient technologies in process to reduce water consumption.		Yes/No			
<b>Water Use Efficiency</b> (Annexure- Table 7)	Specific Water Consumption ( <b>Water Consumption per exports in USD</b> ); (m <sup>3</sup> / export in USD) (refer Annexure-Table 7(a), (b) & (c))					
	Have specific water consumption benchmarks established?		Yes/No			
	Have specific water consumption within the norms/bench marks/standards		Yes/No			
<b>Waste Water</b> (Annexure- Table 8)	Total Waste Water Generated					
	% Waste Water Treated					
	% Treated waste water recycled					
	Implementation/ achieved zero liquid discharge (ZLD)		Yes/No			
<b>Water Quality</b> (Annexure-Table 9)	Installation of online water quality monitoring systems.		Yes/No			
	Compliance with the wastewater quality discharged norms.		Yes/No			
	Discharging wastewater into open area/ earthen nallah /open drain/ municipal sewer?					
	Notified for violating effluent discharge norms for discharge in natural resources (surface/ground).		Yes/No			
	No. of areas near SEZs where Water Quality has adversely affected					
<b>Economics</b>	Whether economic incentives are in place to		Yes/No			

	encourage water efficiency & conservation?					
	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			
<b>Public Interface</b>	Operationalization of online water quality portal for information dissemination and feedback		Yes/No			

Category	Indicator	Bench Mark/ Unit (as applicable)	District 1	District 2	District 3
<b>Water Quantity Measurement</b>	% of SEZs with water flow meters				
	% of water sources of SEZs geotagged				
	% of SEZs undertaking internal water audits in last year				
	% of SEZs undertaking external water audits in last year				
	% of SEZs submitting water balance to SPCB (state pollution control board)				

**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 &amp; capacity of SEZs in the State

Type of SEZs	Total Production from SEZs in the State			
	No of SEZs	No. of units in SEZs	Total Exports in USD	Annual Average Export in USD
Central government				
State government				
Private				
Others				
<i>Total</i>				

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

Units	Years					
	1990	1995	2000	2005	2010	2017
<b>No. of Industries</b>						
Central government						
State government						
Private						
Others						
<i>Total</i>						
<b>Water Demand and Supply</b>						
<b>Total Water Demand (MCM)</b>						
<b>Total Water Supply (MCM)</b>	<i>GW</i>					
	<i>SW</i>					
	<i>Municipal Supply</i>					
	<i>Total</i>					
<b>Demand-Supply Gap</b>						

## 3 Water Budgeting

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

SEZs: (MCM) Present Water Year: 1 <sup>st</sup> June to 31 <sup>st</sup> May next year									
INDUSTRY (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									
<b>GRAND TOTAL</b>									

\*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

SEZs: (MCM)										
Source	Sub Source	Unit 1	Unit 2	Unit 3	Unit 4					TOTAL
Rain Water	Directly Harvested Rain Water									
<b>Total</b>										
Surface Water	Springs, Nallahs									
	Major Projects									
	Medium Projects									
	Minor Projects									
	Ponds, Tanks									
	Wetlands									
	Sea Water /Desalinated Water									
Inter Basin Transfer										
<b>Total</b>										
Ground Water* (Dynamic / Static)	Dug wells (Total No. x Draft)									
	Dug cum Bore well (Total No. x Draft)									
	Bore/Tube wells (Total No. x Draft)									
	Others etc									
<b>Total</b>										
<b>Treated Waste Water</b>										
<b>GRAND TOTAL</b>										

\*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				
<b>TOTAL (MCM)</b>				

**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					
<b>TOTAL (MCM)</b>					

**3(e) Summary State Water Budget for SEZs**

SECTOR	Previous Year / Average Annual Demand (MCM)	Previous Year/ Average Annual Supply & Consumptive Use (MCM)		Demand for the present Water Year (MCM)
		Supply	Consumptive Use	
<b>All SEZs</b>	xxx	xxx	xxx	xxx

**4 Proportion of Water withdrawal and consumption by SEZs against total industries in the State**

SEZs	Total Water Withdrawal by all SEZs (%) (Refer Annexure-4(a))	Total water withdrawal by all the Industries in state	Total Water Consumption by all SEZs (%) (Refer Annexure-4(b))	Total water Consumption by all the Industries in state
Central government				
State government				
Private				
Others				
<b>Total</b>				

**4(a) Total Water Withdrawal/Abstraction** by SEZs sector in the State as percentage of Total water withdrawal by all the industries in the State

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

**4(b) Total Actual Water Consumption** by SEZs sector in the state as percentage of Total water withdrawal by all the industries in the State

$$\text{Total water consumption by SEZs Sector (\%)} = \frac{(\text{Total actual water consumption by all SEZs in State}) \times 100}{(\text{Total water withdrawal by all the industries in the state})}$$

**4(c) Total Freshwater Withdrawal by all SEZs and Total Actual Water Consumption by all SEZs 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 SEZs (MCM)												
Total Actual Water Consumption by all SEZs (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 SEZs (%) (Refer Annexure-5(a))						
Total Actual Water Consumption by all SEZs (%) (Refer Annexure-5(b))						

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

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

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

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

**6 Water Economics & Financing:****6(a) Water Tariff (Rs./m<sup>3</sup>)**

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 SEZs on water treatment and management (Lakhs)						



Total O&M Expenditure by SEZs on water treatment and management (Lakhs)						
Total						
O&M Expense (%)						

## 6(d) Expenditure by each SEZs for the Current Year- CY

SEZ	Capital Expenditure (Lakhs)	O&M Expenditure (Lakhs)	Total	O&M Expense (%)
SEZ 1				
SEZ 2				
SEZ 3				
Total				

## 7 Water Use Efficiency:

Water use efficiency in terms of Specific Water Consumption (SWC) viz. amount of water used/consumed per unit of product produced. In case of SEZs, it can be represented as the total volume of water used/consumed (m<sup>3</sup>) per unit of export in USD.

## Specific Water Consumption (SWC) of SEZs:

Specific Water Consumption (SWC): (m<sup>3</sup>/ export in USD)

$$= \frac{\text{Volume of water consumed by the Units, (m}^3\text{)}}{\text{Total Export by the unit, (export in USD.)}}$$

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

	Vol. of Water Consumed(m <sup>3</sup> )	Total Exports in (USD)	SWC (m <sup>3</sup> /exports in USD)
SEZ 1			
SEZ 2			
SEZ 3			

## 7(b) Average SWC of SEZs for the State – time trend (also represent through Graph)

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
Average SWC of SEZs in State						

## 7(c) Specific Water Consumption (SWC)

- Comparative Specific Water Consumption (SWC) of SEZs
  - Trend of average Specific Water Consumption (SWC) of SEZs at district level
- Percentage of industries having specific water consumption within the norms/bench marks/standards (if applicable)

## 8 Water productivity:

For e.g. (illustrative purpose only)

- **Water Productivity** as the total economic value created of the output/product by the Industry in the State per unit volume of water withdrawal or consumption

$$\text{Water Productivity (INR/m}^3\text{)} = \frac{\text{(Total economic value created of the output/product by the Industry), INR}}{\text{(Total Volume of freshwater withdrawn/consumed), m}^3}$$

OR

Water Productivity in terms of **GVA (Gross Value Added)**; (INR/m<sup>3</sup>)

$$= \frac{(\text{Total Value of Exports} - \text{Value of inputs other than water}), \text{INR}}{(\text{Total Volume of freshwater consumed}), \text{m}^3}$$

**8(a) Water Productivity in terms of GVA for Current Year**

	Value of Exports	Value of inputs other than water	Total Volume of freshwater consumed	(Gross Value Added); (INR/m <sup>3</sup> )
SEZ 1				
SEZ 2				
SEZ 3				
<b>Total</b>				

**8(b) Average Water Productivity in terms of GVA for the State – time trend (also represent through Graph)**

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
<b>Average Water Productivity (GVA); (INR/m<sup>3</sup>)</b>						

**9 Water Intensity:**

$$\text{Water Intensity; (m}^3\text{/1000 Rs or m}^3\text{/US\$)} = \frac{\text{Volume of water consumed by the SEZ, (m}^3\text{)}}{(\text{Unit value added by Exports}), (1000 \text{ Rs or US\$})}$$

**9(a) Water Intensity for Current Year**

	Volume of water consumed	Unit value added by Exports	Water Intensity; (m <sup>3</sup> /1000 Rs or m <sup>3</sup> /Rs)
SEZ 1			
SEZ 2			
SEZ 3			
<b>Total</b>			

**9(b) Average Water Intensity for the State – time trend (also represent through Graph)**

	CY-5	CY-4	CY-3	CY-2	CY-1	CY/ 2017
<b>Average Water Intensity (m<sup>3</sup>/1000 Rs or m<sup>3</sup>/Rs)</b>						

**10 Water Footprint:**

The total volume of freshwater used directly and/or indirectly for the industrial operation/product. It includes the water used in industries own operation/process and its supply chain. Total Water footprints are composed of estimates for blue water (used from freshwater sources), green water (rain or soil water taken up by plants), and grey water (water required to dilute wastewater to be fit for discharge).

**Water Footprint for SEZs Sector**

Water Footprint (WF) of per unit of exports = Sum of WF of Operations of the unit and WF of Supply Chain

i.e. **Water Footprint (WF) = WF<sub>Supply Chain</sub> + WF<sub>Operations</sub>**

**10(a) Water Foot print for Current Year**

	WF Supply Chain	WF Operations	Total
SEZ 1			
SEZ 2			
SEZ 3			
<b>Total</b>			

**11Waste Water**

	Bench Mark/ Units (as applicable)	SEZ 1	SEZ 2	SEZ 3
Total Waste Water Generated				
% Waste Water Treated				
% Waste Water Recycled				
• % Treated waste water used in Industrial activity				
• % Treated waste water used in Green belt				
• % Treated waste water used in others				
% Total quantum of wastewater discharged.				
Implementation/ achieved zero liquid discharge (ZLD).				

**11(a) Use of Treated Waste Water**

	Source of Waste Water	Source of Treated Waste Water for reuse	Qty. of Treated WW consumed	Total Water Consumption	% use of Treated WW out of total Water Consumption
SEZ 1					
SEZ 2					
SEZ 3					

**12Water Quality**

		Bench Mark (as applicable)	SEZ 1	SEZ 2	
Water Quality	Installation of online water quality monitoring systems.				
	Compliance with the wastewater regulatory quality discharge norms.				
	Discharging wastewater into open area/ earthen nallah /open drain/ municipal sewer?				
	Notified for violating effluent discharge norms for discharge in natural resources (surface/ground).				

Water Quality Time trend- Graphs: Compliance to Waste water discharge Quality norms (E.g. BOD / PH /COD / TSS etc.)

**13Bench Marks/ Norms/ Standards and deviation from the norms/bench marks/standards currently for each industrial sector in state.****13(a) Benchmark for Water Consumption, Waste Water Generation etc.**

	Parameters	Unit	Indian Bench Mark	International Bench Mark
1	Specific Water Consumption	m <sup>3</sup> /exports		
2	Waste Water generation	m <sup>3</sup> /exports		
3	Waste Water discharged	m <sup>3</sup> /exports		