

# National Mission for Clean Ganga

Format for submission of Monthly Progress Report (MPR) in the NGT Matter O.A.

No. 673 of 2018 (in compliance to NGT order dated 24.09.2020)

For the State of GOA

## Overall status of the State:

I. Total Population: Urban Population & Rural Population separately.

Urban Population:- 9,37,788 and Rural Population:-5,20,757. (Census 2011)

II. Estimated Sewage Generation (MLD): **112.53 MLD** (Urban area only)

## III. Details of Sewage Treatment Plant:

- Existing no. of STPs and Treatment Capacity (in MLD): **09 STPs' with 78.35 MLD capacity**
- Capacity Utilization of existing STPs: **29.15 MLD.**
- MLD of sewage being treated through Alternate technology: In state of Goa where sewer network is not available, Septic-tank- Soak-pit arrangement is adopted. Many Hotels and residential buildings (with 50 rooms / flats & above) have their own Treatment Plant (as mandated under the TCP Act 2010). Sulabh toilets (PWD) are provided for group of houses/community and Bio-toilets have been provided under Open Defecation Free (ODF) policy in the State.
- Gap in Treatment Capacity in MLD: **Negligible.**
- No. of Operational STPs': **09 nos.**
- No. of Complying STPs': **09 nos.**
- No. of Non-complying STPs': **NIL**

### Details of each existing STP in the State

No.	Location	Existing STP Capacity	Capacity Being Utilized	Operational Status of STP	Compliance Status of STP
1.	Shirvodem, Navelim.	20 - MLD	08 - MLD	Operational	Complied-with
2.	Vasco	20 – MLD	06 – MLD	Operational	Complied-with
3.	Durbhat	01 – MLD	0.4 – MLD	Operational	Complied-with
4.	Goa	1.35 MLD	0.5 – MLD	Operational	Complied-with

	Medical College (GMC)				
5.	Sancoale	01 – MLD	01 – MLD	Operational	Complied-with
6.	Sanquelim	0.8 – MLD	0.15 – MLD	Operational	Complied-with
7.	Tonca, Panaji	12.5 – MLD	10 – MLD	Operational	Complied-with
8.	Tonca, Panaji	15 – MLD	02 – MLD	Operational	Complied-with
9.	Shirvodem-Navelim	6.7 – MLD	<b>1.3 – MLD</b>	Operational	Complied-with
<b>Total</b>		<b>78.35 MLD</b>	<b>29.35 MLD</b>		

**Details of under construction STPs in the State**

No.	Location	Capacity of the plant in MLD	Physical Progress (in %)	Status of I&D or House sewer connections	Completion Timeline
1	Kavlem, Ponda	15 –MLD	92% of civil works STP completed and Electrical / Mechanical works will be started after monsoons. Around 88% of the sewer-network is completed.	House connection will start 03-months before completion date.	December 2021
2	Colva	7.5 – MLD	<b>73%</b> of sewer-network is completed. STP is ready for trial-run.	House connections will start 03-months before completion date.	
3	Patto, Panaji	02 – MLD	<b>59%</b> completed physical progress.	100% completed	
4	Mapusa	5.4 – MLD	85% progress	House connections will start 03-months before completion date.	
5	Baga	5.6 – MLD	92% progress	House connections will star 03-months before completion date.	

**Details of proposed STPs in the State**

<b>No.</b>	<b>Location</b>	<b>Capacity of the STP proposed in MLD</b>	<b>Status of Project (at DPR Stage/ Under Tendering/ Work to be Awarded)</b>	<b>Likely Date of Completion</b>
1.	Undir, Bandora	15 – MLD	STP work could not be started due to local issues. Around 60% of the sewer-network is completed.	16-months time-period required from start of work.
2.	Curti, Ponda	08- MLD	STP work could not be started due to local issues. Around 90% of the sewer-network is completed.	
3.	Porvorim	20 – MLD	STP work could not be started due to local issues. Around 80% of the sewer-network is completed.	

**IV. Details of Industrial Pollution:**

- No. of industries in the State: 8,611
- No. of water polluting industries in the State: Nil
- Quantity of effluent generated from the industries in MLD:
- Quantity of Hazardous Sludge generated from the Industries in TPD:
- Number of industrial units having ETPs: 209
- Number of industrial units connected to CETP: State does not have any CETP
- Number and total capacity of ETPs (*details of existing/ under construction / proposed*)
- Compliance status of the ETPs: 207
- Number and total capacity of CETPs (*details of existing/ under construction / proposed*) : State does not have any CETP
- Status of compliance and operation of the CETPs : Not Applicable in view of above.

<b>Town</b>	<b>No. of industries</b>	<b>Industrial discharge</b>	<b>Status of ETPs</b>	<b>Status of CETPs (existing, under construction &amp; proposed)</b>
Not Applicable				

**V. Solid Waste Management:**

- Total number of Urban Local Bodies and their Population: *As referred in MPR for the month ending November 2020.*

- Current Municipal Solid Waste Generation: **766 tons per day (TPD)** – as per the waste characterization report, 2018.
- Number, installed capacity and utilization of existing MSW processing facilities in TPD (bifurcated by type of processing e.g.- Waste to Energy (Tonnage and Power Output), Compost Plants (Windrow, Vermi, decentralized pit composting), biomethanation, MRF etc., **Refer Annexure - A.**
- Action plan to bridge gap between Installed Capacity and Current Utilization of processing facilities (if Gap > 20%): **Refer Annexure – B.**
- No. and capacity of C&D waste processing plants in TPD (existing, proposed and under construction): State has proposed 500-TPD capacity C & D waste processing plant at Cudchirem in Bicholim, North Goa district.
- Total no. of wards, no. of wards having door-to-door collection service, no. of wards practicing segregation at source: As referred in MPR for the month ending November 2020.
- Details of MSW treatment facilities proposed and under construction (no., capacity, and technology): **Refer Annexure – B.**
- No. and area (in acres) of uncontrolled garbage dumpsites and Sanitary Landfills.: **N.A.**
- No. and area (in acres) of legacy waste within 1km buffer of both sides of the rivers: **Nil.**
- No. of drains falling into rivers and no. of drains having floating racks/screens installed to prevent solid waste from falling into the rivers: **Nil.**

**Status of ULB wise Management of Solid Waste**

ULB	Total MSW generation in TPD	Total MSW being processed in TPD	Existing MSW facilities	Utilization Capacity of the existing MSW facilities	Proposed MSW Facilities & Completion Timeline
As referred in MPR for the month ending-November 2020.					

**VI. Bio-medical Waste Management:** *As per Annual report*

- Total Bio-medical generation: 2,992 kgs. per day (bio-medical waste) / 17,179 kgs. per day (sanitary waste).
- No. of Hospitals and Health Care Facilities: **Refer Annexure – C.**
- Status of Treatment Facility/ CBMWTF: **Refer Annexure – B.**

## **VII. Hazardous Waste Management:**

- Total Hazardous Waste generation:
  - (a) Incinerable waste : 39,379.80 TPA
  - (b) Land-fillable waste : 3,385.21 TPA
  - (c) Recyclable waste : 33,095.57 TPA
  - Total : 77,056.58 TPA.
- No. of Industries generating Hazardous waste : **1,628 nos.**
- Treatment Capacity of all TSDFs : **16,846 metric tons per year.**
- Avg. Quantity of Hazardous waste reaching the TSDFs and Treated: **Currently, majority of the HW-generated is disposed through Inter-State movement by recycling / utilization / disposal at common secured landfill site / common incinerator / co-processing to neighboring States under valid agreement.**
- Details of on-going or proposed TSDF : **The State has initiated the process to set-up Common Hazardous Waste Treatment Facility at Pissurlem Industrial Estate.**

## **VIII. Plastic Waste Management:**

- Total Plastic Waste generation: **80.66 Tons per day (TPD) – as per the waste characterization report, 2018.**
- Treatment/ Measures adopted for reduction or management of plastic waste: **Establishment of Material Recovery facility (MRF) as well as Baling facilities (03 nos.).**

**IX.** Details of Alternate Treatment Technology being adopted by the State/UT: **The State has proposed to set-up Plastic-to-Fuel plant at Pernem Municipal Council (North Goa) on a trial-basis.**

**X.** Identification of polluting sources including drains contributing to river pollution and action as per NGT order on in-situ treatment: **There is no industrial discharge within any of the polluted river-stretches.**

**XI.** Details of Nodal Officer appointed by Chief Secretary in the State/UT: **Secretary, Environment is a Nodal Officer to be assisted by Director, Department of Environment & Climate Change (DoE & CC), Goa.**

**XII.** Details of meetings carried under the Chairmanship Chief of Secretary in the State/UT: **The State, in compliance to the NGT Order in a matter of 606 of 2018 (SWM-related matters & Ors.), has constituted the State Level Committee (SLC) under the Chairmanship of Chief Secretary and has conducted twenty-one meetings till date.**

- XIII.** Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river; **refer Annexure – D.**
- XIV.** Ground water regulation: (a) Ground Water Act, 2002 is enacted in the State of Goa, (b) Ground water extraction is being monitored, (c) It is mandatory to register all the ground water structures in the State, (d) Commercial ground water extraction is levied with water tax, (e) Goa is declared as ‘Safe zone’ under the Ground water development by the Central Ground Water Board (CGWB) – **Expected level of compliance : 100%, Actual compliance : 80%** (no change since November 2020), **Target : March 2021.**
- XV.** Good irrigation practices being adopted by the State: Water User Associations (WUAs’) are formed to economise the use of water. - **Expected level of compliance: 80%, Actual compliance: 60%** (no change since November 2020), **Target: May 2021.**
- XVI.** Rain Water Harvesting: Although the State receives abundant rainfall to the tune of about 160-inches per year, the Town and Country Planning (TCP) Department has made roof-top rainwater harvesting mandatory for multi-dwelling units as well as residential-cum-commercial complexes. Department of Industries, Trade and Commerce (DITC) is encouraging the industries to adopt rainwater harvesting initiatives. - **Expected level of compliance: 50%, Actual compliance: 20%** (no change since November 2020), **Target: March 2021.**
- XVII.** Demarcation of Floodplain and removal of illegal encroachments: **70% - Expected level of compliance: 100%, Actual compliance: 90%, Target: March 2021.**
- XVIII.** Maintaining minimum e-flow of river: Rivers are perennial. **There is no issue of e-flow in major rivers.**
- XIX. Plantation activities along the rivers:** Major stretches of lower-reaches of major rivers (*i.e. downstream regions*) are flanked by mangroves while, along upper-reached (*i.e. upstream regions*), there is either coconut plantation or no space for any plantation.
- XX.** Development of Biodiversity Park: As referred in MPR for the month ending October 2020.
- XXI. Reuse of Treated Water:** Although there is no agricultural demand, part utilization has been proposed for (i) release of STP-treated water at Colva into Sal-river so as to maintain the flow, (ii) flushing of St. Inez creek, (iii) municipal gardening, (iv) social forestry, (v) private-plantation, (v) dust-suppression measures and every attempt is being made to utilize the STP-treated waters.
- XXII.** Model River being adopted by the State & Action Proposed for achieving the bathing quality standards: River Sal and River Valvonti. Polluting drains joining the river are being identified treated/ filtered. De-weeding and desilting is being proposed including aeration of the stored water.

**Expected level of compliance 100 %. Actual Compliance - 40 % (No change since November 2020). Target – May 2021.**

**XXIII. Status of Preparation of Action Plan:** Central Pollution Control Board (CPCB) has approved the Action plans prepared for Sal river (*priority criteria- III*) as well as Mandovi and Talpona rivers (*both falling under priority criteria – IV*). In the remaining eight pollutes river-stretches; various Action Plan Strategies (APSS') which are proposed in respective action plan have been reviewed / re-visited by the Secretary, (Environment) recently with specific reference to timelines for its completion. : **Expected level of compliance – 100%, Actual compliance - 40%, Target –May 2021.**

**XXIV. Regulation of Mining Activities in the State/UT:** It is being monitored as per Hon'ble Supreme Court Directives through the Department of Mines and Geology (DMG).

**XXV.** Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring: Ground water and river waters are monitored under Goa Ground Water Act, 2002 and Goa Irrigation Act, 1973 respectively by Ground Water and Canal Officers respectively. : **Expected level of compliance: 100%, Actual compliance: 80% (No change since November 2020), Target: May 2021.**

# Annexure A

Number, installed capacity and utilization of existing GWMC MSW processing facilities in TPD:

## 1. MRF facilities

- i. Verna MRF facility: ~**8 TPD** (dry waste)
- ii. Cacora MRF facility: ~**5 TPD** (dry waste)
- iii. Bicholim MRF facility: ~**8TPD** (dry waste)

2. **Integrated Solid Waste Management Facility (SWMF)** of 150 tons per day (TPD) and currently is in process of enhancing from existing 150-TPD to 250-TPD (+20%). **Presently, 20% work has been completed.**

## Annexure B

Sr. No.	Project	Details		Status	Timeline
1	<b>Enhancement of Integrated Solid Waste Management Facility - Saligao</b>	Capacity : Catering to : Cost of the Project	250 TPD (+20%) Bardez, Pernem, Bicholim & Sattari Talukas 103.87 Cr	<p>Part enhancement of Integrated Solid Waste Management Facility (SWMF) from 100 tons per day (TPD) to 150 tons TPD is completed and currently is in process of enhancing from existing 150-TPD to 250-TPD (+20%).</p> <ul style="list-style-type: none"> <li>• Works commenced on 29<sup>th</sup> August 2020</li> <li>• <b>Foundation work of wet waste shed, digester, ETP, dewatering shed completed. RCC tank wall work of digester in progress.</b></li> <li>• <b>Current completion status is 20%</b></li> </ul>	<b>December 2021</b>
2	<b>Integrated Solid Waste Management Facility - Cacora</b>	Capacity : Catering to : Cost of the Project	100 TPD (+25%) Sanguem, Dharbandora, Quepem & Canacona Talukas 173.98 Cr	<ul style="list-style-type: none"> <li>• Site Leveling and survey has commenced at Cacora Site.</li> <li>• <b>Foundation works of MSRC shed, digester tank, STP, gas engine building and solar shed foundation works are in progress.</b></li> <li>• <b>Current completion status is 8%</b></li> </ul>	<b>December 2021</b>
3	<b>Integrated Solid Waste Management Facility- Bainguinim</b>	Capacity : Catering to:	250 TPD (+20%) Tiswadi & Ponda Talukas	<ul style="list-style-type: none"> <li>• Environmental Clearance (EC) has been granted.</li> <li>• RFQ has been floated on 21/09/2020 after approval by TASC.</li> <li>• <b>Opening of RFQ bids was on 05/01/2021 and only single bid was received.</b></li> <li>• <b>In process of extending of the tender submission date due to single bid.</b></li> </ul>	<b>Proposed timeline for completion is October 2022</b>

4	<b>Solid Waste Management Facility -Verna (250 TPD + 20%)</b>	Capacity   250 TPD (+20%) Catering to Mormugao & Salcete Talukas	<p>Work Order issued to L1 bidder M/s Sadekar Enviro Engineers Pvt Ltd on 16/11/2020 Preliminary site visit by EIA Consultant was carried out on 15/12/2020</p> <ul style="list-style-type: none"> <li>Letter made to Goa SEAC for revised TOR for change in scope of work, considering additional study for setup of 250 TPD Waste to Energy at the same site.</li> <li><b>Awaiting reply from Goa-SEAC</b></li> </ul>	<b>The Rapid EIA studies to be completed upon issue of revised TOR's by Goa-SEAC.</b> Upon grant of EC, GWMC shall float tender for SWMF 250 TPD.
5	<b>Construction &amp; Demolition Waste Management Facility - Bicholim</b>	Capacity: 500 TPD  Land:44,478 sqm Catering to: State of Goa	<ul style="list-style-type: none"> <li>GWMC has taken the possession of revenue, land under survey no 146/2,3,4,6 and 148/2,6,7 at Curchirem Village in Bicholim taluka.</li> <li>Whereas It has been observed that there are names in Form I &amp; XIV of the aforementioned survey number under another rights column as lessee. Hence, the matter was placed before Collector North to grant the land free from all encumbrances.</li> <li>Further matter regarding demarcation of this land is going on before the Dy. Collector Bicholim. Subsequently, 5 hearings have been conducted and out of 27 opponents only 2 opponents have been objected</li> <li>Furthermore, a GWMC official has also inspected the site on <b>15/07/2020</b> and it has been observed that the illegal extraction of the stones from quarries/pits is still happening on the site. A copy of inspection report and FIR filed in the Bicholim Police Station based on the complaint made by the Mamlatdar of Bicholim Taluka. has been submitted to concerned departments to take necessary action as per law.</li> </ul>	<b>The consultant shall submit DPR by mid-February and GWMC shall float tender for setting up C &amp; D Waste Management Facility by May 2021 and construction work towards the same shall commence by January 2022 and to be</b>

				<ul style="list-style-type: none"> <li>• Meantime, GWMC has requested the District Magistrate, North Goa Collectorate to hand over the said land to GWMC without any encumbrances after following due procedure prescribed under law, the said matter has been forwarded to the Deputy Collector/SDO Bicholim for necessary action. <b>The last hearing was held on 08<sup>th</sup> January 2021.</b> GWMC consultant M/s SINTEF, Scientific Research Organization from Norway is assisting GWMC in development &amp; implementation of new technologies in C&amp;D Waste Management.</li> <li>• GWMC received objection from VP Ona-Maulinguem, Bicholim for setting up garbage/MSW facility. Hence letter has been sent on 12/10/2020 to the VP informing that the plant is not for garbage/MSW and instead for C&amp;D facility.</li> <li>• <b>Awaiting demarcation order from Dy. Collector</b></li> <li>• <b>Awaiting final order for removal of lessees enrolled in the revenue land to be handed over to GWMC free from all encumbrances.</b></li> </ul>	<b>completed in 18 months i.e. November 2023</b> after getting the land without any encumbrances including trial operation.
6	<b>Common Bio-Medical Waste Treatment Management facility (CBMWTF)</b>	Capacity	200 kgs. Per. hour incinerators.	<ul style="list-style-type: none"> <li>• Columns have been erected.</li> <li>• Masonry work for walls have been completed</li> <li>• Excavation work for phase two is in process.</li> <li>• <b>Autoclave, boiler, segregation belt and plastic recycling unit machinery has reached the site.</b></li> <li>• <b>Commissioning of machinery is in process and Autoclave machine is proposed to be commissioned by 15<sup>th</sup> February 2021.</b></li> <li>• <b>Currently 20% of project is completed</b></li> </ul>	<b>December 2021</b>

7	<b>Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSD)</b>	Capacity	25,000 TPA Secured Landfill (SLF) & 1.5 ton/hr incinerators	<ul style="list-style-type: none"> <li>The erection of Pre-Engineered Building (PEB) structure of storage shed-2 has been commenced</li> <li><b>The construction of wheel washing bay has been completed</b></li> <li><b>Laying of liners of the 1<sup>st</sup> SFL has commenced. (40% completed)</b></li> </ul> <p><b>Phase 1 is 70% complete (to be completed by 15-03-2021)</b>  <b>Phase 2 is 33% complete</b></p>	<p><b>Landfill will be commissioned by March 2021.</b></p> <p>Project will be completed by <b>December 2021</b></p>
8	<b>Design-Build and Operate an E-Waste Management (Collection, Storage and Dismantling)</b>	Capacity	<b>15 - TPD</b>	<ul style="list-style-type: none"> <li>Tender for selection of service provider for Design-Build and Operate an E-Waste Management (Collection, Storage and Dismantling) for the State of Goa was floated on 06/07/2020.</li> <li>Technical bid was opened on 30<sup>th</sup> November 2020.</li> <li><b>Subsequently bidder has been invited for presentation of technical proposal on 27<sup>th</sup> January-2021 to TEC</b></li> </ul>	<b>March 2022</b>

## Annexure C

### **Total Number of Hospitals & healthcare facilities:**

- The State of Goa has 50 public healthcare facilities (excluding veterinary & dispensaries) with a total bed capacity of 3159.
- Total number of non-bedded facilities under public healthcare systems are 14 dispensaries.
- Goa has 102 facilities under the category of private healthcare with a total bed capacity of 2443.
- The total beds currently available under both public and private sector are 5602.
- Goa has one dental college under public healthcare and 251 dental clinics across the state under private health care system.
- The state also has 5 veterinary hospitals and 25 clinics under public facilities and 27 pet clinics under the category of private facilities.
- Apart from bedded facilities in private sector the state also has approximately 482 non-bedded facilities (*excluding dental clinics*) that cater to consultations, observation, diagnostics and select treatment.

## Annexure - D

### DATA of 11 polluted river stretches from May 20-Dec 2020 for major Rivers

#### 1.RIVER CHAPORA NEAR ALORNA FORT, PERNEM

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	6.99	7.33	6.53	6.85	6.5	6.86	6.68	6.70	6.0-9.0
2	Dissolved Oxygen mg/l	6.1	6.5	7.2	7.5	6.9	7.6	7.2	8.0	4 mg/l or more
3	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
4	Total Coliform MPN/100ml	2300	3300	2700	3200	2600	2700	2200	2100	5000 or less MPN/100ml

**Remarks: All parameters are within permissible limits.**

#### RIVER CHAPORA NEAR SIOLIM BRIDGE

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.85	5.9	6.72	7.75	6.7	7.58	7.62	7.69	6.5-8.5
2	Turbidity (NTU)	17.10	6.17	16.80	43.32	14.67	5.34	2.82	3.21	30 NTU
3	Dissolved Oxygen mg/l	6.0	5.9	6.6	7.2	7.3	7.0	7.4	6.6	4 mg/l or more
4	BOD mg/l	2.0	BDL	BDL	BDL	BDL	BDL	2.0	2.0	3 mg/l or less
5	Fecal Coliform MPN/100ml	280	1300	1300	1100	1100	2300	1700	490	100 or less MPN/100ml

**Remarks: pH is below permissible limit in the month of June 20. Turbidity is exceeding the permissible limit in the month of Aug 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.**

#### 2.RIVER TIRACOL AT KERI, PERNEM

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.82	7.68	6.64	6.88	6.5	7.09	7.1	7.88	6.5-8.5

2	Turbidity (NTU)	6.46	11.94	30.9	60.4	19.53	6.11	3.11	3.09	30 NTU
3	Dissolved Oxygen mg/l	5.0	5.5	6.6	6.3	8.2	6.5	7.1	6.8	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	2.0	BDL	3 mg/l or less
5	Fecal Coliform MPN/100ml	130	140	230	210	170	490	790	220	100 or less MPN/100ml

**Remarks:**Turbidity is exceeding the permissible limit in the month of Aug 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20

### 3.RIVER SINGUERIM, CANDOLIM SIDE

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.68	7.6	7.6	7.2	7.5	7.4	7.6	7.3	6.5-8.5
2	Turbidity (NTU)	7.51	4.98	13.8	23.7	30	4.90	6.67	5.53	30 NTU
3	Dissolved Oxygen mg/l	4.7	5.4	7.2	7.5	6.0	4.9	5.4	5.1	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.0	3 mg/l or less
5	Fecal Coliform MPN/100ml	330	2200	1300	1400	1100	2300	1300	1300	100 or less MPN/100ml

**Remarks:**Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.

### RIVER SINGUERIM, NEAR GANPATI TEMPLE

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.78	7.6	7.6	7.4	7.4	7.4	7.7	7.39	6.5-8.5
2	Turbidity (NTU)	6.48	5.48	14.17	24.4	14.73	4.54	12.41	4.5	30 NTU
3	Dissolved Oxygen mg/l	6.5	5.2	7.1	7.2	6.2	5.9	5.5	4.9	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.1	3 mg/l or less
5	Fecal Coliform MPN/100ml	490	1400	2700	2100	1700	2200	1700	1400	100 or less MPN/100ml

**Remarks:** Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.

### 4.RIVER ZUARI AT MADKAI JETTY

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.8	6.7	6.5	6.58	6.48	7.5	7.2	7.2	6.5-8.5
2	Turbidity (NTU)	8.19	3.06	12.78	41.7	14.07	6.21	5.49	5.49	30 NTU
3	Dissolved Oxygen mg/l	5.0	4.0	6.2	7.5	7.0	4.8	6.1	5.5	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	2.5	2.8	3 mg/l or less
5	Fecal Coliform MPN/100ml	790	1100	1300	780	680	1300	1300	1300	100 or less MPN/100ml

**Remarks: pH is below permissible limit in the month of Sept 20. Turbidity is exceeding the permissible limit in the month of Aug 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.**

RIVER ZUARI AT BORIM BRIDGE										
Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.10	6.71	6.32	6.50	6.30	6.74	6.90	6.99	6.5-8.5
2	Turbidity (NTU)	17.70	3.11	44.00	13.63	14.18	3.63	6.38	6.38	30 NTU
3	Dissolved Oxygen mg/l	3.8	4.5	6.3	7.0	6.5	6.1	5.5	5.7	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.7	3 mg/l or less
5	Fecal Coliform MPN/100ml	130	230	450	400	450	1100	1200	1700	100 or less MPN/100ml

**Remarks: pH is below permissible limit in the month of July 20 and Sept 20. Turbidity is exceeding the permissible limit in the month of July 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.**

5.RIVER ASSANORA AT ASSANORA										
Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	6.42	6.98	6.34	6.81	5.69	6.19	6.28	6.9	6.0-9.0
2	Dissolved Oxygen mg/l	5.7	6.8	6.5	6.9	6.5	6.9	7.0	6.8	4 mg/l or more
3	BOD mg/l	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
4	Total Coliform MPN/100ml	1700	1100	490	460	340	1300	2400	1700	5000 or less MPN/100ml

**Remarks: pH is below permissible limit in the month of Sept 20.**

**6.RIVER VALVANTI AT SANQUELIM**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	6.89	6.84	6.14	6.63	5.86	6.15	6.46	6.54	6.0-9.0
2	Dissolved Oxygen mg/l	6.4	6.4	7.6	7.7	7.5	7.8	6.9	7.1	4 mg/l or more
3	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
4	Total Coliform MPN/100ml	2200	3300	3300	2700	2600	3200	2700	2200	5000 or less MPN/100ml
<b>Remarks: pH is below permissible limit in the month of Sept 20.</b>										

**7.RIVER KHANDEPAR, OPA, PONDA**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	7.43	6.88	6.31	6.3	6.5	6.78	6.7	6.72	6.0-9.0
2	Dissolved Oxygen mg/l	6.7	6.5	7.3	7.6	7.0	7.1	6.8	7.0	4 mg/l or more
3	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.8	3 mg/l or less
4	Total Coliform MPN/100ml	220	330	790	700	630	790	1300	1300	5000 or less MPN/100ml
<b>Remarks: All parameters are within permissible limits.</b>										

**RIVER KHANDEPAR, CODLI**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	7.78	7.25	6.1	6.78	6.42	6.89	6.7	6.85	6.0-9.0
2	Dissolved Oxygen mg/l	6.5	7.0	7.0	7.5	7.5	7.1	8.0	6.6	4 mg/l or more
3	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.5	3 mg/l or less
4	Total Coliform MPN/100ml	230	220	260	220	210	700	790	1400	5000 or less MPN/100ml
<b>Remarks: All parameters are within permissible limits.</b>										

**8.RIVER BICHOLIM BARAZAN NAGAR, BICHOLIM**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	6.73	6.31	6.07	6.07	5.9	5.93	6.88	6.69	6.0-9.0
2	Dissolved Oxygen mg/l	5.8	5.9	7.0	7.2	6.2	7.0	6.9	9.3	4 mg/l or more
3	BOD mg/l	2.0	BDL	BDL	BDL	BDL	BDL	2.0	BDL	3 mg/l or less
4	Total Coliform MPN/100ml	4600	7000	7900	5800	4600	7000	7900	9400	5000 or less MPN/100ml
<b>Remarks: pH is below permissible limit in the month of Sept 20 and Oct 20. Total Coliform is exceeding the permissible limit from June to Aug 20, Oct 20 and Dec 20.</b>										

9.RIVER MANDOVI AT TONCA MARCELA										
Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.2	6.88	6.57	6.47	6.74	6.24	7.01	6.14	6.5-8.5
2	Turbidity(NTU)	6.69	3.12	44.8	16.27	7.91	17.51	3.59	5.54	30 NTU
3	Dissolved Oxygen mg/l	5.2	4.0	6.5	7.3	7.0	6.7	7.2	5.4	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
5	Fecal Coliform MPN/100ml	680	780	9300	1100	790	1100	1100	790	100 or less MPN/100ml
<b>Remarks: pH is below permissible limit in the month of Aug 20 and Oct 20. Turbidity is exceeding the permissible limit in the month of July 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.</b>										

10.RIVER TALPONA AT CANACONA										
Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class C rivers as per CPCB classification based on designated best use of rivers
1	pH	7.46	6.59	6.41	6.35	6.59	6.59	6.47	8.11	6.0-9.0
2	Dissolved Oxygen mg/l	6.8	7.0	7.1	7.4	7.3	7.4	6.7	7.4	4 mg/l or more
3	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
4	Total Coliform MPN/100ml	780	2700	4600	2200	2100	2200	1400	490	5000 or less MPN/100ml
<b>Remarks: All parameters are within permissible limits.</b>										

**11.RIVER SALAT KHAREBAND,MARGAO**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	Sample Not collected due to excessive growth of water hyacinth	Sample Not collected due to excessive growth of water hyacinth	6.8	7.23	6.86	6.72	6.77	6.67	6.5-8.5
2	Turbidity(NTU)			7.87	3.64	6.87	7.23	16.79	17.19	30 NTU
3	Dissolved Oxygen mg/l			4.7	4.3	4.0	2.8	2.5	5.6	4 mg/l or more
4	BOD mg/l			BDL	BDL	BDL	3.1	BDL	BDL	3 mg/l or less
5	Fecal Coliform MPN/100ml			7000	4900	5800	4900	4900	4900	100 or less MPN/100ml

**Remarks: Dissolved Oxygen is below permissible limit in the month of Oct 20. BOD is exceeding permissible limit in the month of Oct 20. Fecal Coliform is exceeding the permissible limit from July 20 to Dec 20.**

**RIVER SAL AT MOBOR**

Sr.No.	Parameters	May -20	June -20	July -20	Aug -20	Sept- 20	Oct- 20	Nov- 20	Dec 20	Limit for class SW II rivers as per CPCB classification based on designated best use of rivers
1	pH	7.72	7.82	7.8	6.89	7.34	7.21	7.7	7.19	6.5-8.5
2	Turbidity(NTU)	16.73	13.78	38.1	25.81	5.33	3.01	2.72	2.91	30 NTU
3	Dissolved Oxygen mg/l	5.0	6.0	6.5	6.4	5.6	6.0	4.3	5.5	4 mg/l or more
4	BOD mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3 mg/l or less
5	Fecal Coliform MPN/100ml	1300	1700	2700	1300	1100	1700	2200	2200	100 or less MPN/100ml

**Remarks: Turbidity is exceeding the permissible limit in the month of July 20. Fecal Coliform is exceeding the permissible limit from May 20 to Dec 20.**

NOTE:

1)BDL- Below Detection Limit