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STATE POLLUTION CONTROL BOARD
FOREST & ENVIRONMENT DEPARTMENT
GOVERNMENT OF SIKKIM
DEORALI – 737102

F. No. 887/SPCB/664

Dated: 06/08/2020

To,

The Executive Director (Technical),
National Mission for Clean Ganga,
Department of Water Resources,
River Development & Ganga Rejuvenation
Ministry of Jal Shakti,
Major Dhayan Chand National Stadium,
India Gate, New Delhi-110002.

Subject: Monthly Progress Report for the Month of March/April/May and July 2020 as per the direction of Hon'ble NGT in the matter of O.A No. 673/2018 dated 06/12/2019.

Sir,

I have been directed to forward herewith monthly progress report for the month of March/April/May and July, 2020 in respect of the state of Sikkim as per the above cited subject.

Submitted for your kind information and onward process please.

Thanking you

Yours faithfully


(Ms. Kusum Gurung)

Joint Director

State Pollution Control Board-Sikkim

Copy to:

1. Shri A Sudhakar, DH, WQM-I Division, CPCB, MoEF, Parivesh Bhawan East Arjun Nagar Delhi for kind information please.



STATE POLLUTION CONTROL BOARD-SIKKIM
MONITORING OF INDIAN NATIONAL AQUATIC RESOURCES

General Parameters to be analyzed regularly

Station Code	Type	Sampling Date	pH	Cond. $\mu\text{mhos/cm}$	$\text{NO}_3\text{-N}$ mg/l	D.O mg/l	B.O.D mg/l	Month: May Year: 2020	
								T. Coliform MPN/100ml	Faecal Coliform 100/ml
1801	R	02/05/2020	7.0	265	1.1	10.0	1.3	80	35
1802	R	04/05/2020	7.0	250	1.3	10.0	1.5	95	45
1803	R	06/05/2020	6.5	210	1.8	09.0	1.7	110	65
1804	R	06/05/2020	6.0	170	2.0	07.0	2.5	180	80
1805	R	11/05/2020	6.5	190	1.7	07.0	1.2	130	55
1806	R	11/05/2020	6.5	220	1.9	08.0	1.3	170	60
1807	R	11/05/2020	6.5	240	1.7	08.0	1.5	160	55
1808	R	13/05/2020	6.0	230	1.8	09.0	1.6	150	55
1809	R	13/05/2020	6.5	260	2.0	08.0	1.8	170	65
2034	R	18/05/2020	7.0	250	1.2	9.5	1.1	70	20
2035	R	18/05/2020	7.0	210	1.2	9.0	1.4	85	25
2036	R	18/05/2020	6.5	200	1.3	8.0	1.1	90	40
2037	R	20/05/2020	7.0	240	1.5	7.5	1.3	110	50
2038	R	20/05/2020	6.5	260	1.8	08.0	1.5	120	55

R: River

STATE POLLUTION CONTROL BOARD-SIKKIM
NATIONAL WATER QUALITY MONITORING PROGRAMME (NWMP) DURING LOCKDOWN

Core Parameters

Month: April Year: 2020

Station Code	Type	Sampling Date	Water Temp. (°C)	pH	Cond. (µmhos/cm)	NO ₃ -N (mg/l)	D.O. (mg/l)	B.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100/ml)
1804	R	13/04/2020	21	7.0	125	1.7	5.8	0.62	100	20
1805	R	13/04/2020	22	7.0	108	1.4	6.2	0.36	85	16
1807	R	13/04/2020	24	7.0	120	1.1	7.0	0.09	70	13

R: River

STATE POLLUTION CONTROL BOARD-SIKKIM
NATIONAL WATER QUALITY MONITORING PROGRAMME (NWMP) DURING LOCKDOWN

General Parameters

Month: April

Year: 2020

Station Code	Type	Sampling Date	Turb. (NTU)	TDSs (mg/l)	Alkalinity (mg/l)	PO ₄ (mg/l)	SO ₄ (mg/l)	Cl ⁻ (mg/l)	COD (mg/l)	Total Hardness (mg/l)	Ca ⁺⁺ (mg/l)	NO ₂ -N (mg/l)	Fluoride (mg/l)
1804	R	13/04/2020	2.5	2.2	40	NT	18	20	56.2	25	23	1.0	NT
1805	R	13/04/2020	2.2	1.0	32	NT	15	17	35.5	22	20	0.8	NT
1807	R	13/04/2020	2.0	0.98	27	NT	12	15	18	21	18	0.7	NT

NT: Not Traceable R: River

STATE POLLUTION CONTROL BOARD-SIKKIM
MONITORING OF INDIAN NATIONAL AQUATIC RESOURCES

General Parameters to be analyzed regularly

Month: March Year: 2020

Station Code	Type	Sampling Date	pH	Cond. μ mhos/cm	NO ₃ -N mg/l	D.O mg/l	B.O.D mg/l	T. Coliform MPN/100ml	Faecal Coliform 100/ml
1801	R	02/03/2020	7.5	165	1.0	8.5	0.9	60	15
1802	R	04/03/2020	7.0	165	1.2	8.5	1.0	95	30
1803	R	06/03/2020	6.5	150	1.5	8.0	1.0	100	30
1804	R	11/03/2020	6.0	145	1.8	6.0	1.2	110	35
1805	R	11/03/2020	6.5	155	1.7	6.5	1.0	110	35
1806	R	13/03/2020	6.5	160	1.4	6.8	1.1	120	40
1807	R	13/03/2020	6.5	170	1.6	7.0	1.0	100	32
1808	R	16/03/2020	6.0	170	1.7	7.0	1.1	100	30
1809	R	16/03/2020	6.5	175	1.5	7.0	1.0	110	35
2034	R	18/03/2020	7.0	170	1.0	9.0	0.8	60	15
2035	R	18/03/2020	7.0	160	1.2	9.0	1.0	70	18
2036	R	18/03/2020	6.5	155	1.3	8.0	1.2	75	20
2037	R	20/03/2020	6.5	145	1.3	7.5	1.1	90	25
2038	R	20/03/2020	6.5	160	1.5	7.0	1.0	100	30

R: River

SIKKIM

(Monthly Progress Report for the month of July 2020)

Total population in State – 6.10 lakh (2011 census report)

Estimated Sewage Generation – 28MLD (CPCB Report 2018)

Existing STPs in State – 07 STPs of 19.02 MLD and 0.48MLD (Functional)

Capacity utilization of STPs – 16.89 MLD

STPs under construction – 03 STPs (6.25 MLD Nearing completion)

STPs proposed – 02 STPs (5.33MLD)

CETP- NIL

No. of industrial units requiring ETP – 64 nos.

No. of industrial units having operational ETP – 64nos.

No. of ULBs – 07nos.

No. of Hydro-Electricity Projects (HEPs)in operation – 08nos.

No. of HEPs who have installed E-flow meters- 07nos.

CPCB has identified four river stretches under Priority V category of polluted river stretch in Sikkim. They are as follows:

1. Maney Khola (priority level V- with BOD between 3.2- 4.5mg/l)
2. Rangit (priority level V- with BOD between 3.2- 3.8mg/l)
3. Ranichu (priority level V- with BOD between 3.8-4.0mg/l)
4. Teesta (priority level V- with BOD between 4.0-4.3mg/l)

I. Current status of Maney Khola (Adampool to Burtuk Stretch) :

The major sources of pollution in the catchment area of Maney Khola river stretch are non-point sources which include residential houses, hotels, commercial establishments, hospitals and garages. The current status submitted by Public Health Engineering Department in respect of Sewage Treatment Plants catering to sewage disposal in this particular stretch is as follows:

Sl.no. & Particulars	Existing	Capacity Utilization	Under construction	Proposed
1. Gangtok (Zone- I)	12.69 MLD	11MLD	-	-
2. Gangtok (Zone –IV)	3.9 MLD	3.2MLD	-	-
3. Gangtok (Zone –II)	1.6MLD	-	Nearing completion (Commissioning phase stalled due to COVID-19 lockdown)	-
4. Gangtok (Zone –III)	3.25MLD	-	Work in progress. Targeted to complete by 2022.	-

It is also submitted by the Nodal Department that private residential and commercial units have septic tanks connected to soak pit to take care of sewage generation in the catchment area where facility of STP is absent to prevent river water pollution from untreated sewage.

Since sewage generated is being treated either in STP or Septic tank, the urgent need for in-situ remediation is not felt. However, necessary steps shall be taken up in case of need in future. Further, cesspool vehicles are available for clearing the septic tanks on payment basis.

The solid waste management is being done by Gangtok Municipal Corporation (GMC). The mechanism being followed is door to door collection of segregated waste in GPS enabled garbage collection vehicles by ringing of bell. The collected waste is further segregated, treated and the inerts are disposed off in identified landfill site at Martam. A compost plant of capacity 50TPD is in operation at this site. GMC has also installed a composting unit of one tonne capacity at Khangchendzonga vegetable market in Gangtok town. As per the latest report submitted by GMC, the solid waste generation is 50 TPD.

River water quality monitoring and analysis from identified stations under NWMP have shown general parameters like p H, Conductivity, BOD, DO, NO₃, Total Coliform and Faecal Coliform, Turbidity, Alkalinity, PO₄, SO₄, Cl, Hardness, Ca⁺⁺, NO₂-N, Fluoride to be within prescribed limits. These data are being regularly updated in EQWDES portal. The BOD values as per the latest analysis report is less than 3mg/l.

River Rejuvenation Committee and Environmental Monitoring Cell attached to the office of the Chief Secretary, Government of Sikkim are regularly monitoring the activities of all Nodal Departments.

Inventorisation of hotels and commercial establishments which are non-point sources have been taken up by SPCB-Sikkim. The washing of vehicles in the jhoras and streams have been prohibited and in order to prevent the entry of wastes wire mesh have been erected across the jhoras at particular points. Further, awareness programs have been carried out to educate the general mass.

II. Current status of Rangit (Dam site NHPC to Triveni):

The catchment area of this river stretch has sources of pollution like Pharmaceutical Formulation units, Hydro Electricity Projects, Distillery, Alcohol blending and bottling units in addition to non-point sources. State Pollution Control Board- Sikkim has been taking due steps to monitor the pollution of river water like fully operational Effluent Treatment Plants; installation of OCEMS (Online Continuous Effluent Monitoring System); Sample collection and analysis of river water; regular monitoring of industrial units etc. SPCB-Sikkim has made Zero Liquid Discharge (ZLD) mandatory so that the treated water meeting the prescribed standard is recycled and reused for gardening, flushing, cleaning and cooling purposes.

The current status submitted by Public Health Engineering Department in respect of Sewage Treatment Plants catering to sewage disposal in this particular stretch is as follows:

Sl.no. & Particulars	Existing	Capacity Utilization	Under construction	Proposed	Remarks
1. Melli	0.50 MLD	0.50MLD	-	-	Nearing completion of repair works.
2.Namchi	-	-	-	3.63 MLD	Affected by unprecedented local issues.
3. Jorethang	-	-	-	1.70MLD	
4. Gyalshing	-	-	-	-	Survey and investigation being done to assess the feasibility of the project.
5.Soreng	-	-	-	-	

It is submitted that in all these areas, houses and commercial units have Septic Tank connected with soak pit. However, taking into view the rapidly increasing population, urbanisation and growth of industries etc. it is felt that the existing system of Septic Tank needs to be replaced with STP.

Since sewage generated is being treated either in STP or Septic tank, the urgent need for in-situ remediation is not felt. However, necessary steps shall be taken up in case of need in future and based on the direction of the Hon'ble NGT, the Department has initiated preparation of new projects for STPs.

The solid waste management is being done by Jorethang Municipal Council (JMC), Namchi Municipal Council (NMC) and Gyalshing Municipal Council (GyMC) in their respective jurisdiction. The mechanism being followed is door to door collection of segregated waste in

garbage collection vehicles by ringing of bell. The collected waste is further segregated, treated and the inerts are disposed off at Sipshu. As per the latest report submitted by Urban Local Bodies, the solid waste generation is 3.5TPD, 4.60 TPD and 3.5 TPD in JMC, NMC and GyMC respectively.

River water quality monitoring and analysis from identified stations under NWMP have shown general parameters like p H, Conductivity, BOD, DO, NO₃, Total Coliform and Faecal Coliform, Turbidity, Alkalinity, PO₄, SO₄, Cl, Hardness, Ca⁺⁺, NO₂-N, Fluoride to be within prescribed limits. These data are being regularly updated in EQWDES portal. The BOD value as per the monitoring and analysis reports is less than 3mg/l.

River Rejuvenation Committee and Environmental Monitoring Cell attached to the office of the Chief Secretary, Government of Sikkim are regularly monitoring the activities of all Nodal Departments.

SPCB-Sikkim has directed all Hydro-Electricity Projects to install E-flow meter for maintaining 15-20% of flow of river. Accordingly, 96MW Jorethang Loop HEP, South Sikkim and 97MW Tashiding HEP, West Sikkim have complied with the direction by installing E-flow meters.

Ground Water abstraction mainly in few of the industrial units are being regulated as per the norms and guidelines of Central Ground Water Authority with provision of rain water harvesting and recharge mechanism.

Inventorisation of hotels and commercial establishments which are non-point sources have been taken up by SPCB-Sikkim.

III. Rani-Chu (Namli to Singtam)

The catchment area of this river stretch has sources of pollution like Pharmaceutical Formulation units, Hydro Electricity Project, Fruit Preservation factory in addition to non-point sources. State Pollution Control Board- Sikkim has been taking due steps to monitor the pollution of river water. All the Pharmaceutical units have fully operational Effluent Treatment Plants; OCEMS (Online Continuous Effluent Monitoring System) have also been installed; regular monitoring of river water quality being done; regular monitoring of industrial units being done. SPCB-Sikkim has made Zero Liquid Discharge (ZLD) mandatory so that the treated water meeting the prescribed standard is recycled and reused for gardening, flushing, cleaning and cooling purposes. Further, the functioning of OCEMS is monitored by random online checking and also by CCTV footages which are submitted to SPCB on regular basis.

The current status submitted by Public Health Engineering Department in respect of Sewage Treatment Plants catering to sewage disposal in this particular stretch is as follows:

Sl.no. & Particulars	Existing	Capacity Utilization	Under construction	Proposed	Remarks
1. Ranipool	1.27 MLD	1.27MLD	-	-	Functional
2.Singtam	0.66MLD	0.44MLD	-	-	Functional

It is submitted that in all these areas, houses and commercial units have Septic Tank connected with soak pit. However, taking into view the rapidly increasing population, urbanization and growth of industries etc. it is felt that the existing system of Septic Tank needs to be replaced with STP accordingly STPs have been installed and are operational.

Since sewage generated is being treated either in STP or Septic tank, the urgent need for in-situ remediation is not felt. However, necessary steps shall be taken up in case of need in future.

The solid waste management is being done by Gangtok Municipal Corporation (GMC) and Singtam Nagar Panchayat (SNP). The mechanism being followed is door to door collection of segregated waste in garbage collection vehicles by ringing of bell. The collected waste is further segregated, treated and the inerts are disposed off at Martam. As per the latest report submitted a total of 2.5TPD solid waste is being collected by SNP.

River water quality monitoring and analysis from identified stations under NWMP have shown general parameters like p H, Conductivity, BOD, DO, NO₃, Total Coliform and Faecal Coliform, Turbidity, Alkalinity, PO₄, SO₄, Cl, Hardness, Ca⁺⁺, NO₂-N, Fluoride to be within prescribed limits. These data are being regularly updated in EQWDES portal. As per the latest analysis data the value of BOD is less than 3mg/l.

River Rejuvenation Committee and Environmental Monitoring Cell attached to the office of the Chief Secretary, Government of Sikkim are regularly monitoring the activities of all Nodal Departments.

Ground Water abstraction mainly in few of the industrial units are being regulated as per the norms and guidelines of Central Ground Water Authority with rain water harvesting and ground water recharge mechanism.

SPCB-Sikkim has directed one under construction Hydro-Electricity Project in the catchment to keep provision for installation of E-flow meter for maintaining 15-20% of flow of river during the onset of commercial operation.

Inventorisation of hotels and commercial establishments which are non-point sources have been taken up by SPCB-Sikkim.

IV. Teesta (Melli to Chungthang)

The catchment area of this river stretch has sources of pollution like Pharmaceutical Formulation units, Hydro Electricity Projects in addition to non-point sources. State Pollution Control Board- Sikkim has been taking due steps to monitor the pollution of river water like fully operational Effluent Treatment Plants; installation of OCEMS (Online Continuous Effluent Monitoring System); Sample collection and analysis of river water; regular monitoring of industrial units etc. SPCB-Sikkim has made Zero Liquid Discharge (ZLD) mandatory so that the treated water meeting the prescribed standard is recycled and reused for gardening, flushing, cleaning and cooling purposes. Further, CCTVs have been installed to monitor OCEMS.

The current status submitted by Public Health Engineering Department in respect of Sewage Treatment Plants catering to sewage disposal in this particular stretch is as follows:

Sl.no. & Particulars	Existing	Capacity Utilization	Under construction	Proposed	Remarks
1. Rangpo	1.40 MLD	-	-	-	Nearing completion.
2. Mazitar, SMIT	0.48MLD	0.48MLD	-	-	Functional. Other than Municipal STP.
3. Mangan	-	-	-	-	Survey and investigation being done to assess the feasibility of the project.
4. Chungthang	-	-	-	-	
5. Rabong	-	-	-	-	

It is submitted that in all these areas, houses and commercial units have Septic Tank connected with soak pit. However, taking into view the rapidly increasing population, urbanisation and growth of industries etc. it is felt that the existing system of Septic Tank needs to be replaced with STP. Hence steps have already been taken up.

Since sewage generated is being treated either in STP or Septic tank, the urgent need for in-situ remediation is not felt. However, necessary steps shall be taken up in case of need in future.

The solid waste management is being done by Mangan Nagar Panchayat (MNP), Rangpo Nagar Panchayat (RNP) and Singtam Nagar Panchayat (SNP). The mechanism being

followed is door to door collection of segregated waste in garbage collection vehicles by ringing bell. The collected waste is further segregated, treated and the inerts are disposed off at Martam in East Sikkim and at Ringdang in North Sikkim. The town of Mangan in North Sikkim processes about 80kg/day of total solid waste through Organic Waste Converter Machine and the compost generated is sold.

River water quality monitoring and analysis from identified stations under NWMP have shown general parameters like p H, Conductivity, BOD, DO, NO₃, Total Coliform and Faecal Coliform, Turbidity, Alkalinity, PO₄, SO₄, Cl, Hardness, Ca⁺⁺, NO₂-N, Fluoride to be within prescribed limits. These data are being regularly updated in EQWDES portal. As per the latest analysis report the value of BOD is less than 3mg/l.

Ground Water abstraction mainly in few of the industrial units are being regulated as per the norms and guidelines of Central Ground Water Authority with rain water harvesting and ground water recharge mechanism.

River Rejuvenation Committee and Environmental Monitoring Cell attached to the office of the Chief Secretary, Government of Sikkim are regularly monitoring the activities of all Nodal Departments.

SPCB-Sikkim has directed all Hydro-Electricity Projects to install E-flow meter for maintaining 15-20% of flow of river. Accordingly, 99MW Chujachen HEP, East Sikkim, 1200MW Tessta Stage –II HEP, North Sikkim and 96MW Dikchu HEP, North Sikkim have complied with the direction by installing E-flow meters.

Inventorisation of hotels and commercial establishments which are non-point sources have been taken up by SPCB-Sikkim.

SIKKIM

(Monthly Progress Report for the month of March – April 2020)

In addition to the monthly report submitted for February 2020, during the Phase 3 of Lockdown 1 due to COVID-19 situation to monitor the river water quality, SPCB –Sikkim collected river water samples from one location each along the following three river stretches i.e.,

1. Maney Khola (priority level V- with BOD between 3.2- 4.5mg/l)
2. Ranichu (priority level V- with BOD between 3.8-4.0mg/l)
3. Teesta (priority level V- with BOD between 4.0-4.3mg/l)

Further, the analysis of collected samples showed BOD values ranging from **0.09 to 0.62mg/l**.

The analysis report is attached for kind reference please.

SIKKIM

(Monthly Progress Report for the month of May 2020)

In continuation of the Monthly Progress Report submitted earlier, SPCB-Sikkim directed the Urban Development Department, Rural Development Department, Public Health and Engineering Department during the Phase5- Lockdown 3 to follow guidelines issued by Central Pollution Control Board for “Handling, treatment and disposal of waste generated during Treatment/diagnosis/ quarantine of COVID-19 patients (Revision-2) for taking due care and safe disposal of solid waste and sewage generated.

River water quality monitoring and analysis from identified stations under NWMP were done and analysis results have shown general parameters like p H, Conductivity, BOD, DO, NO₃, Total Coliform and Faecal Coliform, to be within prescribed limits. These data are being regularly updated in EQWDES portal. As per the analysis report the value of BOD is less than 2.5mg/l. The analysis report is attached for kind reference please.

