

Meghalaya State Pollution Control Board

Forests & Environment Department, Government of Meghalaya
'ARDEN' Lumpyngad, Shillong-793014
Website: <http://megspcb.gov.in>



No. MPCB/GEN-285/ANNEXED IX A/2020-21/23

Dated Shillong the 06th July 2021

To,

The Secretary
Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development & Ganga Rejuvenation
Shram Shakti Bhawan Rafi Marg,
New Delhi -110001

Email: ruby.raju@nmcg.nic.in

Sub: Submission of Monthly Progress Report for ensuring compliance to the Hon'ble NGT matter OA No 673/2018 for the month of February to May 2021.

Ref: No. MPCB/GEN-285(Annexed -IX A)/2020-21/19 Dated Shillong the 01st July 2021.

Sir,

In continuation to the letter under reference, enclosed please find herewith the Monthly Progress Report for the month of February to May 2021 where additional/latest information were incorporated with regard to details of Under construction STPs and proposed STPs and existing SWM Plants in the State. This is for favour of your information & necessary action

Yours faithfully

Encl: As stated


MEMBER SECRETARY
MSPCB, SHILLONG

Memo. No. MPCB/GEN-285/ (Annexed -IX A)/2020-21/23-A

Dated Shillong 06th July 2021

Copy to: -

1. Shri. A. Sudhakar, DH, WQM-I, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi – 110032 for kind information. Email: asudhakar.cpcb@nic.in/jcb.cpcb@nic.in
2. The Addl. Principal Chief Conservator of Forest (Climate Change, Research & Training) cum Chairman of River Rejuvenation Committee, Meghalaya, Shillong-793001 for favour of information
3. The Director of Urban Affairs cum Member Convener of the RRC, Meghalaya, Shillong for information
4. Shri. M.B.K. Reddy, IFS, Additional Principal Chief Conservator of Forest, Planning, Development and Legal matters, Meghalaya, Shillong, for information.


MEMBER SECRETARY
MSPCB, SHILLONG

NATIONAL MISSION FOR CLEAN GANGA
FORMAT FOR SUBMISSION OF MONTHLY PROGRESS REPORT IN THE NGT MATTER OA NO.673 OF
2018 (IN COMPLIANCE TO NGT ORDER) DATED 24.09.2020 FOR THE MONTH OF FEBRUARY – MAY
2021 FOR THE STATE OF MEGHALAYA

Overall status of the State:

- I. Total Population: Urban Population & Rural Population : (5,95,450 & 23,71,439) 29,64,007
- II. Estimated Sewage Generation (MLD)(2021) : 75 MLD in Urban areas
- III. **Details of Sewage Treatment Plant** :
- Existing no of STPs and Treatment Capacity (MLD) : 8
 - Capacity Utilization of existing STPs (MLD) : 1.469
 - MLD of Sewage being treated through alternate technology : 22.8 (Considering treatment by septic tank)
 - Gap in treatment Capacity in MLD : 50.37
 - No of operational STPs : 8
 - No of complying STPs : 8
 - No of Non-complying STPs :

Details of Each Existing STP in the State

No.	Location	Existing STP Capacity MLD	Capacity being utilised MLD	Operational Status of STP	Compliance status of STP
1.	Residential colony of Meghalaya Cements Ltd., Thangskai, East Jaintia Hills District	0.1	0.06	Operational	Complying
2.	Residential colony of Star Cements Ltd., Lumshnong, East Jaintia Hills District	0.4	0.239	Operational	Complying
3.	North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Mawdiangdiang	1.0	1.0	Operational	Complying
4.	Residential colony of M/S Lafarge Umiam Mining Pvt. Ltd., Nongtra	0.12	0.03	Operational	Complying
5.	Residential School –JNV, Mawphlang	0.1	0.02	Operational	Complying
6.	Polo Market , Shillong	0.05	0.05	Operational	Yet to be

					verified
7.	Green valley industries Ltd ,Nongsning,EJH	0.03	0.03	Operational	Complying
8.	Dalmia Cement (Bharat) Ltd,Thangskai,EJH	0.05	0.04	Operational	Complying

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.	Septage Treatment plant, Shillong	0.115	90 % civil work completed		The remaining civil works can be completed after the supply of the remaining machineries and equipments which was delayed due to the lockdown imposed in the state.
2.	Faecal Sludge Treatment Plant,Khliehriat	0.04	70 % civil work completed		
3.	FSSM, Shillong	0.35	10% physical progress		The estimated date of completion is March 2023

Details of proposed STPs in the State

No.	Location	Capacity of the STP proposed in MLD	Status of project(at DPR stage/under Tendering/work to be awarded)	Likely date of completion
1.	5 nos of On-site treatment plant, Shillong	13.42	Land for 4 nos has been cleared while negotiation is in process for the remaining one which is delayed due to Lockdown imposed in the State.	

2.	STP, Eastern Air Command, Shillong	0.105	-	
3.	FSSM ,Jowai		Matter is now taken with the Govt of Odisha as suggested by NRCD to handhold in preparation of DPR.	

IV. Details of Industrial Pollution

- No. of industries in the State : **1559**
- No. of water polluting industries in the state : **260**
- Quantity of effluent generated from the industries in MLD : **3.5**
- Quantity of hazardous sludge generated from the industries in TPD : **1.3105**
- No. of industrial units having ETPs : **254**
- No of Industrial units connected to CETPs : **Nil**
- Compliance status of the ETPs : **Complying**
- No and total capacity of CETPs (details of existing/under construction /proposed) : **Nil**
-

Town	No of Industries	Industrial discharge (MLD)	Status of ETPs	Status of CETPs (existing, under construction & proposed)
Shillong	130	1.7585	Complying	-
Byrnihat	29	0.676	Complying	-
Nongstoin and Mairang	37	0.276	Complying	-
Ladrymbai & Khliehriat	12	0.029	Complying	-
Jowai	20	0.40	Complying	-
Khliehriat, Myndihati & Lumshnong	11	0.15	Complying	-
Tura	16	0.09	10 ETPS for servicing units under construction(capacity - 0.002 MLD each)	
Umiam	5	0.135	Complying	-

STATUS OF ULB WISE MANAGEMENT OF SOLID WASTE

V. Solid Waste Management

- Total number of Urban Local Bodies and their Population : **10 Nos , 3,75,930**
- Current Municipal Solid Waste Generation : 245 TPD

- Number, installed capacity and utilization of existing MSW processing facilities in TPD (bifurcated by type of processing eg. Waste to Energy (Tonnage and Power Output), Compost Plants (Windrow, Vermi, decentralized pit composting), biomethanation, MRF etc.: Action plan to bridge gap between Installed Capacity and Current Utilization of processing facilities (if Gap > 20%):

EXISTING SWM PLANTS IN MEGHALAYA						
SN	Town	Facility Type	Installed Capacity	Nos.	Utilization	Action Plan to utilise installed capacity
1	Shillong	Waste to Recovery centre	8 TPD	4	12.72 TDP (6.00 TPD Organic Compost + 6.72 Recyclables)	3 nos Operational . 1 completed and yet to be made operational
2.	Tura	Waste to Compost	50 TPD	1	0 TPD	Yet to be made operational
3	Nongpoh	Waste to Compost	15 TPD	1	0 TPD	Yet to be made operational
4	Shillong	Waste to Compost	170 TPD	1		The plant in under testing of trial and likely to be commissioned soon.
5	Khliehriat	Composting Plant	0.1 TPD	1		Construction under progress

- No. And capacity of C & D waste processing plants in TPD (Existing, proposed and under construction):
None
- Total no. Of wards, having door to door collection service, no. Of wards practicing segregation at source:
73
- Details of MSW treatment facilities proposed and under construction (no. Capacity, and technology):

PROPOSED SWM PLANTS IN MEGHALAYA				
SN	Town	Facility type	Proposed capacity	Nos.
1.	Shillong	Waste to Energy	100 TPD	1

2.	Tura	Waste to Energy	50 TPD	1
		Waste Recovery Centre	2 TPD	1
3.	Nongpoh	Waste Recovery Centre	2 TPD	1
4.	Jowai	Waste Recovery Centre	2 TPD	1
5.	Williamnagar	Waste Recovery Centre	2 TPD	1
6.	Baghmara	Waste to Recovery Centre	2 TPD	1
7.	Resubelpara	Waste to Recovery Centre	2 TPD	1
8.	Nongstoin	Waste to Recovery Centre	2 TPD	1
9.	Mairang	Waste to Recovery Centre	2 TPD	1

- No. And area (in acres) of uncontrolled garbage dumpsites and Sanitary Landfills:
- No. and area (in acres) of legacy waste within 1km buffer of both side of the rivers: **8.94 acres (a MOU has been signed with CHAMHANA GW INDIA PVT.LTD on 22nd June 2020 which will include the setting up of waste to Energy plant at Tura and Shillong of 50TPD and 100 TPD capacities respectively. These plants will remediate the existing legacy waste at the present dumping grounds)**
- No. Of drains falling into rivers and no. Of drains having floating racks/screens installed to prevent solid waste from falling into the rivers: **Garbage traps have been installed in 6 nos of drains connecting to the rivers and one oil grease trap of 5 Kld installed in one drain of Umkhrah river in Shillong City**

VI. Bio-medical Waste Management:

- Total Bio-medical generation: **1276.24 Kg/day**
- No. of Hospitals and Health Care Facilities: **554**
- Status of Treatment Facility/CBMWTF:

a) **Common Bio-Medical waste treatment is completed and is in operation.**

b) **The Urban Affairs has procured three Bio-medical Wastes vehicles solely for transport of Bio-medical Wastes**

VII. Hazardous Waste Management:

- Total Hazardous Waste generation: **498.4434 KL/annum**
- No. of Industries generating Hazardous waste: **19 (Nineteen)**
- Treatment Capacity of all TSDF's: **Not available**
- Avg. Quantity of Hazardous waste reaching the TSDF's and Treated : **Nil**
- Details of on-going or proposed TSDF: **None**

VIII. Plastic Waste Management:

- Total Plastic Waste generation: **9.16 TPD**
- Treatment/Measures adopted for reduction or management of plastic waste:

(a) **The plastic wastes are collected as municipal waste. The plastic waste was segregated from the dry waste at the dumpsite and collected for compaction and bailing and send to Cement Plants for co-processing to be used as Fuel.**

(b) **Used for road making in some parts of Tura, and Nongstoin.**

- IX. Details of Alternate Treatment Technology being adopted by the State/UT:
- X. Identification of polluting sources including drains contributing to river pollution and action as per NGT order on insitu treatment:
- XI. Details of Nodal Officer appointed by Chief Secretary in the State/UT: **The Government has constituted a Monitoring Committee under the chairmanship of the Principal Secretary to the Govt. of Meghalaya, Forests & Environment Department vide no.ENV.4/2018/426 Dated Shillong the 19th June 2020**
- XII. Details of meetings carried under the Chairmanship Chief of Secretary in the State/UT:
- XIII. Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river: **Enclosed as II A to Annexure IX B**
- XIV. Ground water regulation:**For Domestic purpose –District Level Committee Ground Water Resource(Deputy commissioner of respective District as Chairman and official of Water resources as Member Secretary) looks after it and grant NOC For Commercial purpose - State Level Committee Ground Water Resource(Commissioner & Secretary, Water Resources as Chairman and Regional Director, CGWB, NER, as Member Convener) looks after it and grant NOC**
- XV. Good irrigation practices being adopted by the State: **Traditional Bamboo Drip Irrigation**
- XVI. Rain Water Harvesting :**(a) Rain water harvesting implemented for Schools and government buildings.(b) Incorporated as one of the condition while giving permission for any house construction**
- XVII. Demarcation of Floodplain and removal of illegal encroachments: **RFP for engaging of consultancy for flood plains Zonation in identified river stretches sent to the NPMU NHP,MOJS has been approved(Due to technical reasons FPZ is being proposed only at Umkhrah, Nonbah , Umtrew and Myntdu as other rivers flow through deep gorges) .Evaluation of Technical proposals is under process.**
Sanction for setting up of HO stations received from the Govt necessary action by the concerned Executive Engineer is under progress.
- XVIII. Maintaining minimum e-flow of river: **Perennial rivers**
- XIX. Plantation activities along the rivers: **Proposal have been submitted to CEO CAMPA for according sanction to an amount of Rs.27,17,440/- in 2021-2022 for treatment of 48.58 ha (preliminary works for creation of plantations and creation of 94.5 polypot nursery beds for future plantations.**

- XX. Development of Biodiversity Park: **No proposal for setting due to non-availability of Government land.**
- XXI. Reuse of Treated Water: **Stand-alone ETPs are operational in 260 number of hotels/guesthouse/health care centers /Industries and treated wastewater are reuse for gardening/cleaning purpose.**
- XXII. Model River being adopted by the State & Action Proposed for achieving the bathing quality standards: Nonbah river
- XXIII. Status of Preparation of Action Plan by the 13 Coastal States: **Not applicable to the State of Meghalaya**
- XXIV. Regulation of Mining Activities in the State/UT: **Mining activities in the State is being regulated under the following acts and rules**
- a) **Mines and Minerals (Development and Regulation) Act 1957 and its subsequent amendments**
 - b) **EIA notification ,2006 and its subsequent amendments**
 - c) **Meghalaya Minor mineral Concession Rules 2016 and its subsequent amendments**
 - d) **EP Acts, 1986**
 - e) **The Air (Prevention and Control of Pollution) Act,1981 and the Water (Prevention and Control of Pollution) Act, 1974**
- XXV. Action against identified polluters, law violators and officers responsible for failure for vigorous monitoring:
- a) **Units which failed to comply to the consent conditions have been issued directions, show cause notice and closure notices**
 - b) **Units which have been operating without consent from the Pollution Control Board have been issued closure notices under relevant Acts and Rules**
 - c) **Filing of Complaints to the District Courts**

POLLUTED RIVER STRETCHES

I.	Total No. of Pollution River Stretches	7 (Umkhrah & Umshyrpi river –Priority I:Umtrew, Nonbah & Kyrhukhla river –Priority IV: Myntdu & Lukha –Priority V)						
		Umkhrah	Umshyrpi	Umtrew	Nonbah	Kyrhukhla	Myntdu	Lukha
II.	In-situ Bio-remediation	NIT for In-situ Bio-remediation was issued on the 9 th June 2021.			Phycoremediation has already started for kyrhukhla river and in Lukha river it is ready for commissioning but due to lockdown and covid situation ,it has been halted . For other rivers, the status remained the same.			
III.	Sewage Treatment Plant							
	Total Sewage Generation (MLD)	33.52	15.47	0.36	3.10	0.8	3.07	0.5
	Total Existing Treatment Capacity (MLD)	0.05						
	Capacity Utilization							

Note: Garbage traps have been installed in 6 nos. of drains connecting to the rivers and one oil grease trap of 5kld installed in one drain of Umkhrah River.

Town	Existing STP	Capacity Being Utilized	Whether Complying or not	STP Proposed if any	Status (DPR/tendering/under construction/ETC etc.)
Shillong (catchment of Umkhrah & Umshyrpi river)	0.05 MLD	-	-	Faecal Sludge & Septage Management 5 On-site Treatment System.- 13.42 MLD Total -13.935 MLD	10% physical progress for FSSM of -0.35 MLD capacity On account of COVID 19, State lockdown was imposed and as such work is delayed and the status remains the same for 5 onsite treatment system and for 0.115 MLD FSSM.

Faecal Sludge Treatment Plant, Khliehriat				0.04 MLD		Installation work under progress		
Jowai catchment of	-	-	-	FSSM		The Government has approved the proposal to change the STP project to that of FSSM. The Jowai Municipal Board has been directed to expedite the proposal for FSSM. Matter is now taken with the Govt of Odisha as suggested by NRCD to handhold in preparation of DPR		
Byrnihat(catchment of Umtrew river)						Safe sanitary latrine under Swachh Bharat mission (Gramin) for 364 households		
Nongstoin (catchment of Nonbah river)						Safe sanitary latrine under Swachh Bharat Mission (urban) for 424 households		
Khliehriat, Ladrymbai etc (catchment of Kyrhukhla river)						Safe sanitary latrine under Swachh Bharat mission (Gramin) for 220 households		
Myndihati, Khliehriat & Lumshnong etc (catchment of Lukha River)						Safe sanitary latrine under Swachh Bharat mission (Gramin) for 366 households.		
IV.	Industrial	Umkhrah	Umshyrpi	Umtrew	Nonbah	Kyrhukhla	Myntdu	Lukha
•	Total No. of industries/industrial estates	121	9	29	34	12	20	11
•	Total Industrial discharge	1.3035	0.455	0.676	0.276	0.029	0.40	0.15
•	Total No. of industries having ETPs	121	9	29	34	12	20	11
•	Total existing CETPs	None	None	None	None	None	None	None
•	Total No. of GPIs/SPIs	None	None	1	None	None	None	None

•	No. of industries having OCEMS	None	None	None	None	None	None	None
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Town	Existing ETP Capacity(MLD)	Whether Complying or not	CETP Proposed if any	Status (DPR/tendering/under construction/ETC etc.)
Shillong	1.8	Complying	-	-
Byrnihat	1.0	Complying	-	-
Nongstoin	0.41	Complying	-	-
Ladrymbai & Khliehriat	0.1	Complying	-	-
Jowai	0.45	Complying	-	-
Khliehriat, Myndihati & Lumshnong	0.615	Complying	-	-

V.	Solid Waste Management	Umkhrah	Umshyrpi	Umtrew	Nonbah	Kyrhukhla	Myntdu	Lukha
	Total Municipal Solid Waste generation (TPD)	164.81		1.16	10.05	2.6	9.95	1.6
	Existing facilities (TPD)	Chain link fencing has been installed at strategic garbage points. Penalty is imposed on habitual offenders. b) Additionally, Garbage traps have been installed in 6 nos of drains connecting to the rivers		15.0	Collection, segregation and transportation of wastes has been done by the SLRM team under SBM (Urban) .In some	Waste management soak pit household waste water management & organic waste	Door to door collection and transportation coverage is being done by the Jowai Municipal Board. Segregation at	Waste management soak pit household waste water management & organic waste

		<p>and one oil grease trap of 5 Kld installed in one drain of Umkhrah River. 170 TPD Compost Plant at Marten is completed and under testing of trial run.</p> <p>There are 4 nos of decentralised compost plants. Out of these, 3 are operational and 1 is yet to be made operational.</p>		<p>households the biodegradable wastes are treated by composting method in compost pit</p>	<p>compost for 175 households under SBM (G)</p>	<p>source is in place.</p>	<p>compost pit for 366 households under SBM (G)</p>
	Proposed	<p>Waste to energy of 100 TPD capacity and the proposed investment is INR 24.5 crores. MoU has been signed on 22nd June 2020 between the Department of Urban Affairs ,Government of Meghalaya and CHAMHANA GW India Pvt .Ltd on a Build, Own and Operate (BOD) basis for a period of 25 years.</p> <p>There is however ,delay in starting the project due to ongoing pandemic for transportation of equipments and other related matters to human resources .</p>	<p>Proposed for soak pit household waste water management & organic waste compost for 112 households under SBM (G)</p>	<p>Land has been identified and a compost plan has been sanctioned under SBM (Urban)</p>	<p>Construction of 0.1 TPD compost plant under construction.</p>	<p>Within the existing dumping site portion of land has been identified for indigenous compost plant and waste recovery. The work is to be started soon.</p>	

	Latest water quality of polluted river, its tributaries, drains with flow details and ground water quality in the catchment of polluted river	Enclosed as annexure
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VI.	Bio-medical/Hazardous/Plastic Waste Management(in TPD)	Umkhrah	Umshyrpi	Umtrew	Nonbah	Kyrhukhla	Myntdu	Lukha
	Total Bio-medical Waste generation	1.0597		0.0021	0.029	0.00608	0.41	Nil
	Total Bio-medical Waste Treatment	1.0597		0.0021	0.029	0.00608	0.41	Nil
	Bio-Medical Treatment facilities	<p>a) Common Bio-Medical waste treatment plan is completed and is under trial run</p> <p>b) The Urban Affairs has procured three Bio-medical Wastes vehicles solely for transport of Bio-medical Wastes.</p>						
	Hazardous Waste generation	Nil	Nil	1.17	Nil	Nil	Nil	0.1405
	Hazardous Waste Treatment	-	-	1.135	-	-	-	0.1405
	Plastic Waste generation	0.230		-	-	-	-	

Plastic Waste processing	(a) The plastic Waste was collected as municipal waste into dry waste and wet waste. The plastic waste was segregated from the dry waste at the dumpsite and collected for compaction and bailing and send to Cement plants for co-processing to be used as Fuel. (b) Used for road making in some parts of Nongstoin							
Total No. of Hospital and bio-medical waste generation/treatment	6	2	None	2	None	2	None	
Total of units generating Hazardous waste/treatment facility			6				11	

		Umkhras	Umshyrpi	Umtrew	Nonbah	Myntdu	Kyrhukhla	Lukha
VII.	Ground water regulation	For Domestic purpose –District Level Committee Ground Water Resource (Deputy commissioner of respective District as Chairman and official of Water resources as Member Secretary) looks after it and grant NOC. For Commercial purpose - State Level Committee Ground Water Resource(Commissioner & Secretary, Water Resources as Chairman and Regional Director, CGWB, NER, as Member Convener) looks after it and grant NOC						
VIII.	Maintaining minimum e-flow of river	Perennial						
IX.	Protection and management of Flood Plain Zones (FPZ)	<p>1. RFP for engaging of consultancy for flood plains Zonation in identified river stretches sent to the NPMU NHP,MOJS has been approved(Due to technical reasons FPZ is being proposed only at Umkhras, Nonbah , Umtrew and Myntdu as other rivers flow through deep gorges) .Evaluation of Technical proposals is under process.</p> <p>2. Sanction for setting up of HO stations received from the Govt necessary action by the concerned Executive Engineer is under progress.</p>						

X.	Rain water harvesting	i. Rain water harvesting implemented for Schools and government buildings ii. Incorporated as one of the condition while giving permission for any house construction	
XI.	Plantation along river	Proposal have been submitted to CEO CAMPA for according sanction to an amount of Rs.27,17,440/- in 2021-2022 for treatment of 48.58 ha (preliminary works for creation of plantations and creation of 94.5 polypot nursery beds for future plantations.	No proposal was made since there is a Reserve Forest and green cover on both sides of the river
XII.	Development of biodiversity park on flood plains by removing encroachment	Matter of encroachment is pending in the Supreme Court .Biodiversity parks in existence.	No proposal for setting up of Bio-Diversity Park due to non-availability of Government land.
XIII.	Reuse of Waste water	Treated wastewater are reuse for gardening/cleaning purpose	

WATER QUALITY DATA OF POLLUTED RIVER STRETCHES – FEBRUARY 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>pH</i>	7.0	7.3	7.0	7.3	7.2	7.1	7.3	6.8	6.9	3.0	3.5
<i>Dissolved Oxygen(mg/l)</i>	2.8	5.5	3.8	5.5	3.5	3.5	7.2	7.3	7.2	7.1	7.0
<i>Bio-chemical Oxygen Demand (mg/l)</i>	3.4	9.0	19.0	8.2	16.5	17.0	2.6	2.5	2.6	2.5	2.6
<i>Faecal Coliform (MPN/100ml)</i>	22000	6300	11000	8400	23000	21000	330	380	410	BDL	BDL
<i>Total Coliform (MPN/100ml)</i>	79000	13000	27000	17000	94000	70000	2100	1400	1200	BDL	BDL
<i>Faecal Streptococci (MPN/100m</i>	2300	1100	2100	1300	3100	2700	330	33	36	BDL	BDL

BIOMONITORING OF POLLUTED RIVER STRETCHES – FEBRUARY 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>Saprobic score</i>	2.0	2.4	2.0	2.3	1.8	1.8	4.7	5.8	6.5	5.1	4.5
<i>Diversity Index</i>	0.27	0.33	0.27	0.29	0.21	0.25	0.52	0.60	0.62	0.40	0.52

WATER QUALITY DATA OF POLLUTED RIVER STRETCHES – MARCH 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>pH</i>	6.7	7.2	7.2	7.3	7.3	7.3	7.2	6.9	6.9	3.0	3.4
<i>Dissolved Oxygen(mg/l)</i>	0.5	3.0	0.8	4.0	NIL	1.0	6.9	7.0	7.0	6.9	7.2
<i>Bio-chemical Oxygen Demand (mg/l)</i>	39.0	24.0	35.0	14.2	45.0	32.0	2.7	2.6	2.6	2.5	2.2
<i>Faecal Coliform (MPN/100ml)</i>	27000	8400	17000	11000	32000	30000	380	420	430	BDL	BDL
<i>Total Coliform (MPN/100ml)</i>	94000	17000	43000	24000	110000	94000	2300	1600	1400	BDL	BDL
<i>Faecal Streptococci (MPN/100m</i>	3900	1400	3400	2400	4100	3800	49	58	39	BDL	BDL

BIOMONITORING OF POLLUTED RIVER STRETCHES – MARCH 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>Saprobic score</i>	2.1	2.3	2.2	2.2	2.1	2.0	4.4	5.6	6.4	5.0	4.3
<i>Diversity Index</i>	0.29	0.35	0.28	0.28	0.26	0.28	0.5	0.54	0.6	0.44	0.50

WATER QUALITY DATA OF POLLUTED RIVER STRETCHES – APRIL 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>pH</i>	7.1	7.4	7.4	7.6	7.4	7.1	7.1	6.9	7.2	2.9	3.4
<i>Dissolved Oxygen(mg/l)</i>	0.7	3.2	1.2	4.5	0.5	1.3	7.0	7.1	7.3	6.8	7.0
<i>Bio-chemical Oxygen Demand (mg/l)</i>	35.0	21.0	30.0	12.5	40.0	28.0	2.5	2.4	2.4	2.7	2.5
<i>Faecal Coliform (MPN/100ml)</i>	24000	7900	15000	9400	31000	23000	230	390	410	BDL	BDL
<i>Total Coliform (MPN/100ml)</i>	84000	15000	41000	23000	94000	70000	2200	1500	1300	BDL	BDL
<i>Faecal Streptococci (MPN/100m</i>	3400	1300	2700	2200	3900	3300	46	48	35	BDL	BDL

BIOMONITORING OF POLLUTED RIVER STRETCHES – APRIL 2021

Stations→ Parameters↓	Umshyrpi		Umkhrah				Umtrew at Byrnihat	Nonbah at Nongstoin	Myntdu at Jowai	Lunar River (Tributary of Lukha River) at Myndihati	Kyrhuhkhla
	Near Law College	Umshyrpi Bridge	Demthring	Umkaliar	Near Slaughter House	Mawpdang					
<i>Saprobic score</i>	2.4	2.5	2.4	2.3	2.2	2.0	4.2	5.5	6.2	5.2	4.4
<i>Diversity Index</i>	0.3	0.38	0.3	0.3	0.28	0.29	0.49	0.5	0.55	0.46	0.52