MEGHALAYA STATE POLLUTION CONTROL BOARD

Forests & Environment Department, Government of Meghalaya

ANNUAL REPORT 2022-2023

Adress : 'Arden' Lumpyngngad
Shillong - 793014
Website : megspcb.gov.in
Email : megspcb@rediffmail.com
Phone : 0364-251764 | 2521127

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CHAPTER 1
INTRODUCTION

The Government of Meghalaya constituted the State Board for Prevention and Control of Water Pollution on the 16th November, 1983 under the provision of sub-section (1) of Section 4 of the Water (Prevention & Control of Pollution) Act, 1974. Subsequently, the State Board was entrusted with the responsibility for the implementation and enforcement of the Air (Prevention & Control of Pollution) Act, 1981 renamed as Meghalaya State Pollution Control Board in 1988.

Besides the enforcement of the Water Act and the Air Act, the Board is also enforcing/implementing/ monitoring the provisions of the following Acts, Rules and Notifications :-

1) The Environmental Protection Act, 1986 and the Rules framed there under viz.,

- The Hazardous and other Waste (Management and Transboundary Movement) Rules in 2016.
- The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
- The Manufacture, Use, Import, Export & Storage of Hazardous Micro organism or Cells Rules, 1989.
- The Environmental Impact Assessment Notification, 2006 and Amendments.
- The Chemical Accidents (Emergency Planning, Preparedness & Response) Rules, 1996.
- The Bio-Medical Wastes Management Rules, 2016
- The Recycled Plastics Manufacture and Usage Rules, 1999 as amended in 2016.
- The Fly Ash Notification, 1999.
- The Noise Pollution (Regulation and Control) Rules, 2000.
- The Ozone Depleting substances (Regulation) Rules, 2000.
- The Solid Wastes Management Rules, 2016.
- The Batteries Waste Management Rules 2022.
- The Construction and Demolition Waste Rules, 2016.
- E-Waste Management Rules, 2016.

2) The Public Liability Insurance Act, 1991.

TThe Headquarter of the Board is located in Shillong. Presently, the Board does not have any Regional or District Offices. The Board is having its own well equipped environmental Laboratory located at its Head Office, Lumpyngngad, Shillong to augment its activities for performing of its functions. The Laboratory is recognized by the State Government as State Water and Air Laboratory under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 respectively. The Board's Laboratory has also obtained the accreditation of the National Accreditation Board of Laboratories for carrying out sampling and analysis of samples of water, waste water, stack emission, ambient air, bacteriological tests etc.

The Board is functioning with **86 Employees** as on **31st March 2023** against a sanctioned strength of **152**. The details of Staff Position are given in **Annexure-I**. The Organization Chart of the Board is given in **Annexure-II**.

The main activities carried out by the State Board in performing of its functions is as highlighted below:-

(i) Inspection of industries and local bodies.

(ii) Monitoring the quality of water and wastewater.

(iii) Monitoring the quality of ambient air and stack emissions.

(iv) Inspection of sites proposed for setting up of industries to verify the suitability of the same from environmental point of view.

(v) Monitoring of water quality and water bodies under National Water Quality Monitoring (NWQM) Programme.

(vi) Monitoring of Ambient air quality under National Air Monitoring Programme (NAMP).

(vii) Offering guidance to industries and local bodies on statutory provisions.

(viii) Issue of "Consents to Establish" and "Consents to Operate" in respects of industries, mining projects specified developmental projects, municipal bodies and health care facilities etc.

(ix) Management of waste as provided in the Rules framed under the Environmental (Proctection) Act, 1986:

(a) Hazardous Waste Management:

- Enforcement of Provisions of the Rules and Regulations through Authorization regulation mechanism.
- Monitoring of Compliance to Standards.
- Submission of Annual Report to Central Pollution Control Board.

(b) Bio-Medical Waste Management:

- Enforcement of Provisions of the Rules and Regulations through Authorization regulation mechanism.
- Monitoring of Compliance to Standards.
- Submission of Annual Report to Central Pollution Control Board.

(c) Municipal Solid Waste Management:

- Enforcement of provisions of the Rules and Regulations through Authorization mechanism.
- Monitoring of Compliance to Standards.
- Submission of Annual Report to Central Pollution Control Board.

(d) Batteries Management

- Enforcement of provisions of the Rules and Regulations through Authorization mechanism.
- Monitoring of Compliance to Standards.
- Submission of Annual Report to Central Pollution Control Board.

(e) Plastic Management :

- Enforcement of Provisions of the Rules and Regulations through Authorization regulation mechanism.
- Monitoring of Compliance to Standards.
- Submission of Annual Report to Central Pollution Control Board.

(f) Noise Pollution Management :

- Enforcement of Provisions of the Rules in respect of industries.
- Monitoring the Compliance of Standards by industries.
- Monitoring of ambient noise in Industrial/Commercial/Residential areas.

(g) E-Waste Management:

- Inventorization of E-Waste generation
- Enforcement and Monitoring the implementation of the Provisions of the Rules.
- Submission of Annual Report to Central Pollution Control Board.

(h) Construction & Demolition Waste Management:

- Enforcement and Monitoring the implementation of the Provision of the Rules.
- Submission of Annual Report to Central Pollution Control Board.

CHAPTER 2

CONSTITUTION OF THE BOARD & CHANGES THEREIN

The Meghalaya State Pollution Control Board was first constituted by the State Government under the provisions of Section 4 of the Water (Prevention & Control of Pollution) Act, 1974 vide Notification No. PHE.161/83/1 dated the 16th November, 1983. The last reconstitution was notified vide Notification No. FOR.107/2014/559 dated the 28th January, 2021.

The Board consists of 17(Seventeen) Members nominated by the State Government as per provisions laid down in Sub-Section (2) of Section 4 of the Water (Prevention and Control of Pollution) Act 1974. Besides the Chairman and the Member Secretary, there are 5 (Five) Official Members representing various State Government Departments, 5 (Five) Members representing Local Authorities, 2 (Two) Members representing the Co-operatives and Corporations owned, managed or controlled by the State Government and 3 (Three) Non-Official Members

The Composition of the Board as reconstituted vide Notification No. FOR.107/2014/559 dated the 28th January, 2021 is as shown in Table 2.1 below.

TABLE – 2.1
Composition of the Board

1. ***Shri R.S. Gill, IFS,***
Principal Chief Conservator of Forests (T),
Meghalaya (upto 30.09.2022) : Chairman

Dr. Manjunatha. C., IFS, (with effect from 30.09.2022)
Meghalaya State Pollution Control Board

2. ***Smti. M.J.A. Sangma, MFS*** *(upto 02.05.2022)*
Meghalaya State Pollution Control Board : Member Secretary

Shri R. Nainamalai, IFS, *(with effect from 02.05.2022)*
Meghalaya State Pollution Control Board

OFFICIAL MEMBERS

3. ***Chief Conservator of Forests / Conservator of Forests***
nominated by the Principal Chief Conservator of Forests & HOFF, Meghalaya : Member

4. ***Chief Engineer***
Public Health Engineering, Meghalaya, Shillong or his nominee : Member

5. ***The Director of Industries***
Meghalaya, Shillong or his nominee : Member

6. ***The Director of Health Services (Research, etc),***
Meghalaya, Shillong or his nominee : Member

7. ***The Director, Urban Affairs***
Meghalaya, Shillong or his nominee : Member

MEMBERS FROM LOCAL AUTHORITIES

8. ***The Chief Executive Member***
Khasi Hills Autonomous District Council or his nominee : Member

9. ***The Chief Executive Member***
Jaintia Hills Autonomous District Council or his nominee : Member

10. ***The Chief Executive Member***
Garo Hills Autonomous District Council or his nominee : Member

11. ***The Chairman***
Shillong Municipality Board or his nominee : Member

12. ***The Chairman***
Tura Municipality Board or his nominee : Member

REPRESENTATIVES FROM COMPANIES OR CORPORATIONS

13. ***The Managing Director***
Meghalaya Industrial Development Corporation or his nominee : Member

14. ***The Managing Director***
Mineral Development Corporation, Meghalaya or his nominee : Member

NON-OFFICIAL MEMBERS

15. ***Dr.(Mrs.) W. Papang***
Retired Director, Animal Husbandary & Veterinary Department,
Bishop Falls, Lower Mawprem,
Shillong, East Khasi Hills District : Member

16. ***Shri Y. Shylla, Retired Director of Horticulture,***
Mynthong, Near District Library,
Jowai, West Jaintia Hills District. : Member

17. ***Shri B.M. Momin, (with effect from 28.01.2021)***
Retired Director of Fisheries,
Upper Chandmary, Tura, West Garo Hills, District. : Member

CHAPTER 3

MEETING OF THE BOARD WITH MAJOR DECISIONS

During the year 2022-2023, the Board conducted the following Meetings

SL. NO.	MEETING NO.	DATE	VENUE	NO. OF MEMBERS ATENDING THE MEETING
1.	83rd Board Meeting	16-06-2022	Conference Room of the Meghalaya State Pollution Control Board, Shillong.	8 (Eight)
2.	Special Emergency Meeting	08-08-2022	Conference Room of the Meghalaya State Pollution Control Board, Shillong.	9 (Nine)
3.	Emergency Meeting	07-12-2022	Conference Room of the Meghalaya State Pollution Control Board, Shillong.	11 (Eleven)
4.	84th Board Meeting	11-11-2022	Conference Room of the Meghalaya State Pollution Control Board, Shillong.	10 (Ten)
5.	85th Board Meeting	14-03-2023	Conference Room of the Meghalaya State Pollution Control Board, Shillong	8 (Eight)

The following decisions were taken in the above Meetings : -

83rd BOARD MEETING HELD ON 16th JUNE 2022:

- The Board requested the office of the Board to display the live feed of the Air Quality Index of Shillong city in the Board's website.
- The Board suggested that the latest state of the art equipments should be procured for both Shillong and Tura Testing Stations.
- The Board decided to re-engage Shri J.H. Nengnong, former Member Secretary of the Board as Consulting Engineer for a period of 6(six) months.
- The Board decided the matter of approval for setting up of the Continuous Ambient Air Quality Monitoring Station in non-attainment city of Byrnihat may be sought from the Horticulture Department.
- The Board decided that tender for procurement of instruments for the Station should be floated.
- The Board decided that the process of floating tender, procurement of instruments and commissioning of the station should be completed in 2(two) months.
- The Board decided to temporarily engage a person with Degree in LLB on contract basis to assist the Law Officer.

SPECIAL EMERGENCY MEETING HELD ON 08th AUGUST 2022:

- The Board passed a resolution to authorize the Chairman and the Member Secretary of the Board to file complaints under the Air & Water Act on behalf of the Board.
- The Board decided that Notification in this regard is to be issued.
- The Board decided that fine of five times the applicable consent fees will be imposed on units that have established without Consent to Establish.
- The Board decided that units which have operated without valid consent of the Board will be imposed with environmental compensation on pollution-pay principle.
- The Board deiced that Public Notices issued by the Board should be forwarded to the District Commerce & Industries Centres for hanging in their Notice Boards as part of awareness to the public.
- With regard to Homestays, the Board decided that the matter will be examined by the office of the Board in consultation with other State Pollution Control Boards. Simultaneously, communication may be issued to the Tourism Department and Commerce & Industries Department and response thereof will be taken up with the State Government.

EMERGENCY MEETING HELD ON 7th DECEMBER 2022:

- The Board approved the Report on the Comprehensive Carrying Capacity Study in Ri-Bhoi District for Boulder and Stone Mining submitted by M/S Anacon Laboratories Pvt. Ltd. Nagpur with observations and comments to be incorporated in the final Report.

84th BOARD MEETING HELD ON 11th OCTOBER 2022:

- The Board decided that a Special Board Meeting will be held wherein the Members can share and offer their views and comments on the Report submitted by M/S International Institute of Waste Management, Bangalore on Inventorization of E-Waste before finalization of the Report.
- The Board decided that a Special Board Meeting will be held wherein the Members can share and offer their views and comments on the draft Guidelines for Utilization of Environmental Compensation Fund.
- The Board decided that the recruitment process for the post of Assistant Environmental Engineer should be conducted by December by conducting Written Examination and Interview.

85th BOARD MEETING HELD ON 14th MARCH 2023:

- The Board decided that a Revised and Comprehensive amendment of the Meghalaya Water and Air Rules should be prepared and sent to the Forests Department.
- The Board resolved to engage 5(five) Multi-tasking Assistants through Walk-in Interview to be attached with the Scientific and Engineering Branch.
- The Board approved the Guidelines for Utilization of Environmental Compensation Fund with a few activities to be incorporated after which the Guidelines should be sent to the Committee constituted by the State Government.
- The Board decided that 100 nos. of Signboards should be erected at Shillong and Jowai
- The Board authorized the Districts to impose and collect penalty for areas outside the Municipality.
- The Board decided that concerned industrial units in Byrnihat should be directed to install CCTVs sharing the link with the office of the Board to monitor the emission level.
- The Board decided that Consent to Establish/Consent to Operate to the concerned units may be kept on hold till such time they install the CCTVs.
- The Board decided that the office of the Board should install CCTVs in the particular School and in the NAMP Station at Byrnihat for self-monitoring of the working of the pollution control devices.
- The Board approved and adopted the draft Guidelines for recognition of Laboratories under the Water (Prevention & Control of Pollution) Act, 1974 and under Section 17(2) of the Air (Prevention & Control of Pollution) Act, 1981 and decided that the Guidelines should be uploaded in the Board's website.
- The Board decided that the Board's website should be revamped and authorized the Assistant Programmer to revamp, maintain and update the Board's website with the assistance of the Legal Assistant

CHAPTER 4
COMMITTEES CONSTITUTED BY THE BOARD & THEIR ACTIVITIES

The following Committees are constituted by the Board with their activities to strengthen the functions of the Board from time to time.

I. THE CONSENT COMMITTEE

1.	Chairman, Meghalaya State Pollution Control Board, Shillong.	: Chairman
2.	Senior Inspector of Boilers & Factories, Inspectorate of Boilers & Factories, Meghalaya, Shillong.	: Member
3.	Conservator of Forests Meghalaya, Shillong.	: Member
4.	Deputy Director of Commerce and Industries, Meghalaya, Shillong.	: Member
5.	Director of Mineral Resources, Meghalaya, Shillong.	: Member
6.	Member Secretary, Meghalaya State Pollution Control Board, Shillong.	: Member Convener

TERMS OF REFERENCE

To examine/scrutinize the applications for Consent and recommend the grant or otherwise of Consent in respect of industries/developmental projects with project costs above Rs. 25.00 lakhs.

II. THE PURCHASE COMMITTEE

1.	Chairman, Meghalaya State Pollution Control Board, Shillong.	: Chairman
2.	Director of Commerce and Industries, or his nominee	: Member
3.	Chief Engineer P.H.E Deptt. or his nominee	: Member
4.	The Director, Sophisticated Analytical Instrument Centre Bijni Complex, N.E.H.U, Shillong.	: Member
5.	Senior Scientist, Indian Council of Agricultural Research (I.C.A.R), Umiam	: Member
6.	Member Secretary, Meghalaya State Pollution Control Board, Shillong.	: Member Convener

TERMS OF REFERENCE:

To scrutinize the Quotation / Tender documents and make necessary recommendation thereof for purchase of Scientific Instruments / Equipments.

III. THE SELECTION COMMITTEE FOR GRADE 'A' POSTS

1.	Additional Chief Secretary/Principal Secretary/ Commissioner & Secretary to the Govt. of Meghalaya, Forests & Environment Department.	: Chairman
2.	Principal Chief Conservator of Forests/Additional Principal Chief Conservator of Forests, Social Forestry & Environment.	: Member
3.	Chairman, Meghalaya State Pollution Control Board, Shillong	: Member
4.	Regional Director, Regional Directorate, North Eastern Regional Office, Central Pollution Control Board, Shillong.	: Member
5.	Member Secretary, Meghalaya State Pollution Control Board, Shillong.	: Member Convener

TERMS OF REFERENCE

To assess the eligibility of candidates through written examination, interview, practical test etc. for the purpose of direct recruitment to Grade 'A' Posts and to recommend the list of successful candidates in order of merit to the Board for appointment.

I.V THE SELECTION COMMITTEE FOR GRADE 'B', 'C' & 'D' POSTS

1.	Chairman, Meghalaya State Pollution Control Board.	: Chairman
2.	One Service Expert to be nominated by the Chairman of the Board	: Member
3.	One Specialist to be nominated by the Chairman of the Board	: Member
4.	Member Secretary, Meghalaya State Pollution Control Board	: Member Convener

TERMS OF REFERENCE

To assess the eligibility of candidates through written examination, interview, practical test etc. for the purpose of direct recruitment to Grade 'B', 'C' & 'D' Posts and to recommend the list of successful candidates in order of merit to the Board for appointment.

V THE PROMOTION COMMITTEE FOR GRADE 'A' POSTS

1.	Additional Chief Secretary/Principal Secretary/ Commissioner & Secretary to the Govt. of Meghalaya, Forests & Environment Department.	: Chairman
2.	Principal Chief Conservator of Forests/Additional Principal Chief Conservator of Forests, Social Forestry & Environment.	: Member
3.	Chairman, Meghalaya State Pollution Control Board, Shillong	: Member
4.	Regional Director, Regional Directorate, North Eastern Regional Office, Central Pollution Control Board, Shillong.	: Member
5.	Member Secretary, Meghalaya State Pollution Control Board, Shillong.	: Member Convener

TERMS OF REFERENCE:

To assess the eligibility of candidates on the basis of seniority-cum-merit and recommend the list of eligible candidates in order of preference to the Board for promotion.

VI THE PROMOTION COMMITTEE FOR GRADE 'B'&'C' POSTS

1.	Chairman, Meghalaya State Pollution Control Board.	: Chairman
2.	Member Secretary, Meghalaya State Pollution Control Board.	: Member
3.	*Respective Head of Technical/Legal/Scientific/Administrative/ Accounts Branch.	: Member
4.	Administrative Officer, Meghalaya State Pollution Control Board.	: Member Convener

**To attend as and when promotion of employee(s) under their jurisdiction is/are to be recommended.*

TERMS OF REFERENCE:

To assess the eligibility of candidates on the basis of seniority-cum-merit and recommend the list of eligible candidates in order of preference to the Board for promotion.

VII. THE RESEARCH ADVISORY COMMITTEE

1.	Chairman, Meghalaya State Pollution Control Board, Shillong.	: Chairman
2.	Director, SAIF, N.E.H.U, Shillong.	: Member
3.	Chief Conservator of Forests (Social Forestry & Environmnt) Meghalaya, Shillong.	: Member
4.	Director of Health Services (Research), Meghalaya, Shillong.	: Member
5.	Representative of MoEF&CC, North Eastern Regional Office, Shillong.	: Member
6.	Incharge Zonal Office, Central Pollution Control Board, Shillong.	: Member
7.	Senior Accountant, Meghalaya State Pollution Control Board, Shillong.	: Member
8.	Member Secretary, Meghalaya State Pollution Control Board, Shillong.	: Convener

TERMS OF REFERENCE:

To look into the aspects of research needs in the areas of environmental pollution monitoring and control.

CHAPTER 5
AIR QUALITY MONITORING

5A: NATIONAL AIR QUALITY MONITORING

The Meghalaya State Pollution Control Board is monitoring the Ambient Air Quality at 10 (ten) stations in the state under National Air Monitoring Programme (NAMP) sponsored by CPCB (Fig.5.0). The frequency of monitoring is twice a week. Particulate Matter (PM10), Particulate Matter (PM2.5), Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) and meteorological parameters viz. wind speed, wind direction, ambient air temperature, humidity, etc. were monitored at these stations and the observations are presented below:-

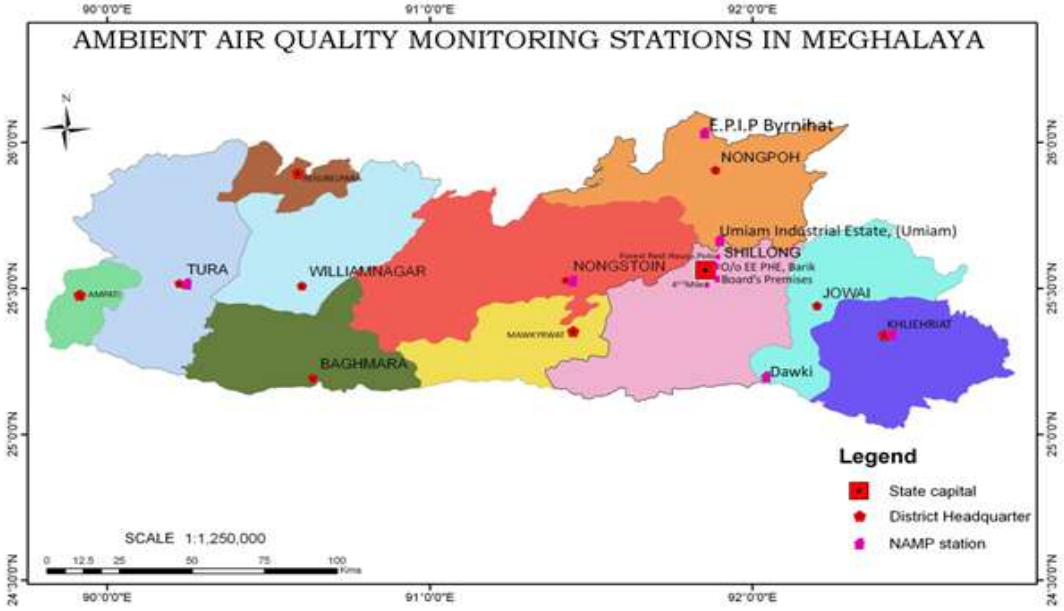


FIG. 5.0: LOCATION OF NAMP STATIONS IN THE STATE

Table 5.0: Annual Average values of air pollutants and Air Quality Index monitored under NAMP in Meghalaya.

Sl. No.	Name of Station	Year	Annual Average Parameters Tested				Air Quality Index (AQI)	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO^2 (µg/m³)	NO^2 (µg/m³)	Value	Rating
1.	MSPCB Premises, Lumpyngngad, Shillong, East Khasi Hills District.	2020	29.6	13.7	2.0	4.5	30	Good
		2021	35.2	17.3	2.0	4.5	35	Good
		2022	37.4	18.0	3.2	7.0	37	Good
2.	O/o EE,PHE,Hills Division, Barik, Shillong, East Khasi Hills District.	2020	47.7	20.9	6.3	20.8	48	Good
		2021	57.5	29.3	7.9	18.2	58	Satisfactory
		2022	56.2	28.8	7.6	15.3	56	Satisfactory
3.	Export Promotion Industrial Park, Byrnihat, Ri Bhoi District.	2020	115.7	42.8	15.9	15.3	110	Moderate
		2021	178.4	76.5	17.4	17.8	155	Moderate
		2022	153.8	60.6	20.8	19.3	137	Moderate

Table 5.0: Annual Average values of air pollutants and Air Quality Index monitored under NAMP in Meghalaya.

Sl. No.	Name of Station	Year	Annual Average Parameters Tested				Air Quality Index (AQI)	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO^2 (µg/m³)	NO^2 (µg/m³)	Value	Rating
4.	PHE Quarters, Bakur, Dawki West Jaintia Hills	2020	28.3	16.6	2.0	13.3	28	Good
		2021	36.1	21.1	5.1	10.8	36	Good
		2022	38.9	21.1	6.0	12.2	39	Good
5.	O/o BDO, C&RD Block, Khliehriat, East Jaintia Hills District.	2020	37.4	17.0	2.0	11.2	37	Good
		2021	41.9	17.9	4.0	9.0	42	Good
		2022	47.8	24.4	4.8	10.3	48	Good
6.	O/o SDO, PHE, Nongstoin, West Khasi Hills District.	2020	31.9	17.9	2.0	13.4	32	Good
		2021	35.1	18.1	2.0	10.1	35	Good
		2022	38.1	20.8	5.5	11.0	38	Good
7.	Dakopgre, Tura , West Garo Hills District.	2020	32.4	12.2	2.0	12.5	32	Good
		2021	36.1	17.0	2.0	10.3	36	Good
		2022	36.4	16.6	2.7	7.7	36	Good
8.	Umiam Industrial Estate, Umiam, Ri Bhoi District.	2020	74.6	23.5	4.3	11.5	75	Satisfactory
		2021	99.5	31.4	4.4	10.7	100	Satisfactory
		2022	96.7	31.2	6.5	8.8	97	Satisfactory
9.	Forest Rest House, Polo Hills, Shillong, East Khasi Hills District.	2020	35.3	17.3	4.0	11.1	35	Good
		2021	41.7	21.9	4.4	9.5	42	Good
		2022	47.0	20.5	4.4	11.4	47	Good
10.	Mylliem Range Office, Forest & Environment Deptt., 4 ½ Mile, Shillong, East Khasi Hills District.	2020	33.1	18.7	2.0	4.5	33	Good
		2021	40.9	22.5	4.6	10.3	41	Good
		2022	46.7	20.4	5.2	12.2	47	Good
Permissible Limits of Ambient Air Quality Standards as per EPA Notification GSR 826(E), dated 16th Nov. 2009.			60	40	50	40	Rating Scale:	
							Good: 0-50;	
							Satisfactory: 51-100;	
							Moderate: 101-200;	
							Poor: 201-300;	
							Very Poor: 301-40	
							Severe: > 400	

Rating	Effects
Good (0–50)	Minimal Impact
Satisfactory (51–100)	Minor breathing discomfort to sensitive people
Moderate (101–200)	Breathing discomfort to the people with lung,heart disease, children and older adults
Poor (201–300)	Breathing discomfort to people on prolonged exposure
Very Poor (301–400)	Respiratory illness to the people on prolonged exposure
Severe (>401)	Respiratory effects even on healthy people

Observations & Findings:

1. The measured SO_2 and NO_2 values are well within the prescribed limits in all the locations monitored during 2020, 2021 and 2022.
2. PM10 and PM 2.5 values monitored at all locations are within the prescribed limits, except at EPIP, Byrnihat and at Umiam Industrial Estate, Umiam, where PM10 and PM 2.5 values exceeded the prescribed limits.
3. The Air Quality Index (AQI) falls under 'Good' category at all locations except at the location at Barik which is 'Satisfactory' during 2021 and 2022, 'Moderate' at EPIP, Byrnihat , during 2020, 2021 and 2022, and 'Satisfactory' at Umiam Industrial Estate during 2020, 2021 and 2022.
4. High concentrations of Particulate Matter (PM10) and Particulate Matter (PM2.5) levels is attributable to the buildup of pollutants owing to emissions from industries located in the industrial area, emission from vehicle, dust generated due to movement of vehicles, natural dust and re-suspension of road dust and construction activities.

5A1: Ambient Air Quality monitored in the Board's Office Premises, Lumpyngngad, Shillong (Station Code: 120):

The Board is regularly monitoring the Air Quality from the station under National Air Monitoring programme (NAMP).The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A1 and depicted in Fig. 5.A1.

Findings and Observations:

- As per the air quality data (Table 5.A1), maximum value **(51.2µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(22.4µg/m³)** was observed during the month of July 2020. Maximum concentration **(29.0µg/m³)** of PM2.5 was observed during the month of March 2022 and minimum concentration **(9.7µg/m³)** was observed during the month of July 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO_2), Nitrogen dioxide (NO_2), Particulate Matter (PM10) & Particulate Matter (PM2.5) levels are within the National Ambient Air Quality standards.

Table 5.A1: Ambient Air Quality data at State Board's Premises, Shillong during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Board's Premises	2020 (Jan-Dec)	22.4 (Jul)	41.9 (Mar)	29.6	9.7 (Jul)	22.5 (Mar)	13.7	2.0	2.0	2.0	4.5	4.5	4.5
	2021 (Jan-Dec)	31.1 (Jul)	44.0 (Mar)	35.2	13.6 (Sep)	21.7 (Apr)	17.3	2.0	2.0	2.0	4.5	4.5	4.5
	2022 (Jan-Dec)	27.2 (Jun)	51.2 (Mar)	37.4	11.2 (Sept)	29 (Mar)	18	2.0	4.0	2.0	4.5	4.5	4.5

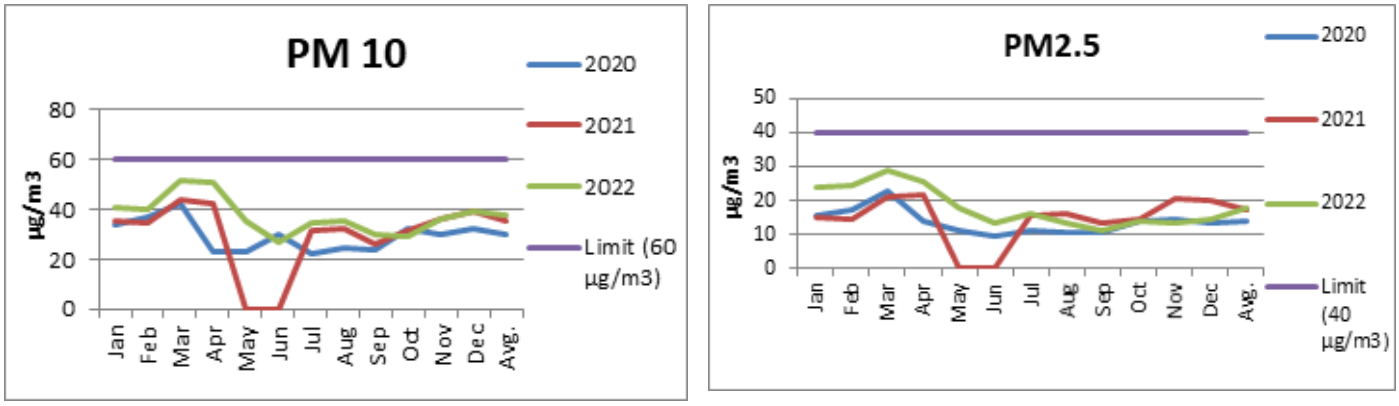


Fig.5.A1: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Board's Premises, Shillong.

5.A2: Ambient Air Quality monitored in the O/o EE (PHE), Hills Division, Barik, Shillong. (Station Code: 340):

The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A2 and depicted in Fig. 5.A2.

Findings and Observations:

- As per the air quality data (Table 5.A2), maximum value **(70.4 µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(34.7 µg/m³)** was observed during the month of May 2020. Maximum concentration **(35.7µg/m³)** of PM2.5 was observed during the month of April 2022 and minimum concentration **(16.8µg/m³)** was observed during the month of September 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO_2), Nitrogen dioxide (NO_2), and Particulate Matter (PM2.5) levels remains within the National Ambient Air Quality standards
- High levels of Particulate Matter (PM10) may be due to emission from vehicle, dust generated due to movement of vehicles, natural dust and re-suspension of road dust and construction activities.

Table 5.A2: Ambient Air Quality data at Barik, Shillong, during 2020, 2021 & 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annu-al Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Barik	2020 (Jan-Dec)	34.7 (May)	64.0 (Dec)	47.7	16.8 (Sep)	33.8 (Dec)	20.9	4.9	8.9	6.3	14.8	26.9	20.8
	2021 (Jan-Dec)	42.2 (Jul)	67.4 (Mar)	57.5	22.2 (Sep)	34.3 (Dec)	29.3	6.7	8.9	7.9	16.5	21.4	18.2
	2022 (Jan-Dec)	38.7 (June)	70.4 (Mar)	56.2	35.7 (April)	18.6 (Sept)	28.8	5.8	9.5	7.6	9	21.4	15.3

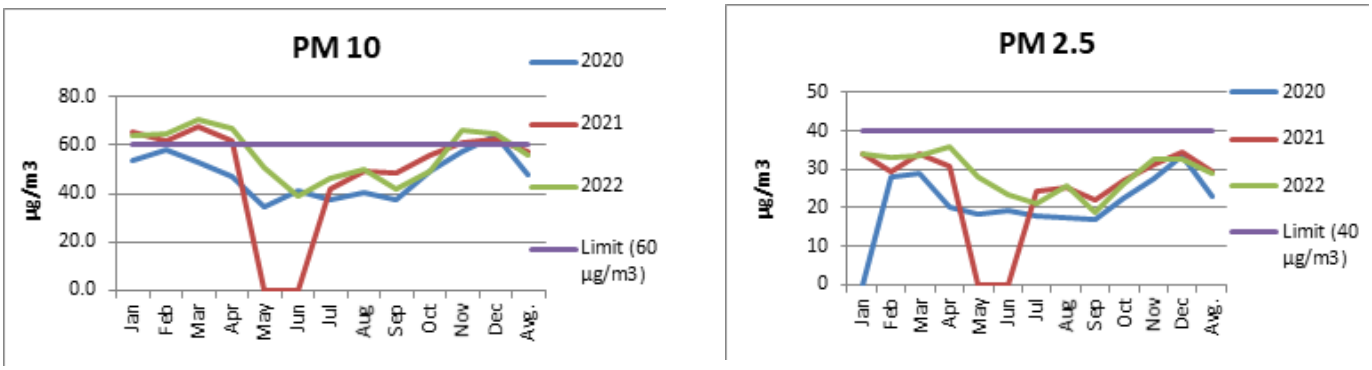


Fig. 5.A2 : Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Barik, Shillong.

5A3: Ambient Air Quality monitored in EPIP, Byrnihat, Ri-Bhoi District (Station Code: 568)

The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A3 and depicted in Fig. 5.A3.

Findings and Observations:

- As per the air quality data (Table 5.A3), maximum value **(237.3µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(76.2µg/m³)** was observed during the month of May 2020. Maximum concentration **(103.9µg/m³)** of PM2.5 was observed during the month of April 2021 and minimum concentration **(22.8µg/m³)** was observed during the month of September 2020.
- The Annual Average of Sulphur Dioxide (SO2), Nitrogen dioxide (NO2) levels remains within the National Ambient Air Quality standards.
- The Annual Average of Particulate Matter (PM10) and Particulate Matter (PM2.5) levels exceeded the prescribed standards. As per findings, it was observed that there is a 35% increase of concentration of PM10 (annual avg.) during 2021 as compared to 2020. There is a 44% increase of concentration of PM2.5 (annual avg.) during 2022 as compared to 2021.
- High concentrations of Particulate Matter (PM10) and Particulate Matter (PM2.5) levels is attributable to the buildup of pollutants owing to emissions from industries located in the industrial area, emission from vehicle, dust generated due to movement of vehicles, natural dust and re-suspension of road dust and construction activities.

Table 5.A3: Ambient Air Quality data at EPIP, Byrnihat, Ri Bhoi District, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annu-al Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
EPIP Byrnihat	2020 (Jan-Dec)	76.2 (May)	161.6 (Dec)	115.7	22.8 (Sep)	70.1 (Mar)	42.8	11.7	19.1	15.9	13.6	16.9	15.3
	2021 (Jan-Dec)	109.9 (Sep)	233.9 (Apr)	178.4	41.0 (Oct)	103.9 (Apr)	76.5	11.9	22.1	17.4	13.4	20.3	17.4
	2022 (Jan-Dec)	104.7 (July)	237.3 (Mar)	156.1	44.8 (July)	72.8 (Mar)	60.6	13.1	30.2	20.8	15.2	23	19.3

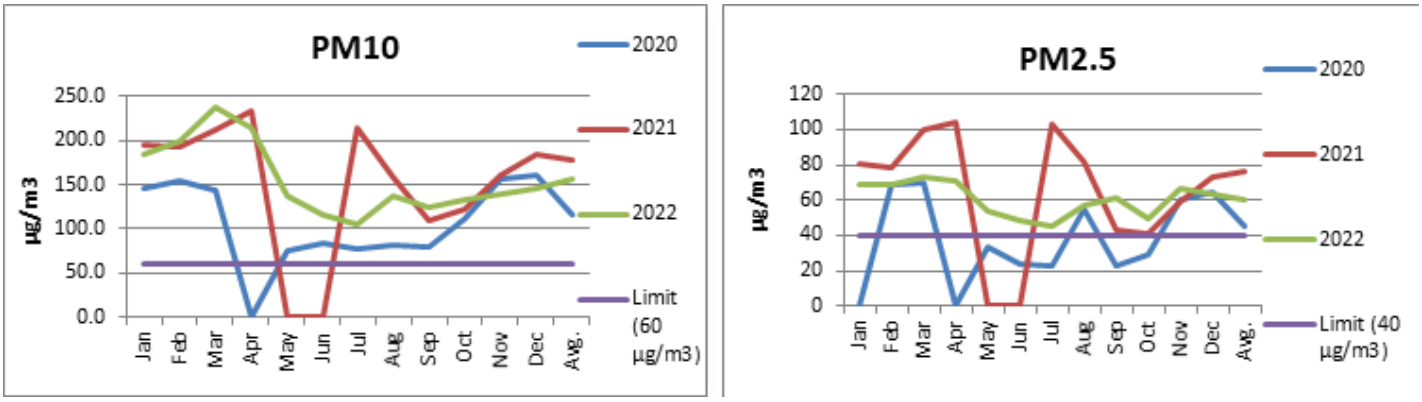


Fig. 5.A3: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at EPIP, Byrnihat, Ri Bhoi District.

5A4: Ambient Air Quality monitored in Dawki, West Jaintia Hills District (Station Code: 588)

The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A4 and depicted in Fig. 5.A4.

Findings and Observations:

- As per the air quality data (Table 5.A4), maximum value **(46.2µg/m³)** of PM10 was observed during the month of December 2022 and minimum value **(17.9 µg/m³)** was observed during the month of May 2020. Maximum concentration **(27.7µg/m³)** of PM2.5 was observed during the month of November 2021 and minimum concentration **(9.5 µg/m³)** was observed during the month of May 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO_2), Nitrogen dioxide (NO_2), Particulate Matter (PM10) and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.

Table 5.A4: Ambient Air Quality data at Dawki, West Jaintia Hills District, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annu-al Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Dawki	2020 (Jan-Dec)	17.9 (May)	37.9 (Mar)	28.3	9.5 (May)	26.2 (Feb)	16.6	2.0	4.5	2.0	4.5	16.7	13.3
	2021 (Jan-Dec)	29.5 (Sep)	41.9 (Nov)	36.1	16.9 (Feb)	27.7 (Nov)	21.1	4.0	6.1	5.1	4.5	13.1	10.8
	2022 (Jan-Dec)	27.3 (June)	46.2 (Dec)	38.9	15.5 (June)	27.5 (Mar)	21.1	5.3	7.0	6.0	10.5	14.3	12.2

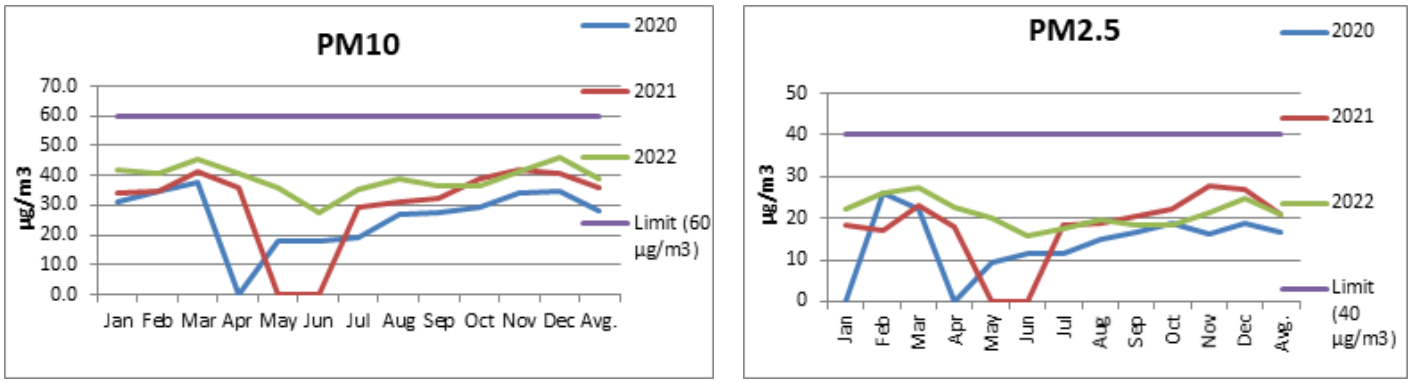


Fig.5.A4: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Dawki, West Jaintia Hills District.

5A5: Ambient Air Quality monitored in Tura, West Garo Hills District (Station Code: 608)

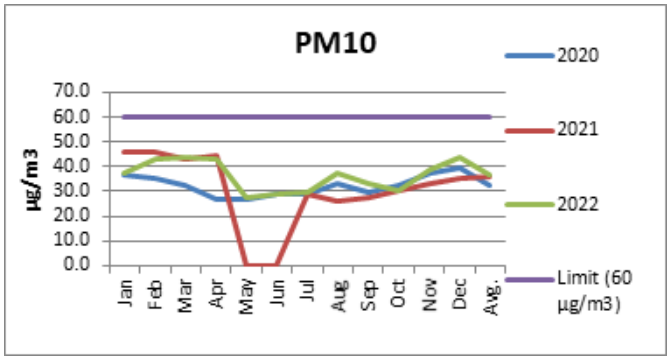
The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A5 and depicted in Fig. 5.A5.

Findings and Observations:

- As per the air quality data (Table 5.A5), maximum value **(46.1µg/m³)** of PM10 was observed during the month of January 2021 and minimum value **(26.4µg/m³)** was observed during the month of August 2021. Maximum concentration **(23.8µg/m³)** of PM2.5 was observed during the month of April 2021 and minimum concentration **(11.6µg/m³)** was observed during the month of May 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO_2), Nitrogen dioxide (NO_2), Particulate Matter (PM10) and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.

Table 5.A5: Ambient Air Quality data at Tura, West Garo Hills District, during 2020, 2021 and 2022

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Tura	2020 (Jan-Dec)	26.7 (Apr)	39.6 (Dec)	32.4	11.6 (May)	13.6 (Dec)	12.2	2.0	5.3	2.0	4.5	14.0	12.5
	2021 (Jan-Dec)	26.4 (Aug)	46.1 (Jan)	36.1	13.9 (July)	23.8 (Apr)	17.0	2.0	2.0	2.0	4.5	13.9	10.3
	2022 (Jan-Dec)	27.5 (May)	44 (Dec)	36.4	13.2 (May)	20.9 (Mar)	16.2	2.0	3.2	2.7	4.5	8.8	7.7



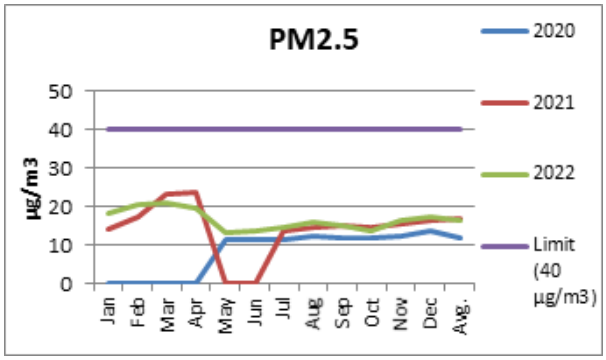


Fig. 5.A5: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Tura, West Garo Hills District.

5A6: Ambient Air Quality monitored in Khliehriat, East Jaintia Hills District, (Station Code: 699)

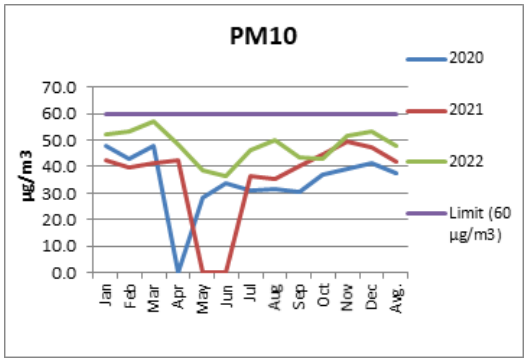
The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A6 and depicted in Fig. 5.A6.

Findings and Observations:

- As per the air quality data (Table 5.6), maximum value **(57µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(28.3µg/m³)** was observed during the month of May 2020. Maximum concentration **(30.5µg/m³)** of PM2.5 was observed during the month of March 2022 and minimum concentration **(10.8µg/m³)** was observed during the month of May 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.

Table 5.A6: Ambient Air Quality data at Khliehriat, East Jaintia Hills District, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annu-al Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Khliehriat	2020 (Jan-Dec)	28.3 (May)	48.0 (Mar)	37.4	10.8 (May)	24.6 (Mar)	17.0	2.0	4.2	2.0	4.5	13.3	11.2
	2021 (Jan-Dec)	35.2 (Aug)	49.6 (Nov)	41.9	14.5 (Jul)	21.6 (Dec)	17.9	2.0	4.6	4.0	4.5	11.4	9.0
	2022 (Jan-Dec)	36.2 (June)	57 (Mar)	47.8	19 (June)	30.5 (Mar)	24.4	2.0	5.7	4.8	4.5	11.3	10.3



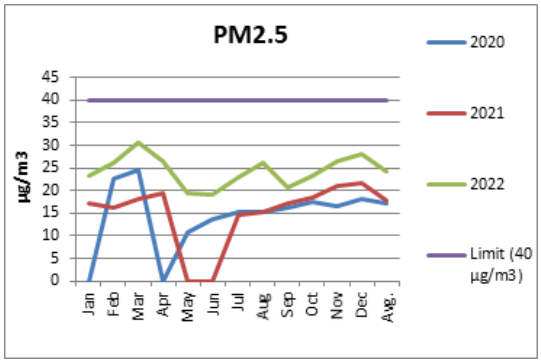


Fig. 5.A6: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Khliehriat, East Jaintia Hills District.

5A7: Ambient Air Quality monitored in Nongstoin, West Khasi Hills District (Station Code: 698)

The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A7 and depicted in Fig. 5.A7.

Findings and Observations:

- As per the air quality data (Table 5.7), maximum value **(44.3µg/m³)** of PM10 was observed during the month of November 2022 and minimum value **(25.2µg/m³)** was observed during the month of May 2020. Maximum concentration **(23.8µg/m³)** of PM2.5 was observed during the month of November 2022 and minimum concentration **(14.5µg/m³)** was observed during the month of September 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO2), Nitrogen dioxide (NO2), Particulate Matter (PM10) and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.

Table 5.A7: Ambient Air Quality data at Nongstoin, West Khasi Hills District, during 2020, 2021 and 2022

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Nongstoin	2020 (Jan-Dec)	25.2 (May)	34.6 (Mar)	31.9	14.5 (Sep)	22.1 (Mar)	17.9	2.0	2.0	2.0	11.4	14.8	13.4
	2021 (Jan-Dec)	30.7 (Aug)	38.5 (Apr)	35.1	15.9 (Oct)	22.1 (Apr)	18.1	2.0	5.0	2.0	4.5	11.7	10.1
	2022 (Jan-Dec)	30.9 (May)	44.3 (Nov)	38.1	15.5 (June)	23.8 (Nov)	20.8	5.1	6.1	5.5	10.3	11.3	11.0

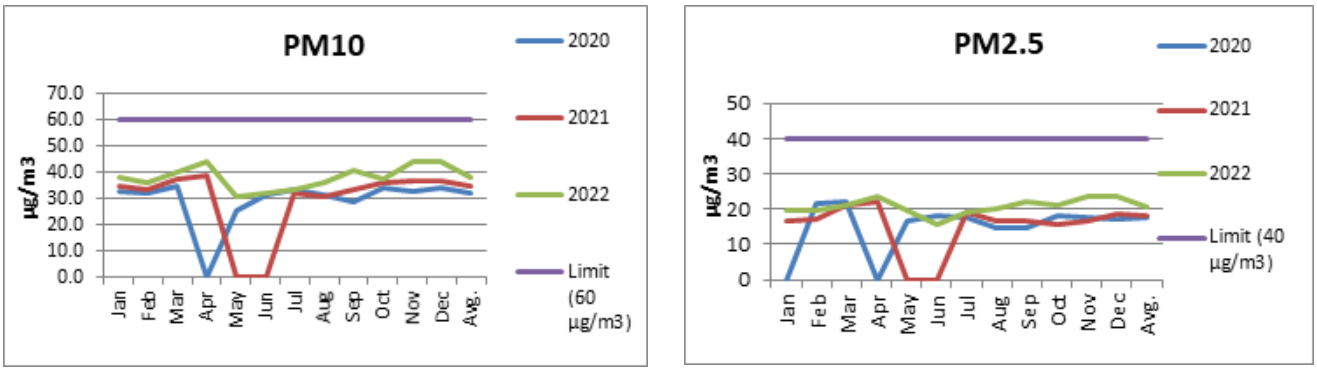


Fig.5.A7 : Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Nongstoin, West Khasi Hills District.

5A8: Ambient Air Quality monitored in Umiam Industrial Estate, Umiam, Ri Bhoi District. (Station Code: 782)

The Board is monitoring the Air Quality from the station. The results of monitoring during Jan-2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A8 and depicted in Fig. 5.A8.

Findings and Observations:

- As per the air quality data (Table 5.A8), maximum value **(117.9µg/m^3)** of PM10 was observed during the month of March 2020 and minimum value **(56.5µg/m^3)** was observed during the month of September 2020. Maximum concentration **(39.0µg/m^3)** of PM2.5 was observed during the month of March 2021 and minimum concentration **(20.1µg/m^3)** was observed during the month of September 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of PM2.5 monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO2), Nitrogen dioxide (NO2), and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.
- The Annual Average Particulate Matter (PM10) levels observed to be above the National Ambient Air Quality standards. As per findings, it was observed that there is an increase of concentration of PM10 (annual avg.) during 2022 as compared to 2021.
- High levels may be due to emission from vehicle, dust generated due to movement of vehicles, construction activities, emissions from industries located in the industrial area, natural dust and re-suspension of road dust and construction activities.

Table 5.A8: Ambient Air Quality data at Umiam Industrial Estate, Ri-Bhoi District, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Umiam	2020 (Jan-Dec)	56.5 (Sep)	117.9 (Mar)	74.6	20.1 (Sep)	31.6 (Dec)	23.5	2.0	4.9	4.3	10.9	12.9	11.5
	2021 (Jan-Dec)	86.2 (Oct)	111.4 (Mar)	99.5	23.4 (Sep)	39.0 (Mar)	31.4	2.0	4.7	4.4	9.8	11.2	10.7
	2022 (Jan-Dec)	72.5 (June)	116.1 (Mar)	96.7	24.1 (June)	37.3 (Feb)	31.2	4.1	7.6	6.5	4.5	12.8	8.8

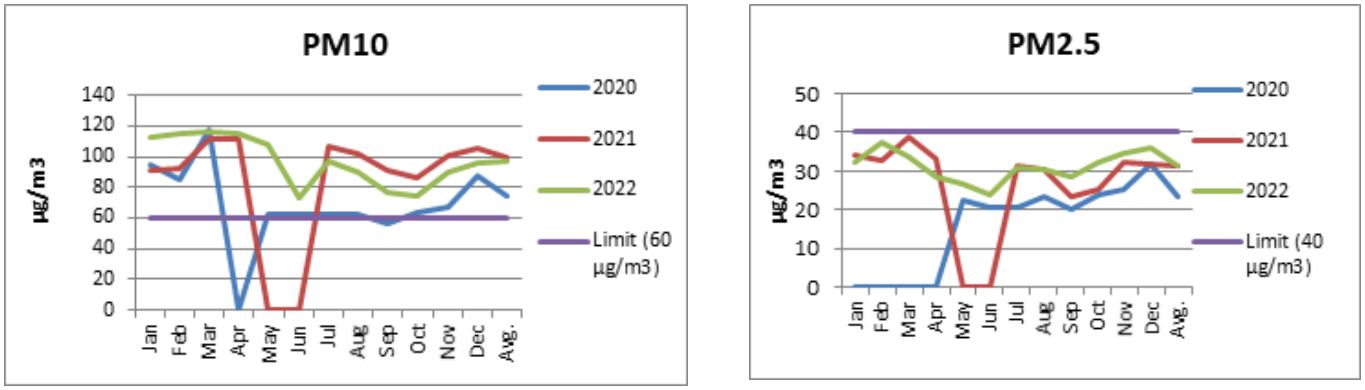


Fig . 5.A8: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Umiam Industrial Estate, Ri-Bhoi District

5A9: Ambient Air Quality monitored in Forest Rest House, Polo Hills, Shillong, (Station Code: 892)

The Board is regularly monitoring the Air Quality from the station under National Air Monitoring programme (NAMP).The results of monitoring during Jan-Dec 2020, Jan-Dec 2021 and Jan-Dec 2022 are given in Table: 5.A9 and depicted in Fig. 5.A9.

Findings and Observations:

- As per the air quality data (Table 5.9), maximum value **(61.3µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(28µg/m³)** was observed during the month of July 2020. Maximum concentration **(26.6µg/m³)** of PM2.5 was observed during the month of March 2022 and minimum concentration **(12.6µg/m³)** was observed during the month of April 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO2), Nitrogen dioxide (NO2), Particulate Matter (PM10) and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.

Table 5.A9 : Ambient Air Quality data at Forest Rest House, Polo Hills, Shillong, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Polo	2020 (Jan-Dec)	28.0 (July)	42.2 (Feb)	35.3	12.6 (Apr)	21.8 (Oct)	17.3	2.0	4.8	4.0	9.4	13.1	11.1
	2021 (Jan-Dec)	31.5 (Sep)	49.6 (Dec)	41.7	15.6 (Jan)	25.9 (Mar)	21.9	2.0	5.1	4.4	4.5	12.0	4.5
	2022 (Jan-Dec)	45.5 (Nov)	61.3 (Mar)	47	15.9 (Sept)	26.6 (Mar)	20.5	4.0	4.8	4.4	8.7	14.3	11.4

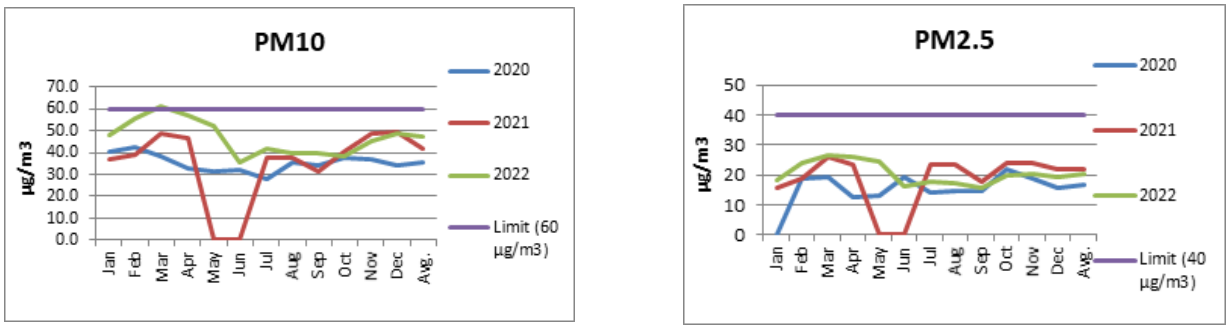


Fig.5.A9: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Forest Rest House, Polo Hills, Shillong.

5A10: Ambient Air Quality monitored in the Mylliem Range Office, Social Forestry, 4 ½ Mile, Upper Shillong, (Station Code: 891)

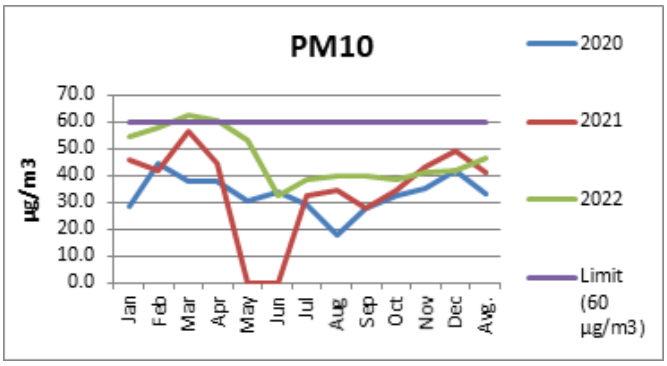
The Board is regularly monitoring the Air Quality from the station under National Air Monitoring programme (NAMP).The results of monitoring during Jan-Dec 2020 and Jan-Dec 2021 are given in Table: 5.A10 and depicted in Fig.5.A10.

Findings and Observations:

- As per the air quality data (Table 5.A10), maximum value **(62.1µg/m³)** of PM10 was observed during the month of March 2022 and minimum value **(18.0 µg/m³)** was observed during the month of August 2020. Maximum concentration **(31.3µg/m³)** of PM2.5 was observed during the month of March 2022 and minimum concentration **(13.5µg/m³)** was observed during the month of September 2020.
- As per findings, it was observed that there is minimal deviation of values when compared to concentration of particulate matter (PM10 and PM2.5) monitored during 2020, 2021 and 2022.
- The Annual Average of Sulphur Dioxide (SO2), Nitrogen dioxide (NO2), Particulate Matter (PM10) and Particulate Matter (PM2.5) levels remain within the National Ambient Air Quality standards.

Table 5.A10: Ambient Air Quality data at Mylliem Range Office, Social Forestry, 4 ½ Mile, Upper Shillong, during 2020, 2021 and 2022.

Sampling Station	Year	PARAMETERS TESTED											
		PM10(µg/m³)			PM2.5 (µg/m³)			SO_2 (µg/m³)			NO_2 (µg/m³)		
		Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.	Range		Annual Avg.
		Min	Max		Min	Max		Min	Max		Min	Max	
Mylliem	2020 (Jan-Dec)	18.0 (Aug)	44.3 (Feb)	33.1	13.5 (Sep)	23.6 (Mar)	18.7	2.0	2.0	2.0	4.5	10.8	4.5
	2021 (Jan-Dec)	28.0 (Sep)	56.4 (Mar)	40.9	15.5 (Sep)	28.2 (Dec)	22.5	2.0	5.8	4.6	4.5	11.9	10.3
	2022 (Jan-Dec)	32.5 (June)	62.1 (Mar)	46.7	13.6 (Aug)	31.3 (Mar)	20.4	3.5	7.4	5.2	9.5	14.9	12.2



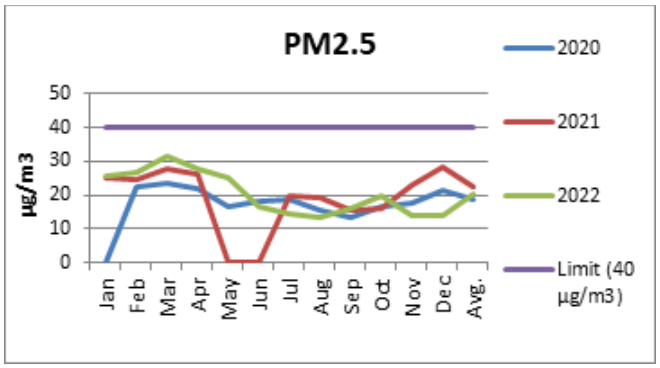


Fig.5.A10: Monthly and Annual average of major criteria pollutants PM10 and PM2.5 during 2020, 2021 and 2022 at Mylliem Range Office, Social Forestry, 4 ½ Mile, Upper Shillong.

5B: AMBIENT AIR QUALITY AND SOURCE EMISSION MONITORING

5B1: The Board carried out Ambient Air quality (Table 5.1.0) and Source emission monitoring (Table 5.1.0) in residential areas and industrial units operating in the state during 2022-2023.

The following results were obtained during the monitoring: -

Table 5.1.0: Ambient Air Quality data during 2022

Sl. No.	Name of Industry/ Location	Sampling Station	Date of Monitoring	Parameters				Remarks
				PM10 (µg/m³)	PM2.5 (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	
1.	St.Edmund'S College Shillong	College Lawn at the entrance	18.05.22	44.4	22.3	2.4	9.5	W
2.	M/S Maithan Alloys (P) Ltd, EPIP, Byrnihat	Near Office	27.06.22	77.1	36.8	31.7	21.3	W
3.	M/S Khasi Alloys Ltd, EPIP, Byrnihat	Near Office	27.06.22	164.9	91.0	35.7	20.2	A
4.	M/S Shyam Century Ferrous (P) Ltd, EPIP, Byrnihat	Near Office	28.06.22	165.0	87.3	42.9	25.2	A

Sl. No.	Name of Industry/ Location	Sampling Station	Date of Monitoring	Parameters				Remarks
				PM10 (µg/m³)	PM2.5 (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	
5.	M/S CMJ Breweries (P) Ltd, EPIP, Byrnihat	Near Admin Bldg	28.06.22	238.7	100.7	38.3	20.2	A
6.	M/S Commercial Iron & Steel Co.Pvt.Ltd, EPIP, Byrnihat	Near Office	28.06.22	125.3	72.7	29.8	20.0	A
7.	M/S Ferrotech (P) Ltd, EPIP,Byrnihat	Near Office	29.06.22	156.5	88.1	31.7	19.3	A
8.	M/S Meghalaya Steel (P), EPIP, Byrnihat	Near Office	29.06.22	113.7	59.4	29.2	21.9	A
9.	M/S NTL Steels Ltd, EPIP, Byrnihat	Near Office	29.06.22	146.7	79.4	32.4	23.1	A
10.	M/S Kamakshi Ispat (P) Ltd, EPIP ,Byrnihat	Near Office	29.06.22	159.1	87.1	29.6	18.6	A
11.	M/S Nalari Ferro Alloys (P) Ltd, EPIP, Byrnihat	Lawn Near Office	04.07.22	139.2	70.6	32.1	21.1	A
12.	M/S Pawan Casting (P) Ltd, Harlibagan, Byrnihat	Near Office	04.07.22	156.8	72.1	44.1	30.7	A
13.	M/S Meghalaya Cast & Alloys (P) Ltd, Harlibagan, Byrnihat	Near Staff Quarter	05.07.22	153.9	84.8	45.2	29.9	A
14.	M/S Jaintia Ferro Alloy (P) Ltd, 13th Mile Tamulkuchi, Byrnihat	Near Office	05.07.22	147.0	82.4	49.1	25.7	A
15.	M/S Sri Sai Smelters (P) Ltd, 15th Mile, Rangsakhona	Near Office	06.07.22	145.3	80.6	44.2	26.0	A
16.	M/S Ri-Bhoi Ispat & Rolling Mills(P) Ltd, 13th Mile Tamulkuchi, Byrnihat	Near Office	06.07.22	156.4	85.6	44.3	26.9	A
17.	M/S Shillong Ispat & Rolling Mills (P) Ltd, 13th Mile Tamulkuchi, Byrnihat	Near Office	12.07.22	142.6	79.5	33.8	25.2	A
18.	M/S Excel Foods (P) Ltd, 10th Mile Mawsmai, Byrnihat	Near Canteen	12.07.22	145.1	80.5	41.5	27.0	A
19.	M/S Sri Ram Wires Products(P)Ltd, 13th Mile Tamulkuchi, Byrnihat	Near Office	13.07.22	143.0	80.1	38.2	26.0	A
20.	M/S Shivani Ispat & Rolling Mills (P) Ltd, 13th Mile Tamulkuchi, Byrnihat	Near Office	13.07.22	147.7	83.4	38.4	25.5	A
21.	M/S Bitchem Asphalt Technologies, 9th Mile, Byrnihat	Near Plant Area	14.07.22	146.2	71.5	37.0	21.9	A
22.	M/S Godrej Consumer Products Ltd, 15th Mile, Byrnihat	Near Office	14.07.22	131.5	73.1	33.8	25.7	A
23.	O/o CEO Baghmara Municipal Board, South Garo Hills, Meghalaya	Near Police Station	21.07.22	37.7	17.6	3.3	8.2	W
24.	Marten Shillong Landfill Site-1	Near Old Dumping Site	29.08.22	34.8	21.1	13.0	4.5	W
25.	Marten Shillong Landfill Site-2	Near New Dumping Site	30.08.22	29.4	18.1	12.4	4.5	W

Sl. No.	Name of Industry/ Location	Sampling Station	Date of Monitoring	Parameters				Remarks
				PM10 ($\mu g/m^3$)	PM2.5 ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	
26.	Marten Jowai Mynkjai Landfill	Near Dumping Site	31.08.22	26.1	16.5	11.9	4.5	W
27.	Tura Dumping Ground,Rongkhon,	Near Dumping Site	29.08.22	69.8	37.1	3.7	11.4	W
28.	Resubelpara Dumping Ground,	Near Dumping Site	31.08.22	73.3	32.8	3.5	10.4	W
29.	Baghmara Dumping Ground,	Near Dumping Site	05.09.22	77.6	31.5	3.2	12.0	W
30.	Wiliamnagar Dumping Ground, Balsri, Gittim	Near Dumping Site	07.09.22	82.1	41.4	3.4	11.7	W
31.	Lady Keane College, Shillong	Near Garrage	15.09.22	36.6	13.8	3.3	11.8	W
32.	Highland Toyota, Mawiong-Rim, Shillong	Costumer Sitting Area (Opp View Point)	11.10.22	39.4	20.1	2.0	12.8	W
33.	Synod College, Shillong	Near Basket Ball Court	06.12.22	39.5	18.8	10.4	4.5	W
34.	M/S Pawan Casting (P) Ltd, Harlibagan, Byrnihat	Near Garage	06.12.22	85.9	52.4	28.7	27.4	W
35.	M/S Meghalaya Cast & Alloys (P) Ltd, Harlibagan, Byrnihat	Plant Premises	06.12.22	84.7	48.4	28.2	27.8	W
36.	M/S Shyam Century Ferrous (P) Ltd, EPIP, Byrnihat	Near Office	07.12.22	87.5	55.1	39.3	25.9	W
37.	M/S Commercial Iron & Steel Co. Pvt. Ltd, EPIP, Byrnihat	Near Office	07.12.22	76.9	48.7	32.1	21.3	W
38.	M/S Godrej Consumer Products Ltd, 15th Mile, Byrnihat	Near Entrance	07.12.22	98.4	55.3	32.6	24.4	W
39.	M/S Meghalaya Steel (P), EPIP, Byrnihat	Near Office	07.12.22	87.6	54.8	26.0	25.0	W
40.	M/S Khasi Alloys Ltd, EPIP, Byrnihat	Near Office	13.12.22	83.0	46.4	26.5	27.2	W
41.	M/S Ferrotech (P) Ltd, EPIP, Byrnihat	Near Office	13.12.22	94.5	44.7	27.9	26.5	W
42.	M/S Ri-Bhoi Ispat & Rolling Mills (P) Ltd, 13th Mile, Byrnihat	Near Office	14.12.22	94.7	48.4	26.0	25.7	W
43.	M/S Shillong Ispat & Rolling Mills (P) Ltd, 13th Mile, Byrnihat	Plant Premises	14.12.22	91.7	52.0	26.3	26.1	W
44.	M/S Jaintia Ferro Alloy (P) Ltd,13th Mile, Byrnihat	Near Office	14.12.22	112.2	65.9	27.4	25.9	A
45.	M/S NTL Steels Ltd, EPIP,Byrnihat	Near Office	14.12.22	111.9	61.5	26.9	26.2	A
Permissible limits for Ambient Air Quality standards for Industrial, Residential, Rural, and Other Areas as per EPA Notification GSR 826(E), dated New Delhi, dated 16th Nov. 2009.				**100**	**60**	**80**	**80**	-

W - Within Permissible Limits
A - Above Permissible Limits

5B2: Source Emission Monitoring (Survey): The Board carried out Source Emission monitoring (Table 5.1.1) in of industrial units operating in the state during 2022.

STACK EMISSION DATA MONITORED DURING THE YEAR: 2022

Table 5.1.1: Source Emission monitoring data during 2022-2023.

Sl.No	Name of Industry/Firm	Date of Sampling	Type of Stack	Parameters tested	Observed value (g/kwhr)	Permissible limits (g/kwhr)	Remarks
1.	M/S Reliance Jio Infocom Ltd. (SAG 2)	6.05.2022	DG Set 1 - 750KVA (Vertical Shaft)	PM	0.2	0.2	W
				CO	0.026	3.5	W
2.	M/S Reliance Jio Infocom Ltd (SAG 2)	6.05.2022	DG Set 2 - 750KVA (Vertical Shaft)	PM	0.4	0.2	A
				CO	.013	3.5	W
3.	M/S Reliance Jio Infocom Ltd (SAG 2)	6.05.2022	DG Set 3- 750KVA (Vertical Shaft)	PM	0.18	0.2	W
				NOx	.014	4.0	W
				Parameters tested	**Observed value (mg/Nm3)**	**Permissible limits (mg/Nm^3)**	**Remarks**
4.	M/S Maithan Alloys (P) Ltd., EPIP, Byrnihat.	27.06.2022	Submerged Arch Furnace	PM	31.3	50.0	W
				SO2	57.79	-	-
				NOx	15.87	-	-
				CO	594	-	-
5.	M/S Nalari Ferro Alloys (P) Ltd., EPIP, Byrnihat.	04.07.2022	Submerged Arch Furnace	PM	143.2	50.0	A
				SO2	1075.9	-	-
				NOx	87.9	-	-
				CO	712.5	-	-
6.	Highland Toyata, Shillong (Vertical Shaft)	3.12.2022	DG Set	PM	0.18	0.2	W
				NOx	3.7	4.0	W
				CO	0.14	3.5	W

W - Within Permissible Limits
A - Above Permissible Limits

5C: ASSESSMENT OF VEHICULAR POLLUTION

The Board has an Auto-emission-testing centre in its office premises at Lumpyngngad, Shillong which has been functioning since January 1994. The centre caters to the exhaust testing needs for the commercial and private light petrol and diesel driven vehicles only.

As per arrangement with the Office of the Commissioner of Transport, Meghalaya, the periodical renewals of permits of taxis are subject to submission of "Green Certificates" issued from the Office of the Board. The number of vehicles tested during the period from 01.04.21 to 31.03.22 is as stated below:-

DIESEL DRIVEN						
Year	**Total Nos. of Vehicle Tested**		**Nos. Complying to Norms**	**Nos. Non-Complying to Norms**	**% of Vehicles Complying**	**% of Vehicles Non Complying**
01.04.2022 – 31.03.2023	LMV	2392	2354	38	98.4	1.5
	M/H	180	174	6	96.6	3.3
	Total	2572	2528	44	98.2	1.7

PETROL DRIVEN						
Year	**Total Nos. of Vehicle Tested**		**Nos. Complying to Norms**	**Nos. Non-Complying to Norms**	**% of Vehicles Complying**	**% of Vehicles Non Complying**
01.04.2022 – 31.03.2023	2 W	4043	4026	17	99.5	0.4
	3 W	9	9	Nil	-	-
	LMV	10460	10426	34	99.6	0.3
	Total	14512	14461	51	99.6	0.4

CHAPTER 6
WATER QUALITY MONITORING

6.1: MONITORING OF WATER QUALITY

The monitoring of the water quality is one of the functions for prevention and control of water pollution and maintaining or restoring the wholesomeness of water as enshrined in the Water (Prevention and Control of Pollution) Act 1974. In order to obtain information on the overall health and general environmental condition of the surface and ground water resources of the State, the Meghalaya State Pollution Control Board is monitoring the water quality of the selected water bodies in the State under National Water Monitoring Programme (NWMP) on regular basis. During the year 2022-2023 the monitoring network covers 36 rivers/streams, 4 lakes and 13 spring/well comprising a total of 84 sampling locations (67 nos. of surface water and 13 nos. of ground water and 4 lakes).The monitoring was done on monthly basis for surface and on half yearly basis for ground water. The regular parameters analyzed include pH, Conductivity, Turbidity, Total Suspended Solids, Total Dissolved Solids, Nitrite Nitrogen, Nitrate Nitrogen(NO_3), AmmoniaNitrogen, KjeldahlNitrogen, Sulphate,Chloride, Hardness, Calcium, Magnesium, Sodium,Potassium, Total Phosphate Acidity, Alkalinity,Flouride, Dissolved Oxygen, Bio-Chemical Oxygen Demand, Chemical Oxygen Demand, Total Coliform, FaecalColiform.The metals viz. Iron, Zinc, Manganese, Copper, Lead, Cadmium, Chromium and Nickel were analyzed once a year in the month of April. The detail of the monitoring stations with regard to location was as mentioned in the Table 6.1.

Table 6.1: Monitoring of Surface Water Quality in Meghalaya

SURFACE WATER			
District	**Name of Water Bodies**	**Locations of Sampling Station**	**Monitoring Frequency**
East Khasi Hills	Umkhrah River	Demthring Umkaliar, Shillong Mawlai Slaughter House Mawpdang, Mawlai	Monthly
	Umkhen River	Wahkdait Ksehpongdeng Diengpasoh	Monthly
	Umshyrpi River	Risa Colony Law College, Dhankheti Umshyrpi Bridge	Monthly
	Umiam Mawphlang River	Nongkrem Umtyngngar Mawphlang Shella	Monthly
	Umngot River	Smit Dawki	Monthly
	Ward's Lake	Shillong	Monthly
	Sderkariah River	Sohra (Cherrapunjee)	Monthly
	Laitryngew Stream	Laitryngew	Monthly
	Wah KhlekKhlek River	Saitsohpen	Monthly
	Wahrew River	Majai	Monthly

SURFACE WATER			
District	**Name of Water Bodies**	**Locations of Sampling Station**	**Monitoring Frequency**
West Khasi Hills	Nonbah River	Nongstoin,Market Phodsohsat	Monthly
	Kynshi River	Sohiong Nongkhnum	
	Wahblei River	Riangdo Shdaddkhar	
	Rwiang River	Rwiang	
South West Khasi Hills	Rilang River	Mawkyrwat	Monthly
	UmngiRiver	Jakrem Umpung	
	Kynshi River	Ranikor	
Eastern West Khasi Hills	Kynshi River	Sohiong	Monthly
Ri – Bhoi	Umiam Lake	Outfall ofUmiam River into lake Middle Point Near United Christian College Exit Point	Monthly
	Umtrew River	Umran Byrnihat	
East Jaintia Hills	Lukha River	Lunar at Myndihati (Tributary of Lunar) Sunapur Khaddum	Monthly
	Thadlaskein Lake	Mukhla	
	Kyrhukhla River	Khliehriat	
	Kalipai River	Rymbai	
	Kme Um River	Rymbai	
	Waikhyrwi River	Mookhlot	
	Kwai River	Sutnga, Mawpun	
West Jaintia Hills	Myntdu River	Leshka Jowai MihMyntdu	Monthly
	Lamu River	Leshka	
	Lynriang River	Leshka	
	Myntang River	Nartiang Mynso	
	Umiurem River	Iale	Monthly
	Kupli River	Iooksi Khandong	
	Thlumuwi River	Thlumuwi	

SURFACE WATER			
District	**Name of Water Bodies**	**Locations of Sampling Station**	**Monitoring Frequency**
East Garo Hills	Damring River (Krishnei)	Resubelpara	Monthly
	Manda (Dudhnai) River	Jampa Wagaisi	
	Tasek Lake	Songsak (Naphak)	
	Simsang River	Williamnagar	
South Garo Hills	Bugi River	Mibanpara Dalu	Monthly
	Simsang River	Baghmara Nangalbibra	
	Nongal River	Nongal	
West Garo Hills	Ganol River	Tura Garobada	Monthly
	Damring River	Boldamgre	
East Khasi Hills	Police Bazar Spring	Shillong	Half Yearly
	Mawpdang Spring	Shillong	
	Wah U DkharSpring	Sohra	
	Deep Tube Well at Dongkamon	Nongmynsong, Shillong	
	Dug Well at Forest Colony	Polo, Shillong	
	Deep Tube Well at Last Stop	Laban, Shillong	
West Khasi Hills	Mawthadrishan Well	Markasa	Half Yearly
South West Khasi Hills	Jakrem Hot Spring	Jakrem	Half Yearly
Ri-Bhoi	NarbongWell	Byrnihat	Half Yearly
West Jaintia Hills	UmsahepSpring	Shangpung	Half Yearly
East Jaintia Hills	Borewell at Good Shephard Parish	Ladrymbai	Half Yearly
	Borewell at KhliehwahShasem- A	Khliehriat	Half Yearly
	Borewell at KhliehwahShasem- B		

6.2: Water Quality of the Sampling Stations in the Districts of Meghalaya

a) WATER QUALITY OF RIVERS IN EAST KHASI HILLS

27 (Twenty Seven) sampling stations including Ground Water were located in East Khasi Hills. In all the monitored locations the pH was observed to be in the normal range of 6.5 to 8.5.The dissolved Oxygen was found to be very low in Umkhrah and Umshyrpi Rivers with the minimum value of 0.7mg/l recorded at Umshyrpi River (Law College) and Umkhrah River (Demthring, Slaughter house & Mawpdang) during the dry winter months of February and March., whereas its concentration in other rivers was always above 5mg/l, which was the minimum oxygen requirement for propagation of wildlife fisheries etc. The Bio-chemical Oxygen Demand was observed to be above 3mg/l in Ward's lake, Umkhrah and Umshyrpi Rivers. The total coliform count was

observed to be above 5000mpn/100ml in Umkhrah and UmshyrpiRivers. The monitoring results indicated that organic and Bacteria were the main pollutants in the water bodies. This was mainly due to direct discharge of waste water in an untreated form from the residential and commercial centres. The amount of waste received by the two rivers viz. Umkhrah and UmshyrpiRivers was much beyond their assimilative capacity and thus has deteriorated the water quality to the extent that the water of these two rivers cannot be put to any beneficial uses. The water quality of Ward's Lake, meets the criteria for propagation of wildlife and fisheries. The water quality of other water bodies was relatively good as and can still be put for various beneficial purposes although it was not recommended to use directly for drinking purposes unless treated and disinfected by an organized water supply system.

b) WATER QUALITY OF RIVERS IN WEST KHASI HILLS, SOUTH WEST KHASI HILLS & EASTERN WEST KHASI HILLS

7 (Seven) sampling stations were located in West Khasi Hills and 5 (Five) sampling including Ground Water were Located in South West Khasi Hills and 2 (Two) sampling stations including Ground Water were located in Eastern West Khasi Hills. In all the monitored locations the pH was observed to be in the normal range of 6.5to 8.5. The dissolved Oxygen content in all monitored rivers was always above 5.0mg/l, which was the minimum oxygen requirement for propagation of wildlife fisheries etc. The Bio-chemical Oxygen Demand of all the river monitored was observed to be below 3mg/l throughout the year and the total Coliform Count of Nanbah River at Nongstoin was found to be above 500mpn/100ml as it is located in the centre of the District headquarter of West Khasi Hills, this river is subjected to pollution arising out of direct disposal of solid and liquid waste from residential & commercial areas, automobile workshops and servicing centres etc. and agricultural runoff. However, the water of this river can be used for propagation of wildlife & fisheries and irrigation purposes. The water quality of other water bodies was relatively good and can still be put for various beneficial purposes although it was not recommended to use directly for drinking purposes unless treated and disinfected by an organized water supply system.

c) WATER QUALITY OF RIVERS IN RI-BHOI

A total of 7(Seven) sampling stations including Ground Water were located in Ri-Bhoi. In all the monitored locations the pH was observed to be in the normal range of 6.5to 8.5. The dissolved Oxygen content in all the stations was found to be above 5mg/l, which was the minimum oxygen requirement for propagation of wildlife fisheries etc. The Bio-chemical Oxygen Demand was observed to be above 3mg/l in Umiam Lake, The total Coliform count of Umiam Lake and Umtrew River at Byrnihat was also observed to be high. The Umiam Lake received the waste that was generated in the Shillong city through the two rivers viz. Umkhrah and Umshyrpi Rivers whereas the Umtrew River was subjected to pollution originating from the residential, commercial and industrial areas.The water of Umiam Lake and Umtrew River can be used for propagation of wildlife & fisheries, and irrigation purposes.The water quality of other water bodies was relatively good and can still be put for various beneficial purposes although it was not recommended to use directly for drinking purposes unless treated and disinfected by an organized water supply system.

d) WATER QUALITY OF RIVERS IN EAST & WEST JAINTIA HILLS

A total of 24 (Twenty Four) sampling stations including Ground Water were located in Jaintia Hills, of which 12were located at East Jaintia Hills and 12 were located at West Jaintia Hills. The pH in (i) MyntduRiver at Leshka (ii) Lunar River at Myndihati (iii) Kyrhukhla River at Lad-Rymbai (iv) Lukha at Sunapur(v) Kalipai River at Rymbai (vi) Kme Um at Rymbai(vii) Waikhyrwi at Mookhlot (viii)Kwai River at Sutnga (ix) Lynriang River at Leshka (x) Umiuremat Iale (xi) Kupli River at Iooksi and Khangdong (xii) Thlumuwi River at Thlumuwiwaswas observed to be very low, with the minimum value of 2.3 recorded at Kme Um at Rymbaiduring the dry months

of January. Low pH indicates that water was acidic in nature which was mainly due to acid effluent from coal mines located on the catchment area in the upstream side. The dissolved Oxygen in all monitored rivers was always above 5mg/l, which was the minimum oxygen requirement for propagation of wildlife fisheries etc. The Bio-chemical Oxygen Demand was observed to be below 3mg/l in all the Monitoring locations.The total Coliform count was observed to be above 500mpn/100 ml in Myntdu River at Jowaimainly due to contamination from the domestic waste water/sewage. The water quality of other water bodies was relatively good and can still be put for various beneficial purposes although it was not recommended to use directly for drinking purposes unless treated and disinfected by an organized water supply system.

e) WATER QUALITY OF RIVERS IN GARO HILLS

13 (Thirteen) sampling stations were located in Garo Hills. In all the monitored locations the pH was observed to be in the normal range of 6.5 to 8.5 except in Nongal River in Nongal it was found to be in the lower side where the average pH was 4.5. The dissolved Oxygen content in all the monitoring stations was found to be above 5mg/l, which was the minimum oxygen requirement for propagation of wildlife fisheries etc. The Bio-chemical Oxygen Demand was observed to be below 3mg/l in all the monitored water bodies. The total Coliform count was observed to be moderately high in Simsang&Ganol River. The water quality of all monitored water bodies was relatively good and can still be put for various beneficial purposes although it was not recommended to use directly for drinking purposes unless treated and disinfected by an organized water supply system.

WATER SAMPLING DURING 2022

Table 6.2(a): Classification of Water bodies in the State in term of the Primary Water Quality Criteria for various uses of fresh water specified by Control Pollution Board

USE CLASS	SL. NO.	NAME OF RIVER/ LAKE	STRETCHES	DISTRICT
(A) Drinking water source without conventional treatment but after disinfection	1.	Rilang River	Mawkyrwat (upstream)	South West Khasi Hills
	2.	Umngi River	Jakrem-Umpung (upstream)	South West Khasi Hills
(B) Organised outdoor bathing including drinking water source with conventional treatment followed by disinfection	1.	Umkren River	Wahkdait-Kseh Pongdeng- Diengpasoh	East Khasi Hills
	2.	Umshyrpi River	Risa Colony (Upstream)	East Khasi Hills
	3.	UmiamMawphlang River	Nongkrem – Shella	East Khasi Hills
	4.	Umngot River	Smit- Dawki	East Khasi Hills
	5.	Wah KhlekKhlek	Saitsohpen (Upstream)	East Khasi Hills
	6.	Wah Rew	Majai (Upstream)	East Khasi Hills
	7.	Nonbah River	Phodsohsat (Upstream)	West Khasi Hills
	8.	Kynshi River	Sohiong – Ranikor	West Khasi Hills
	9.	Wahblei River	Riangdo – SdadDkhar	West Khasi Hills
	10.	Rwiang River	Rwiang (Upstream)	West Khasi Hills
	11.	Umtrew River	Umran (Upstream)	Ri-Bhoi
	12.	Lukha River	Khadum- Sonapur	East Jaintia Hills
	13.	Myntang River	Nartiang – Mynso	West Jaintia Hills
	14.	Myntdu River	Jowai – Mihmyntdu	West Jaintia Hills
	15.	Lamu River	Lashka (Upstream)	West Jaintia Hills
	16.	Thadlaskein River	Mukhla	West Jaintia Hills
	17.	Damsing River (Krishei)	Resubelpara (Upstream)	North Garo Hills
	18.	Manda (Dudnai) River	Wagasi – Jampa	East Garo Hills
	19.	Simsang River	William Nagar – Baghmara	East Garo Hills – South Garo Hills
	20.	Ganol River	Tura – Garobada	West Garo Hills
	21.	Danrung River	Boldamgre (Upstream)	West Garo Hills
	22.	Tasek Lake	Songsak (Naphak)	East Garo Hills
(C) Drinking Water source with conventional treatment followed by disinfection	1.	Umtrew River	Byrnihat (Up & Down stream)	Ri- Bhoi
	2	Nonbah River	NongstoinMarhet (downstream)	West Khasi Hills
(D) Propagation of Wildlife, Fisheries	1	Ward's Lake, Shillong	Whole Lake	East Khasi Hills
	2	Umiam Lake	Whole Lake	Ri-Bhoi
(E) Irrigation, Industrial Cooling and Controlled Waste Disposal	1	Umkhrah River	Whole Stretch	East Khasi Hills
	2	Umshyrpi River	Dhanketi (downstream)	East Khasi Hills

Table 6.2(b): Water Bodies in the State that cannot be classified for various use due to low PH value

Sl. No.	Name of Water Bodies (River/ Lakes)	Stretches	District
1.	Sderkariah River	Sohra (Cherrapunjee)	East Khasi Hills
2.	Laitryngew Stream	Laitryngew	East Khasi Hills
3.	Kyrhuhkhla River	Khliehriat	East Jaintia Hills
4.	Kalipai River	Rymbai	East Jaintia Hills
5.	Kmai Um River	Rymbai	East Jaintia Hills
6.	Waikhyrwi River	Mookhlot	East Jaintia Hills
7.	Kwai River	Sutnga- Mawpun	East Jaintia Hills
8.	Lynriang River	Leshka	East Jaintia Hills
9.	Myntdu River	Leshka	West Jaintia Hills
10.	Umiurem River	Iale	West Jaintia Hills
11.	Kupli River	Iooksi-Khangdong	West Jaintia Hills
12.	Thlumuwi River	Thlumuwi	West Jaintia Hills
13.	Lynriang River	Leshka	West Jaintia Hills
14.	Nongal River	Nong	South Garo Hills

A total of 13 (Thirteen) ground water located all over the State was monitored on half-yearly basis. The water of all the monitored sources was used for different purposes. The pH level at hot spring Jakrem was recorded to be high which was probably due to increase solubility of salts in hot water. Flouride concentration was also recorded to be high at this hot spring which is the characteristic of any hot spring.

Table 6.3: Ground Water Quality in Meghalaya

District	Name of Rivers	Locations	Year	pH	Conductivity	Turbidity	Flouride	Iron	Total Coliform
East Khasi Hills	Dreamland Spring	Police Bazar, Shillong	2022	6.0	175.0	1.0	0.05	0.16	120
	Mawpdang Spring	Mawlai		5.7	244.0	1.0	0.06	0.14	<1.8
	Nongmynsong, Dongkamon DTW	Nongmynsong		6.7	117.0	1.0	0.05	0.12	24
	Laban Last Stop DTW	Laban		5.2	66.0	1.0	0.05	0.11	10
	Forest Colony DTW	Polo		6.8	206.0	1.1	0.05	0.14	50
	Wah-U-Dkhar	Sohra		5.9	110.0	1.0	0.05	0.12	<1.8

District	Name of Rivers	Locations	Year	pH	Conductivity	Turbidity	Flouride	Iron	Total Coliform
Ri - Bhoi	Narbong Well	Byrnihat	2022	6.3	135.0	1.1	0.06	0.18	16
Jaintia Hills	Umsahep Hot Spring	Shangpung		5.5	146.0	1.3	0.05	0.12	<1.8
West Khasi Hills	Mawthadrishan Well	Markasa		6.6	46.0	2.5	0.06	0.22	<1.8
South West Khasi Hills	Jakrem, Hot Spring	Jakrem		9.0	306.0	1.5	21.6	0.14	<1.8
East Jaintia Hills	Borewell at Good Shephard Parish in Lad Rymbai	Khliehriat		7.0	142.0	1.3	0.05	0.12	<1.8
	Borewell at Khliehwah-Shasem-A in Khliehriat	Khliehriat		5.6	166.0	2.7	0.06	0.2	<1.8
	Borewell at Khliehwah-Shasem-B in Khliehriat	Khliehriat		5.6	102.0	1.5	0.05	0.18	<1.8

6.4: Water Quality Monitoring during Idol Immersion

The Meghalaya State Pollution Control Board, Shillong, conducted water quality monitoring before and after puja festival of three immersion ghats in the state viz. (i)Polo immersion site, Shillong, located along the river Umkhrah (ii) Babupara immersion site, Tura, located along the Babupara-Rongkhon River and (iii) Syntu Ksiar (Lynterarchaka) immersion site, Jowai, located along the river Myntdu. The monitoring was conducted in order to assess the environmental impact due to such immersion.

TABLE 1: WATER QUALITY DATA OF RIVER WAH UMKHRAH DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site I (100m Upstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	05.10.2022	07.10.2022 (3rd)	09.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/1/22	I/10/22	I/19/22	I/28/22	I/37/22	I/46/22
Time	12:15	12:00	2:15	1:30	1:20	12:30
Weather	Clear	Clear	Clear	Raining	Clear	Rainy
Colour	Brown	Greyish	Brown	Brown	Clear	Clear
Temperature (°C)	18.0	17.0	14.0	14.0	15.0	16.0
pH	7.1	7.2	7.3	6.9	6.8	6.8
Conductivity µS/cm	255.0	252.0	218.0	288.0	255.0	261.0
Chloride mg/L	28.0	26.0	16.0	28.0	20.0	19.0
Total Hardness mg/L	80.0	76.0	108.0	70.0	68.0	68.0
Alkalinity mg/L	126.0	118.0	110.0	56.0	64.0	66.0
Dissolved Oxygen mg/L	2.6	3.6	2.9	2.2	2.3	2.4
BOD (mg/L)	13.0	9.4	12.5	14.5	14.0	13.5
COD (mg/L)	20.0	20.0	20.0	30.0	30.0	40.0
Turbidity (NTU)	12.5	16.5	17.8	14.2	20.5	15.9
Total Dissolved Solids mg/L	176.0	174.0	150.0	199.0	176.0	180.0
Total Suspended Solids mg/L	17.0	20.0	22.0	17.0	24.0	20.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 1: WATER QUALITY DATA OF RIVER WAH UMKHRAH DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site II (Site of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	07.10.2022 (3rd)	09.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/2/22	I/11/22	I/20/22	I/29/22	I/38/22	I/47/22
Time	12:30	12:15	2:30	1:45	1:35	12:45
Weather	Clear	Clear	Clear	Raining	Clear	Rainy
Colour	Brown	Greyish	Brown	Brown	Clear	Clear
Temperature (°C)	18.0	17.0	14.0	14.0	15.0	16.0
pH	7.3	7.2	7.2	6.8	6.8	6.9
Conductivity µS/cm	268.0	260.0	232.0	290.0	268.0	275.0
Chloride mg/L	27.0	25.0	20.0	29.0	21.0	20.0
Total Hardness mg/L	70.0	70.0	106.0	78.0	70.0	68.0
Alkalinity mg/L	134.0	120.0	112.0	62.0	68.0	66.0
Dissolved Oxygen mg/L	3.4	3.0	2.4	2.5	2.7	2.8
BOD (mg/L)	14.0	16.0	19.0	18.8	17.0	16.5
COD (mg/L)	40.0	30.0	40.0	40.0	30.0	40.0
Turbidity (NTU)	14.3	27.3	20.2	15.9	21.9	19.5
Total Dissolved Solids mg/L	185.0	179.0	160.0	200.0	185.0	190.0
Total Suspended Solids mg/L	18.0	30.0	30.0	19.0	27.0	25.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 1: WATER QUALITY DATA OF RIVER WAH UMKHRAH DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site III (100 m downstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	07.10.2022 (3rd)	09.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/3/22	I/12/22	I/21/22	I/30/22	I/39/22	I/48/22
Time	12:45	12:30	2:45	2:00	1:50	1:00
Weather	Clear	Clear	Clear	Raining	Clear	Rainy
Colour	Brown	Greyish	Brown	Brown	Clear	Clear
Temperature (°C)	18.0	17.0	15.0	14.0	16.0	16.0
pH	7.3	7.2	7.2	6.9	6.7	6.8
Conductivity µS/cm	280.0	254.0	224.0	285.0	250.0	268.0
Chloride mg/L	28.0	26.0	18.0	30.0	21.0	21.0
Total Hardness mg/L	74.0	70.0	120.0	70.0	64.0	70.0
Alkalinity mg/L	136.0	118.0	106.0	62.0	60.0	64.0
Dissolved Oxygen mg/L	2.4	3.4	2.7	2.5	2.5	3.6
BOD (mg/L)	19.0	14.0	18.0	19.0	18.5	15.0
COD (mg/L)	50.0	40.0	30.0	50.0	40.0	30.0
Turbidity (NTU)	15.9	18.9	18.9	15.4	22.6	17.6
Total Dissolved Solids mg/L	193.0	175.0	154.0	197.0	172.0	185.0
Total Suspended Solids mg/L	19.0	20.0	25.0	18.0	29.0	21.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2: WATER QUALITY DATA OF MYNTDU RIVER DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site I (100m Upstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	05.10.2022	07.10.2022 (3rd)	09.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/4/22	I/13/22	I/22/22	I/31/22	I/40/22	I/49/22
Time	11:00	12:15	1:00	12:16	1:00	11:20
Weather	Clear	Clear	Clear	Clear	Clear	Cloudy
Colour	Clear	Clear	Clear	Clear	Clear	L. Brown
Temperature (°C)	16.0	15.0	15.0	16.0	16.0	18.0
pH	7.1	6.7	6.8	6.8	6.7	6.6
Conductivity µS/cm	9.0	6.0	7.0	10.0	6.0	6.0
Chloride mg/L	22.0	10.0	12.0	10.0	12.0	10.0
Total Hardness mg/L	20.0	20.0	16.0	16.0	14.0	14.0
Alkalinity mg/L	45.0	42.0	39.0	42.0	38.0	40.0
Dissolved Oxygen mg/L	6.2	6.8	7.4	7.6	7.0	7.4
BOD (mg/L)	2.1	1.9	2.1	1.2	1.9	1.4
COD (mg/L)	8.0	8.0	10.0	5.0	6.0	5.0
Turbidity (NTU)	6.5	5.9	3.9	4.3	4.5	3.7
Total Dissolved Solids mg/L	31.0	29.0	27.0	29.0	26.0	28.0
Total Suspended Solids mg/L	12.0	10.0	8.0	9.0	8.0	7.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	0.05	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2: WATER QUALITY DATA OF MYNTDU RIVER DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site II (Site of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	7.10.2022 (3rd)	9.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/5/22	I/14/22	I/23/22	I/32/22	I/41/22	I/50/22
Time	11:15	12:30	1:15	12:30	1:15	11:30
Weather	Clear	Clear	Clear	Clear	Clear	Cloudy
Colour	Clear	Clear	Clear	Clear	Clear	L. Brown
Temperature (°C)	16.0	15.0	16.0	15.0	15.0	18.0
pH	6.8	6.8	6.7	6.7	6.6	6.7
Conductivity µS/cm	5.0	8.0	8.0	7.0	7.0	5.0
Chloride mg/L	20.0	12.0	12.0	12.0	12.0	12.0
Total Hardness mg/L	18.0	18.0	14.0	12.0	12.0	16.0
Alkalinity mg/L	42.0	45.0	41.0	44.0	37.0	43.0
Dissolved Oxygen mg/L	6.4	7.4	7.6	7.2	7.2	7.4
BOD (mg/L)	1.7	1.6	1.6	1.6	1.6	1.5
COD (mg/L)	10.0	8.0	8.0	7.0	5.0	6.0
Turbidity (NTU)	5.5	11.9	4.7	4.9	3.9	3.9
Total Dissolved Solids mg/L	29.0	31.0	28.0	30.0	25.0	30.0
Total Suspended Solids mg/L	10.0	16.0	8.0	10.0	7.0	8.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2: WATER QUALITY DATA OF MYNTDU RIVER DURING PRE-IMMERSSION, IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site III (100 m downstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	7.10.2022 (3rd)	9.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/6/22	I/15/22	I/24/22	I/33/22	I/42/22	I/51/22
Time	11:30	12:45	1:30	12:45	1:30	11:40
Weather	Clear	Clear	Clear	Clear	Clear	Cloudy
Colour	Clear	Clear	Clear	Clear	Clear	L. Brown
Temperature (°C)	16.0	15.0	16.0	15.0	15.0	18.0
pH	6.7	6.7	6.8	6.7	6.7	6.7
Conductivity µS/cm	5.0	6.0	8.0	5.0	8.0	5.0
Chloride mg/L	14.0	14.0	14.0	12.0	12.0	12.0
Total Hardness mg/L	14.0	20.0	18.0	18.0	16.0	12.0
Alkalinity mg/L	40.0	40.0	38.0	46.0	40.0	41.0
Dissolved Oxygen mg/L	6.8	7.1	7.8	8.0	7.8	7.8
BOD (mg/L)	1.5	1.7	1.4	1.4	1.3	1.3
COD (mg/L)	12.0	12.0	6.0	6.0	5.0	5.0
Turbidity (NTU)	5.2	6.8	4.2	5.7	4.9	4.1
Total Dissolved Solids mg/L	28.0	28.0	26.0	32.0	28.0	28.0
Total Suspended Solids mg/L	9.0	12.0	10.0	12.0	13.0	9.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 3: WATER QUALITY DATA OF RIVER BABUPARA-RONGKHONDURING PRE-IMMERSSION,IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site I (100m Upstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	7.10.2022 (3rd)	9.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/7/22	I/16/22	I/25/22	I/34/22	I/43/22	I/52/22
Time	11:10	6:11	10:15	9:45	10:55	9:25
Weather	Clear	Clear	Clear	Clear	Clear	Clear
Colour	Clear	Clear	Clear	Clear	Clear	Clear
Temperature (°C)	25.8	24.0	24.0	24.0	24.0	24.0
pH	6.8	6.7	6.7	6.8	6.7	6.8
Conductivity µS/cm	89.0	94.0	94.0	93.0	86.0	87.0
Chloride mg/L	6.0	6.0	5.0	5.0	5.0	6.0
Total Hardness mg/L	26.0	36.0	36.0	28.0	26.0	36.0
Alkalinity mg/L	38.0	44.0	40.0	30.0	32.0	40.0
Dissolved Oxygen mg/L	7.6	7.8	7.2	6.9	7.3	7.6
BOD (mg/L)	1.7	1.4	1.3	1.9	1.4	1.3
COD (mg/L)	6.0	5.0	5.0	7.0	5.0	5.0
Turbidity (NTU)	4.4	5.2	5.0	4.9	3.8	4.0
Total Dissolved Solids mg/L	61.0	65.0	65.0	64.0	59.0	60.0
Total Suspended Solids mg/L	8.0	11.0	11.0	9.0	8.0	9.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 3: WATER QUALITY DATA OF RIVER BABUPARA-RONGKHONDURING PRE-IMMERSSION,IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site II (Site of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	7.10.2022 (3rd)	9.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/8/22	I/17/22	I/26/22	I/35/22	I/44/22	I/53/22
Time	11:30	6:35	10:10	9:40	10:20	9:25
Weather	Clear	Clear	Clear	Clear	Clear	Clear
Colour	Clear	Clear	Clear	Clear	Clear	Clear
Temperature (°C)	25.0	24.0	25.0	24.5	25.0	24.5
pH	6.7	6.6	6.8	6.7	6.8	6.7
Conductivity µS/cm	92.0	103.0	103.0	102.0	88.0	89.0
Chloride mg/L	6.0	7.0	6.0	6.0	6.0	6.0
Total Hardness mg/L	32.0	40.0	38.0	30.0	30.0	38.0
Alkalinity mg/L	38.0	40.0	42.0	36.0	34.0	42.0
Dissolved Oxygen mg/L	7.3	7.4	6.8	7.2	7.3	7.4
BOD (mg/L)	1.6	1.7	1.9	1.6	1.9	1.6
COD (mg/L)	5.0	6.0	7.0	6.0	7.0	6.0
Turbidity (NTU)	5.0	12.7	6.8	5.8	5.2	5.6
Total Dissolved Solids mg/L	63.0	71.0	71.0	70.0	61.0	61.0
Total Suspended Solids mg/L	11.0	16.0	4.0	13.0	12.0	12.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 3: WATER QUALITY DATA OF RIVER BABUPARA-RONGKHONDURING PRE-IMMERSSION,IMMERSION & POST-IMMERSION DAY, KALI PUJA FESTIVAL 2022

	Site III (100 m downstream of Immersion Ghat)					
	Pre-Immersion Day	Immersion Day	Post Immersion			
⟹ Date of Sampling	30.09.2022	5.10.2022	7.10.2022 (3rd)	9.10.2022 (5th)	11.10.2022 (7th)	13.10.2022 (9th)
Sample Code	I/9/22	I/18/22	I/27/22	I/36/22	I/45/22	I/54/22
Time	4:40	6:50	10:10	10:05	11:20	10:15
Weather	Clear	Clear	Clear	Clear	Clear	Clear
Colour	Clear	Clear	Clear	Clear	Clear	Clear
Temperature (°C)	26.0	25.0	25.1	25.0	25.0	25.0
pH	6.7	6.6	6.7	6.6	6.8	6.7
Conductivity µS/cm	90.0	97.0	100.0	97.0	84.0	88.0
Chloride mg/L	5.0	6.0	6.0	6.0	5.0	5.0
Total Hardness mg/L	34.0	38.0	42.0	32.0	32.0	40.0
Alkalinity mg/L	40.0	42.0	42.0	32.0	32.0	42.0
Dissolved Oxygen mg/L	7.1	7.6	7.3	7.5	7.6	7.8
BOD (mg/L)	1.3	1.9	1.5	1.3	1.5	1.4
COD (mg/L)	5.0	7.0	6.0	5.0	6.0	5.0
Turbidity (NTU)	5.3	8.9	5.4	5.2	4.7	4.9
Total Dissolved Solids mg/L	62.0	67.0	69.0	67.0	58.0	61.0
Total Suspended Solids mg/L	13.0	14.0	12.0	11.0	9.0	8.0
Chromium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Lead mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Zinc mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Copper mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium mg/L	BDL	BDL	BDL	BDL	BDL	BDL
Manganese mg/L	BDL	BDL	BDL	BDL	BDL	BDL

6.5: Water Quality Monitoring under Board's Programme

The Board also carried out the monitoring of the water quality of other water bodies in the State which were used for different purposes and subjected to different types of pollution. Based on the monitoring the following reports were published by the Board.

(1) A Report on the Inspection/Monitoring & Water Quality of Wah Pongtung on April 2022, East Khasi Hills District.

The Monitoring results indicated that the effluent from Betelnut processing units in Pongtung area is not conforming to the General Standard for Discharge of Environmental Pollutants into inland surface water. To maintain and prevent Pollution of the river water, it i ssuggested that the effleunt from the Betelnut processing units be treated in the effluent treatment plant before discharging into the river.

6.6: Monitoring of water bodies on account of NGT order

A total of 148 samples were collected and analyzed from the water bodies located in coal mining areas

6.7: Analysis of water samples received from Government Departments/Private Agencies/Public/etc.

In addition to the regular programme the Board was also engaged in analyzing water samples received from Government Departments, Private Agencies and Public. A total of 380 samples were analyzed during the year.

CHAPTER 7
NOISE LEVEL MONITORING

7.1: Noise Level Monitoring of Industry/Firm/Org./Private

The Board conducted ambient Noise level monitoring of Industry/Firm/Org/Private, etc. during 2022-2023 and data of the same is presented below:

Table 7.1 : Noise level monitoring of Industry/Firm/Org/Private.

Sl. No.	Name of Industry/Firm/Org/ Private	Sampling Location	Date of sampling	Category	Observed value {dB(A) Leq}		Prescribed Standard {dB(A) Leq}	Remarks
1.	St. Edmunds College Shillong	College Premises	18-05-22	Silence Zone	Day	47.7	50.0	W
					Night	39.4	40.0	W
2.	M/S Maithan Alloys (P) Ltd, EPIP Byrnihat	Near Office	27-06-2022	Industrial	Day	74.1	75.0	W
					Night	62.4	70.0	W
3.	M/S Khasi Alloys Ltd, By-rnihat	Near Office	27-06-22	Industrial	Day	81.7	75.0	A
					Night	74.6	70.0	A
4.	M/S Shyam Century Ferrous (P) Ltd, EPIP Byrnihat	Near Office	28-06-22	Industrial	Day	82.3	75.0	A
					Night	75.3	70.0	A
5.	M/S CMJ Breweries (P) Ltd, EPIP, Byrnihat	Near Admin building	28-06-22	Industrial	Day	81.6	75.0	A
					Night	73.3	70.0	A
6.	M/S Commercial Iron & Steel Co.Pvt Ltd,EPIP Byrnihat	Near Office	28-06-22	Industrial	Day	78.9	75.0	A
					Night	71.4	70.0	A
7.	M/S FW Ferrotech (P) Ltd, EPIP Byrnihat	Near Office	29-06-22	Industrial	Day	78.2	75.0	A
					Night	70.3	70.0	A
8.	M/S Meghalaya Steel Pvt.Ltd, EPIP Byrnihat	Near Office	29-06-22	Industrial	Day	84.6	75.0	A
					Night	75.2	70.0	A
9.	M/S NTL Steel, (P) Ltd, EPIP Byrnihat	Near Office	29-06-22	Industrial	Day	81.7	75.0	A
					Night	72.4	70.0	A
10.	M/S Kamakshi Ispat, (P) Ltd, EPIP Byrnihat	Near Office	04-07-22	Industrial	Day	77.5	75.0	A
					Night	68.7	70.0	W
11.	M/S Nalari Ferro Alloys, (P) Ltd, EPIP Byrnihat	Near Lawn	04-07-22	Industrial	Day	77.5	75.0	A
					Night	68.7	70.0	W
12.	M/S Nalari Ferro Alloys, (P) Ltd, EPIP Byrnihat	Near Lawn	04-07-22	Industrial	Day	81.6	75.0	A
					Night	78.4	70.0	A
13.	M/S Pawan Casting Pvt.Ltd EPIP Byrnihat	Near Office	05-07-22	Industrial	Day	82.3	75.0	A
					Night	79.1	70.0	A
14.	M/S Meghalaya Cast & Al-loys, (P) Ltd, EPIP Byrnihat	Near Staff quarter	05-07-22	Industrial	Day	76.9	75.0	A
					Night	73.4	70.0	A
15.	M/S Jaintia Ferro Alloys, (P) Ltd, EPIP Byrnihat	Near Office	05-07-22	Industrial	Day	77.8	75.0	A
					Night	67.6	70.0	W

Sl. No.	Name of Industry/Firm/Org/ Private	Sampling Location	Date of sampling	Category	Observed value {dB(A) Leq}		Prescribed Standard {dB(A) Leq}	Remarks
16.	M/S Shri Sai Smelters Pvt.Ltd, 15th Mile Rangsakona	Near Office	06-07-22	Industrial	Night	80.0	75.0	A
					Night	69.6	70.0	A
17.	M/S Ri Bhoi Ispat & Rolling Mills (P) Ltd, 13th Mile Tamulkuchi	Near Office	12-07-22	Industrial	Day	82.3	75.0	A
					Night	78.4	70.0	A
18.	M/S Shillong Ispat & Rolling Mills (P) Ltd	Near Office	12-07-22	Industrial	Day	81.0	75.0	A
					Night	69.1	70.0	W
19.	M/S Excel Foods (P) Ltd. 10th Mile Mawsmai, Byrnihat	Near Canteen	12-07-22	Industrial	Day	83.5	75.0	A
					Night	70.8	70.0	A
20.	M/S Sriram Wires Products (P) Ltd, 13th Mile Tamulkuchi	Near Office	13-07-22	Industrial	Day	73.1	75.0	W
					Night	63.7	70.0	W
21.	M/S Shivani Ispat & Rolling Mills (P) Ltd	Near Office	13-07-22	Industrial	Day	73.9	75.0	W
					Night	62.5	70.0	W
22.	M/S Bitchem Asphalt Technologies, 9th Mile Byrnihat	Near Plant Area	14-07-22	Industrial	Day	78.3	75.0	A
					Night	67.2	70.0	W
23.	M/S Godrej Consumer Product Pvt.Ltd, 15th Mile Byrnihat	Near Office	14-07-22	Industrial	Day	80.4	75.0	A
					Night	70.6	70.0	A
24.	Marten Landfill Site, Mawiong (EKHD)	Near Dumping Site	29-08-22	Industrial	Day	52.0	75.0	W
					Night	44.3	70.0	W
25.	Marten(New) Landfill Site, Mawiong (EKHD)	Near Landfill Site	30-08-22	Industrial	Day	51.3	75.0	W
					Night	41.8	70.0	W
26.	Landfill Site, Jowai, Mynkjai,WJHD	Near Landfill Site	01-09-22	Industrial	Day	58.1	75.0	W
					Night	50.9	70.0	W
27.	Municipal Dumping site, Rrongkhon Songital, Tura, West Garo Hills)	Near Dumping Site	29-08-22	Industrial	Day	58.9	75.0	W
					Night	44.7	70.0	W
28.	Municipal Dumping site Maypangro Resubelpara (NGHD)	Near Dumping Site	31-08-22	Industrial	Day	57.6	75.0	W
					Night	45.2	70.0	W
29.	Municipal Dumping site Arapara,Baghmara (SGHD)	Near Dumping Site	05-09-22	Industrial	Day	55.7	75.0	W
					Night	43.9	70.0	W
30.	Municipal Dumping site, Balasrigittim, Williamnagar, East Garo Hills.	Near Dumping Site	07-09-22	Industrial	Day	54.9	75.0	W
					Night	45.2	70.0	W
31.	Highland Toyota, Mawiongrim,GS Road, Shillong - 793016	DG Set Near Service Station	11-10-22	Industrial	Day	71.5	75.0	W
					Night	-	-	-
32.	M/S Pawan Casting Pvt.Ltd EPIP Byrnihat	Near Front Office	06-12-22	Industrial	Day	68.4	75.0	W
					Night	54.8	70.0	W
33.	M/S Meghalaya Cast & Alloys, (P) Ltd, EPIP Byrnihat	Plant Premises	06-12-22	Industrial	Day	69.7	75.0	W
					Night	53.2	70.0	W

Sl. No.	Name of Industry/Firm/Org/ Private	Sampling Location	Date of sampling	Category	Observed value {dB(A) Leq}		Prescribed Standard {dB(A) Leq}	Remarks
34.	M/S Shyam Century Ferrous (P) Ltd,EPIP Byrnihat	Near Office	07-12-22	Industrial	Day	60.5	75.0	W
					Night	54.3	70.0	W
35.	M/S Shyam Century Ferrous (P) Ltd, EPIP Byrnihat	DG Set	07-12-22	Industrial	Day	74.5	75.0	W
					Night	-	-	-
36.	M/S Commercial Iron & Steel Co.Pvt Ltd,EPIP Byrnihat	Near Landfill Site	07-12-22	Industrial	Day	72.8	75.0	W
					Night	63.7	70.0	W
37.	M/S Godrej Consumer Product Pvt.Ltd, 15th Mile Byrnihat	Plant Premises	07-12-22	Industrial	Day	74.6	75.0	W
					Night	68.7	70.0	W
38.	M/S Meghalaya Steel Pvt.Ltd, EPIP Byrnihat	Plant Premises	07-12-22	Industrial	Day	73.8	75.0	W
					Night	69.1	70.0	W
39.	M/S Meghalaya Steel Pvt.Ltd, EPIP Byrnihat	DG Set	07-12-22	Industrial	Day	70.5	75.0	W
					Night	-	-	-
40.	M/S Khasi Alloys Ltd, Byrnihat	Near Office	13-12-22	Industrial	Day	60.8	75.0	W
					Night	57.5	70.0	W
41.	M/S Khasi Alloys Ltd, Byrnihat	DG Set	13-12-22	Industrial	Day	70.5	75.0	W
					Night	-	-	-
42.	M/S FW Ferrotech (P) Ltd, EPIP Byrnihat	Plant Premises	13-12-22	Industrial	Day	53.6	75.0	W
					Night	50.0	70.0	W
43.	M/S FW Ferrotech (P) Ltd, EPIP Byrnihat	DG Set	13-12-22	Industrial	Day	96.7	75.0	A
					Night	-	-	-
44.	M/S Ri Bhoi Ispat & Rolling Mills (P) Ltd, 13th Mile Tamulkuchi	Near Office	14-12-22	Industrial	Day	62.7	75.0	W
					Night	58.8	70.0	W
45.	M/S Shillong Ispat & Rolling Mills (P) Ltd	Near Office	14-12-22	Industrial	Day	64.0	75.0	W
					Night	59.0	70.0	W
46.	M/S Jaintia Ferro Alloys, (P) Ltd, EPIP Byrnihat	Near Dumping Site	14-12-22	Industrial	Day	72.1	75.0	W
					Night	64.8	70.0	W
47.	M/S NTL Steel, (P) Ltd, EPIP Byrnihat	Plant Premises	14-12-22	Industrial	Day	73.6	75.0	W
					Night	66.7	70.0	W
48.	M/S NTL Steel, (P) Ltd, EPIP Byrnihat	DG Set	14-12-22	Industrial	Day	72.5	75.0	W
					Night	-	-	-
49.	Power System Operation Corporation Limited, Lower Nongrah, Lapalang	DG Set	16-01-23	Industrial	Day	73.8	75.0	W
					Night	-	-	-
50.	Power System Operation Corporation Limited, Lower Nongrah, Lapalang	DG Set	16-01-23	Industrial	Day	82.4	75.0	A
					Night	-	-	-
51.	M/S Shivani Ispat & Rolling Mills (P) Ltd	Near Office	31-01-23	Industrial	Day	76.4	75.0	A
					Night	60.1	70.0	W
52.	M/S Sriram Wires Products (P) Ltd, 13th Mile Tamulkuchi	Near Office	31-01-23	Industrial	Day	65.4	75.0	W
					Night	60.8	70.0	W

Sl. No.	Name of Industry/Firm/Org/ Private	Sampling Location	Date of sampling	Category	Observed value {dB(A) Leq}		Prescribed Standard {dB(A) Leq}	Remarks
53.	M/S Maithan Alloys (P) Ltd,EPIP Byrnihat	Near Office	01-02-23	Industrial	Day	70.3	75.0	W
					Night	65.4	70.0	W
54.	M/S Nalari Ferro Alloys, (P) Ltd, EPIP Byrnihat	Near Lawn	01-02-23	Industrial	Day	72.6	75.0	W
					Night	66.4	70.0	W
55.	M/S Nalari Ferro Alloys, (P) Ltd, EPIP Byrnihat	DG Set	01-02-23	Industrial	Day	84.2	75.0	A
					Night	-	-	-
56.	M/S Pioneer Carbide, EPIP Byrnihat	Plant Prem-ises	01-02-23	Industrial	Day	62.2	75.0	W
					Night	54.7	70.0	W
57.	M/S CMJ Breweries (P) Ltd, EPIP, Byrnihat	Near Ad-ministrati-on building	07-02-23	Industrial	Day	54.1	75.0	W
					Night	50.7	70.0	W
58.	M/S CMJ Breweries (P) Ltd, EPIP, Byrnihat	DG Set	07-02-23	Industrial	Day	71.3	75.0	W
					Night	-	-	-
59.	M/S Excel Foods (P) Ltd 10th Mile Mawsmai, Byrnihat	Plant Prem-ises	08-02-23	Industrial	Day	68.5	75.0	W
					Night	63.2	70.0	W
60.	M/S Excel Foods (P) Ltd 10th Mile Mawsmai, Byrnihat	DG Set	08-02-23	Industrial	Day	67.2	75.0	W
					Night	-	-	-
61.	M/S Bitchem Asphalt Tech-nologies, 9th Mile Byrnihat	Near Plant Area	08-02-23	Industrial	Day	67.4	75.0	W
					Night	60.3	70.0	W
62.	M/S Bitchem Asphalt Tech-nologies, 9th Mile Byrnihat	DG Set	08-02-23	Industrial	Day	95.9	75.0	A
					Night	-	-	-
63.	Power Grid Corporation Of India Ltd,Shillong	DG Set	17-02-23	Industrial	Day	62.9	75.0	W
					Night	-	-	-
64.	Power Grid Corporation Of India Ltd,Shillong	DG Set	17-02-23	Industrial	Day	86.9	75.0	A
					Night	-	-	-
65.	Shillong Expressway Pvt Ltd, Shillong Bypass Mawkhanu	Plant Premises	23-02-23	Residential	Day	54.2	55.0	W
					Night	40.7	45.0	W
66.	Shri. A. Paul Upper Mawprem, Shillong	Premises	28-03-23	Residential	Day	57.7	55.0	A
					Night	53.6	45.0	A
67.	Shri. A. Paul Upper Mawprem, Shillong	Premises	29-03-23	Residential	Day	59.2	55.0	A
					Night	52.6	45.0	A

7.2: Noise Level Monitoring in NAMP stations

The Board conducted Ambient Noise level monitoring from Ambient Air Quality Monitoring stations under the national Air Monitoring Program (NAMP) during 2022-2023 and data of the same is presented below:

Table 7.2: Ambient Noise level monitoring for all NAMP Stations in the State of Meghalaya during the year 2022-2023

Board Premises Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	55.2	55.2	52.5	54.9	54.1	54.4	55.2	54	53.8	50.2	52.4	54.4
	Night	43.3	42.9	44.2	43.1	43.9	44	43.7	43.8	44.9	44.7	44.9	44.9

Barik - Commercial		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	65.3	63.6	71.8	68.8	68.9	70.6	69.8	69.5	70.6	72.7	70	67.6
	Night	54.7	53.7	54.9	54.8	51.2	55	53.5	54.5	53	52.6	52.8	54.8

EPIP, Byrnihat - Industrial		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	63.9	67.5	72.5	65.5	63.2	62.5	55.3	61.4	67.6	67.8	58.6	61.6
	Night	55.6	60.2	58	60.3	54.9	58	50.1	56.3	62.2	61.6	56.1	55.9

Dawki – Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	52.3	50.9	53.7	51.6	52.6	54.7	54.5	54	53.7	54.2	54.4	52.9
	Night	42.9	45	44.8	45.5	43.4	43.7	44.8	44.2	42.3	42	44	43.8

Tura – Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	67.22	73.5	75.1	67.5	58.97	65.7	68.77	72.67	78.05	75.72	73.02	75.87
	Night	44.4	44.1	39.8	43.8	44.9	44.8	37.17	44.8	43.7	42.5	44.6	43.8

Khliehriat – Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	56.9	54.7	57.5	55.5	54.1	50.2	51.7	53.5	53.1	55.1	58.5	56.8
	Night	44.6	45	44.5	44.8	46.5	44.1	45	45	44.7	43.9	43.5	44.4

Nongstoin - Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	53.6	54	53.6	54.9	54.2	54.6	51.3	52.9	51.2	52.2	53.1	54
	Night	43.9	43.3	43.6	43.8	43.4	42.7	43.1	43.7	44.5	44.8	44.7	43.9

Umiam - Industrial		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	66.5	63.4	64.2	70	71.2	65.7	69.5	73.3	73.8	74.2	74.8	71.5
	Night	57.1	56.7	55.6	60	62.7	54.8	60.8	62.9	61.6	60.3	63	62.2

Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	54.6	53.4	55.1	54.7	55.9	53.2	53.7	50.2	52.6	53.6	55.9	55.1
	Night	44.3	44.7	44	43.5	44.6	41.4	45	42.7	44.8	42.2	43.9	44.1

4th ½ Mile - Residential		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
LEQ	Day	55.7	56.7	53.3	56.2	51.4	52.9	56	51.6	55.2	52.8	53.2	52.9
	Night	43.5	42.3	42.8	41.8	42.7	43.5	42.5	41.2	43.5	41.8	41	42.9

Permissible Limits as per Noise Pollution (Regulation & Control) Rules, 2000.

Area Code	Category of Area	Limits in dB (A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

CHAPTER 8
MONITORING DURING FESTIVALS

8.1: Diwali Festival 2022

In India, "Deepawali" or "Diwali" is celebrated by the bursting of crackers, burning of sparklers, beating of drums and playing of musical instruments etc. The festival of lights, as it is also known, is said to be a celebration of the triumph of good over evil. On the occasion, the Indian sky is lit up with sparks and lights of different hues and colors while colored lightings and decorations adorn the homes of many celebrating this well-known festival.

However, accompanying the lights and colors is the noise that is emitted by the burning and bursting of crackers and sparklers etc. thus raising the overall ambient noise level in the surroundings and causing noise pollution. This therefore calls for a monitoring of the ambient noise level as well as the air quality at a place in order to assess the level of pollution due to observance of the festival.

With this objective, the Meghalaya State Pollution Control Board, Shillong, conducted the Ambient Noise Level and Air Quality monitoring before, on Deepawali day and after, from the 17th to 31st October, 2022, in pursuance to the interim directions of the Honourable Supreme Court and the Central Pollution Control Board, Delhi.

Area Monitored

The city of Shillong was selected for conducting the ambient noise level and air quality survey during the festive occasion as it is Meghalaya's largest city as well as its capital and has a sizeable population celebrating the festival. Byrnihat, located in the district of Ri Bhoi, was selected as it has been categorized as a non-attainment town/city.

The three locations selected within Shillong are:

1. Lumpyngngad (Location A – Meghalaya State Pollution Control Board's premises), a residential area.
2. Police Bazar (Location B – Meghalaya Legislative Assembly office's premises), a commercial area &
3. Lawmali (Location C – Ganesh Das Hospital's premises), a silence zone.

Statistical and physical description of the city and the monitored areas is furnished in the following paragraphs entitled 'CITY' and 'MONITORING LOCATIONS' (as per the Central pollution Control Board's prescribed format).

METHODOLOGY

The monitoring was conducted from 17th to 31st October, 2022, whereby pre-Diwali monitoring was taken as one week before the 24th of October (Diwali day), 2022, and post-Diwali monitoring, one week after the mentioned day. The monitoring methodology is as per the Protocol specified by Central pollution Control Board, Delhi

The monitoring team was equipped with Envirotech SLM 109 Sound level meters. The noise levels were measured in dB(A) i.e. the level of sound in decibels on scale – A as per the human ear sensitivity requirements. The result was expressed in Lmin, Lmax and Leq, wherein Lmin indicates the minimum value of the sound level in decibels and Lmax the maximum value of sound level in decibels occurring during the single event and Leq denotes the A weighted energy mean of the noise level averaged over the measurement period. The noise level was monitored for continuous 6 hours duration i.e. from 18:00 Hours (6:00 pm) to 24:00 Hours (12:00 midnight) where Lmin, Lmax and Leq readings were recorded for every hourly interval.

The Ambient Air Quality was performed using Respirable Dust Sampler (Envirotech APM 460 & APM 460NL) and PM 2.5 Sampler (Envirotech APM 550 MFC). The monitoring for SO_2, NO_2 , $PM_{2.5}$ and PM10 was carried out for a sampling period of 24 hours (8 hrs. intervals for Particulate Matter & 4 hour's interval for gaseous pollutants). The results were expressed in $\mu g/m^3$.

City

Name: SHILLONG,

State: Meghalaya

Coordinates: 25°34'00"N & 91°53'00"E

Elevation: 1496m (4,908 feet) above sea level

Climate/Meteorology: Yearly average minimum temperature is 13.6°C (56.5°F) and maximum is 21.7°C (71.1°F) and the average yearly rainfall is 4,931 mm (194.13 inches).

Population: 1, 43,229 as per 2011 census

Major Land use: According to the Master Plan of Shillong city, which includes the Shillong Agglomeration and 35 other surrounding villages covering an area of 174 Sq. km., the existing land-use has been classified into the categories viz. Residential, Commercial, Public, semi-Public (administrative, institutional, open space i.e. parks, play ground and graveyards), Industrial, Security, Circulation (roads, parking lots, etc.), Vacant (areas with poor accessibility, steep slopes, etc.), Urban agriculture, Forests and water bodies.

MONITORING LOCATIONS IN SHILLONG

Map showing the monitoring locations in Shillong city
INDEX: - Sampling Locations

Description of monitoring site

i. **Location A – Lumpyngngad:** Lumpyngngad is an area located in the outskirts of the city. A purely residential area, this location is basically a quiet place. There are no commercial complexes here and the main noise sources are vehicular traffic and construction activity. There are a good number of residents celebrating the Diwali festival in this area and noise study on a normal day and on the occasion would give a good comparison on the noise scenario prior to and during the festival period.

ii. **Location B - Police Bazar:** This location is a commercial area and the major shopping and business area of the city. People from all over the city as well as the state and even visitors from outside the state and country frequent here for their business and shopping activities. The main noise sources here are vehicular traffic and pedestrians, shoppers and that arising from business activities. The shop owners and residents of this area celebrate the Diwali festival with much pomp and enthusiasm and therefore the location is suitable for the undergoing noise study.

iii. **Location C - Lawmali:** This station is located in the premises of the Ganesh Das Hospital, which is categorized as a silence zone. It is a Government hospital and one of the biggest in the city. The place is close to Polo and Jail Road, localities that have sizeable residents celebrating Diwali. Therefore it is a suitable location for the undergoing noise study.

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NOISE LEVEL DURING DIWALI FESTIVAL, 2022

Table A

Lumpyngngad						
Location : A	Pre-Diwali Day (18.10.2022)			Diwali Day (24.10.2022)		
Time duration	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
18:00 to 19:00 Hr.	38.8	62.5	42.1	44.3	87.6	57.5
19:00 to 20:00 Hr.	39.5	69.4	42.9	44.1	87.8	59.2
20:00 to 21:00 Hr.	37.2	52.3	46.8	49.5	83.0	63.5
21:00 to 22:00 Hr.	38.0	68.1	46.4	49.5	82.9	56.5
22:00 to 23:00 Hr.	36.9	69.2	43.7	36.4	72.8	44.1
23:00 to 24:00 Hr.	36.4	58.3	38.7	38.1	63.5	42.2

Table B

Police Bazar						
Location : B	Pre-Diwali Day (18.10.2022)			Diwali Day (24.10.2022)		
Time duration	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
18:00 to 19:00 Hr.	55.3	85.4	63.6	53.4	85.5	61.4
19:00 to 20:00 Hr.	56.2	87.3	64.1	57.2	88.2	62.5
20:00 to 21:00 Hr.	55.5	80.3	62.7	59.0	92.4	60.7
21:00 to 22:00 Hr.	54.3	77.2	61.2	59.5	84.6	59.7
22:00 to 23:00 Hr.	53.2	72.4	54.7	54.4	98.3	53.6
23:00 to 24:00 Hr.	51.5	79.5	53.4	53.8	84.7	52.5

Table C

Lawmali						
Location : C	**Pre-Diwali Day (18.10.2022)**			**Diwali Day (24.10.2022)**		
Time duration	**Lmin**	**Lmax**	**Leq dB(A)**	**Lmin**	**Lmax**	**Leq dB(A)**
18:00 to 19:00 Hr.	44.0	67.3	45.4	47.8	61.6	43.5
19:00 to 20:00 Hr.	34.8	84.3	45.1	39.8	82.4	49.2
20:00 to 21:00 Hr.	40.7	79.8	45.1	39.9	72.9	48.3
21:00 to 22:00 Hr.	38.3	76.4	44.7	37.3	73.0	43.4
22:00 to 23:00 Hr.	38.6	66.9	40.0	35.1	64.6	39.5
23:00 to 24:00 Hr.	36.4	61.5	38.2	33.6	64.7	39.7

Interpretation of Noise Data/Results

1. **Location A – Lumpyngngad (Meghalaya State Pollution Control Board's office premises)**

   It is observed from the Table A (Location A - Lumpyngngad) that, on 18th October, 2022 (i.e. pre-Diwali day), the monitored ambient noise level from 18:00 Hrs. (6:00 pm) to 22:00 Hrs. (10:00 pm) is well within the ambient noise level standard (for Residential Area) of 55.0 dB(A) Leq for day time while the night time noise level from 22:00 Hrs. (10:00 pm) to 24:00 Hrs. (12:00 midnight) is also within the (night time) ambient noise level standard of 45.0 dB(A) Leq.

   On 24th October, 2022 (i.e. Diwali day), however, it is observed that there is an increase in the ambient noise level at the location during day time where the average equivalent noise level (Leq) is found to exceed the daytime ambient noise standard of 55.0 dB(A) Leq throughout the time duration from 18:00 Hrs. (6:00 pm) to 22:00 Hrs. (10:00 pm). During the night time, however, the levels measured were found to be within the standard of 45.0 dB(A) Leq from the time duration of 22:00 Hrs. (10:00 pm) to 24:00 Hrs. (12:00 midnight). The higher noise level monitored is attributed to the bursting of firecrackers in the neighborhood.

2. **Location B - Police Bazar (Office of the Meghalaya Legislative Assembly's premises)**

   It is observed from Table B (Location B - Police Bazar) that the noise level on 18th October, 2022 (i.e. pre-Diwali day), is within the standard limit of 65.0 dB (A) Leq for day time (for a Commercial Area) from 18:00 Hrs. (6:00 pm) to 22:00 Hrs.(10:00 pm). It is also within the night time ambient noise level standard of 55.0 dB(A) Leq from 22:00 Hrs. (10:00 pm) up to 24:00 Hrs.(12:00 midnight).

   On 24th of Octoberber, 2022 (i.e. Diwali day), it is observed that the noise level for day and night time is found to be within the above mentioned day and night time noise standard limits for the duration from 18:00 Hrs.(6:00 pm) to 22:00 Hrs.(10:00 pm) and 22:00 Hrs.(10:00 pm) to 24:00 Hrs.(12:00 midnight) respectively.

3. **Location C - Lawmali (Ganesh Das Hospital's premises)**

   It is observed from table C (Location C – Lawmali) that on 18th October, 2022 (i.e. pre-Diwali day), the noise level during respective day and night time, i.e. from 18:00 Hrs. (6:00 pm) to 22:00 Hrs. (10:00 pm) and 22:00 Hrs. (10:00 pm) to 24:00 Hrs. (12:00 midnight), is within the day and night time standards (for Silence Zone) of 50.0 dB (A) Leq and 40.0 dB(A) Leq respectively.

   On 24th October, 2022 (i.e. Diwali day), it is observed that the ambient noise level (Leq) for day and night i.e. from 18:00 Hrs. (6:00 pm) to 22:00 Hrs.(10:00 pm) and 22:00 Hrs.(10:00 pm) to 24:00 Hrs.(12:00 midnight) respectively, is well within the mentioned standard limits for day and night time.

Conclusion

The findings of the study reveal that the ambient noise level during Diwali day (i.e. 24th November, 2022) is no different from that during a normal/pre-Diwali day (i.e. 18th October, 2022) at all monitored locations except Lumpyngngad where the noise level is exceeded during day time. Besides the restriction on sale and use of high sounding firecrackers as well as restriction on timings and duration for sale and bursting of crackers etc., the incessant rainfall on the occasion may have contributed to the lower noise level on this festive occasion.

City/Town

Name: EPIP, BYRNIHAT, Ri Bhoi

Byrnihat is mainly an industrial area where the majority of the industries in the state are located. It is situated along the boundary of Meghalaya and Assam. The national highway passing through the town ensures that the business and industrial activity there continue to thrive and prosper making it the main hub of industrial activity within Meghalaya. The town is one among the identified non-attainment cities/towns in India. The monitoring station is located in the Export Promotion Industrial Park (EPIP).

Map showing the monitoring location in Byrnihat
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NOISE LEVEL DURING DIWALI FESTIVAL, 2022

Table D

EPIP, Byrnihat						
Location : D	**Pre-Diwali Day (18.10.2022)**			**Diwali Day (24.10.2022)**		
Time duration	**Lmin**	**Lmax**	**Leq dB(A)**	**Lmin**	**Lmax**	**Leq dB(A)**
18:00 to 19:00 Hr.	52.5	72.1	61.2	62.0	77.2	64.0
19:00 to 20:00 Hr.	51.6	72.2	59.1	67.2	73.4	68.3
20:00 to 21:00 Hr.	51.1	74.5	58.2	65.4	73.7	69.0
21:00 to 22:00 Hr.	51.5	80.9	62.9	65.7	75.7	66.5
22:00 to 23:00 Hr.	53.2	77.4	60.3	67.1	78.4	67.9
23:00 to 24:00 Hr.	52.8	74.1	61.4	65.4	76.8	66.5

Interpretation of Noise Data/Results

It is observed from the above Table D (Location – EPIP, Byrnihat) that on 18th October, 2022 (i.e. pre-Diwali day), the monitored ambient noise level from 18:00 Hrs. (6:00 pm) to 22:00 Hrs. (10:00 pm) is within the ambient noise level standard (for Industrial area) of 75.0 dB(A) Leq for day time while the night time noise level from 22:00 Hrs. (10:00 pm) to 24:00 Hrs. (12:00 midnight) is also within the (night time) ambient noise level standard of 70.0 dB(A) Leq.

On 24th October, 2022 (i.e. Diwali day), it is observed that the average equivalent noise level (Leq) is also within the above mentioned ambient noise standards for day and night time (for an Industrial Area). There is no major significant difference in the noise level during pre-Diwali and Diwali day.

Interpretation of Ambient Air Quality Data/Results

The findings of the monitoring results indicate that:

i. The concentrations of SO_2, NO_2 , PM10 and PM2.5 at Lumpyngngad (the Meghalaya State Pollution Control Board's Premises, Table – 1) was found to be within the prescribed limits of National Ambient Air Quality Standards, on Deepawali day (i.e. 24th October, 2022) as well as before and after the festival date throughout the monitored duration from 17th October to 31st October, 2022. However, it is observed that the concentration of PM10 and PM2.5 was found to be higher during pre and post Deepawali days as compared to Deepawali day due to overcast weather conditions on Deepawali day. The Air Quality Index (AQI) rating was found to be 'Good' during the monitored duration.

ii. The concentrations of SO_2, NO_2, PM10 and PM2.5 at Police Bazar (Meghalaya Legislative Assembly Premises, Table – 2) was found to be within the prescribed limits of National Ambient Air Quality Standards, on Deepawali day (i.e. 24th October, 2022) as well as before and after the festival date throughout the monitored duration from 17th October to 31st October, 2022.

However, it is observed that the concentration of PM10 and PM2.5 was found to be higher during pre and post Deepawali days as compared to Deepawali day due to overcast weather conditions on Deepawali day. The Air Quality Index (AQI) rating was found to be 'Satisfactory' during the monitored duration.

iii. The concentrations of SO^2, NO^2, PM10 and PM2.5 at Lawmali (Ganesh Das Hospital Premises, Table – 3) was found to be within the prescribed limits of National Ambient Air Quality Standards before, on Deepawali day (i.e. 24th October, 2022) as well as before and after the festival date throughout the monitored duration from 17th October to 31st October, 2022. However, it is observed that the concentration of PM10 and PM2.5 was found to be higher during pre and post Deepawali days as compared to Deepawali day, due to overcast weather conditions on Deepawali day. The Air Quality Index (AQI) rating was found to be 'Satisfactory' during the monitored duration.

iv. The concentrations of SO_2, NO_2, PM10 and PM2.5 at EPIP, Byrnihat (NAMP Station Byrnihat, Table – 4) was found to be above the prescribed limits of National Ambient Air Quality Standards before, on Deepawali day (i.e. 24th October, 2022) as well as before and after the festival date throughout the monitored duration from 17th October to 31st October, 2022. The Air Quality Index (AQI) rating was found to be 'Moderate' during the monitored duration.

CONCLUSION

The data collected reveals that the concentration of monitored parameters like SO_2, NO_2, PM10 and PM2.5 observed to be within the prescribed limits of National Ambient Air Quality Standards, on Deepawali day (i.e. 24th October, 2022) as well as before and after the festival date throughout the monitored duration from 17th October to 31st October, 2022, in all the monitored locations except EPIP at Byrnihat, where the concentrations

was found to be above the prescribed limits of National Ambient Air Quality Standards before, on Deepawali day (i.e 24th October, 2022) as well as after the festival date throughout the monitored duration from 17th October to 31st October, 2022. The high concentrations of Particulate Matter (PM10 & PM2.5) levels in EPIP, Byrnihat, is mainly due to the buildup of pollutants owing to emissions from industries located in the industrial area, natural dust, movement of vehicles, construction activities etc.

AMBIENT AIR QUALITY DATA DURING DIWALI FESTIVAL 2022

Table-1 : Lumpyngngad, Shillong (Meghalaya State Pollution Control Board's Office Premises)

Sl.No.	Period	Date of monitoring	Parameters				AQI	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	Value	Rating
1.	Pre-Diwali	17-10-2022	24.9	14.8	2.0	4.5	25	Good
2.		18-10-2022	25.8	16.2	2.0	4.5	27	Good
3.		19-10-2022	32.6	16.5	2.0	4.5	33	Good
4.		20-10-2022	32.8	16.6	2.0	4.5	33	Good
5.		21-10-2022	32.0	16.8	2.0	4.5	32	Good
6.		22-10-2022	24.2	12.3	2.0	4.5	24	Good
7.		23-10-2022	16.5	7.4	2.0	4.5	17	Good
8.	**Diwali Day**	**24-10-2022**	**14.0**	**9.7**	**2.0**	**4.5**	**16**	Good
9.	Post-Diwali	25-10-2022	18.2	10.4	2.0	4.5	18	Good
10.		26-10-2022	31.7	15.2	2.0	4.5	32	Good
11.		27-10-2022	32.0	14.9	2.0	4.5	32	Good
12.		28-10-2022	32.2	15.4	2.0	4.5	32	Good
13.		29-10-2022	30.2	15.3	2.0	4.5	30	Good
14.		30-10-2022	20.5	10.4	2.0	4.5	21	Good
15.		31-10-2022	22.4	12.7	2.0	4.5	22	Good

Table-2: Police Bazar, Shillong (Meghalaya Legislative Assembly Office's Premises)

Sl.No.	Period	Date of monitoring	Parameters				AQI	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	Value	Rating
1.	Pre-Diwali	17-10-2022	54.6	26.1	2.0	13.5	55	Satisfactory
2.		18-10-2022	48.2	25.5	2.0	12.9	48	Satisfactory
3.		19-10-2022	54.4	26.5	2.0	14.9	54	Satisfactory
4.		20-10-2022	52.3	29.4	2.0	12.7	52	Satisfactory
5.		21-10-2022	44.7	23.6	2.0	13.3	45	Satisfactory
6.		22-10-2022	51.7	25.7	2.0	12.5	52	Satisfactory
7.		23-10-2022	49.6	23.4	2.0	11.0	50	Satisfactory
8.	**Diwali Day**	**24-10-2022**	**13.3**	**5.3**	**2.0**	**4.5**	**13**	Satisfactory
9.	Post-Diwali	25-10-2022	56.3	28.8	2.0	13.3	56	Satisfactory
10.		26-10-2022	48.6	24.4	2.0	13.6	49	Satisfactory
11.		27-10-2022	52.1	29.1	2.0	11.2	52	Satisfactory
12.		28-10-2022	54.9	25.7	2.0	10.9	55	Satisfactory
13.		29-10-2022	46.9	24.9	2.0	11.0	47	Satisfactory
14.		30-10-2022	47.9	23.2	2.0	10.7	48	Satisfactory
15.		31-10-2022	53.3	26.7	2.0	13.4	53	Satisfactory

Table-3: Lawmali, Shillong (Ganesh Das Hospital Premises)

Sl.No.	Period	Date of monitoring	Parameters				AQI	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	Value	Rating
1.	Pre-Diwali	17-10-2022	62.9	36.9	2.0	11.4	63	Satisfactory
2.		18-10-2022	55.3	24.6	2.0	10.8	55	Satisfactory
3.		19-10-2022	63.9	31.3	2.0	10.9	64	Satisfactory
4.		20-10-2022	60.8	39.2	2.0	10.8	61	Satisfactory
5.		21-10-2022	71.4	36.3	2.0	10.9	71	Satisfactory
6.		22-10-2022	68.1	32.5	2.0	10.1	68	Satisfactory
7.		23-10-2022	66.1	35.2	2.0	10.4	66	Satisfactory
8.	**Diwali Day**	**24-10-2022**	**2.5**	**1.0**	**2.0**	**4.5**	**3**	Satisfactory
9.	Post-Diwali	25-10-2022	65.6	33.6	2.0	13.2	66	Satisfactory
10.		26-10-2022	61.0	23.1	2.0	11.7	61	Satisfactory
11.		27-10-2022	68.3	39.2	2.0	11.1	68	Satisfactory
12.		28-10-2022	67.5	42.3	2.0	11.2	68	Satisfactory
13.		29-10-2022	62.6	35.3	2.0	10.0	63	Satisfactory
14.		30-10-2022	65.8	33.2	2.0	9.4	66	Satisfactory
15.		31-10-2022	70.0	41.3	2.0	10.0	70	Satisfactory

Table-4: Byrnihat, (Export Promotion Industrial Park (EPIP), Byrnihat.

Sl.No.	Period	Date of monitoring	Parameters				AQI	
			PM10 (µg/m³)	PM2.5 (µg/m³)	SO2 (µg/m³)	NO2 (µg/m³)	Value	Rating
1.	Pre-Diwali	17-10-2022	156.8	64.8	16.9	18.6	138	Moderate
2.		18-10-2022	149.8	61.3	17.2	18.7	133	Moderate
3.		19-10-2022	165.3	68.4	17.9	18.3	143	Moderate
4.		20-10-2022	162.7	62.6	17.3	19.1	142	Moderate
5.		21-10-2022	135.6	60.5	16.2	17.6	127	Moderate
6.		22-10-2022	129.4	60.1	16.8	17.3	120	Moderate
7.		23-10-2022	121.8	60.8	17.4	18.7	115	Moderate
8.	**Diwali Day**	**24-10-2022**	**118.7**	**57.6**	**15.1**	**16.3**	**112**	Moderate
9.	Post-Diwali	25-10-2022	116.7	61.3	17.3	18.6	111	Moderate
10.		26-10-2022	123.4	67.5	19.4	20.7	116	Moderate
11.		27-10-2022	141.6	64.2	17.1	19.7	128	Moderate
12.		28-10-2022	137.3	61.6	17.3	18.4	125	Moderate
13.		29-10-2022	128.3	62.8	18.5	19.7	119	Moderate
14.		30-10-2022	156.9	65.3	17.2	18.6	138	Moderate
15.		31-10-2022	151.3	63.4	17.7	18.1	134	Moderate

8.2: Ambient Noise Level at the Immersion ghats/sites during the Puja Festival 2022

Monitoring of ambient noise level was conducted at immersion ghats/sites in Shillong, Tura and Jowai in order to assess the level of noise during the Kali Puja festival 2022. The monitoring was conducted on the 5th October, 2022, i.e. the day of immersion. The Board's monitoring team was equipped with Envirotech SLM 109 Sound Level Meter and the noise level was measured in dB (A) i.e. the level of sound in decibels on scale – A, as per the human ear sensitivity requirements.

The result was expressed in Leq, denoting the A weighted energy mean of the noise level averaged over the measurement period and compared with the national ambient noise level standard(s). The noise level was recorded for a total of 1 hour duration wherein Leq readings were monitored for every half-hour interval. The levels recorded during the occasion at the respective immersion sites in Shillong, Tura and Jowai is given in tables below:

Table 1-A

Location A	**River Umkhrah Immersion Site, Polo, Shillong**	
Time duration	Leq dB(A)	Ambient Noise Level Standard (Day time) [Residential Area] Leq dB(A)
11:45 Hrs. to 12:15 Hrs.	72.4	55.0
12:15 Hrs. to 12:45 Hrs.	76.4	

The above table (Table 1-A) reveals that the ambient noise level at the immersion ghat along the river Umkhrah at Polo, Shillong, monitored on 5th October, 2022, is high.

The levels recorded at every half-hourly interval from the time duration of 11:45 Hrs. (11:45 am) to 12:15 Hrs. (12:15 pm) and 12:15 Hrs. (12:15 pm) to 12:45 Hrs. (12:45 pm) shows that the level exceeds the daytime Ambient Noise Standard of 55.0 dB(A) Leq (for a Residential area).

The noise, as observed on the above day and duration of monitoring, is obviously due to celebration activities at the immersion ghat/site viz. shouts, drum beating and playing of musical instruments etc. during the immersion process.

Table 1-B

Location B	River Babupara-Rongkhon Immersion Site, Babupara, Tura	
Time duration	Leq dB(A)	Ambient Noise Level Standard (Day time) [Residential Area] Leq dB(A)
15:00 Hrs. to 15:30 Hrs.	70.1	55.0
15:30 Hrs. to 16:00 Hrs.	71.2	

The above table (Table 1-B) reveals that the ambient noise level at the immersion ghat along the river Babupara-Rongkhon at Babupara, Tura, monitored on 5th October, 2022, is high.

The levels recorded at every half-hourly interval from the time duration of 15:00 Hrs. (3:00 pm) to 15:30 Hrs. (3:30 pm) and 15:30 Hrs. (3:30 pm) to 16:00 Hrs. (4:00 pm) shows that the level obtained exceeds the daytime Ambient Noise Standard of 55.0 dB(A) Leq (for a Residential area).

The noise, as observed on the above day and duration of monitoring, is due to festive activities during the immersion process.

Table 1-C

Location: C	River Myntdu Immersion Site, Syntu Ksiar, Jowai	
Time duration	Leq dB(A)	Ambient Noise Level Standard (Day time) [Residential Area] Leq dB(A)
14:15 Hrs. to 14:45 Hrs.	56.4	55.0
14:45 Hrs. to 15:15 Hrs.	57.2	

The table above (Table 1-C) displaying the ambient noise level at the immersion ghat along the river Myntdu at Lynter Archaka, Syntu Ksiar, Jowai, monitored on 5th October, 2022, reveals that the level is above the daytime Ambient Noise Standard of 55.0 dB(A) Leq (for a Residential area) during both half-hourly monitored time intervals from 14:15 Hrs. (2:15 pm) to 14:45 Hrs. (2:45 pm) and 14:45 Hrs. (2:45 pm) to 15:15 Hrs. (3:15 pm).

Here too the noise at the immersion ghat/site as observed on the mentioned day and duration is due to shouts of celebration, drum beating and playing of musical instruments etc. during the immersion process.

8.3: Noise Level Monitoring During Christmas & New Year Festivals 2022

The festivals of Christmas and New Year are widely celebrated with pomp and gaiety not only in India but throughout the world. New Year is usually welcomed by bursting of firecrackers and burning of sparklers. Though Christmas is not celebrated with the same fervor, bursting of firecrackers is also often observed even during the occasion. As this kind of activity contributes to air as well as noise pollution, it is imperative that the Board therefore monitor air and noise level quality during the period.

With the above objective in mind, the Meghalaya State Pollution Control Board, Shillong, conducted Ambient Noise Level and Air Quality monitoring during Christmas and New Year festival on the 24th to 25th December, 2022, and the 31st December, 2022, to 1st January, 2023, respectively. This is also in pursuance to the interim directions of the Hon'ble Supreme Court.

Shillong, besides being Meghalaya's largest and most populous city, is also its capital and therefore has been fitly selected as the place for conducting the ambient noise level and air quality survey during the two festive periods. It may also be mentioned that the city also has the largest number of people celebrating both festivals.

The location selected is:

Police Bazar (Meghalaya Legislative Assembly office's premises), a commercial area.

The monitoring team was equipped with Envirotech SLM 109 sound level meter. The noise levels were measured in dB (A) i.e., the level of sound in decibels on scale – A as per the human ear sensitivity requirements. The result was expressed in Lmin, Lmax and Leq, wherein Lmin indicates the minimum value of the sound level in decibels and Lmax the maximum value of sound level in decibels occurring during the single event and Leq denotes the A weighted energy mean of the noise level averaged over the measurement period. The noise level was monitored for continuous 6 hours duration i.e. from 20:00 hours (8:00 P.M.) to 02:00 hours (2:00 A.M.) where Lmin, Lmax and Leq readings were recorded for every hourly interval.

Map showing the monitoring location in Shillong city

Police Bazar: This location is a commercial area and the major shopping and business area of the city. People from all over the city as well as the state and even tourists from outside the state and country frequent here for their business and shopping activities. The main noise sources here are vehicular traffic, and noise caused by pedestrians, shoppers and other business activities. During Christmas and New Year, residents and visitors including tourists visit this place to celebrate these festivals with enthusiasm and therefore the location is a suitable site for the above study.

Observations/Interpretation of noise data/results:

Table 1

Location: Police Bazar	Christmas festival period (24.12.2022 to 25.12.2022)			New Year festival period (31.12.2022 to 01.01.2023)		
Time duration	Lmin	Lmax	Leq dB(A)	Lmin	Lmax	Leq dB(A)
19:00 to 20:00 Hr.	54.1	85.8	56.5	54.1	68.2	62.1
20:00 to 21:00 Hr.	54.3	73.8	55.1	52.4	70.1	60.2
21:00 to 22:00 Hr.	54.9	80.9	54.2	53.4	76.3	59.6
22:00 to 23:00 Hr.	54.5	82.1	54.3	53.6	73.4	54.6
23:00 to 24:00 Hr.	48.0	84.8	50.1	50.6	82.6	49.6
24:00 to 01:00 Hr.	41.3	83.7	44.3	46.7	72.6	48.3

It is observed from Table 1 above that the noise level on 24th to 25th December, 2022, is within the day time ambient noise level standard of 65.0 dB (A) Leq (for a commercial area) from the time duration of 19:00 Hrs. (7:00 pm) to 22:00 Hrs.(10:00 pm). During night time, the noise level from 22:00 Hrs. (10:00 pm) to 01:00 Hrs. (1:00 am) is also well within the night time standard of 55.0 dB (A) Leq.

During 31st December, 2022, to 1st January, 2023, it is observed that the ambient noise level from 19:00 Hrs. (7:00 pm) to 22:00 Hrs. (10:00 pm) is within the day time ambient noise level standard of 65.0 dB (A) Leq (for a commercial area) while it is also within the night time standard of 55.0 dB (A) Leq for all time intervals from 22:00 Hrs. (10:00 pm) to 01:00 Hrs. (1:00 am).

From the findings of the study above, it is observed that the ambient noise levels are well within the ambient noise level standards during Christmas as well as New Year monitored during day as well as night time.

CHAPTER 9
ENVIRONMENTAL AWARENESS

9.1 E-Waste Management

Action has been initiated for implementation of action plan pertaining to enforcement of E-Waste Management Rules, 2016. For collection and proper disposal of E-Waste generated by Bulk Consumers, Industries, Institutions etc., the following PRO were actively collecting the E-Waste for channelizing to the authorized recyclers namely M/s Karo Sambhav Pvt. Ltd., M/S RLG Reverse Logistics India Pvt. Ltd. and M/s Huladek Recycling Pvt. Ltd. As such, a number of awareness programmes have been undertaken in association with the PROs as part of the the main objective for environmentally sound E-Waste Management. Accordingly, the Meghalaya State Pollution Control Board on 17th January 2023 in collaboration with M/s Huladek Recycling Pvt. Ltd. conducted events on the New E-Waste Management Rules, 2022 highlighting the Stakeholders on the duties and responsibilities for proper management and disposal of E-waste

The New E-waste Management Rules, 2022

January 17th, 2023

Agenda

1. Discussing the newly published E-waste Management Rules, 2022 by the Central Pollution Control Board on 1st November.
2. Discussing the overview, the role of all stakeholders and the implications of the same

Event Flow

- Felicitation of the Resource person by Ms. Shobha Raghavan from Saahas Zero Waste and Mr. Nandan Mall from Hulladek Recycling
- Discussing the e-waste scenario and the challenges faced with e-waste management
- Overview of the E-waste Management Rules, 2022 and the stakeholders involved
- The roles of bulk consumers, producers, recyclers, refurbishers and government bodies such as municipalities and central and state pollution control board
- The areas under the law which have not yet been defined the implications of the established rules and the SOP for implementation

Stakeholders

- The Deputy Commissioner Director, Urban Affairs, Shillong
- Director, Health Service, Health Complex
- The CEO, Shillong Municipal Board
- The Secretary, Khasi Hills Autonomous District Council
- Director, NEIGRIHMS
- Director, NEIAA
- M/s Nazareth Hospital

Stakeholders

- M/s Supercare Hospital
- M/s Woodland Hospital
- M/s Civil Hospital
- M/s Ganesh Das Hospital
- M/s Children Hospital
- M/s H. G Robert Hospital
- Reliance Jio Intercom
- M/s Bharti
- M/s Rynjah Institute of Information Technology
- M/s Star Cement
- M/s Meghalaya Power

Stakeholders

- M/s Dalmia Bharat Cement
- M/s Meghalaya Cement
- M/s Amrit Cement
- M/s Shyam Century Ferrous
- M/s Maithan Alloys
- M/s Mawmluh Cherra Cements
- M/s Green Valley Industries
- M/s Goldstone Cement
- M/s Shree Shakambari Ferro
- M/s CMJ Breweries
- M/s Hills Cement Company

Audience Size:
60 Mode: Online & Offline

9.2 Report on the Awareness-Cum-Workshop on Environmental Pollution Control Measures and Mission LiFE held on the 23rd of March, 2023, at Byrnihat town, Ri Bhoi, Meghalaya

The Meghalaya State Pollution Control Board (MSPCB), Shillong, conducted an Awareness-Cum-Workshop programme on Environmental Pollution Control Measures and Mission LiFE on the 23rd of March, 2023, at Community Hall, Nongthymmai 14-15 Mile, Byrnihat. The objective of the programme was to create awareness among the students on the action required to mitigate & reduce pollution and simultaneously highlight and apprise the participants on the various activities and action points under Mission LiFE. Students from two secondary & higher secondary schools, namely Mount Zion Academy and Rangsakona Secondary School, Byrnihat, accompanied by teachers, attended the programme that registered a total participation of 120 attendees.

At the outset, Shri S. Swer, Senior Scientist, MSPCB, welcomed the participants and delivered lectures on Noise Pollution Monitoring & Control and Mission LiFE (Lifestyle for Environment). During the presentation, emphasis was laid on the 7 categories of Mission LiFE and public participatory role in order for the mission to succeed. Thereafter Dr. Gaurav Singh, Consultant, NCAP-CPCB, delivered a presentation on 'Environmental Pollution and Control Measures' with special emphasis on air and water, highlighting community participation for improving the air quality as well as saving of water. After this, live hands-on use of Sound Level Meter, Respirable Dust Sampler (RDS) & PM2.5 and PM10 Samplers were

demonstrated by Shri S. Swer and Shri E. Pyrbot, Sample Collector, respectively. Finally the programme ended with a distribution of refreshment among the participants and a vote of thanks from the organisers.


Fig.1: Glance of Awareness-Cum-Workshop programme on 23rd March 2023 at Community Hall, Nongthymmai 14-15 Mile, Byrnihat, Ri Bhoi District.

9.3 Report on the 'World Environment Day' Awareness Programme conducted on the 6th of June, 2022 at the Moonlight English Secondary School, Byrnihat

As part of the 'World Environment Day' celebration, the Meghalaya State Pollution Control Board, Shillong, conducted an Awareness Programme on 'Environmental Pollution & Control' on the 6th of June, 2022, at the Moonlight English Secondary School, Byrnihat, Ri Bhoi District. The Programme was conducted on behalf of the Board by Shri S. Swer, Scientist 'C', Dr. G. Singh, Consultant, Shri. E. Pyrbot, Sample Collector, Shri. B. Wahlang, Field Asst., and Shri. B. Marak, Field Asst

The programme was held in the village auditorium located within the campus of the Moonlight English Secondary School, Byrnihat Proper, Byrnihat.

Three schools participated in the above awareness programme viz. Moonlight English Secondary School, Nongrim Byrni Presbyterian Secondary School and Charity Educare Secondary School. A total attendant of 150 persons was recorded that included students, teachers and other attendants.

Shri. S. Swer welcomed the participants and delivered a presentation on 'Environmental Pollution & Control – Air & Noise'. After this, Dr. G. Singh then took over and lectured on 'Water Pollution & Control'. The students were then grouped in batches of 20 to 25 and shown a live demonstration on the use of the Sound Level Meter where Shri. S. Swer showed how ambient noise level is monitored using the instrument. A live demonstration on the use of Respirable Dust Sampler and PM2.5 Sampler for monitoring the ambient air quality was also explained by Shri. E. Pyrbot together with Shri. B. Wahlang and Shri. B. Marak.

The Programme finally ended with a vote of thanks from the organizers and refreshments being distributed to the participants.



9.4 Report on the 'International Day of Clean Air for Blue Skies' Awareness-Cum-Workshop Programme on 7th September 2022 at Byrnihat town, Ri Bhoi, Meghalaya

On the occasion of "International Day of Clean Air for Blue Skies 2022", the Meghalaya State Pollution Control Board (MSPCB), Shillong, conducted an Awareness-Cum-Workshop programme on 7th September, 2022, at St. Jude Secondary School, Byrnihat, Ri Bhoi District, (Non-Attainment City under NCAP), on the theme "The Air We Share". The programme was conducted for High School students from St. Jude Secondary School and C.T.I. Secondary School, Byrnihat. About 150 students along with accompanying teachers participated in the said programme.

At the outset, Sh. S. Swer, Scientist-C, MSPCB, welcomed the participants after which Dr. Gaurav Singh, Consultant, NCAP-CPCB, delivered a presentation on 'Environmental Pollution and Control Measures' with major emphasis on control of air pollution and public participation for improving the air quality. Then Sh. S. Swer delivered a presentation on 'Noise pollution and monitoring'. After this, live demonstration on the use of Sound Level Meter, Respirable Dust Sampler (RDS) & PM2.5 Sampler was shown by Sh. S. Swer and Sh. E. Pyrbot respectively. The motive of the programme was to make the students aware on the action required to mitigate & reduce pollution and simultaneously conserve the natural resources. The programme ended with a vote of thanks from the organizers.

Fig.2: Glance of Awareness-Cum-Workshop programme on 7th September 2022 at St. Jude Secondary School, Byrnihat, Ri Bhoi District.

CHAPTER 10
PRESENT STATE OF THE ENVIRONMENT, ENVIRONMENTAL PROBLEMS AND COUNTER MEASURES

One of the beautiful hill states of North Eastern Region of India is Meghalaya measuring 22,429 Sq. Kms. of area with 29,66,889 population as per 2011 Census. The State is rich in mineral resources which are found almost in its entire southern belt. Private mining activities were very unscientific and unplanned thus causing severe water pollution and environmental degradation. Small sacle industries have been increasing into larger ones, for example, from small scale industries of stone crushing into large scale cement industries which gives rise to the ecological imbalance in the State. To curb these ever increasing problems, this Board therefore, applies different measures as per the Rules in force.

10.1: Pollution Control and Waste Management:

(a) Solid Waste Management

Indiscriminate dumping of garbage, indiscriminate discharge or disposal of domestic sewage, trade effluents, urban solid wastes due to rapid population growth and fast urbanization also contributed to the ecological imbalance in the State. In this respect, the Meghalaya State Pollution Control Board has issued a direction to all Urban Local Bodies in the State to implement the provisions of the Solid Waste Management Rules, 2016 relating to development of infrastructure for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes (in areas within its jurisdiction) in accordance to the provisions and compliance criteria/ standards as stipulated in the Solid Waste Management Rules, 2016.

(b) Bio-Medical Waste Management:

Hospitals, Nursing Homes, Health Care Facilities has increased tremendously in recent years in the State and without proper methods of disposal of wastes from the health care units may pose great risk to human health and may create environmental pollution. Thus, prompting the government to implement new ways of scientific management of bio-medical wastes. The Board has issued direction to ensure that all health care units to apply for authorization in the prescribed Form II as required under Rule 10 of the Bio-Medical Waste Management Rules, 2016.

(c) Consent Management:

Under the large-scale industrial sector cement plant, captive thermal power plant, distillery plant falls under the 17 categories of highly polluting industries. The others were medium and small-scale industries such as captive thermal power plant, lime calcination plants, ingot manufacturing and steel rolling mills, Ferro alloys manufacturing unit, stone crushing units, auto workshops, auto servicing units, D.G. Sets etc. Most of the lime calcination units were coal – fired and kilns were of traditional types (pajwa), which do not have even hood and chimney for venting out the smoke.

The Board was regulating the discharged of effluents and air emissions from industries through the issuance of Consents to Establish/Operate under Water & Air Acts. While issuing Consents, conditions were being imposed with regard to the effluent and the emission standards to which industries have to comply with. Conditions were also stipulated for setting up effluent treatment plants and/or installing of air pollution control systems whenever they were found necessary. The Board periodically collects and analyses effluent samples for verification of compliance to the consent conditions by industrial units. The industries were also instructed to ensure that pollution control systems, whenever necessary, were installed and commissioned within a stipulated period.

During the year **2022-2023** the number of Consent to Establish recommended and cleared is 125 numbers

granted to different types of units. Also, the industries/firms/units which the Board granted for Consent to Establish, Consent to Operate and Renewal of Consent to Operate under the Water (Prevention& Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 is appended in **Annexure-III**.

(d) Water Quality Assessment:

The Meghalaya State Pollution Control Board (MSPCB) has established a network of Water Quality monitoring stations in the State. The present network comprises of 84 stations in the State under the National Water Monitoring Programme (NWMP). The monitoring network covers 67 Rivers, 4 Lakes, 13 springs/wells.

Out of the 81 stations, the following water bodies have been identified by CPCB as polluted stretched in the State of Meghalaya with respect to BOD level.

	Name of River	District
1.	Umkhrah & Umshyrpi Rivers	: East Khasi Hills District
2.	Kyrhukhla River, Lunar River (Tributary of Lukha River) at Myndihati	: East Jaintia Hills District
3.	Umtrew River (Byrnihat)	: Ri-Bhoi District
4.	Myntdu River (Jowai)	: West Jaintia Hills District
5.	Nanbah River (Nongstoin)	: West Khasi Hills District

Measures taken:

1. The Board had informed the respective Deputy Commissioners of the district regarding the status of the water bodies with a request to take necessary steps to formulate action plan to control the pollution sources.
2. The respective Deputy Commissioners had taken up with the line Departments for formulation of action plan. The District Administration has also issued prohibitory orders against dumping of solid waste and liquid waste in the respective rivers/streams.

(e) Air Quality Assessment:

The Meghalaya State Pollution Control Board has been assessing the ambient air quality in the State over a period of time. A monitoring network with 11 (Eleven) Ambient air quality-monitoring stations under National Air Monitoring Programme (NAMP) were placed to assess the changes in air quality.

Four criteria pollutants viz. PM10 (Particulate Matter having an aerodynamic diameter less than or equal to 10 µm), PM2.5 (Particulate Matter having an aerodynamic diameter less than or equal to 2.5 µm), Sulphur dioxide (SO_2) and Nitrogen dioxide (NO_2) were monitored for regular monitoring of air quality. The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature were also integrated with the monitoring of air quality.

Air quality monitored during 2022 indicates that PM10 and PM2.5 levels exceeded the NAAQS (annual average) at Export Promotion Industrial Park (EPIP), Byrnihat, (Stn-III- Industrial area) and at Umiam Industrial Estate, Ri-Bhoi District (Industrial area).

High concentrations of Particulate Matter (PM10 and PM2.5) levels observed at Export Promotion Industrial Park (EPIP), Byrnihat, (Industrial area) and Umiam Industrial Estate, Ri-Bhoi District which may be attributable to the buildup of pollutants owing to emissions from industries located in the industrial area, dust generated due to movement of vehicles, natural dust, and construction activities.

Industrial Pollution Control:

1. The air pollution control devices installed should be properly maintained so as to ensure control of the Particulate Emission of the plant.
2. The ambient air quality within the Plant premises and surrounding areas shouldbe maintained within the National Ambient Air Quality Standards.
3. The Board officials inspect the industries regularly to observe the measures taken for compliance of pollution control norms.
4. Appropriate preventive measures should be adopted to reduce fugitive emission so as to control the concentration of particulate matter in the ambient air.

CHAPTER 11
ENVIRONMENTAL TRAINING

Officers of the Board have undergone training on various environmental issues conducted by Central Pollution Control Board and other Institution and Organizations. The Environmental Training attended by the officials of the Board during the year 2021-2022 is shown in the following Table-11.1

Table-11.1: Environmental Training attended by the Board's Officials

SL. No.	Name of Officer/ Staff		Date	Subject	Training Organizers
1.	Shri J.F. Lamurong	E.E	26th – 27th August '22	Six Waste Management Rules, 2016 & Amendments and Way Forward Swachch Bharat Mission Circular Economy and Carbon Neutral Aspects	Online Training organised by National Productivity Council, Delhi
	Shri M. Tiewsoh	A.E.E.			
	Smti R. Marak	A.E.E.			
	Shri A. Shullai	A.E.E.			
2.	Shri R. Nainamalai, IFS	Member Secretary	26th – 27th September '22	National Expo on Alternative to Single Use Plastics and Conference of State-Ups 2022	Chennai, Tamil Nadu
3.	Shri B. Kar	Senior Accountant	10th, 17th, 21st, 31st October '22	Public Financial Management System	Online Training organised by Department of Expenditure, Ministry of Finance, New Delhi
	Smti L. Kharbudon	Data Entry Operator			

CHAPTER 12
LEGAL MATTERS

CASES PENDING IN THE COURTS INVOLVING THE MEGHALAYA STATE POLLUTION CONTROL BOARD AS ON 31.03.2023.

Cases on Environmental issues involving the Meghalaya State Pollution Control Board (MSPCB) either directly or indirectly and which are pending in the Hon'ble Supreme Court, the High Court, the National Green Tribunals and District Courts are highlighted in the following tables:-

12.1: CASES IN THE HON'BLE SUPREME COURT

The following table highlights the cases involving Meghalaya State Pollution Control Board in the Hon'ble Supreme Court during 2022-2023:-

Number of Cases Pending	Number of Cases Disposed
21	1

12.2: CASES IN THE HON'BLE HIGH COURT

In the Hon'ble High Court, the cases involved the Meghalaya State Pollution Control Board either as Direct Respondent or as Proforma Respondent and when involved indirectly the Meghalaya State Pollution Control Board answers through the State Government.

The following table highlights on the number of pending cases in which the Meghalaya State Pollution Control Board is involved in the Hon'ble High Court and the number of cases disposed of during 2022-2023:-

Number of Cases Pending	Number of Cases Disposed
3	18

12.3: CASES IN THE HON'BLE NATIONAL GREEN TRIBUNALS

Since the inception of the National Green Tribunal (NGT), cases involving the Meghalaya State Pollution Control Board have been mostly filed in the Tribunals Zonal Benches for hearing cases in the Eastern Zone, in the Western Zone, in the Southern Zone and the Central Zone have also been constituted. The Principal Bench sometimes carries out Circuit Benches in the different States of India in matters having direct connection with the concerned state for quick disposal of the cases.

The following table highlights on the number of pending cases in which the Meghalaya State Pollution Control Board is involved in the Hon'ble National Green Tribunal and the number of cases disposed of during 2022-2023:-

CASES IN THE HON'BLE NATIONAL GREEN TRIBUNAL

12.4: PRINCIPAL BENCH, NEW DELHI

Number of Cases Pending	Number of Cases Disposed
6	17

12.5: NGT EASTERN ZONE, KOLKATA

Number of Cases Pending	Number of Cases Disposed
1	4

12.6: NGT SOUTHEREN ZONE, PUNE

Number of Cases Pending	Number of Cases Disposed
0	1

12.4: CASES FILED IN THE DISTRICT COURTS OF MEGHLAYA

The NGT, Eastern Zone Bench, Kolkata in its various orders of the cases pending before it (mentioned above) had directed the Meghalaya State Pollution Control Board to take Legal action against the defaulting industries violating the provision of the Water (Prevention and Control of Pollution) Act, 1974 and under the Air (Prevention and Control of Pollution) Act, 1981. Accordingly, complaints have been made against the defaulting industries before the Magistrate First Class of concerned Districts as empowered under relevant Sections of the Water (Prevention and Control of Pollution) Act, 1974 and Chapter VI of the Air (Prevention and Control of Pollution) Act, 1981.

The following are the numbers of Complaints pending before the District Courts:

Number of Cases Pending		**Number of Cases Disposed**	
East Khasi Hills	5	East Khasi Hills	Nil
West Khasi Hills	1	West Khasi Hills	6
East Jaintia Hills	12	East Jaintia Hills	22
West Jaintia Hills	3	West Jaintia Hills	3
Ri Bhoi	103	Ri Bhoi	16
Total	**124**	**Total**	**47**

CHAPTER 13
FINANCE & ACCOUNTS

The fund of the Meghalaya State Pollution Control Board comprises of contribution by the State Government in the form of Grant-in-Aid under Salary and Non-Salary Head, the Financial Assistance from the Ministry of Environment, Forests and Climate Change (MoEF&CC) under the Scheme "Assistance for Abatement of Pollution" and the Financial Assistance from the Central Pollution Control Board for monitoring of the Environment Quality under the National Programme viz. National Water Monitoring Programme (NWMP) and National Air Monitoring Programme (NAMP).

Besides, the Board is also generating its own financial Resources through collection of Consent/Authorization Fees, Sales of Form and Publications, Analysis Fees of Air and Water Samples, Vehicular Emmission Test, etc.

During the Financial Year 2022-2023, the Receipt and Expenditure of the Board is Rs.2027.34 Lakhs and Rs.1550.87 Lakhs respectively.

The financial summary of the Board during the year 2022-2023 is as shown in Table13.1

TABLE-12.1: FINANCIAL SUMMARY FOR THE YEAR 2021-2022

Sl.No.	Head of Accounts	Amount Rs.(in Lakhs)	
		Receipt	Expenditure
1.	Board's Own Resources		
	i. Consent Fees, Sale of Forms, Authorization Fees, Vehicle Emisssion Test,Water and Air Sample Analysis etc.	**374.49**	**247.88**
	ii. Bank Interest	**65.47**	
	Sub Total 1 (i & ii)	**439.96**	**247.88**
2.	i. Grant -in-Aid, State Govt. (Salary)	**685.95**	**719.24**
	ii. Grant -in-Aid, State Govt. (Non-Salary)	**174.37**	**104.28**
	Sub Total 2 (i & ii)	**860.32**	**823.52**
3.	Grant -in Aid, State Govt. Development Scheme	**51.68**	**14.50**
4.	Grant, Financial Assistance Ministry of Environment & Forests and Climate Change New Delhi	-	-
5.	Grant, Financial Assistance from Central Pollution Control Board, New Delhi	**727.06**	**464.97**
	Total (1 to 5)	**2027.34**	**1550.87**

Total Receipt Rupees Two Thousand Twenty Seven Lakhs and Thirty Four Thousand only

Total Expenditure Rupees One Thousand Five Hundred Fifty Lakhs and Eighty Seven Thousand only.

CHAPTER 14
OTHER ACTIVITIES OF THE BOARD

14.0 WASTE MANAGEMENT

14.1 Bio-Medical Waste Management

The Meghalaya State Pollution Control Board as a Prescribed Authority for implementation of the Bio-Medical Waste Management Rules, 2016 in the State of Meghalaya carried out the following duties and responsibilities in implementation of the Bio-Medical Waste Management Rules, 2016.

1. Compilation of data and submission of the same in annual report to the Central Pollution Control Board.
2. Grant and renewal, suspension or refusal, cancellation or of authorization under these rules.
3. Monitoring of compliance of various provisions and conditions of authorization.
4. Action against health care facilities or common bio-medical waste treatment facilities for violation of these rules.
5. Organising training programmes for staff of health care facilities and common bio-medical waste treatment facilities on segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes.
6. Inspection of Health Care Facilities from time to time to ensure compliance to the provisions of the Bio-Medical Waste Rules, 2016.

14.2 Status of Health Care Facilities

The category of Health Care Facilities (HCFs) in the State of Meghalaya is shown in the Table – 14.2

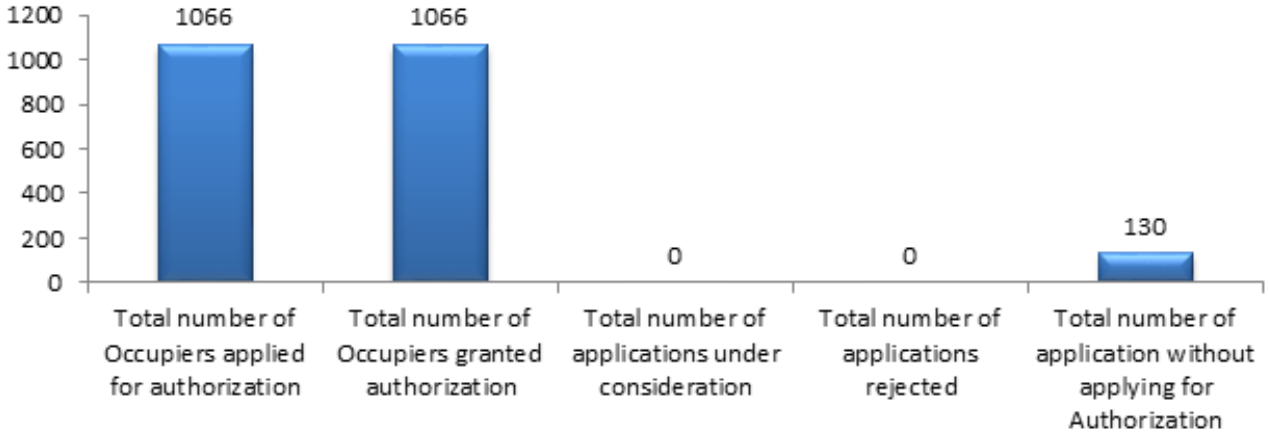
Table – 14.2 Number of HCFs Category-wise in the State as on March 2023

Sl. No.	Name of Health Care Facilities	2022-2023
1	Bedded Hospitals and Nursing Homes (Bedded)	183
2	Dispensaries, Sub Centers, Urban Primary Health Centre	507
3	Veterinary Institutions	198
4	Animal Houses	Nil
5	Pathological Laboratories, Daignostic Centres	78
6	Clinical Establishment, Eye Care Centres, Pharmacies	228
7	Research Institutions	1
8	AYUSH	1
	TOTAL	**1196**

14.3 Status of Authorization under Bio-Medical Waste Management Rules, 2016

Status of authorization granted by the Board to the Health Care Facilities under Bio-Medical Waste Management Rules, 2016 is shown in the figure below:

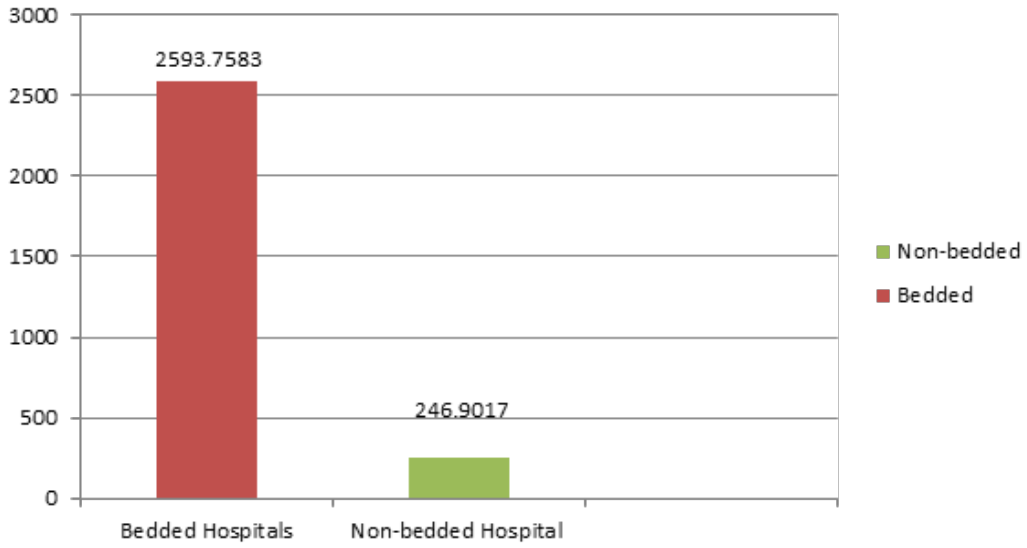
Fig. 13.3: Status of authorization granted by the Board



14.4 Status of Bio-medical Waste Generation

The total quantity of Bio-medical Waste Generation in the State during the year was 2840.66 kg/day. Out of which, 2593.7583 kg/day was generated by bedded HCFs and 246.9017 kg/day from non-bedded HCFs (Fig. 14.4)

Fig. 14.4 Bio-medical Waste from Bedded and Non-bedded HCF



Total 2840.66 Kg/day

The district-wise distribution of Bio-medical Waste Generation is as shown in Table 14.4.

Table 14.4 District Wise Bio-medical Waste Generation (for the year 2022-2023)

Sl. No.	Name of the District	Bio-medical Waste Generation (in Kg/day)	Existing total Bio-medical waste treatment capacity (both captive and CBMWTF) in kg/day	
1.	East Khasi Hills	2181.451	Equipment	Total
2.	West Khasi Hills	79.4215	Incinerator	1600
3.	South West Khasi Hills	1.1376	Autoclave	705
4.	West Jaintia Hills	161.5223	Deep Burial	344.91
5.	East Jaintia Hills	38.0498	Any Other	1076.785
6.	West Garo Hills	116.81973		
7.	South Garo Hills	33.4582		
8.	East Garo Hills	18.07557		
9.	North Garo Hills	17.4841		
10.	Ri Bhoi	132.85696		
11.	South West Garo Hills	15.676		
12.	Eastern West Khasi Hill	44.7114		

14.5 Bio-medical Waste Treatment and Disposal

The number of Health Facilities having captive treatment and disposal facilities were 400 and the total bio-medical waste treated and disposed by captive treatment facilities in kg/day were 926.591. Bio-medical waste treatment and disposal by Common Bio Medical Waste Treatment Facilities was available only in Shillong. The facility comprised of a double chambered incinerator of 100 kg/hr – 50 kg/hr Autoclave, 50 kg/hr Shredder and 1 LKD Effluent Treatment Plant capacity and located at Mawlai Mawiong, Shillong. The facility is being operated by the Shillong Municipal Board and has been providing service to hospitals, Veterinary Hospital, Medical Research Institution, Diagnostic Centres, Dispensaries etc. The average quantity of bio-medical waste disposed in the facility is about 1914.064 kg/day.

14.6 Batteries Waste Management.

The implementation of the Batteries Waste Management was a continuous process.

Part-A: Quantity of used leads batteries channelized to registered recyclers for the year 2022-2023

A - Manufacturer

No. of Manufacturers	No. of Manufacturers submitted returns	Quantity of Batteries Sold		Quantity of used Batteries sent to Authorised Recyclers		No. of Collection Centres	No. of Dealers	No. of Registered Dealers
		Nos.	Weight(kg)	Nos.	Weight (kg)			
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

B - Assembler

No. of Assemblers	No. of Assemblers submitted returns	Quantity of Batteries Assembled and Sold		Quantity of used Batteries sent to Authorised Recyclers		No. of Collection Centres	No. of Dealers	No. of Registered Dealers
		Nos	Weight(kg)	Nos	Weight(kg)			
1	0	Nil	Nil	Nil	Nil	Nil	Nil	Nil

C - Importer

Quantity of used Batteries sent to Authorised Recyclers	No. of Importer submitted returns	Quantity of Batteries Sold		Quantity of used Batteries sent to Authorised Recyclers		No. of Collection Centres	No. of Dealers	No. of Registered Dealers
		Nos.	Weight(kg)	Nos.	Weight(kg)			
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

D - Bulk Consumers

No. of Bulk Consumers	No. of Bulk Consumers submitted returns	Quantity of Batteries Sold		Quantity of used Batteries sent to Authorised Recyclers		No. of Collection Centres	No. of Dealers	No. of Registered Dealers
		Nos.	Weights in kgs	Nos.	Weights in kgs			
19	7	0	0	565	4984.95	Nil	Nil	Nil

E - Auctioneers

No. of Auctioneers	No. of Auctioneers submitted returns	Quantity of Batteries Sold		Quantity of used Batteries sent to Authorised Recyclers		No. of Collection Centres	No. of Dealers	No. of Registered Dealers
		Nos.	Weights in kgs	Nos.	Weights in kgs			
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

F - Recyclers

No. of Authorised Recyclers	Capacity of Recyclers in MT/Year	No. of Recyclers submitted returns	Weight of used Batteries received from and recycled							
			Manufacturer	Assembler	Dealer	Importer	Bulk Consumers	Auctioneer	Self imported	Others Sources
Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

14.7 E-Waste Management.

E-Waste (Management) Rules, 2016 which was notified vide Notification No.GSR 339(E) dated 23/03/2016 by the Ministry of Environment, Forest & Climate Change, Government of India and enacted and put into force from 1st October, 2016. The objective of this Rules was to improve the e-waste management system in the Country and to eliminate the constraints in implementation of the existing Rules and also to give thrust on waste minimization, recycling, for treatment and processing, scientific disposal etc.

The E-Waste Management Rules, 2016 was applied to every manufacturer, producer, consumer, bulk consumer, collection centres, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment including their components, consumables, parts and spares which made the product operational.

The Meghalaya State Pollution Control Board has published Public Notice for awareness of all manufacturers, Producers, Collection Centre, Dealers, Refurbishes, Consumers & Bulk Consumers, Dismantler, Recycler on the provisions of E-Wastes Management Rules, 2016 for necessary compliance.

There was no E-Waste Manufacturing Unit, Recycling/Dismantling Unit within the State of Meghalaya.

For collection and proper disposal of E-Waste generated by Bulk Consumer, Industries, Institution etc the following PRO were actively collecting the E-Waste for channelizing to the authorized recyclers – The PRO are namely M/s Karo Sambhav Pvt. Ltd., M/s RLG Reverse Logistics India Pvt. Ltd. (PRO), M/s Hulladek Recycling Pvt. Ltd., Zain Enterprise.

QUANTITY OF E-WASTE COLLECTED FOR THE YEAR 2022-2023 IN THE STATE OF MEGHALAYA

Sl. No.	Collection Period	Electrical and Electronic Equipment Code	Weight in Kgs
1.	July, 2022	ITEW2	453.45
		ITEW6	68.40
2.	October, 2022	ITEW2	192.25
		CEEW2	32.70
		ITEW12	1.05
		GENERAL	23.35
		ITEW6	60.95
3.	April, 2023	ITEW1	26.05
		ITEW2	537.40
		ITEW6	22.30
		GEN	3.95
		ITEW3	0.40
4.	May, 2023	TV, GEYSER, FREEZE, ELECTRONIC ITEMS	4020.00
5.	June 2022 to June 2023	ITEW3	4500.00
		ITEW2	1150.00
		ITEW2	6520.00
		ITEW2	1050.00

Sl. No.	Collection Period	Electrical and Electronic Equipment Code	Weight in Kgs
5.	June 2022 to June 2023	ITEW24	2090.00
		ITEW24	3120.00
		ITEW6	9975.00
		ITEW7	4170.00
		ITEW25	2645.00
		ITEW8	1540.00
		CEEW4	2408.00
		LSEEW13	380.00
		MDW10	2120.00
		CEEW13	1000.00
		CEEW2	750.00
		LSEEW2	90.00
		ITEW21	210.00
		LSWEE34	2500.00
		ITEW12	121.00
		ITEW24	295.00
		CEEW18	347.00
		LSWEE14	280.00
		ITEW24	750.00
		ITEW15	22.00
		ITEW17	50.60
		ITEW22	271.49
		LSEEW28	2500.00
		ITEW3	40.50
		ITEW6	1350.00
		LSEEW9	20.30
		Total =	**57,708.14 Kg**

14.8 Construction and Demolition Waste Management:

Construction and Demolition Waste Management Rules, 2016 which was notified vide Notification No.G.S.R.317(E) dated 29th March 2016 by the Ministry of Environment, Forest and Climate Change, New Delhi with the objective of this Rule is to improve the management of waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organisation or authority who generates construction and demolition waste such as building materials, debris, rubble.

The Construction and Demolition Waste Management Rules, 2016 implies mostly to service provider who provide services like water, sewerage, electricity, telephone, roads, drainage etc. often generate construction and demolition waste during their activities, which includes excavation, demolition and civil work. The Board had advised the Director, Urban Affairs Department to ensure formulation of the policy on Construction and Demolition Waste Management Rules, 2016. The Board, had also instructed the Government Departments/ Agencies viz Meghalaya Urban Development Authority, Public Works Department (Roads & Buildings) to prepare Comprehensive Waste Management Plan as required under Construction and Demolition Waste

Management Rules, 2016. The Public Works Department had intimated the Board that the Department had already initiated the process for identification of land required for disposal of construction and demolition wastes generated due to construction.

The Meghalaya Urban Development Authority issued a Press Release that prohibited all owner, contractors, firms including Government Department undertaking building construction to dump construction and demolition waste of building materials etc. on roadside, drains and public space.

Site for collection and processing facility yet to be identified by the concerned State Department.

14.9 SOLID WASTE MANAGEMENT

The Meghalaya State Pollution Control Board enforced the Solid Waste Management Rules, 2016 through local bodies and review implementation of these rules twice a year in coordination with the Directorate of Urban Affairs, Government of Meghalaya and the Deputy Commissioner of the respective District. The Board inspects/monitors environmental standards and adherence to conditions as specified under the Schedule-I and Schedule-II for waste processing and disposal sites, examine the proposal for authorization for waste processing and disposal from the local body or any other agency authorized by the local body. The State is having 7(Seven) Local Bodies viz. Shillong Municipal Board (SMB), Shillong Cantontment Board (SCB), Jowai Municipal Board (JMB), Tura Municipal Board (TMB), Williamnagar Municipal Board (WMB), Resubelpara Municipal Board (RMB) and Baghmara Municipal Board (BMB). These Municipal Authorities were responsible for managing the solid waste generated within their respective jurisdiction. The Shillong Municipal Board however, has extended its disposal facility for other town outside its jurisdiction falling under the Shillong Urban Agglomeration. The status of generation and collection of Solid in the respective towns during 2022-2023 is as shown in the Figure and Chart 14.9

Fig. – 14.9

Status of Solid Waste Management in the State (2022-2023)	
Total number of towns/cities	22
Total number of ULBs	7
Number of Class I & II Cities/ Towns	Class-I: 1No. Class-II: 2Nos
Authorisation	1) Shillong Municipal Board 2) Jowai Municipal Board 3) Tura Municipal Board 4) Williamnagar Municipal Board 5) Resubelpara Municipal Board 6) Baghmara Municipal Board
Solid Waste Generation	Municipal Area Generated – 172 TPD Collected – 148 TPD Treated – 51.6 TPD Landfilled – 94.1 TPD

14.9.1 Summary Statement on progress made by local bodies in respect of Solid Waste Management

Good practices in cities/towns - Shillong Municipal Board

House-to-house collection	– 5 -	Shillong Municipal Board, Tura Municipal Board, Williamnagar Municipal Board, Baghmara Municipal Board, Jowai Municipal Board.
Segregation	– 1 -	Shillong Municipal Board.
Storage	– 5 -	Tura Municipal Board, Williamnagar Municipal Board, Jowai Municipal Board, Baghmara Municipal Board, Shillong Cantonment Board.
Covered transportation	– 6 -	Shillong Municipal Board, Williamnagar Municipal Board, Tura Municipal Board, Baghmara Municipal Board, Jowai Municipal Board, Shillong Cantonment Board.

Solid Waste processing facilities setup:

Sl. No.	Composting & Recycling	Vermi-composting	Biogas	RDF/Pelletization
1	(Shillong Municipal Board) 46.4 T/Day	Nil	Nil	Nil

Processing facility operational:

Sl. No.	Composting & Recycling	Vermi-composting	Biogas	RDF/Pelletization
1	(Shillong Municipal Board) 46.4 T/Day	Nil	Nil	Nil

Processing facility under installation/planned:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization
1	(Shillong Municipal Board) 28 T/Day	Nil	Nil	Nil

Waste-to-Energy Plants: (Number/names of towns/capacity)

Sl. No.	Plant Location	Status of operation	Power generation (MW)	Remarks
1	1 (Tura Municipal Board) 7-10 TPD (once a week)	Nil	Nil	Nil

14.9.2 Monitoring at Waste Processing/Landfills Sites (2022-2023)

Sl. No.	Name of Facilities	Ambient Air	Ground Water	Leachate Quality	Compost Quality	VOCs
1.	Landfill Site of Shillong Municipal Board	Yes	Yes	Yes	No	No
2.	Landfill Site of Baghmara Municipal Board	Yes	Yes	Yes	No	No

14.10 PLASTIC WASTE MANAGEMENT

The implementation of the Plastic Waste Management Rules 2016 is conjunction with the Solid Waste Management Rules, 2016. All the Municipalities in the State are responsible for proper management of Plastic Waste generated within their respective jurisdiction.

14.10.1 Status of Plastic Waste Management in the State

<table>
<tr><th colspan="2">Status of Plastic Waste Management</th></tr>
<tr><td>Estimated Plastic Waste Generation Tons Per Annum (TPA)</td><td>2223.6</td></tr>
<tr><td>Registered Plastic Manufacturing or Recycling (including multilayer, compostable) units</td><td>1. M/S Kakarania Innovative Systems (P) Ltd.
2. M/s Umadutt Industries Limited</td></tr>
<tr><td>Collection, Segregation, Disposal (Co-processing road construction etc.)</td><td>
<table>
<tr><th>Sl. No.</th><th>Urban Local Body</th><th>Collection & Segregation in TPA</th><th>Processing & Disposal in TPA</th></tr>
<tr><td>1.</td><td>Shillong Cantonment Board</td><td>540</td><td>Nil</td></tr>
<tr><td>2.</td><td>Baghmara Municipal Board</td><td>Nil</td><td>Nil</td></tr>
<tr><td>3.</td><td>Tura Municipal Board</td><td>1467.6</td><td>240-Channelized for Recycling</td></tr>
<tr><td>4.</td><td>Jowai Municipal Board</td><td>216</td><td>Nil</td></tr>
<tr><td>5.</td><td>Shillong Municipal Board</td><td colspan="2" rowspan="3">Annual Report not submitted</td></tr>
<tr><td>6.</td><td>Resubelpara Municipal Board</td></tr>
<tr><td>7.</td><td>Williamnagar Municipal Board</td></tr>
</table>
Co-processing of plastic waste in cement kilns undertaken by the following cement plants in the state of Meghalaya –
1. Dalmia Bharat Limited, Lumshnong, East Jaintia Hills District
2. Star Cement Meghalaya Limited, Lumshnong , East Jaintia Hills District</td></tr>
</table>

	3. Meghalaya Cements Limited, Lumshnong, East Jaintia Hills District 4. Goldstone Cements Limited, Lumshnong, East Jiantia Hills District A 1(one) km road was constructed in Nongkynjeng Village in West Khasi Hills, Meghalaya using plastic waste.
Partial or complete ban on usage of plastic carry bags (through Executive order)	1. Use and sale of plastic bags less than 120 microns, Non-woven plastic carry bag less than 60 GSM; manufacture, import, stocking, distribution, sale and use of ear buds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene (Thermocol) for decoration, plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, invitation cards, and cigarette packets, plastic or PVC banners less than 100 micron, stirrers have been prohibited. 2. Products claiming to be biodegradable and oxo-biodegradable without CPCB certification have been prohibited. 3. Public notices have been issued vide No.MSPCB/PWM -2/ 2019/ 2023-24/ 133 dated 24th May, 2023 and No.MSPCB/ PWM-2/ 2019/ 2023-24/ 32 dated 24th May, 2023 4. Inspections and seizures were conducted by MSPCB along with District Administrations, Autonomous District Councils, Urban Affairs Department, Municipal Boards and Police Department at major urban areas for compliance to the PWM (Amendment) Rules 2021.
Constitution of State level Advisory Body	State level Advisory Body constituted vide Notification No. UAU.70/2016/81 dated Shillong the 25th January 2018

14.10.2 Steps taken for banning of single use plastic:

The Board has made the following progress in matters relating to elimination of single use plastics in the State-

1. Issue of Public Notice on prohibition of manufacture, import, stocking, distribution, sale and use of (i) plastic carry bags of size less than less than seventy five (75) microns and one hundred and twenty (120) microns w.e.f. 31st December, 2022, non-woven plastic carry bag of size less than sixty (60) gram per square meter and (ii) single use plastic, including polystyrene and expanded polystyrene commodities vide No.MSPCB/ PWM-2/2019/2021-22/66 dated 18th February, 2022
2. Issue of Directions to major single use plastic manufacturing unit in the state to comply with the public notice.
3. Issue of Advisories to the following stakeholders with regard to elimination of single use plastic in the state:
    i. Home Department, Govt. of Meghalaya, District Administrations and Autonomous District Councils (Garo/Khasi/Jaintia) for necessary actions on the ban on single use plastic in respective districts.
    ii. Forest & Environment Department to declare all parks, sanctuaries, zoos, gardens and other ecologically sensitive areas as 'Plastic Fee Zone' to carry out awareness campaigns through Eco Clubs constituted in various schools in the State.

iii. Education Department to declare all educational institutes as 'Plastic Fee Zone' and to promote the use of plastic alternate materials and promote source segregation so as to inculcate behavioral change in plastic usage by students.

iv. Health Department to ensure zero inventory of banned single use plastic items in commercial establishments in all government as well as private hospitals and health care institutions.

v. Tourism Department to declare all tourist spots in the state as 'Plastic Fee Zone' and to ensure prohibition of sale and use of single use plastics in all the tourist places.

vi. Commerce & Industries to promote manufacturing of alternatives and increasing production capacities of existing ones in order to make alternatives readily available for consumers.

Municipal Boards (Shillong / Jowai/ Tura / Resubelpara / Williamnagar / Baghmara / Shillong Cantonment) for necessary actions on the ban single use plastic in respective municipal areas.

14.11 Hazardous Waste Management

All the hazardous waste generating industries in the State are responsible for proper implemention of the Hazardous & Other Waste Management Rules 2016.

Annual Inventory of Hazardous Waste Management (2022-2023)

Sl. No.	Name of the District	Number of Hazardous Waste Generating Industry	Authorized Quantity of Hazardous Waste (Metric Tonne)				Quantity of Hazardous Waste generated as per Annual Return within the State/UT (Metric Tonne)				Quantity of Hazardous Waste imported during the year (Metric Tonne)	Quantity of Hazardous Waste exported during the year (Metric Tonne)
			Landfillable	Incinerable	Recyclable	Utilizable	Landfillable	Incinerable	Recyclable	Utilizable		
0.	1	2	3	4	5	6	7	8	9	10	11	12
1.	Ri-Bhoi	7	24		430		7.575		250.4		Nil	Nil
2.	East Khasi Hills	1			19.08				8.9			
3.	East Jaintia Hills	11			64.133				62.54			

14.12 Online Continous Emission/Effluent Monitoring Systems (OCEMS)

In line with our vision of cleaner and greener India, Meghalaya State Pollution Control Board entrusted Knowledge Lens Pvt. Ltd. with the job of connecting all the industries in Meghalaya State to Meghalaya State Pollution Control Board as well as the Central Pollution Control Board. Keeping up with the current government norms and applying the latest technologies all the industries data pertaining to Emission Monitoring and Air Quality Monitoring using various instruments available in the market is being captured and transmitted to the Pollution Control Boards.

Knowledge Lens Pvt. Ltd. has specifically developed and provided single server platform known as Green Lens (Glens) and installed it on the cloud server for the Pollution Control Board. The pollution data pertaining to Emission and Air Quality is directly captured from different make of instruments installed at the industries and the data is transmitted to Pollution Control Board using dedicated internet connection provided by these industries. The data is presented to the Pollution Control Boards as well as the industries in a user friendly and easy to understand format. A website address as well as username and password have been provided to Pollution Control Board and the industries for viewing the transmitted data in graphical as well as text format and also for downloading the reports. Using their respective username and passwords, the Pollution Control Board can view the data of all the industries present in Meghalaya State connected to the single server platform

while the industry can view its individual data only.

The single server platform provided to Meghalaya State Pollution Control Board on cloud platform can keep the data record of all the connected industries for more than 10 years and present it to the Pollution Control Board as and when required. The software is highly customizable and scalable. Various tools have been made available to the Pollution Control Board for monitoring the pollution level. Alarms are generated and sent to the Pollution Control Board as well as industries in case there is a breach of prescribed level of pollutants being discharged into the environment. The software is also equipped with data validation and helps the Pollution Control Board monitor any manipulations that may take place. There is also a provision for integrating the cameras of the industries meeting with Zero Liquid Discharge guidelines. In compliance with the guidelines, video is shown to the Pollution Control Board and the industry without any plug-in and there is a provision of controlling the camera from within the software.

Apart from the single server platform, Knowledge Lens Pvt. Ltd. has provided a separate URL for public viewing as per the Hon'ble Supreme Court order. The same can be viewed on Meghalaya Pollution Control Board website.

The software for Meghalaya Pollution Control Board was customized, installed and made operational in November 2016 and Knowledge Lens will maintain the software platform for the next 5 years from the date of installation.

During the year 2022-2023, the Meghalaya State Pollution Control Board monitored 28 industries that comprises of Cement Plant, Coke Oven, Captive Thermal Power Plant, Distillery and Iron & Steel around the State of Meghalaya.

The List of Industries is as follows:

Online Pollution Monitoring Portal				
Report Name: Site Details Report				
Report Created by Meghalaya State Pollution Control Board on 2023-08-09 13:32:03				
Sl. No.	**Industry Name**	**Industry Category**	**City**	**State**
1.	JUD Cement Ltd.	Cement	Lumshnong	Meghalaya
2.	M/s M.D. Coke Industries	Mining	Shallang	Meghalaya
3.	M/s Kantalo Coke	Mining	Elaka Sutnga	Meghalaya
4.	M/s Mawmluh Cherra Cements Ltd.	Cement	Cherrapunjee	Meghalaya
5.	M/s Khliehumim Coke	Coke Oven	Elaka Sutnga	Meghalaya
6.	M/s Rilangam Coke Industries	Coke Oven	Shallang	Meghalaya
7.	M/s N.M Fules	Coke Oven	Sutnga	Meghalaya
8.	M/s Ioanis Industries (P) Ltd.	Coke Oven	Elaka Sutnga	Meghalaya
9.	M/s Meghalaya Coke	Coke Oven	Khliehriat	Meghalaya
10.	M/s Jiantia Coke Industries	Coke Oven	Khliehriat	Meghalaya
11.	Star Cement Limited	Cement	Lumshnong	Meghalaya
12.	Shree Shakambari Ferro Alloy Private Limited	Power Plant	Nongstoin	Meghalaya
13.	Shyam Century Ferrous Ltd.	Iron & Steel	Shillong	Meghalaya
14.	CMJ Breweries Pvt. Ltd.	Distillery	Byrnihat	Meghalaya
15.	RNB Cement Pvt. Ltd.	Cement	Umiam	Meghalaya
16.	Green Valliey Industries Ltd.	Cement	Khliehriat	Meghalaya
17.	Lafarge Umiam Mining Pvt. Ltd.	Mining	Nongtrai	Meghalaya
18.	Star Cement Meghalaya Ltd.	Cement	Lumshnong	Meghalaya

Sl. No.	Industry Name	Industry Category	City	State
19.	M/s Mahajong Coke LLP	Coke Oven	Khliehriat	Meghalaya
20.	Meghalaya Power Limited	Power Plant	Lumshnong	Meghalaya
21.	Meghalaya Cement Limited	Cement	Lumshnong	Meghalaya
22.	M/s Unique Industry	Coke Oven	Diensatlang	Meghalaya
23.	Hills Cement Company Ltd.	Cement	Khliehriat	Meghalaya
24.	Goldstone Cements Limited	Cement	Lumshnong	Meghalaya
25.	Megha Technical & Engineers Pvt. Ltd.	Cement	Lumshnong	Meghalaya
26.	Adhunik Cement Limited (Subsidiary of Dalmia Cement Bharat Limited)	Cement	Thangskai	Meghalaya
27.	M/s Northeast Carbon Industries	Mining	Elaka Sutnga	Meghalaya
28.	M/s Amrit Cement Limited	Cement	Lumshnong	Meghalaya

14.13 Consent Committees

The function of the Consent Committee is to examine/scrutinize the applications for Consent and recommend the grant or otherwise of Consent in respect of industries/developmental projects with project costs of Rs.25.00 lakhs and above.

The number of Consent Committees held during the financial year 2022-2023 is as per list below:

Consent Committee during the year 2022-2023				
Sl. No.	Dates of Consent Committee	Numbers of Agendas	Cleared	Not Cleared
1.	15th June 2022	21	18	3
2.	25th July 2022	14	13	1
3.	17th October 2022	26	26	NIL
4.	16th December 2022	24	19	5
5.	13th January 2023	16	16	NIL
6.	21st March 2023	22	17	5

14.14 Environmental Compensation

(CIVIL) No.375/2012), Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors has unambiguously directed State & Central Boards to levy Environmental Compensation on violators of Environmental laws.

The NGT Order on the matter is as follows: **"The CPCB may take penal action for failure, if any, against those accountable for setting up and maintaining STPs, CETPs and ETPs. CPCB may also assess and recover compensation for damage to the environment and said fund may be kept in a separate account and utilized in terms of an action plan for protection of the environment."**
In pursuance to the Resolution of Agenda No. 6 of the 82nd Meeting of the Meghalaya State Pollution Control Board held on the 19th March, 2022 the Board recommends that the ***"Report of the CPCB In-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund"*** be adopted for assessment, imposing, collection and utilization of environmental compensation from polluting units in the State of Meghalaya.

During the financial year of 2022-223, a total of Rs. 49,28,625/- (Rupees Forty Nine Lakhs Twenty Eight Thousand Six Hundred Twenty Five) has been recovered from the violators/ polluting units in the State of Meghalaya.

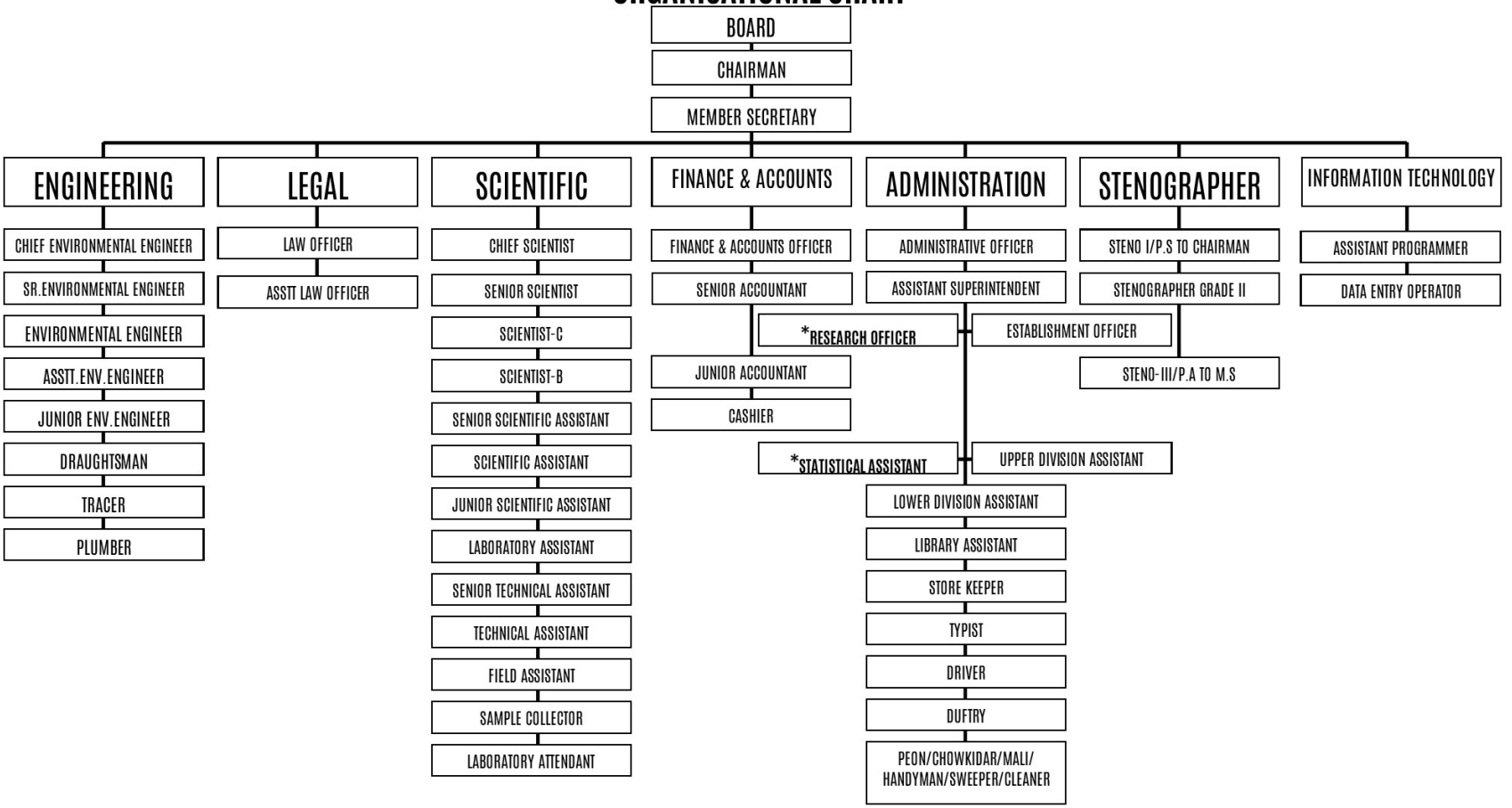
ANNEXURE-I

MEGHALAYA STATE POLLUTION CONTROL BOARD STAFF POSITION AS ON 31-03-2023

BRANCH	SL. NO.	NAME OF THE POST	SANCTIONED STRENGTH	WORKING STRENGTH	VACANCY
TECHNICAL	1.	Chief Environmental Engineer	1	0	1
	2.	Senior Environmental Engineer	2	2	0
	3.	Environmental Engineer	3	3	0
	4.	Assistant Environmental Engineer	7	4	3
	5.	Junior Environmental Engineer	1	1	0
	6.	Draftsman	1	1	0
	7.	Tracer	1	0	1
	8.	Plumber	1	1	0
LEGAL	1.	Law Officer	1	1	0
	2.	Assistant Law Officer	1	0	1
SCIENTIFIC	1.	Chief Scientist	1	1	0
	2.	Senior Scientist	2	2	0
	3.	Scientist-C	2	0	2
	4.	Scientist-B	3	1	2
	5.	Senior Scientific Assistant	3	2	1
	6.	Scientific Assistant	5	3	2
	7.	Junior Scientific Assistant	6	2	4
	8.	Senior Technical Assistant	1	1	0
	9.	Technical Assistant	2	0	2
	10.	Laboratory Assistant	8	0	8
	11.	Field Attendant/Assistant	2	1	1
	12.	Sample Collector	12	9	3
	13.	Laboratory Attendant	5	4	1
FINANCE & ACCOUNTS	1.	Finance & Accounts Officer	1	0	1
	2.	Senior Accountant	2	2	0
	3.	Junior Accountant	2	0	2
ADMINISTRATION	1.	Administrative Officer	1	0	1
	2.	Research Officer (Info. & Pub.)	1	0	1
	3.	Establishment Officer	1	1	0
	4.	Assistant Superintendent	1	1	0
	5.	Upper Divisional Assistant	5	5	0
	6.	Statistical Assistant (Info. & Pub.)	1	0	1
	7.	Lower Division Assistant	13	11	2
	8.	Typist Grade III	4	1	3
	9.	Library Assistant	1	0	1
	10.	Store Keeper	1	0	1
	11.	Senior Driver/Driver	10	9	1
	12.	Duftry	1	1	0
	13.	Handy Man	1	0	1
	14.	Peon	21	9	12
	15.	Mali	1	0	1
	16.	Chowkidar	4	2	2
	17.	Cleaner	2	1	1
	18.	Sweeper	2	1	1
STENOGRAPHER	1.	Stenographer Grade-II	1	1	0
INFORMATION TECHNOLOGY	1.	Assistant Programmer	1	1	0
	2.	Data Entry Operator	3	1	2
		GRAND TOTAL	**152**	**86**	**66**

ANNEXURE-II

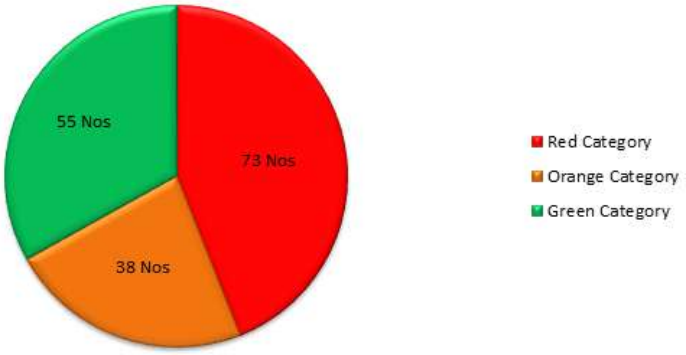
ORGANISATIONAL CHART



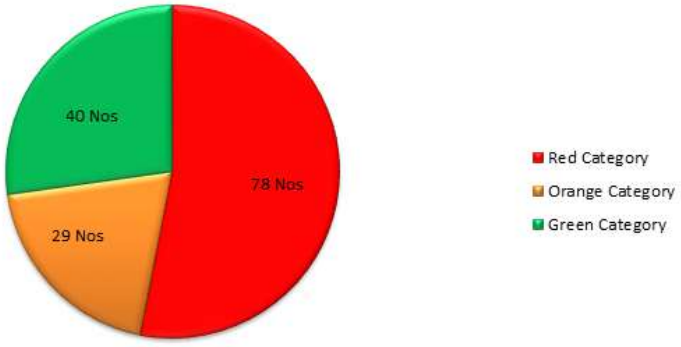
* The posts are under process for de-cadre

ANNEXURE-III

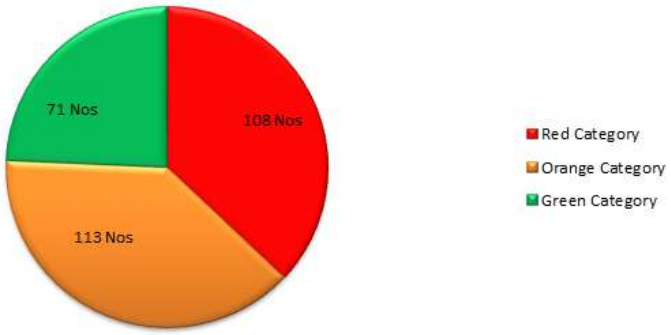
CONSENT TO ESTABLISH ISSUED DURING THE YEAR 2022-2023



TOTAL NUMBERS OF CONSENT TO OPERATE ISSUED DURING THE YEAR 2022-2023



TOTAL NUMBERS OF RENEWAL OF CONSENT TO OPERATE ISSUED DURING THE YEAR 2022-2023



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MEMBER SECRETARY

MEGHALAYA STATE POLLUTION CONTROL BOARD

Forests & Environment Department, Government of Meghalaya

Compiled & Prepared by : Smti. E. B. Syiem, UDA (M.S.P.C.B)
Design | D.T.P., by : Shri. N. R. Khabithai (M.S.P.C.B)
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Adress : 'Arden' Lumpyngngad
Shillong - 793014
Website : megspcb.gov.in
Email : megspcb@rediffmail.com
Phone : 0364-251764 | 2521127