

## ACTION PLAN FOR CONTROL OF AIR POLLUTION IN NON-ATTAINMENT TOWNS

Name of City/Town: Byrnihat including EPIP Industrial Area

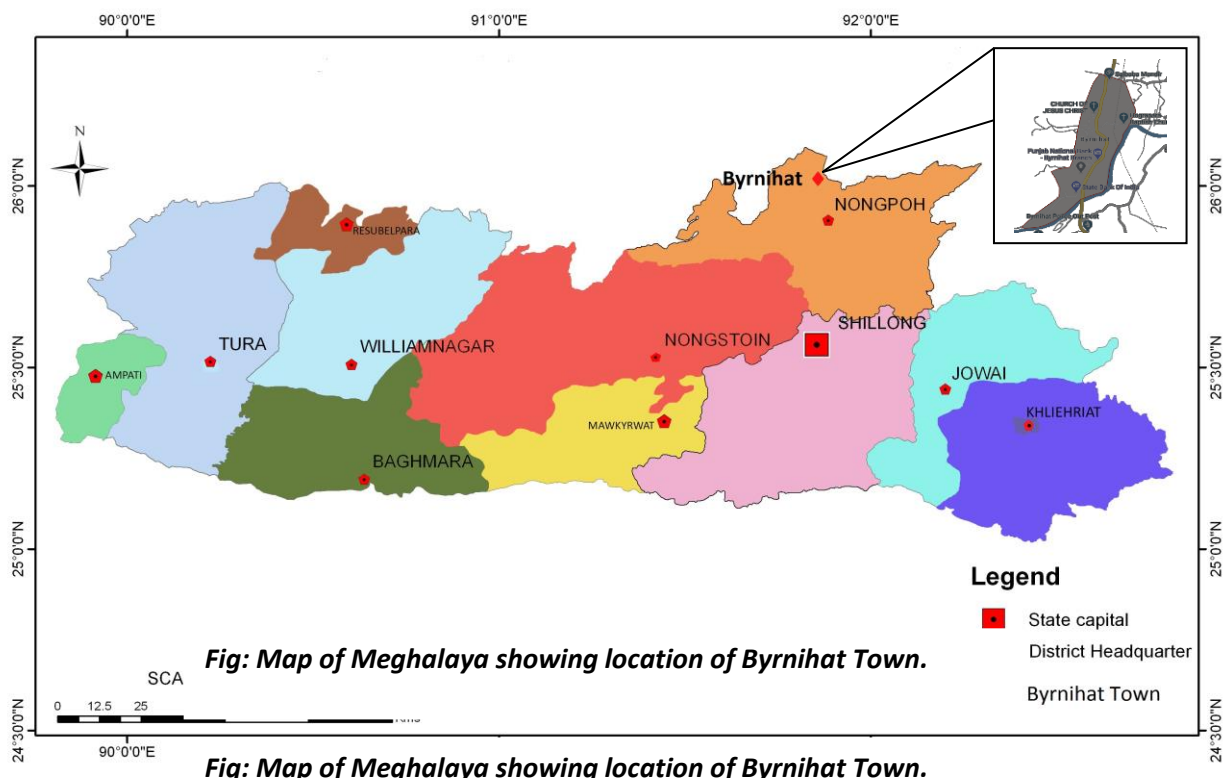
District: Ri-Bhoi, Meghalaya

### Introduction

Byrnihat under Umling Community & Rural Development (C&RD) Block, Umling, is situated at the northern side of Meghalaya in the district of Ri-Bhoi located at the border of Assam and Meghalaya on Guwahati – Shillong roadways (GS road) NH-40. It is about 82 Kms from Shillong and located at 25.9°N 91.88°E and 66m above the sea level. The weather during summer months tends to be humid and hot while the winter months are pleasant and warm. Rain has a great influence on the temperature of the district which makes it pleasant even when the barometer reaches its maximum heights. Normally minimum and maximum temperatures are 12.3°C & 35.2°C respectively.

Export Promotion Industrial Park (EPIP) covers an area of about 256 acres is located by the side of the river Umtrew in Byrnihat, Ri-Bhoi District. Besides, the operating industrial units have also come up in Assam side.

Total population of Byrnihat and its adjoining villages as per Population Census 2011 is 5444 and covers an area of 49.5 km<sup>2</sup> approx. Map of Byrnihat, Ri Bhoi District, Meghalaya is shown in fig. below.



## **Air Quality Monitoring Network under National Air Monitoring Programme (NAMPP)**

The Meghalaya State Pollution Control Board is operating the following 10(ten) nos. of Ambient Air Quality Monitoring stations in the State as part of the air quality network under National Air Monitoring Programme (NAMPP), a Centrally CPCB sponsored programme.

1. State Board's Premises, Shillong (established during 1989)
2. State central library (established during 1989) shifted to Police Bazar then to Barik, Shillong
3. Upper Shillong (established during 2016)
4. Polo, Shillong (established during 2016)
5. Tura, West Garo Hills District (established during 2010)
6. Nongstoin, West Khasi Hills District (established during 2011)
7. Khliehriat, Jaintia Hills District (established during 2011)
8. Export Promotion Industrial Park, Byrnihat, Ri-Bhoi District (established during 2009)
9. Umiam industrial estate, Ri-Bhoi District (established during 2009)
10. Dawki, Jaintia Hills District (established during 2009)

Under the programme 3(three) pollutants viz. Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>), Particulate Matter (PM<sub>10</sub>) has been monitoring regularly from the stations. Monitoring is being carried out for 24 hours (4 hourly sampling for gaseous pollutants & 8 hourly sampling for particulate matter). The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature was also integrated with the monitoring of the air quality. Air quality monitoring Data is regularly submitted on monthly basis to for compilation and interpretation.

### **Monitoring Stations at EPIP,Byrnihat under NAMPP**

The Meghalaya State Pollution Control Board is regularly monitoring the Ambient Air Quality in Export Promotion Industrial Park, Byrnihat, (EPIP), Ri-Bhoi District, under National Air Monitoring programme (NAMPP) using manually operated semi automatic Respirable Dust Samplers. Under the programme, 3 (three) criteria pollutants viz. PM<sub>10</sub> (Particulate Matter), Sulphur dioxide (SO<sub>2</sub>) and Nitrogen dioxide (NO<sub>2</sub>) are being monitored. The station was in operation since 2008.

Based on the Air monitoring data, the level of Particulate Matter (PM<sub>10</sub>) were observed to be exceeding the National Ambient Air Quality Standards (NAAQS), 2009 consecutively during 2011-2015, Byrnihat including EPIP Industrial Area is declared as non-attainment towns by CPCB.

The air quality generated over the years in the monitored station reveal that PM<sub>10</sub> (Particulate Matter) concentration exceeds the National Ambient Air Quality Standard (Annual Average). High concentrations of Particulate Matter (PM<sub>10</sub>) levels may be attributable to the build-up 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 construction activities.

In order to prevent further deterioration and improvement of the ambient air quality in the area there is an immediate need for taking necessary preventive and control measures to reduce the emission/pollutants at source.

**ACTION PLAN FOR CONTROL OF AIR POLLUTION IN NON-ATTAINMENT TOWNS (under NCAP)**

**Name of City/Town: Byrnihat including EPIP Industrial Area**

**District: Ri-Bhoi**

**Air Pollution Concerns: PM<sub>10</sub>**

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
1.	<b>Transport Sector Emission</b>	Prevent parking of vehicles in the non-designated areas	long term	Regular activity	Superintendent of Police	
		Synchronize traffic movements/Introduce intelligent traffic systems for lane-driving				
		Launch extensive drive against polluting vehicles for ensuring strict compliance - Strict vigilance and no tolerance for visible emissions – stop plying of visibly polluting vehicles by impounding or heavy fine	long term	Regular activity	Superintendent of Police/District Transport Officer	
		Introduction of public transport system in Byrnihat-Nongpoh route section	Long term	180 Days	Urban Affairs Deptt under JNNURM	
		Introduction of electric vehicle in Byrnihat - Nongpoh route section	Long term	180 Days	Transport Deptt	
		Introducing of Mobile Vehicular Emission Testing unit in Nongpoh-Byrnihat section	Long term	180 Days		
		Maintaining and enforcing of permissible loading limits of vehicle	Long term	180 Days		
		Launch public awareness campaign for air pollution control, vehicle maintenance, minimizing use of personal vehicles, lane discipline, etc	long term	Regular activity	District Transport Officer	
		Setting up of Pollution under Control (PUC) Certification Centres	Long term	180 Days		
		Strict vigilance and enforcement of PUC norms and Link PUC certificates with annual vehicle insurance	long term	180 Days		

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
		to ensure 100 % compliance				
		Prepare action plan to check fuel adulteration and random monitoring of fuel quality data	Short term	30 days	Deputy Commissioner (Supply)	
2.	<b>Dust Management (Road Dust And C&amp;D)</b>	Control measures for fugitive emissions from material handling, conveying and screening operations through water sprinkling, curtains, barriers and dust suppression units	Long term	Regular activity	District Administration/ Executive Engineer, Public Works Department (Rds), / Meghalaya Industrial Development Corporation in Industrial Area/ Industries Department	
		Ensure carriage of construction material in closed/covered vessels	Short term	90 days		
		Blacktopping of metalled road including pavement of road shoulders	Long term	180 days		
		Prepare plan for widening of road and improvement of infrastructure for decongestion of road	Long term	180 days		
		Prepare plan for construction of expressways/bypasses to avoid congestion due to non-destined vehicles	Long term	180 days		
		Maintain potholes free roads for free-flow of traffic	Short term	90 days		
		Prepare plan for creation of green buffers along the traffic corridors	Long term	180 days		Forest & Environment Dept. / Meghalaya Industrial Development Corporation in Industrial Area/Industries Deptt.
		Introduce water fountains at major traffic intersection, wherever feasible	Short term	90 days		
		Greening of open areas, gardens, community places, schools and housing societies	Long term	180 days		
			Industrial units to install water spraying system of internal roads and washing of tyres of vehicles	Long term	Regular	Industrial units
3.	<b>Agricultural Emission</b>	Launch extensive drive against open burning of bio-mass, crop residue, garbage, leaves etc.	Long term	Regular activity	Agriculture Dept./ District	

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
	<b>Biomass and Garbage burning/Jhum cultivation</b>	Proper collection of horticulture waste (bio-mass) and its disposal following composting-cum-gardening approach	Long term	Regular activity	Administration/ Local Bodies	
		Ensure ban on burning of agriculture waste and crop residues and its implementation	Long term	180 days		
		Creation of awareness to farmers to stop burning of crops residue and biomass	Long term	180 days	Agriculture Deptt	
		Stress on promotion of horticulture programme and use of organic manures/compost	Long term	180 days		
4.	<b>Industries Emissions and</b>	Identification of brick kilns and their regular monitoring including use of designated fuel, and closure of unauthorized units	Short term	60 days	State Pollution Control Board/Industries Deptt.	
		Conversion of natural draft brick kilns to induced draft kilns (zigzag Technology)	Long term	180 days		
		Strict enforcement of air pollution control measures in all industries, includes those located in unauthorized areas and Action against non-complying industrial units	Long term	Regular activity	State Pollution Control Board/Industries Deptt.	
		Urgent ban on furnace oil, pet coke, which are dirty industrial fuels with high Sulphur and heavy metals	Mid term	120 days		
		Monitoring of DG sets to ensure that only those DG sets that meet the standards are allowed to operate and action against violations	Long term	Regular activity		
		Ensure that only the DG sets that meet the standards are allowed to be marketed and sold.	Short term	60 days	State Pollution Control Board/Industries Deptt./Industrial unit	
		For the DG sets already operational,ensure usage of retrofitted emission – control equipment with a minimum specified PM – capturing efficiency of at least 70% type approved by one of the five CPCB –	Short term	60 days		

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
		recognised lab.				
	<b>Power Sector Emissions</b>	Stringent compliance by TPPs with respect to the emission norms according to the timelines up to December 2022 and as per the action plan prescribed in the direction dated December,2017 issued under the EPA,1986	Long term	Regular activity	State Pollution Control Board/Industries Deptt./Industrial unit	
		Enforcement of new and stringent SO2/NO2/PM2.5 standards for industries using solid fuels	Short term	60 days		
		Stricter enforcement of standards in large industries through continuous monitoring.	Short term	60 days		
5.	<b>Air Quality Monitoring</b>	Air quality monitoring Station expansion.	Long term	1 year	State Pollution Control Board	
		Monitoring station for PM 2.5	Long term	1 year		
	<b>Source Apportionment study</b>	Air Quality Index to be calculated and disseminated to the people through website and print/electronic media in local vernacular(on maximum weekly basis for manually operated monitoring stations and real time basis for continuous monitoring stations)	Long term	Regular activity		
		Research studies including air pollution inventory, source apportionment in EPIP and Byrnihat area.	Long term	3 years		
		Establish an Air Quality Management Division at SPCB/PCC Head Quarters to oversee air quality management activities in the State and interact with CPCB	Long term	1 year		
		Set-up and publicize helpline in each city/town as well as SPCB/PCC HQ for complaints against	Short term	60 days		

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
		reported non-compliance				
6.	<b>Vehicle, Road Dust, Biomass and Garbage burning/Jhum cultivation/ Domestic fuel Industries/Air Quality monitoring</b>	Emission inventory to carry out source apportionment study and carrying capacity assessment in EPIP, Byrnihat /Town	Long term	3 yrs	MSPCB	
7.	<b>Vehicle, Road Dust, Biomass and Garbage burning/Jhum cultivation/ Industries /Air Quality monitoring</b>	The interim emission targets with regards to control of emissions from sources viz Vehicle, Road dust, Biomass and garbage burning, Jhum cultivation, industries,	Long term	Regular activity	District Administration/Executive Engineer, Public Works Department (Rds.)/Meghalaya Industrial Development Corporation in Industrial Area/Industries Department	
8.	<b>Vehicle</b>	Introduction of CNG or PNG driven vehicles to reduce vehicular exhaust emission	Long term	-	Transport Deptt. in coordination with concerned Central Govt. Agencies	
9.	<b>Vehicle, Road Dust, Biomass and Garbage burning/Jhum</b>	To constitute a District Level Monitoring Committee – to review the progress and ensure smooth implementation of the plan	Long term	Regular activity	District Administration/ Executive Engineer, Public Works Department (Rds), / Meghalaya Industrial Development Corporation	

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
	cultivation/ Industries /Air Quality monitoring				in Industrial Area/ Industries Department	
10.	Vehicle / Industries Air Quality monitoring	Noise level monitoring	Long term	Regular activity	<p>MSPCB may undertake NLM in conjunction with Police Deptt. and take remedial action. The Police Department of the States may obtain the noise monitoring devices within a period of three months and specification of such devices may be finalized in consultation with the State PCBs. The Police Department of the State may also train their staff regarding the use of such devices and develop a robust protocol for taking appropriate action against the defaulters</p> <p>The CPCB may explore the possibility in consultation with the leading manufacturers of public address systems and other</p>	



Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
					manufacturers of such instruments, to manufacture such equipment wherein the noise meters with data loggers are fitted therein so that as and when the prescribed parameters are violated, the same gets recorded and retrieved by the regulators for fixing the responsibility on the violators	
11.	<b>Waste Management</b>	Source segregation into dry and wet waste to be made mandatory	Long term	Regular activity	District Administration/Meghalaya Industrial Development Corporation in Industrial Area/Industrial unit/Urban affairs/Town commiittee	
		Mandatory training and capacity building	Short term	60 days		
		Stringent implementation of integrated waste management plan	Long term	Regular activity		
		Stringent implementation and monitoring for extended producer responsibility for e waste and plastic waste	Long term	Regular activity		
		Strict implementation of the existing six waste management rules on solid, hazardous, electronic, bio-medical, plastics and C & D waste	Long term	Regular activity		
		The Swachh Bharat Mission	Long term	Regular activity		
12.	<b>Institutional Frame work</b>  <b>i) State level</b>	A Steering Committee under the Chief Secretary in	Short term	60 days		

Sl. No.	Source Group	Control Option	Implementation Period (Short/Mid/Long term)	Time target for Implementation	Responsible Agencies	Any other information
		the State			Forest & Environment Deptt.	
		A monitoring Committee under the Additional Chief Secretary/Principal Secretary Forests & Environment Deptt in the State	Short term	60 days		
		Implementation Committee under the District Magistrate level	Short term	60 days	District Administration	
	<b>ii) Institutional strengthening Public awareness and Education</b>	City specific awareness programme targeting key stakeholders to be formulated and take up for implementation	Short term	60 days	SPCB	
	<b>iii) Training and Capacity Building</b>	Extensive capacity – building programme for both the CPCB and SPCBs with reference to both manpower and infrastructure augmentation	Long term	180 days	SPCB	
	<b>iv) Setting up of Air Information Centre</b>	A plan for setting up air information centres will be formulated	Long term	180 days	SPCB	

### Graded Response Action Plan (GRAP):

In pursuant to the order of the Hon'ble Supreme Court dated December 02, 2016 in the matter of M. C. Mehta Vs. Union of India regarding air quality in National Capital Region of Delhi and approval of Ministry of Environment, Forests and Climate Change, Govt. of India vide its notification S.O. 118 (E), dated- January 12, 2017 CPCB has formulated Graded Response Action Plan for Delhi & NCR based on Air Quality Index and concentration of particulate matter. In consistent with the same, a Graded Response Action Plan based on air quality trend [Annexure-IV(i)] has been formulated for Byrnihat, Ri Bhoi District, Meghalaya as hereunder:

<b>Severe + or Emergency (ambient PM2.5 or PM10 concentration values of 300ug/m3 or 500 ug/m3 respectively persist for 48 hours or more)</b>	<b>Implementing Agency</b>
Stop entry of truck traffic into Byrnihat (except essential commodities).	Superintendent of Police, Nongpoh, Ri-Bhoi District, District Transport Officer, Nongpoh, Ri- Bhoi District
Stop construction activities.	Executive Engineer, Public Works Department (Rds), Nongpoh Division/Managing Director, MIDC, Upland Road, Shillong
Introduce odd and even scheme for private vehicles based on license plate numbers and minimize exemptions.	District Transport Officer, Nongpoh, Ri- Bhoi District
Task Force to take decision on any additional steps including shutting of schools	District Magistrate, Nongpoh
<b>Severe (ambient PM2.5or PM10 concentration value is more than 250 µg/m3or 430µg/m3 respectively)</b>	<b>Implementing Agency</b>
Intensify public transport services. Introduce differential rates to encourage off-peak travel.	Transport Commissioner, Meghalaya, District Transport Officer, Nongpoh and District Magistrate, Nongpoh
Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	Public Works Department(Rds), Nongpoh Division, Managing Director, MIDC, Upland Road, Shillong and National Highway Authority of India.
<b>Very Poor (ambient PM2.5or PM10 concentration value is between 121-250µg/m3or 351-430 µg/m3 respectively)</b>	<b>Implementing Agency</b>
Stop use of diesel generator sets.	Meghalaya State Pollution Control Board, District Administration, Nongpoh,
Enhance parking fee by 3-4 times.	District Transport Officer, Nongpoh
Increase public transport bus services by augmenting contract buses and increasing frequency of service.	District Transport Officer, , Nongpoh, District Administration, , Nongpoh

Stop use of coal/fire wood in hotels and open eateries.	District Administration, , Nongpoh
Residential Welfare Associations and individual house owners, Security Staff to provide electric heaters during winter to avoid open burning by them.	Resident Welfare Associations, Apartment Committee, Security Organizations
Alert in newspapers/TV/radio to advice people with respiratory and cardiac patients to avoid polluted areas and restrict outdoor movement.	Meghalaya State Pollution Control Board
<b>Moderate to poor(ambient PM2.5 or PM10 concentration value is between 61-120 µg/m3 or 101-350 µg/m3 respectively)</b>	<b>Implementing Agency</b>
Stringently enforce/stop garbage burning in landfills and other places and impose heavy fines on person responsible.	District Administration, , Nongpoh / Local Bodies Byrnihat
Close/stringently enforce all pollution control regulations in industries.	Meghalaya State Pollution Control Board.
Do periodic mechanized sweeping on roads with heavy traffic and water sprinkling also on unpaved roads every two days.	Public Works Department (Rds), Nongpoh Division, Managing Director, MIDC, Upland Road, Shillong and National Highway Authority of India.
Strict vigilance and no tolerance for visible emissions–stop plying of visibly polluting vehicles by impounding or heavy fine.	District Transport Officer and Traffic Police, Gaya.
Strict vigilance and enforcement of PUC norms.	Superintendent of Police, Nongpoh, Ri-Bhoi District, District Transport Officer, Nongpoh, Ri- Bhoi District
Stringently enforce , rules for dust control in construction activities and close non-compliant sites.	District Administration, Nongpoh. ublic Works Department(Rds), Nongpoh Division, Managing Director, MIDC, Upland Road, Shillong and National Highway Authority of India..
Deploy traffic police for smooth traffic flow at identified vulnerable areas.	Superintendent of Police, Nongpoh, Ri-Bhoi District
Strictly enforce Supreme Court ban on firecrackers.	District Administration, Nongpoh,Ri Bhoi District,Meghalaya.
Information dissemination through Social media, mobile Apps to inform people about the pollution levels, contact details of control room enable them to report polluting activities/sources to the concerned authorities and actions be taken by government based on the level of pollution.	Meghalaya State Pollution Control Board,

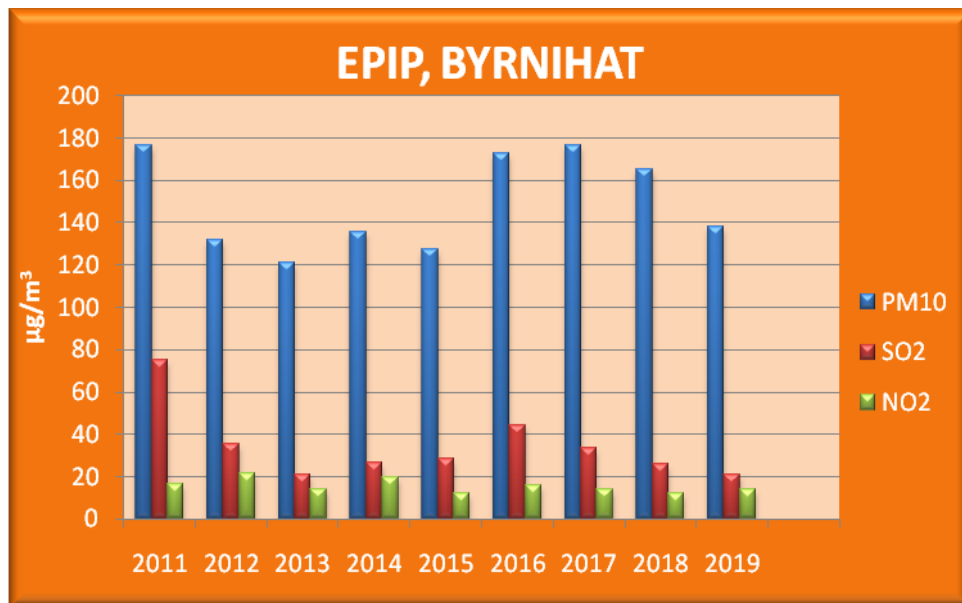
**Monitoring Mechanism for implementation:**

The Action Plan will be communicated to all stake holders for compliance for control of Air pollution in Byrnihat area, Meghalaya. Compliance of action points by the concerned stakeholders departments will be reviewed at regular intervals by the Principle Secretary, Environment & Chief Secretary, Government of Meghalaya.

**Status of Ambient Air Quality at EPIP, Byrnihat, Ri Bhoi District, Meghalaya.**

**Annual Average Concentrations  
of Particulate Matter (PM10), Sulphur dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>)  
in EPIP, Byrnihat, Ri Bhoi District, Meghalaya ( 2011 to 2019)**

Sl.No.	Year	Parameters (Annual Average)		
		PM10 (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )
1.	2011	176.8	75.0	16.7
2.	2012	132.0	35.4	21.5
3.	2013	121.0	21.3	14.3
4.	2014	135.5	26.4	20.0
5.	2015	125.8	28.3	12.4
6.	2016	172.7	44.0	16.1
7.	2017	176.4	33.5	14.1
8.	2018	165.5	26.1	12.2
9.	2019	138.1	21.1	14.0



Air Quality trends in EPIP, Byrnihat, Ri Bhoi District, Meghalaya ( 2011 to 2019)