

**ACTION PLAN FOR NON-ATTAINMENT
TOWNS/CITIES WITH RESPECT TO AIR
QUALITY MANAGEMENT IN KOHIMA CITY,
NAGALAND.**



By

**AIR QUALITY MONITORING COMMITTEE
NAGALAND**

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ANNEXURE

ANNEXURE 1: STATUS OF AMBIENT AIR QUALITY OF KOHIMA CITY.

ANNEXURE 2: NOTIFICATION OF AIR QUALITY MONITORING COMMITTEE.

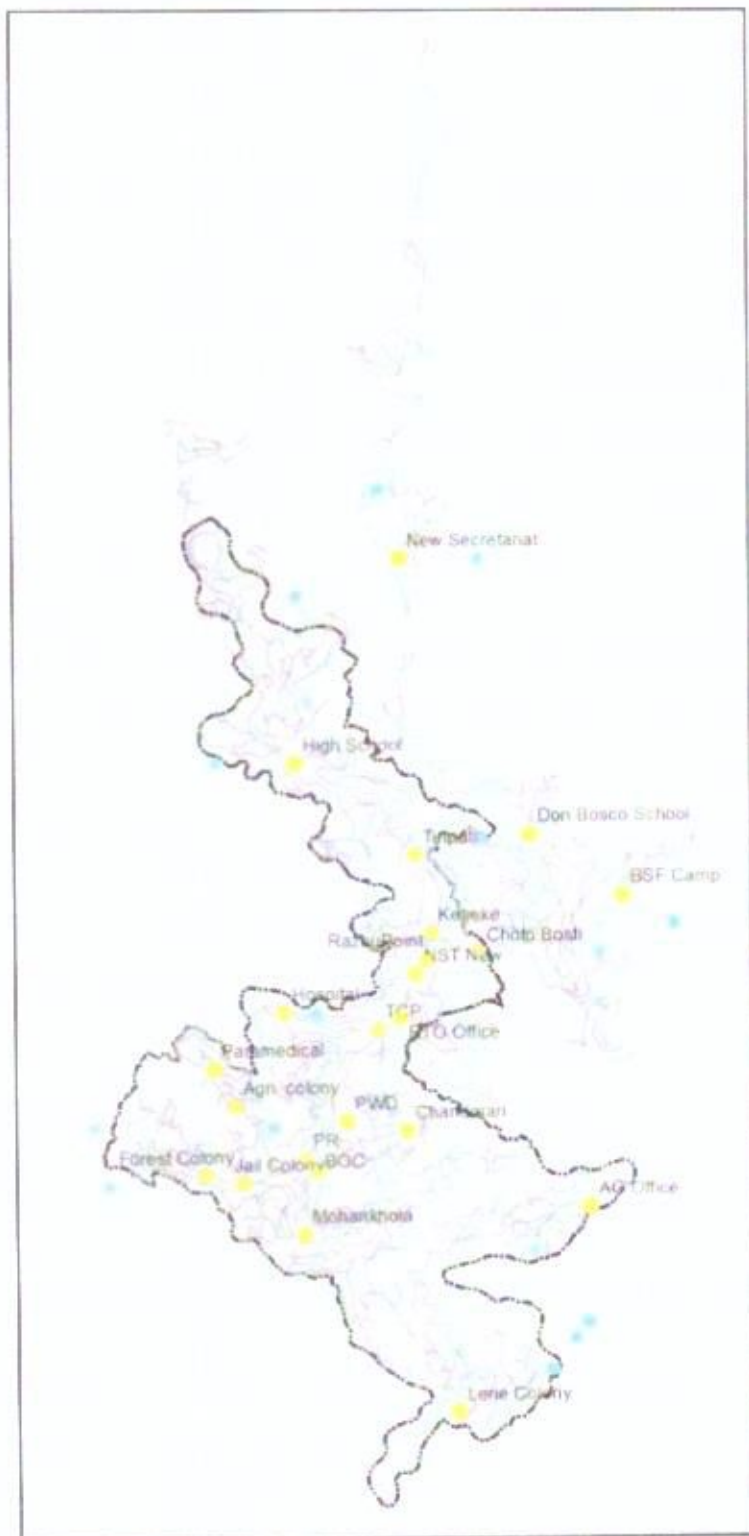
ACTION PLAN FOR CONTROL OF AIR POLLUTION IN NON-ATTAINMENT CITY OF KOHIMA (NAGALAND)

INTRODUCTION:

Kohima, is a hilly district of India's North Eastern State of Nagaland, it is located at 25°40'N 94°07'E and 25.67°N 94.12°E sharing its borders with Dimapur District in the West, Phek District in the East, Manipur State and Peren District in the South and Wokha District in the North. When Nagaland became a full fledged state on 1st December, 1963, Kohima was christened as the capital of the state. It has an average elevation of 1261 metres (4137 feet) and covers an area of 1,463 sq. km, with a density of 183 per sq. km. Kohima town is located on the top of a high ridge and the town serpentine all along the top of the surrounding mountain ranges as is typical of most Naga settlements. As of 2011 Census, Kohima district has a population of 2,67,988.

Kohima features a more moderate version of a humid subtropical climate. Kohima has a pleasant and moderate climate - not too cold in winters and pleasant summers. December and January are the coldest months when frost

occurs and in the higher altitudes, snowfall occurs occasionally. During peak summer



months from July-August, temperature ranges an average of 80-90 Fahrenheit. Heavy rainfall occurs during summer.

Total number of petrol and diesel vehicles registered under Kohima District comprises of 93,476 nos. Out of which non commercial vehicles registered are around 28,343; commercial passenger vehicles around 3,572 and commercial goods vehicles around 61561. And the total no. of vehicles based on wheel based categorization are 2 wheelers comprises of 3424; 3 wheelers of 2 and 4 & above wheelers comprises of 90,050.

In Kohima District, industries consented with the Nagaland Pollution Control Board accounts to total 106 unit which are categorized accordingly 3 units of Red Category, 41 Orange Category and 62 Green Category.

OBJECTIVES:

Kohima city has been placed under non-attainment cities because it was found that for a period of 5 years (2011-2015) the air quality was consistently above the National Ambient Air Quality Standards for PM10. Accordingly, this action plan is proposed to bring down the level of air pollutants within a given time frame by the responsible departments and implementing agencies and the co-operation of the public at large. The agencies responsibilities time frame and budgetary requirements are as given in the chart.

SOURCES OF AIR POLLUTION IN KOHIMA CITY:

The major sources of air pollution in Kohima city are:

- i. Dust raised from vehicular movement on the dusty roads.
- ii. Vehicular emissions.
- iii. Burning of wastes such as municipal waste bins, garden/leave waste, etc.
- iv. Construction activity.
- v. Burning of fossil fuel for domestic purpose.

AIR QUALITY MONITORING NETWORK (NAMP):

The Nagaland Pollution Control Board has been regularly monitoring the air quality under National Air Monitoring Programme (NAMP) in Kohima city using manually operated Respirable Dust Samplers. Under the National Air Monitoring Programme (NAMP) there are two monitoring stations in Kohima i.e. in Opposite NST Office (609)

and Opposite War Cemetery (610). However, station Opposite War Cemetery (610) has been shifted to a new location in PWD junction.

Under this programme three air pollutants are monitored and analyzed viz., Nitrogen dioxide (NO₂), Sulphur dioxide (SO₂) and Respirable Suspended Particulate Matter (RSPM). The monitoring of pollutants is carried out for 24 hours (4 hourly sampling for gaseous pollutants (NO₂ & SO₂) and 8 hourly sampling for particulate matter (RSPM) twice in a week.

The gaseous pollutants i.e. Nitrogen dioxide (NO₂) and Sulphur dioxide (SO₂) are within the national standards in both the monitoring stations.

MONITORING STATIONS UNDER NAMP PROGRAMME IN KOHIMA CITY, NAGALAND.

Sl. no	Station name	Station code	Station type	District
1	Opposite NST office	609	Residential	Kohima
2	PWD junction	610	Commercial (Along the National Highway-29)	Kohima

2 (two) new additional NAMP stations for Kohima city has been proposed to the Central Pollution Control Board, however, sanctioning of the new station is still awaited.

MONITORING MECHANISM FOR IMPLEMENTATION:

The aforesaid action plan shall be implemented by Nagaland Pollution Control Board in co-ordination with various stakeholders/Department such as Department of Environment, Forest & Climate Change, Department of Industries & Commerce, Urban Development Department, Transport Department, Municipal/Town Councils, Traffic Police, Town Planning, Border Roads, PWD and District Administration.

IMPLEMENTATION STATUS:

The Chief Secretary, Government of Nagaland convened meeting on 27th November, 2017 with the concerned departments and briefed the importance of Action Plan to improve the Air Quality in Kohima and how each departments should work to improve the air quality. A series of meeting with the various departments have been convened to mitigate the air quality and work on the various objectives entrusted in the action plan to each department.

GRADED RESPONSE ACTION PLAN (GRAP) FOR KOHIMA CITY:

In pursuance to the Hon'ble Supreme Court order dated 2nd December, 2016 in the matter of M.C Metha Vs Union of India regarding air quality in Kohima city a Graded Response Action Plan (GRAP) has been prepared where a new category of "Severe Plus or Emergency" has been added to the present categories of Moderate, Poor, very poor and severe.

Based on the present level of air pollution and trends observed in last few years, the GRAP points given below have been incorporated in the Action Plan, which include:-

1. Regular cleaning of road dust and sprinkling of water on unpaved roads.
2. Strict vigilance and no tolerance for visible emissions, impounding or imposing heavy fine on plying of visible polluting vehicles.
3. Strict enforcement of PUC emission norms.
4. Deployment of traffic police for smooth traffic flow at identified vulnerable traffic cross section areas.
5. Strict enforcement of Hon'ble Supreme Court directions dt. 23.10.2018 on use of fire crackers.
6. Intensify public transport system with cleaner fuel.
7. Strict enforcement of ban on open burning of garbage, etc, covered movement of vehicles carrying solid waste, construction materials, etc.
8. Shut down and shifting of small polluting industries.

Action Plan for Control of Air Pollution in Non-Attainment city of Kohima

- | | |
|---|--|
| 1. Name of the city | : Kohima |
| 2. Air Pollution concerns | : Particulate matter (PM ₁₀) |
| 3. Air pollution levels: (provide range of 24-hourly average concentration values; annual average for past Eight years) | : Annexed as Annexure-1 |
| 4. Months with high air pollution levels | : January, February, March, November & December. |

ACTION PLAN FOR NON-ATTAINMENT TOWNS/CITIES WITH RESPECT TO AIR QUALITY MANAGEMENT IN KOHIMA CITY, NAGALAND.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
Vehicles	1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles.	Mid	On-going	Transport Department and Traffic Police	-	Trucks have been debarred from entering the main city roads during the day. Restriction on phasing out 15 years commercial diesel vehicles is under consideration.
	2. Introduction of cleaner fuels (CNG/LPG) for vehicles.	Mid	On-going	Transport Department & Oil Company.	-	Check on quality fuel is being done. No immediate plan for CNG/LPG.
	3. Regular checking of vehicular emission and issue of Pollution under Control Certificate (PUC).	Short	On-going	Transport Department & Traffic Police.	-	Pollution under Control Certificate (PUC) issued by Transport Department. Better monitoring of compliance needs to be increased imposing penalties so that it may act as deterrent to the careless/negligent automobile drivers/owners.
	4. Good traffic management including re-direction of traffic movement to avoid.	Mid	On-going	Traffic Police.	-	Frequent and regular traffic congestion and jam density are two most important reasons for air pollution load in the city. Traffic density and carrying capacity of the roads are required to be looked into with optimal transport network with effective movement of traffic and minimal traffic congestion with training of commercial vehicles/public transport drivers.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in `)	Remarks (any other)
						The traffic personnel are being trained regularly for better management along with youths engaged by the KMC in managing parking of vehicles.
	5. Ban on registration of Diesel driven auto-rickshaw/Tempo.	Short	-	Transport Department.	-	There are no auto-rickshaws in Kohima.
	6. Promotion of operationalization of E-rickshaw.	Mid	-	Transport Department.	-	There are no auto-rickshaws in Kohima.
	7. Development of multi-layer parking.	Long	3 years	KMC, UDD & District Adm.	25 crore	For approximately 60-70 parking lot.
	8. Retrofitting of particulate filters in diesel driven vehicle.	Mid	2 years	Transport Department.	-	The AQMC is considering recommendation to the concerned department for compulsorily retrofitting of particulate filters in all diesel vehicles within the next 2 years. Notice to be issued.
	9. Checking of fuel adulteration.	Short	On-going	District Adm, NPCB & Oil Company.	10 lakhs	Quality checks are carried out. Besides this NPCB shall purchase necessary instruments for testing fuel adulteration and setting up of laboratory.
	10. Monitoring on vehicle fitness.	Short	On-going	Transport Department & Traffic Police.	-	Pollution under Control Certificate (PUC) issued by Transport Department. Setting up of PUC mobile testing centers.
	11. Periodic calibration test of vehicular emission monitoring instrument.	Short	On-going	NPCB & Transport Department.	10 lakhs	For purchase of monitoring instruments by the NPCB.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
Road Dust	1. Regular cleaning of road dust.	Short	On-going	KMC	3 lakhs	Road dust is mainly due to bad road condition, traffic load, insufficient water spraying, etc. KMC proposes to clean the dust accumulated along the stretches from Lerie to High School junction.
	2. Water spraying on road through tankers.	Mid	On-going	KMC & PWD (R&B)	-	In the areas where there is road dust, water sprinkling is to be done regularly. No separate budget is allocated as the same is carried out as routine work when required.
	3. Widening of roads and improvement of infrastructure for decongestion of road.	Short	-	KMC and Traffic Police	-	The occupation of roads and footpaths by street vendors and building materials by the public hampers the traffic movement, all such hindrances to be removed by the KMC and traffic police immediately.
	4. Construction of pucca pavement along the roads.	Long	Flexible pavement improvement works started in November 2018. To be complemented in two years.	KMC and PWD (R&B)	95 crore	Bituminous flexible pavement provided along the road shoulders (Additional requirement).
	5. Tree plantation along the roads.	Long	July, 2021	Department of Environment, Forest & CC	225 lakhs	Planting of Fifty thousand seedlings (including casualty replacement) along with iron tree guard @ ₹450 per plant

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in `)	Remarks (any other)
	6. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies.	Long	-	Department of Environment, Forest & CC	-	There is not much scope for such intervention. However, all the Govt. departments as and where space is available tree plantation activities have to be carried out.
	7. Introduction of water fountains at major traffic intersection/ Golambar/Circle.	Long	2 years	KMC	30 lakhs	KMC will be the responsible agency for getting the installation of fountains at major traffic points, the KMC had suggested this locations: 1. Classic island. 2. High school junction. 3. New secretariat junction.
Construction activities	1. Covering of construction site.	Short	On-going	PWD (Housing) and KMC	-	It is in practice using bamboo lathe frames and green house cover. KMC to issue directions to all the concerned construction agencies and individuals for covering of construction sites.
	2. Transportation of construction material materials like sand, soil, stone chips etc in covered system.	Short	6 months	Transport Department, District Adm & Traffic Police.	-	Notification to this effect will be issued.
	3. Restriction on storage of construction materials along the road.	Short	Dec, 2019	KMC	1 lakh	Creating awareness in all 19 wards under KMC. Notice will be issued for strict compliance. At present, the C&D waste are being used for filling up in low lying areas.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
Biomass and garbage burning	1. Restriction on open burning of municipal solid waste, Biomass, plastic horticulture waste etc.	Short	Dec, 2019	KMC	1.5 lakhs	KMC had already issued Notification for banning open burning of garbage on 26 th April, 2019. More awareness activity is required to be created.
	2. Immediate lifting of solid wastes generated from desilting and cleaning of municipal drains for its disposal.	Short	Dec, 2019	KMC	20 lakhs	Lifting/clearance of un-segregated waste dump at Lerie Landfill, etc.
	3. Transportation of municipal solid wastes, construction materials and debris in covered system	Short	Dec, 2019	KMC	10 lakhs	For body fabrication of the existing KMC fleet/open trucks.
	4. Ensuring promotion & use of cleaner fuel for commercial purposes like local Dhaba/eateries	Long	1 year	District Adm & Oil Company.	-	Most of the eateries/Dhaba are using commercial LPGs. However, direction to this effect will be given for strict implementation of using only LPG as fuel.
	5. Reducing use of wood as domestic fuel and maximizing coverage of LPG for domestic and commercial cooking with target of 100% coverage.	Long	-	<ul style="list-style-type: none"> Dept of Environment, Forests & CC. Dept. of New and Renewable Energy. 	-	Under the Pradhan Mantri Ujjwala Yojana (PMUJ) it will try to reach out to all the households who use firewood as domestic fuel. Renewable energy options like solar energy to be looked into.
Industries	1. Ensuring installation and operation of air pollution control devices in industries	Short	Dec, 2019	NPCB	5 lakhs	For inventorization and monitoring of industries
	2. Ensuring emission standards in industries.	Short	Dec, 2019	NPCB	-	All industries causing Air, Water and Noise pollution shall be made compliant w.r.t. causing emission levels within the standards as are issued by NPCB. No separate budget is allocated as the same is carried out as routine work when required.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in `)	Remarks (any other)
	3. Adoption of cleaner technology in brick kilns	Mid	-	NPCB	-	There are no brick kilns in Kohima district
	4. Shifting of polluting industries.	Long	Dec, 2020	NPCB & Industry Department	-	No separate budget is allocated as the same is carried out as routine work when required.
	5. Ban on polluting industries.	Short	Dec, 2019	NPCB & Industry Department	-	No separate budget is allocated as the same is carried out as routine work when required.
Strengthening of AAQ monitoring	1. Installation of four CAAQMS at City Name A. Two CAAQMS stations under CSR funds of CPSU through Central Pollution Control Board at New Secretariat complex and PWD junction. B. Two CAAQM stations under State Govt. financial assistance	Mid	Dec, 2020	NPCB	1.2 crores	1. One CAAQMS financed by CPCB is in the process of installation at Kohima. 2. The second CAAQMS will be installed at PWD NH-29 junction for which budget is indicated.
	2. Installation of additional National Air Monitoring Programme (NAMP) stations at Kohima	-	-	NPCB	24.50 lakhs	Presently, there are 2 (two) NAMP stations in Kohima namely Below NST Office (609) and PWD junction (610). However, an additional 2 (two) more stations have been proposed to CPCB vide our latest letter no. NPCB/NAMP-K/2120-21 Dated 26.06.2019. Thus increasing the number of monitoring stations to 4 (four) for Kohima district to strengthen the air quality monitoring network. Sanction and approval from the CPCB still awaited.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
	3. Source apportionment study	Mid	Dec, 2020	NPCB	10 lakhs	So far no source apportionment study with respect to air pollution is the city has been conducted by the NPCB or any other agency. Therefore, the NPCB contemplates to carry out emission inventory on the basis of sources apportionment study and thereby, remedial measures will be implemented.
Public Awareness	1. Issue of advisory to public for prevention and control of air pollution	Short	Dec, 2019	NPCB & SDMA	10 lakhs	Advisories have been issued from time to time to the public for prevention and control of pollution. Same needs to be continued in future as well through mass awareness programmes using print and electronic media. NPCB proposes for financial assistance for creating awareness.
	2. Involvement of school and other academic institution in awareness program	Mid	Dec, 2019	NPCB	20 lakhs	NPCB conducts awareness programmes amongst the students through National Green Corps (NGC) registered Eco-clubs. NPCB proposes for financial assistance to conduct workshops and pamphlets, signage, etc through which the students can spread more awareness to the public.

Source group	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in `)	Remarks (any other)
Others	1. Compliance of guidelines on D.G. sets and action against violation.	Short	Dec, 2019	NPCB & KMC	5 lakhs	NPCB conducts the monitoring/inspection of DG set as and when required. However, budget provisions for NPCB to carry out inventory and monitoring of DG sets is required.
	2. Help line to oversee non compliances on aforesaid issues.	Short	Dec, 2019	NPCB & KMC	-	NPCB had already created a helpline for public complaint in the NPCB website. www.npcb.nagaland.gov.in
	GRAND TOTAL AMOUNT				125.05 Crore	

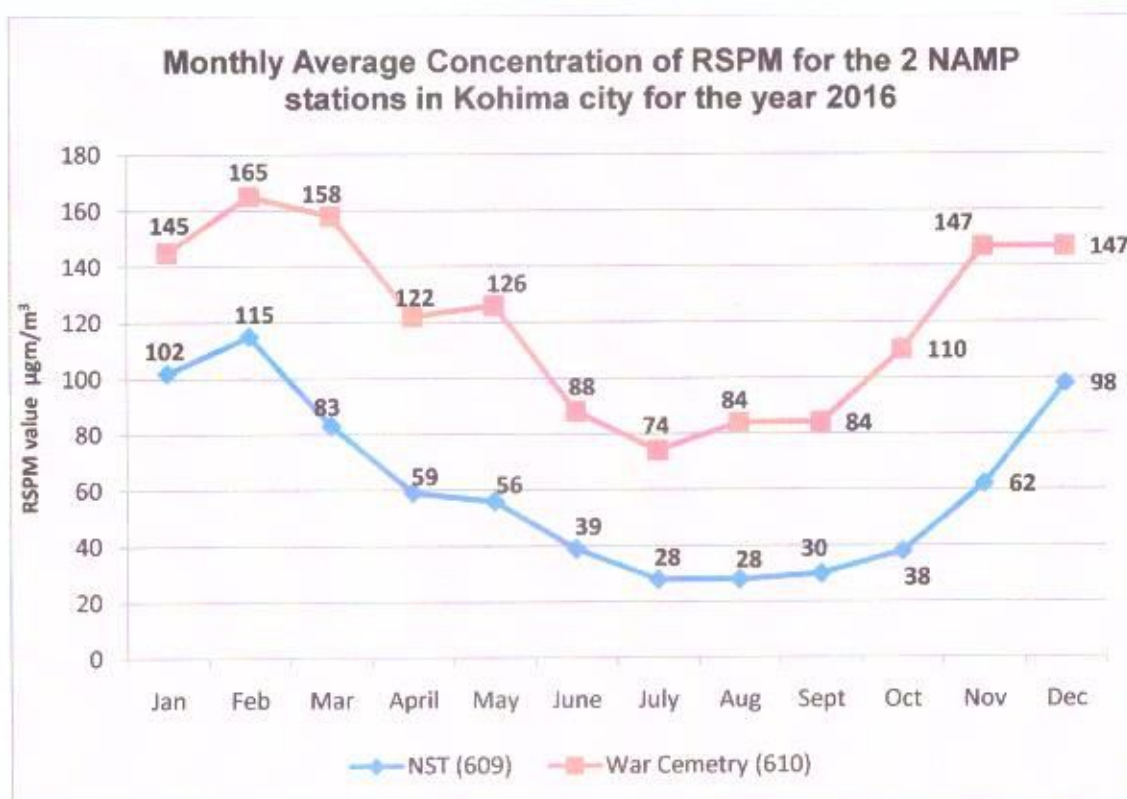
(Rupees One Hundred Twenty Five Crores Five Lakhs only)

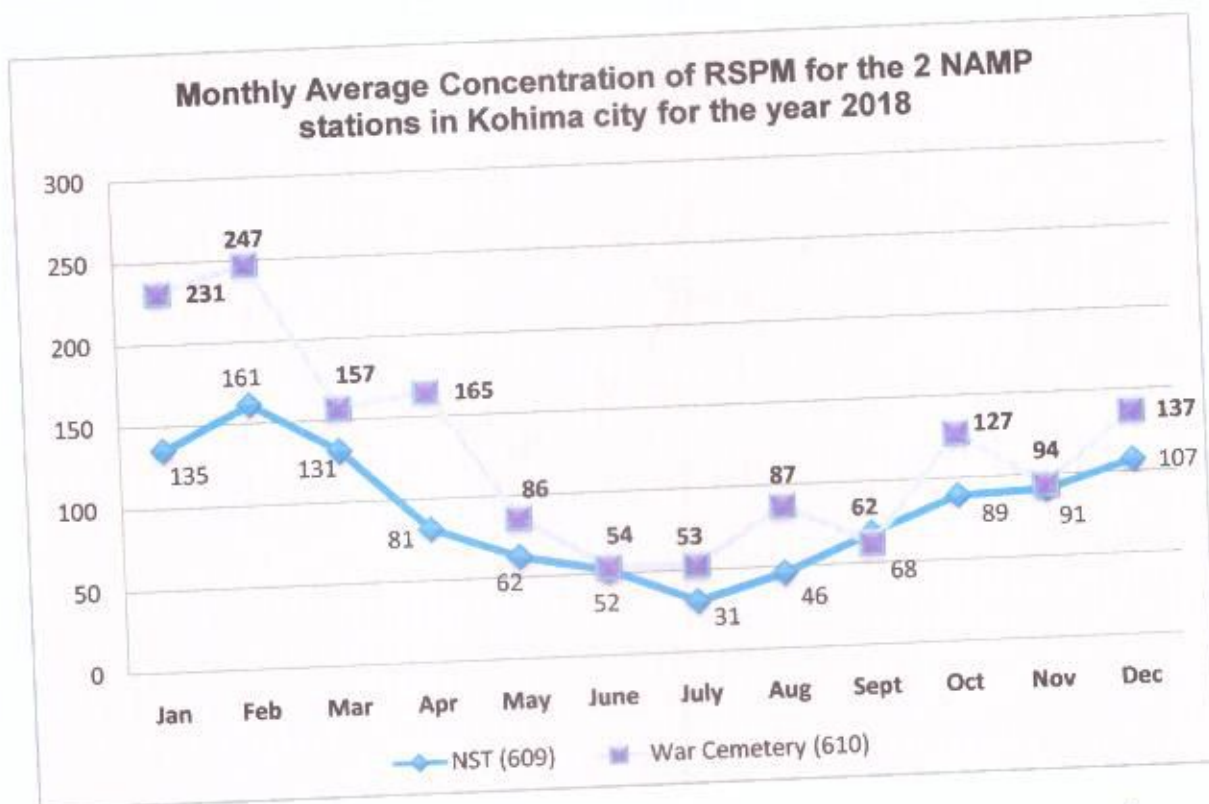
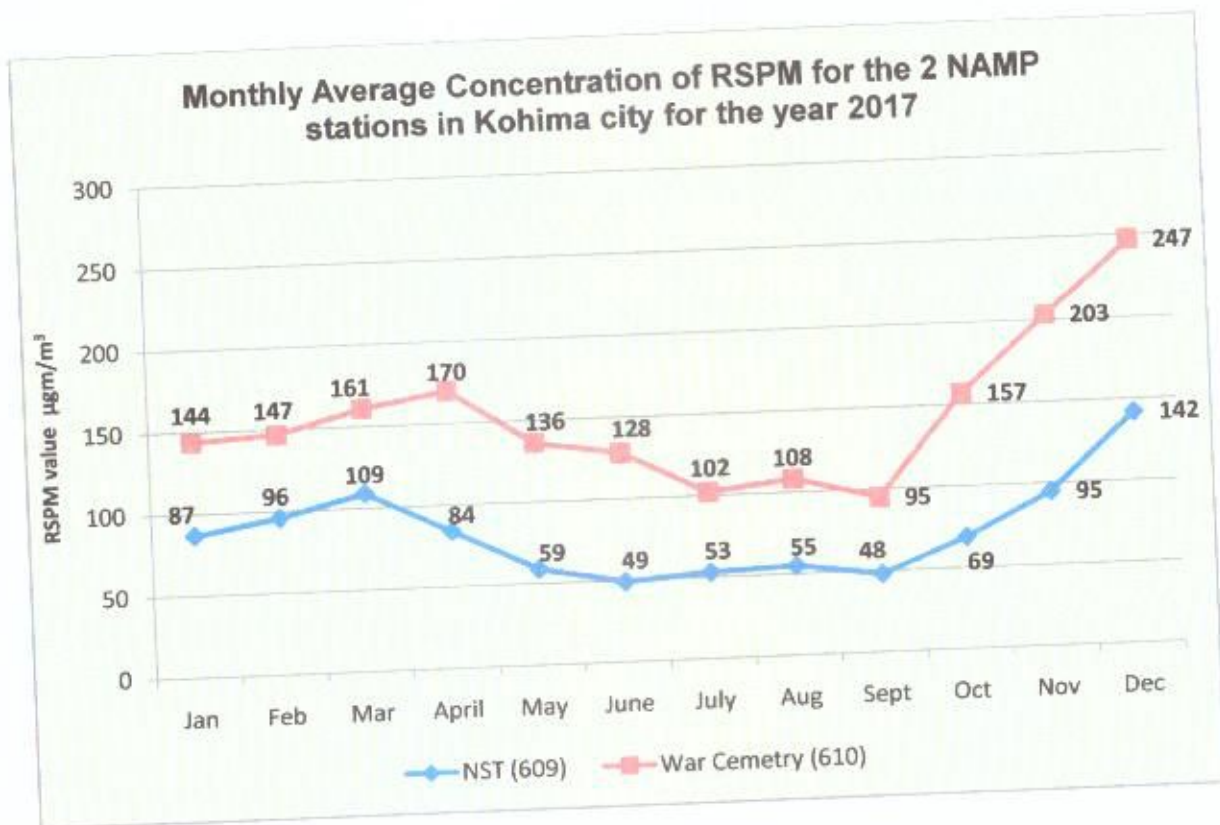

 Member Secretary
 Air Quality Monitoring Committee

STATUS OF AMBIENT AIR QUALITY OF KOHIMA CITY:

Annual Average Concentration of Particulate Matter (RSPM) in Kohima city for the past 8 years i.e. from 2011 to 2018:

Years	NAMP stations		Kohima (Average)	Standards for Residential, Rural and other Areas
	Opp. NST office (609)	Opp. War Cemetery (610)		
2011	62	92	77	60 $\mu\text{g}/\text{m}^3$ (Annual)
2012	63	100	82	
2013	66	104	85	
2014	71	113	92	
2015	71	119	95	
2016	62	121	92	
2017	79	150	115	
2018	88	125	107	






Member Secretary
Air Quality Monitoring Committee

A-2

DEPARTMENT OF ENVIRONMENT, FORESTS & CLIMATE CHANGE
NAGALAND : : KOHIMA

NOTIFICATION

Dated Kohima the 05th February, 2019.

FOR/NPCB-27/6/18: In partial modification to this office notification dated 28.01.2019 the Governor of Nagaland is pleased to constitute "**Air Quality Monitoring Committee**" (AQMC) which will approve the **Action Plan** to improve the air quality of Kohima and Dimapur City which are found to be above the permissible limit and placed under "non-attainment city" by the Government of India with the following members with immediate effect.

- | | |
|---|--------------------|
| 1. APCCF (Environment & Climate Change) | - Member |
| 2. Commissioner, Transport Department. | - Member |
| 3. Director, Urban Development, Department. | - Member |
| 4. Director, Industries Department. | - Member |
| 5. Director, Agriculture Department. | - Member |
| 6. Chief Engineer (Road & Bridges) | - Member |
| ✓ Member Secretary, NPCB | - Member Secretary |

The Committee shall function under the overall supervision and coordination of the Principal Secretary, Environment, Forest & Climate Change Department and shall be further supervised by the Chief Secretary, Nagaland.

Sd/- LHOUBELATUO KIRE


Principal Secretary to the Government of Nagaland

Dated Kohima 05th February, 2019.

FOR/NPCB-27/6/18/30

Copy to:-

1. Principal Secretary to the Governor, Nagaland, for information.
2. Principal Secretary to Chief Minister, Nagaland, for information.
3. The PPS to the Hon'ble Minister, Environment, Forests & Climate Change, Nagaland, Kohima.
4. The OSD to the Chief Secretary, Nagaland, Kohima.
5. All Members
6. Smti. K Enatoli Sema, Advocate on Record & Standing Counsel for the State of Nagaland, Supreme Court of India, H/No-60, High Court Colony, HG-03, Sector 105, Noida-201301. UP
7. Office Copy.


01/02/19
(MOALILA)

Under Secretary to the Government of Nagaland