

**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.

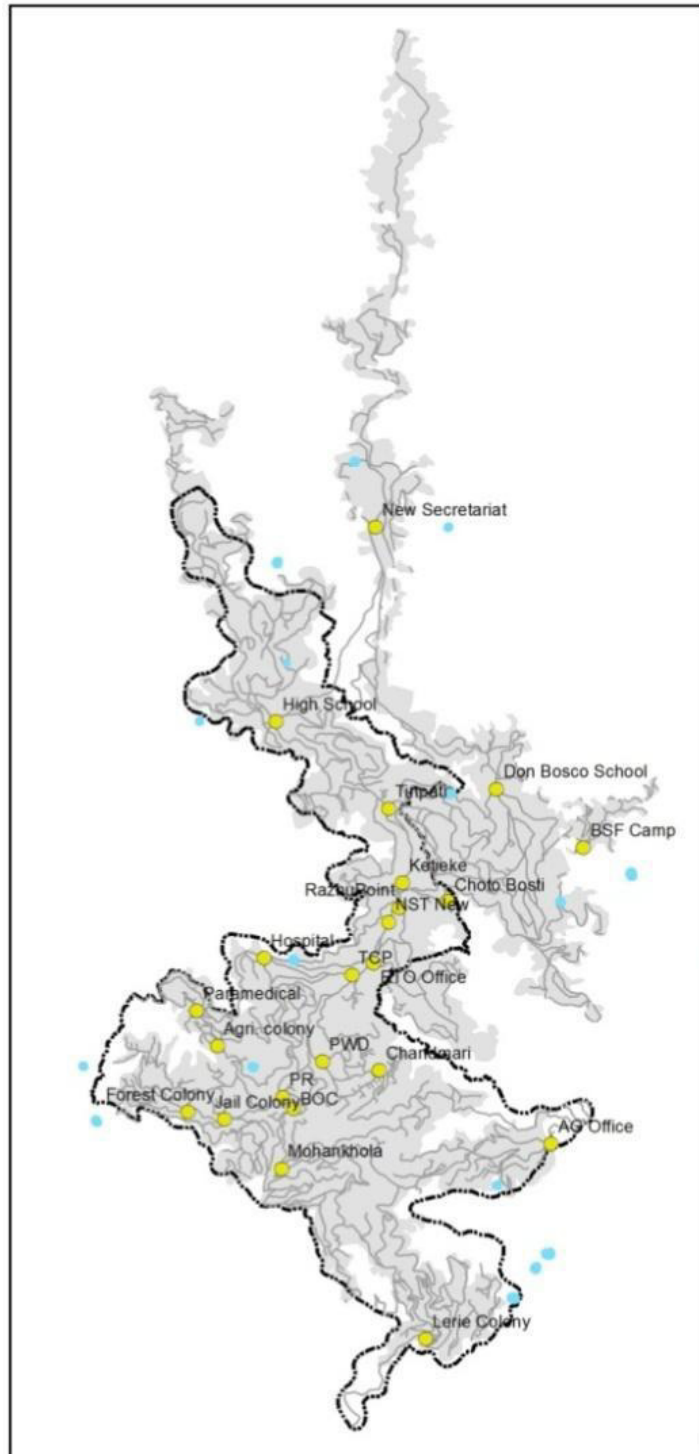
**ANNEXURE 2:** NOTIFICATION OF AIR QUALITY MONITORING COMMITTEE.

# 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 (NO<sub>2</sub>), Sulphur dioxide (SO<sub>2</sub>) and Respirable Suspended Particulate Matter (RSPM). The monitoring of pollutants is carried out for 24 hours (4 hourly sampling for gaseous pollutants (NO<sub>2</sub> & SO<sub>2</sub>) and 8 hourly sampling for particulate matter (RSPM) twice in a week.

The gaseous pollutants i.e. Nitrogen dioxide (NO<sub>2</sub>) and Sulphur dioxide (SO<sub>2</sub>) 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 27<sup>th</sup> 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 2<sup>nd</sup> 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<sub>10</sub>)
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.**

	Action	Implementat ion period (Short/Mid/ Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
<b>Source group</b>	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.
<b>Vehicles</b>	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.
	4. Good traffic management including re-direction of traffic movement to avoid.	Mid	On-going	Traffic Police.	-	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.	-	Notice to be issued.

	Action	Implementat ion period (Short/Mid/ Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
	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.
	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.
<b>Road Dust</b>	1. Regular cleaning of road dust.	Short	On-going	KMC	3 lakhs	Stretches from Lerie to High School junction.
	2. Water spraying on road through tankers.	Mid	On-going	KMC & PWD (R&B)	-	No separate budget is allocated as the same is carried out as routine work when required.
	3. 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).
	4. Tree plantation along the roads.	Long	July, 2021	Department of Environment and Forest	225 lakhs	Planting of Fifty thousand seedlings (including casualty replacement) along with iron tree guard @ ₹450 per plant
	5. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies.	Long	-	Department of Environment and Forest	-	There is not much scope for such intervention.

	Action	Implementat ion period (Short/Mid/ Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
	6. Introduction of water fountains at major traffic intersection/ Golambar/ Circle.	Long	2 years	KMC	30 lakhs	Suggested locations: 1. Classic island. 2. High school junction. 3. New secretariat junction.
<b>Constructi on activities</b>	1. Covering of construction site.	Short	On-going	PWD (Housing) and KMC	-	It is in practice using bamboo lathe frames and green house cover.
	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.
<b>Biomass and garbage burning</b>	1. Restriction on open burning of municipal solid waste, Biomass, plastic horticulture waste etc.	Short	Dec, 2019	KMC	1.5 lakhs	Awareness creation. Notification issued already on 26.04.2019
	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.	-	Direction to this effect will be given.
<b>Industries</b>	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	-	No separate budget is allocated as the same is carried out as routine work when required.
	3. Adoption of cleaner technology in brick kilns	Mid	-	NPCB	-	There are no brick kilns in Kohima district

	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
	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.
<b>Strengthening of AAQ monitoring</b>	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.
	3. Source apportionment study	Mid	Dec, 2020	NPCB	10 lakhs	The source of air pollution shall be studied and remedial measures will be implemented.
<b>Public Awareness</b>	1. Issue of advisory to public for prevention and control of air pollution	Short	Dec, 2019	NPCB & SDMA	5 lakhs	To be done by NPCB for creating awareness.
	2. Involvement of school and other academic institution in awareness program	Mid	Dec, 2019	NPCB	10 lakhs	To conduct workshops and pamphlets, signage, etc through which the students can spread awareness to the public.
<b>Others</b>	1. Compliance of guidelines on D.G. sets and action against violation.	Short	Dec, 2019	NPCB & KMC	5 lakhs	Budget provisions for NPCB to carry out inventory and monitoring of DG sets.

	Action	Implementation period (Short/Mid/Long term)	Time target for Implementation	Responsible Agency(ies)	Budget (in ₹)	Remarks (any other)
	2. Help line to oversee non compliances on aforesaid issues.	Short	Dec, 2019	NPCB & KMC	-	NPCB had already created a helpline public complaint in NPCB website. <a href="http://www.npcb.nagaland.in">www.npcb.nagaland.in</a>
	<b>GRAND TOTAL AMOUNT</b>				<b>124.655 Crore</b>	

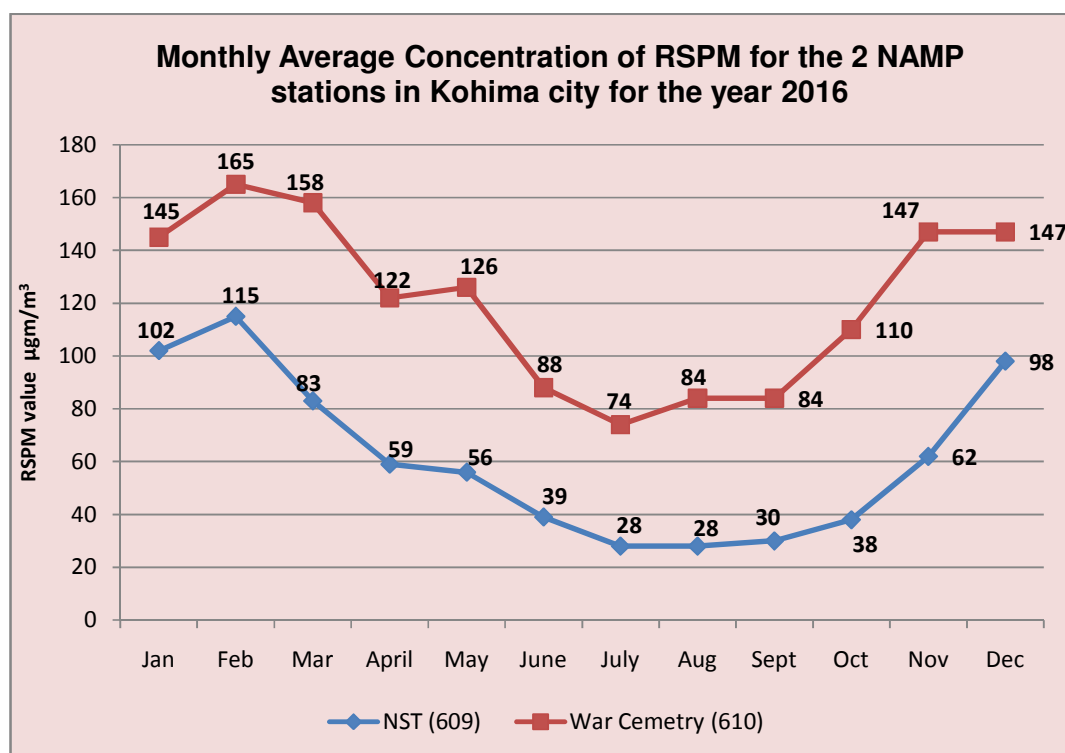
*(Rupees One Hundred Twenty Four Crores Sixty Five Lakhs Fifty Thousand only)*

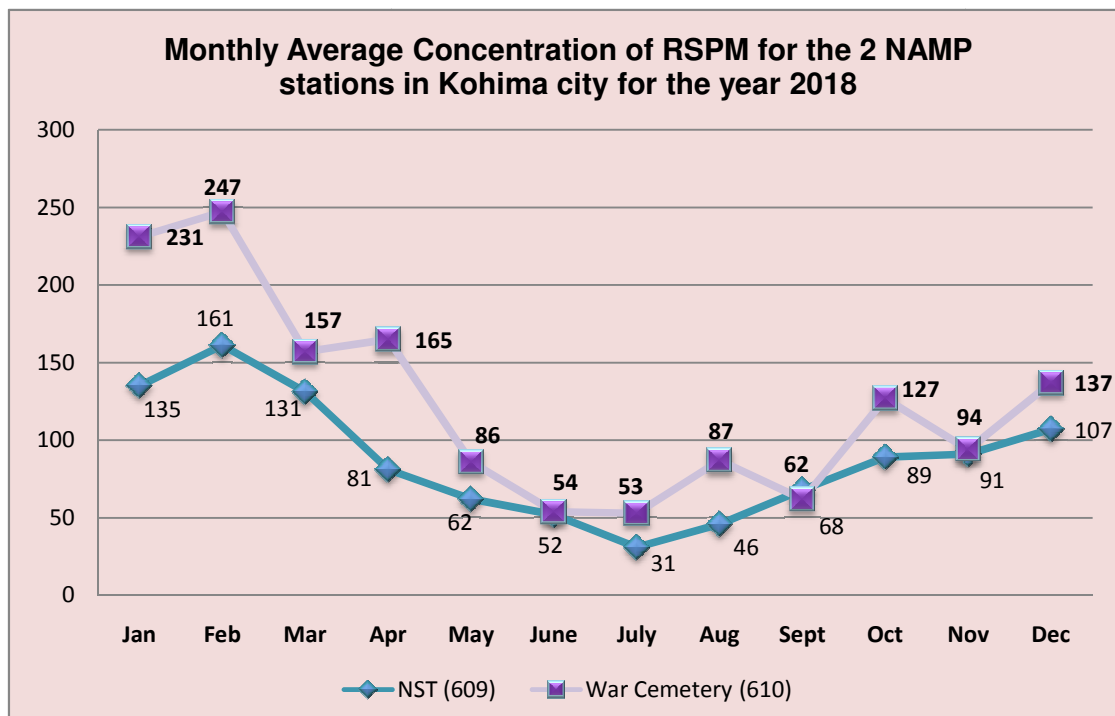
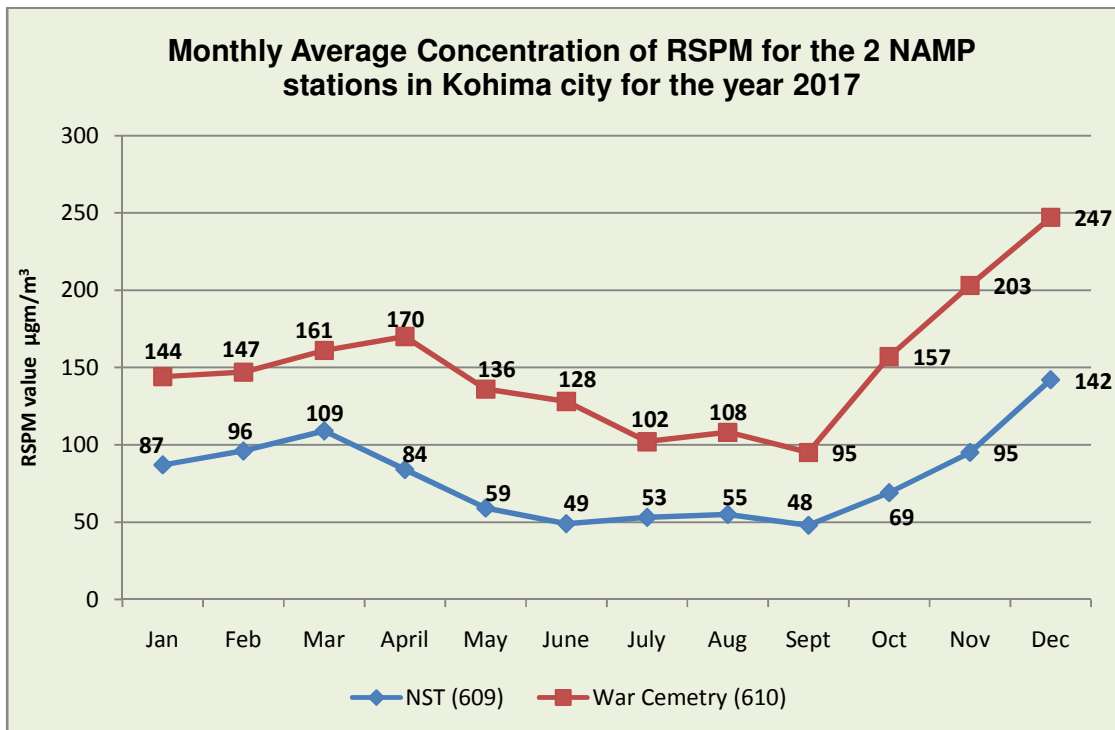
  
 Member Secretary  
 Air Quality Monitoring Committee

### 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	





  
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