

**ACTION PLAN FOR CONTROL OF AIR POLLUTION
IN NON-ATTAINMENT CITY OF BIHAR
(Muzaffarpur)**



BY

**BIHAR STATE POLLUTION CONTROL BOARD
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Action Plan for Control of Air Pollution in Non-Attainment City of Bihar (Muzaffarpur)

Preamble:

Muzaffarpur, the Head Quarters of Tirhut division and Muzaffarpur district, is situated on the banks of the perennial Burhi Gandak at 26°07'N latitude & 85°24'E longitude and about 60m above sea level. It is spread over an area of 93 Sq km and has a population of 3,93,724 (Urban Agglomerations) as per census 2011. The Muzaffarpur agglomeration includes Muzaffarpur Municipal Corporation Area, Damodarpur, Dumari, Manjhauli, Ahiyapur etc. Total no. of vehicles registered as on October, 2018 in Muzaffarpur District with Transport Department is 7,40,059 (Truck: 31900, Bus: 7033, Car: 34,398, Taxi: 17770, Jeep: 11764, Three Wheeler: 24557, Two Wheeler: 578297, Tractor: 267779, Trailer: 6932 and others: 1393).





The major sources of air pollution in Muzaffarpur are road dust, vehicular emission, domestic fuel burning, open waste burning, construction activities, industrial emissions etc. Bihar State Pollution Control is regularly monitoring the ambient air quality at Muzaffarpur through Continuous Ambient Air Quality Monitoring Station (CAAQMS) installed at Collectorate Campus, Muzaffarpur.

Particulate Matter (PM_{10} & $PM_{2.5}$) has been identified as main air pollutant as it is found above the prescribed national standards. This is mainly due to re-suspension of road dust, emission from vehicles, D.G. sets, construction activities, burning of domestic fossil fuels, open burning of solid wastes, transportation of construction materials such as sand, soil etc. without covering and emission from brick kilns located around Muzaffarpur. Sometimes, NO_2 also has been observed an alarming level. This is mainly due to vehicular emissions. Plying of old vehicles and traffic congestion causes higher level of NO_2 . It has been observed that air quality of Muzaffarpur during winter season becomes very poor & severe due to condensation of fine particulate matter in the lower portions of the atmosphere.

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

1.	Name of the city	:	Muzaffarpur
2.	Air Pollution concerns	:	PM_{10} , $PM_{2.5}$, NO_2
3.	Air pollution levels: (provide range of 24-houly average concentration values; annual average for past five years; No. days in various AQI categories)	:	Annexed as Annexure-1
4.	Months with high air pollution levels	:	January, February, November & December.

Sl. No	Sector	Action points	Technology/Infra structure requirement (TR/IR)/ Methods (M)/ Outcome (OC)	Implementation period (Short – 6 months, Med- <2 yrs.), long – (>2 yrs.)	Implementation agency	Time Target for Implementation
1	Transportation	Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles.	OC- Reduction In black carbon emissions M- Policy reforms	Medium	Transport Department	December 2019
		Complete ban on 2-stroke autos and replacing them with CNG based vehicle or EV	TR—E-rickshaws	Medium-Long	Transport Dept. Govt. of Bihar	December-2022
			OC—Reduction of emission load from autos			
			TR—CNG based autos			
		PUC check (every 6 months) and	OC—With better PUC infrastructure and strict pollution norms emission from private and public vehicle will decrease	Medium	Transport Dept. Govt. of Bihar	December-2020
		Better PUC check infrastructure and management (Hon'ble Supreme court of India in W.P.(C) no 13029/1985 that pollution testing centres should be set up with in premises of all petrol pumps)				
		Incentivising the use of cleaner fuels - electric vehicle and (CNG/LPG) for private vehicles	TR—Proper infrastructure to increase the adoption rate of cleaner fuels OC—Reduction of emission load from private vehicles which switched to Electric/CNG/LPG based vehicle from Petrol/Diesel based vehicles	Medium	Transport Dept. Govt. of Bihar	December-2021
		Installation of Diesel Particulate Filter (DPF) in all the diesel vehicles	M—Installing DPF filters to existing diesel vehicles OC—Reduction of emission load from diesel vehicles	Medium		December-2020
		Good traffic management including re-direction of traffic movement to avoid	OC- Reduction in Emission due non congestion	Medium	Traffic police	December 2020

		congestion.	M- Policy intervention			
		Demarcated lanes for E rickshaw's plying for public commuting	OC- Reduction in Emission due non congestion M- Policy Intervention	Short	Traffic police	Immediate
		Development of Multi level parking	OC- Traffic congestion reduction, road encroachment reduction, emission reduction M- Land space demarcation around public transportation hotspots	Long	Muzaffarpur Municipal Corporation	December 2023
		Monitoring of Vehicle fitness	OC- Reduction in emission M- Audit systems	Short	Transport & Traffic dept.	June 2019
		Checking on fuel adulteration	OC- Reduction in emission M- Audit systems	Short	District Administration & Oil companies	April 2019
		Periodic calibration test of vehicular emission monitoring instrument.	OC- Reduction in emission M- Audit systems	Short	BSPCB & Transport	April 2019
		Launch drive against any vehicle with visible smoke coming out of it and ensure strict compliances	OC—Reduction in peak hour traffic will facilitate faster vehicle movement and reduce tail- pipe emission	Short	Traffic police	April 2019
		Complete ban of carriage transport, heavy vehicles, during peak hours (8:00 - 11:00 am & 5:00 - 8 pm). (Arranging alternate routes to all carriage transports between)		Short		
2	Industry	Adapting new technologies for Brick kilns	Adapting Cleaner technology	Medium	Bihar State Pollution Control Board (BSPCB) Dept. of Industries (Bihar)	December 2019
		Random auditing for 1) Air pollution measures 2) Online reporting systems in the industries	Setting up of policies and Institutions that 1) Conduct Random auditing for air pollution control measures	Medium		December 2019

			2) Prevents opening up of new industries that fall under Red Category and Orange Category.			
		Introduction and shifting towards cleaner fuels in metal fabrication and food processing industries	TR—Feasible technologies—that support cleaner fuel OC—Reduction in emission load from industries	Medium		December 2019
		Ban on Polluting Industries	TR- Regulatory requirements	Short		June 2019
3	Biomass & Garbage Burning	Check Stubble burning	OC- Reduction in emission from stubble burnings M- Regulatory as well as Awareness Sensitization	Medium	Dept. Of Agriculture District Administration	December 2020
		Identify Garbage burning locations and strict enforcement of NGT (2016) rules regarding prohibition of garbage burning	OC—Reduction in emission load from garbage burning OC—Reduction in emission load from SWM	Short	MMC	Immediate
		1) Installing new waste composting plants at city level and/or increase the capacity of existing composting plants 2) Recycling centers for dry waste	M—Composting plants OC—Composting waste/garbage will reduce the emission load from garbage burning.	Medium	MMC	December 2019
4	Domestic	Increasing the LPG connections in low income strata. To mandate LPG/Bio gas in commercial eateries.	M—Increase in LPG connection OC—Reduction in emission load	Medium	Food And Civil Supplies Department	December 2020
		Introduction of improved chullahs (low emission chullahs)	1) Identifying areas for using chullahs 2) Procuring the chullahs OC—Reduction in indoor emission load	Medium	Food And Civil Supplies Department	December 2020
		Ensuring uninterrupted electric supply with in the city.	OC—Reduction in total emission load from kerosene lamps	Medium	South Bihar Power Distribution Company Limited	December 2019

		Ensure easy availability of affordable cleaner cooking fuels (LPG in urban areas & biogas in rural areas)	M—Improvement in LPG/Bio gas infrastructure	Medium	Food & Civil supplies Dept.	December 2020
5	Construction & Demolition	Construction materials should be transported in covered vehicles	OC—Reduction in emission load from dust	Short	Traffic Police & Muzaffarpur District Administration	Immediate
		To mandate facility of tar road inside the construction site for movement of vehicles carrying construction material	OC—Reduction in emission load from dust	Medium	Muzaffarpur Municipal Corporation (MMC)	December 2019
		Promotion of the use of prefabricated blocks for building construction	OC—Reduction in emission load from dust	Long		December 2020
		Strict enforcement of CPCB guidelines for construction (use of green screens, side covering of digging sites, etc.)	OC—Reduction in emission load from dust	Short	BSPCB	Immediate
		Restriction on storage of construction materials along the road.	OC- reduction in road dust	Short	MMC	Immediate
6	Road Dust	To take appropriate action to remove road dust/silt regularly by using mechanical sweepers	Mechanical sweeping 1) Identifying the road stretch with high silt content 2) Procuring the mechanical sweepers OC—Reduction in resuspension of dust	Short	MMC	Immediate
		Having end to end pavement	OC – reduction of silt and rust on road	Medium	MMC	Immediate
		Creating green buffer along the roads.	OC – reduction of silt and rust on road	Medium	MMC	Immediate
7	Power Plant	Strict enforcement of CPCB emission rules	OC- Reduction in Emissions	Medium	BSPCB	December 2019

8	Strengthening of AAQ monitoring	Installation of four CAAQMS at Muzaffarpur a. Two CAAQM stations under CSR funds of CPSU through CPCB at Eco-Park. b. Two CAAQM stations under State Govt. financial assistance.	OC- Proper monitoring and measurement of sectorial contributions with primary baseline surveys to update the emissions inventory.	Short	BSPCB	June 2019
		Source apportionment study (Dispersion +Receptor) Modelling	OC- identification of pollutants	Medium	BSPCB	December 2019
9	Public Awareness	Issue of advisory to public for prevention and control of air pollution	OC- Awareness and better implementation of policy	Short	BSPCB & Dept. of Environment, forest & Climate Change	Immediate
		Launch public awareness programme campaign to control air pollution	OC—Through awareness, public participation for air pollution reduction will increase	Short	BSPCB GMC & Dept. of Environment, forest & Climate Change	Immediate
10	Others	Compliance of guidelines on D.G. sets and action against violation	OC- Reduction in Black carbon TR- DPF (Diesel Particulate Filters installation)	Short	BSPCB & GMC	Immediate
		Help line to oversee non compliances on aforesaid issues.	OC- Awareness and better implementation of policy	Short	BSPCB & GMC	Immediate
		Hospital incinerators for bio-medical incineration	OC—Reduction in bio-hazardous materials being dumped in to the landfill	Short	BSPCB GMC Dept. of Health (Govt. of Bihar)	Immediate
		City wise cap on coal use	OC—Reduction in coal consumption will reduce the emission load	Medium	BSPCB Food And Civil Supplies Department	December 2019
		Polluter pay principle	OC—Will act as a deterrent against polluters	Medium	BSPCB	December 2019
		Transportation of municipal solid wastes, construction materials and debris in covered system.	OC- Minimization in road dust TR- Monitoring of Implementation	Short	GMC	Immediate

		Immediate lifting of solid wastes generated from de-silting and cleaning of municipal drains for its disposal.	OC- Minimization of Road dust TR- Monitoring of Implementation	Short	GMC	April 2019
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1. **Monitoring mechanism for implementation:** The aforesaid action plan shall be implemented by Bihar State Pollution Control Board with co-ordination of Department of Environment and Forest, Govt. of Bihar, Urban Development & Housing Department, Govt. of Bihar, Transport Department, Muzaffarpur Municipal Corporation, Traffic Police and District Administration. Bihar State Pollution Control Board shall regularly review the implementation of aforesaid action plan.
2. **Public Awareness and Grievance Redressal:** A multifaceted awareness campaign is scheduled where in not just to create sensitization but create some agents of change among all sections of society. Set up an anti-Pollution Help-Line in Muzzafarpur region to register complaints of specific violations. A pollution app at crowd sourcing platform is in the phase to be prepared wherein citizens can take a picture of the violation and upload it for quick remedial action. In addition, efforts are also being made through various camps, trainings and workshops, apart from campaigns through various print media, televised shows and radio jingles, in informing the air pollution as a hazard and adhering to the standard measures as a citizen. Gathering information to build an Emissions Inventory is an essential input for forecasting air quality in a given area. While static emission sources like industries, brick kilns etc. are captured easily, the challenge lies in capturing information such as waste-burning, accidental fires, other events that throw up clouds of dust and any such type of events. One possible solution to this problem is to use crowd-sourced information where unknown individuals will be able to report as well as verify air pollution events that are random in nature. The challenge is to make sure that complete information about the event is captured as well as establish the veracity of the information being received. This will act as source of public awareness and simultaneously social media can used as a potential tool for the same.
3. **Advisory:** BSPCB along with other stakeholders like Muzzafarpur District Administration BSDMA, Dept. Of Health will be sending out advisory for citizen's preparedness. Use of media and social media for creating wide dissemination will be catered through these advisory. A statutory advisory is attached in the annexure II.
4. **Source Apportionment & Emissions Inventory Survey:** To monitor the air pollution, Muzzafarpur has 1 Continuous Air Monitoring Station (CAMS) reporting data for all the criteria pollutants, one manual stations reporting data on PM2.5, PM10, SO2, and NO2 .However the data acquired by CAMS installed at Muzzafarpur Collectorate is insufficient to find the sectorial and per capita emission load. There should be at least 12 CAMS in the city for efficient reporting. However, emission inventory survey can be used to supplement the

data to calculate the emission load and BSPCB is planning to conduct the emissions inventory survey.

5. **Convergence with Graded Response Action Plan:** 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 has been formulated for Muzzafarpur as hereunder:-

Severe + or Emergency (ambient PM_{2.5} or PM₁₀ concentration values of 300µg/m³ or 500µg/m³ respectively persist for 48 hours or more)	Implementing Agency
Stop entry of truck traffic into Muzzafarpur (except essential commodities).	Muzzafarpur Municipal Corporation (PMC) and Traffic Police, Muzzafarpur Town.
Stop construction activities.	Muzzafarpur Municipal Corporation, Building Construction Department, Govt. of Bihar, Road Construction Department, Govt. of Bihar, Bihar Rajya Pul Nirman Nigam (BRPNN) and Bihar State Pollution Control Board.
Introduce odd and even scheme for private vehicles based on license plate numbers and minimize exemptions.	Transport Commissioner, Transport Department, Gov. of Bihar, District Transport Officer, Muzzafarpur and District Magistrate, Muzzafarpur.
Task Force to take decision on any additional steps including shutting of schools	District Magistrate, Muzzafarpur
Severe (ambient PM_{2.5} or PM₁₀ concentration value is more than 250 µg/m³ or 430 µg/m³ respectively)	Implementing Agency
Intensify public transport services. Introduce differential rates to encourage off-peak travel.	Transport Commissioner, Transport Department, Gov. of Bihar, District Transport Officer, Muzzafarpur and District Magistrate, Muzzafarpur.
Close brick kilns, hot mix plants, stone crushers.	Bihar State Pollution Control Board, Mining Department, Govt. of Bihar.
Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	Muzzafarpur Municipal Corporation, Public Works Department, Govt. of Bihar, Road Construction Department, Govt. of Bihar and National Highway Authority of India.
Very Poor (ambient PM_{2.5} or PM₁₀ concentration value is between 121-250 µg/m³ or 351-430 µg/m³ respectively)	Implementing Agency
Stop use of diesel generator sets.	Bihar State Pollution Control Board, District Administration, Muzzafarpur, Muzzafarpur Municipal Corporation,

	Muzzafarpur.
Enhance parking fee by 3-4 times.	Muzzafarpur Municipal Corporation, Muzzafarpur.
Increase public transport bus services by augmenting contract buses and increasing frequency of service.	Transport Department, Gov. of Bihar, District Transport Officer, Muzzafarpur, District Administration, Muzzafarpur.
Stop use of coal/fire wood in hotels and open eateries.	Muzzafarpur Municipal Corporation, Muzzafarpur.
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 advise people with respiratory and cardiac patients to avoid polluted areas and restrict outdoor movement.	Bihar State Pollution Control Board.
Moderate to poor(ambient PM2.5 or PM10 concentration value is between 61-120 µg/m3 or 101-350 µg/m3 respectively)	Implementing Agency
Stringently enforce/stop garbage burning in landfills and other places and impose heavy fines on person responsible.	Muzzafarpur Municipal corporation, Muzzafarpur.
Close/stringently enforce all pollution control regulations in brick kilns and industries.	Bihar State Pollution Control Board.
Do periodic mechanized sweeping on roads with heavy traffic and water sprinkling also on unpaved roads every two days.	Muzzafarpur Municipal corporations, Muzzafarpur
	Traffic Police, Muzzafarpur to identify roads with heavy traffic and provide information to Municipal Commissioner, Muzzafarpur.
	In-charge, PWD, Govt. of Bihar, Muzzafarpur region to identify unpaved roads with heavy traffic and provide information to Municipal Commissioner, Muzzafarpur.
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, Muzzafarpur.
Strict vigilance and enforcement of PUC norms.	
Stringently enforce rules for dust control in construction activities and close non-compliant sites.	Muzzafarpur Municipal Corporation, Muzzafarpur, Building Construction Department, Govt. of Bihar and Road Construction Department, Govt. of Bihar.
Deploy traffic police for smooth traffic flow at identified vulnerable areas.	Traffic Police, Muzzafarpur
Strictly enforce Supreme Court ban on firecrackers.	Chief Controller of Explosives, Petroleum and Explosive Safety Organizations (PESO) and District

	Administration, Muzzafarpur.
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.	Bihar State Pollution Control Board, Department of Environment and Forest, Govt. of Bihar.

Annexure-1

Status of Ambient Air Quality at Collectorate Campus Muzaffarpur

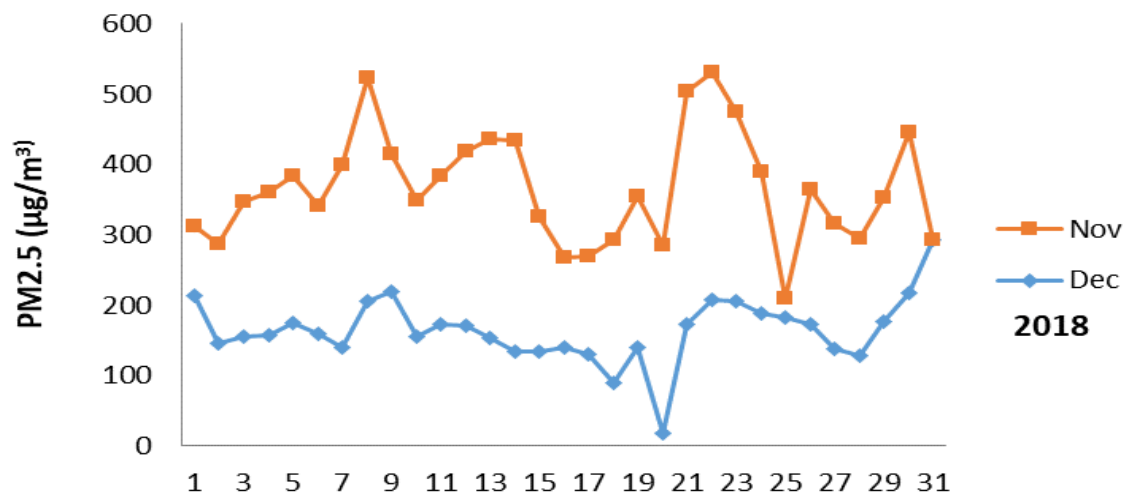
SI. No	PARAMETERS	Annual Average Concentration					Standards for residential, Rural and other Areas
		2013	2014	2015	2016	2017	
1.	PM ₁₀	172.63 µg/m ³	179.19 g/m ³	156.0 µg/m ³	--	--	60 µg/m ³ Annual
2.	PM _{2.5}	-----	----	189.5µg/m ³	110.61µg/m ³	99.17 µg/m ³	40 µg/m ³ Annual
3.	CO	0.93 mg/m ³	2.14 mg/m ³	1.31 mg/m ³	1.46 mg/m ³	1.15mg/m ³	02 mg/m ³ 8 hours 04 mg/m ³ 1 hour
4.	O ₃	40.10 µg/m ³	47.11 µg/m ³	42.67 µg/m ³	25.80 µg/m ³	18.29µg/m ³	100 µg/m ³ 8 hours 180 µg/m ³ 1 hour
5.	SO ₂	7.67 µg/m ³	12.18 µg/m ³	9.23 µg/m ³	11.08 µg/m ³	10.80µg/m ³	50 µg/m ³ Annual
6.	NO ₂	21.62 µg/m ³	28.37 µg/m ³	31.25 µg/m ³	29.61 µg/m ³	42.64 µg/m ³	40 µg/m ³ Annual
7.	Benzene	1.54 µg/m ³	1.28 µg/m ³	1.48 µg/m ³	0.58 µg/m ³	0.25 µg/m ³	05 µg/m ³ Annual

Status of Ambient Air Quality of Collectorate, Muzaffarpur 2016 & 2017													
Main pollutants													
SI No.	Month	CO in mg/m ³		SO ₂ in µg/m ³		NO ₂ in µg/m ³		O ₃ in µg/m ³		PM 2.5 in µg/m ³		Benzene in µg/m ³	
		Avg		Avg		Avg		Avg		Avg		Avg	
		2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
1	January	1.81	1.84	20.1	9.6	5.5	59.8	41.4	16.6	294.2	190.0	1.69	0.45
2	February	1.55	1.49	16.9	20.1	5.0	59.3	35.0	6.8	179.1	155.3	1.00	0.07
3	March	1.27	1.18	11.2	12.7	24.5	44.9	39.8	20.8	101.8	99.3	0.52	0.07
4	April	1.33	1.18	5.2	9.1	30.6	48.5	29.1	35.4	66.9	60.8	0.44	0.06
5	May	1.27	1.19	10.3	8.8	7.3	35.2	30.8	26.0	34.3	47.7	0.33	0.16
6	June	1.27	0.88	13.3	9.2	20.9	31.1	9.0	11.8	24.8	41.2	0.29	0.19
7	July	1.41	1.06	6.4	7.0	39.8	27.2	14.0	8.2	18.6	21.9	0.24	0.10
8	August	0.80	0.62	5.3	7.2	33.0	29.4	24.0	18.4	30.3	29.2	0.22	0.06
9	September	1.16	0.74	7.1	8.8	27.3	31.8	18.4	18.2	29.2	48.4	0.26	0.35
10	October	1.73	0.96	11.5	10.0	43.5	29.6	25.2	21.6	121.7	74.4	0.48	0.49
11	November	1.97	1.50	12.9	14.7	60.8	56.9	20.4	20.7	208.5	185.9	0.70	0.63
12	December	1.89	1.17	12.7	12.4	57.1	58.0	22.5	15.0	217.9	235.9	0.78	0.42
	Avg	1.46	1.15	11.08	10.80	29.61	42.64	25.80	18.29	110.61	99.17	0.58	0.25
Standards		02 mg/m ³ 8hours 04 mg/m ³ 1 hours		50 µg/m ³ Annual		40 µg/m ³ Annual		100 µg/m ³ 8hours 180µg/m ³ 1 hours		40 µg/m ³ Annual		05 µg/m ³ Annual	

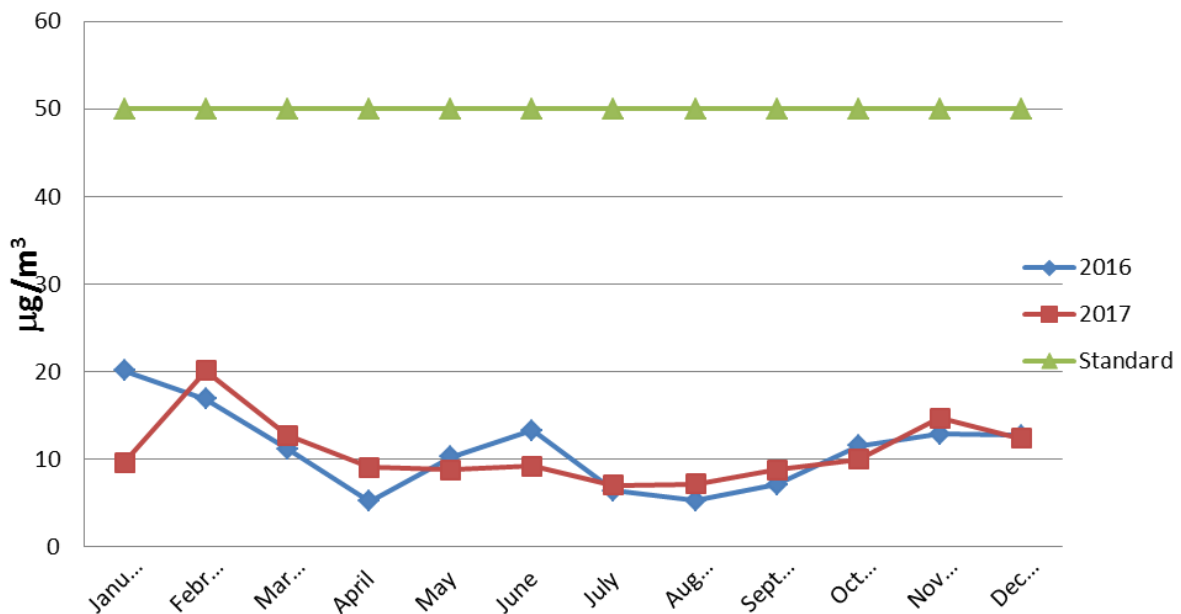
Status of Ambient Air Quality of Collectorate, Muzaffarpur 2016 & 2017															
Meteorological															
Sl. No.	Month	WS in m/s		WD in Degree		AT in °C		RH in %		BP in mmHg		SR in w/m ²		VWS in m/s	
		Avg		Avg		Avg		Avg		Avg		Avg		Avg	
		2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
1	January	1.1	1.6	55	137.7	18.1	19.2	82.4	79.5	749.8	749.8	153.9	92	-0.01	-0.02
2	February	1.6	1.6	72.4	135.5	21.2	21.7	73.1	70.9	749.8	749.8	178.1	125.2	-0.01	-0.02
3	March	0.2	2.3	91.7	167.5	24.6	24.4	62.8	65.3	749.8	749.7	222	144.9	-0.02	-0.01
4	April	0.2	3.2	110.4	133.9	31.9	27.1	54.2	61.6	749.7	749.6	250.1	161.3	-0.02	0.00
5	May	3.1	3.0	193.1	103.6	32.8	28.2	75.7	68.2	748.6	749.6	189.7	177.1	-0.02	0.00
6	June	3.7	2.4	227.1	105.4	32.7	28.7	76.4	74	749.6	749.6	177.9	158.7	0.00	..
7	July	3.1	2.8	219.5	83.9	31.2	27.6	85.9	80.9	749.6	749.6	116.9	129.7	0.00	-0.39
8	August	3.2	1.9	221.2	163.7	31.1	28	79.6	82.8	749.6	749.6	158.9	115.7	0.00	-0.38
9	September	2.2	1.0	208.7	183.1	29.1	28.8	87.8	78.1	749.7	749.6	102.9	132.9	-0.01	-0.29
10	October	1.3	0.8	78.6	247.4	26.8	27.7	78	76.5	749.7	749.7	133.9	28.1	-0.01	-0.27
11	November	1.0	0.4	148.8	197.6	23.5	23.8	72.3	70.5	749.8	749.8	105.7	118.5	-0.02	-0.27
12	December	1.3	0.3	139.9	231.6	19.6	21.1	87.5	78	749.8	749.8	62.6	87.8	-0.02	-0.23
	Avg	1.8	1.8	147.2	157.6	26.9	25.5	76.3	73.9	749.6	749.7	154.4	122.7	-0.01	-0.17

Air Quality Index of Muzaffarpur in days during 2016 & 2017													
Sl.No.	Month	Good		Satisfactory		Moderate		Poor		Very Poor			Severe
		2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
1.	January	..	..	..	01	..	..	..	01	11	25	20	04
2.	February	..	..	..	..	01	03	07	05	16	20	05	..
3.	March	..	..	02	03	13	11	06	09	10	08	..	..
4.	April	..	..	17	14	07	16	05	..	01	..	..	..
5.	May	03	01	24	23	04	06	..	01	..	..	..	..
6.	June	01	04	29	25	..	01	..	..	..	..	..	..
7.	July	..	09	26	22	05	..	..	..	..	..	..	..
8.	August	07	16	21	15	02	..	..	..	..	..	..	..
9.	September	03	06	26	14	01	10	..	..	..	..	..	..
10.	October	..	08	05	07	06	04	05	05	14	07	01	..
11.	November	..	..	..	..	01	05	03	05	18	10	08	09
12.	December	..	..	..	..	..	..	01	01	24	16	06	14
Total		14	44	150	124	40	56	27	27	94	86	40	27

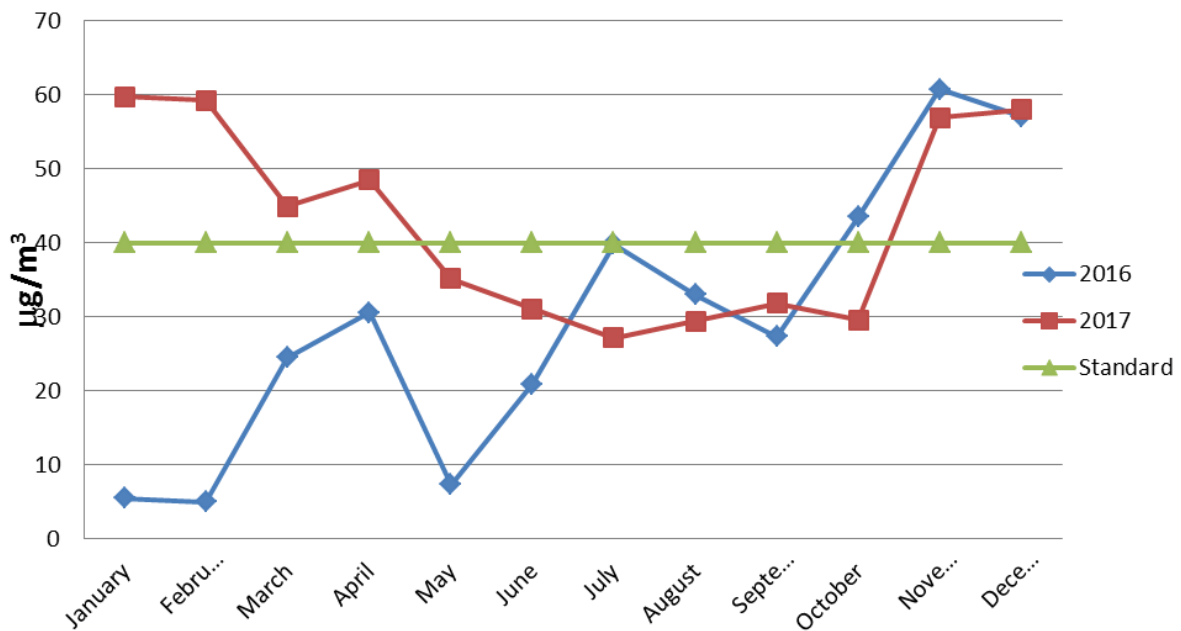
Muzaffarpur (PM2.5)



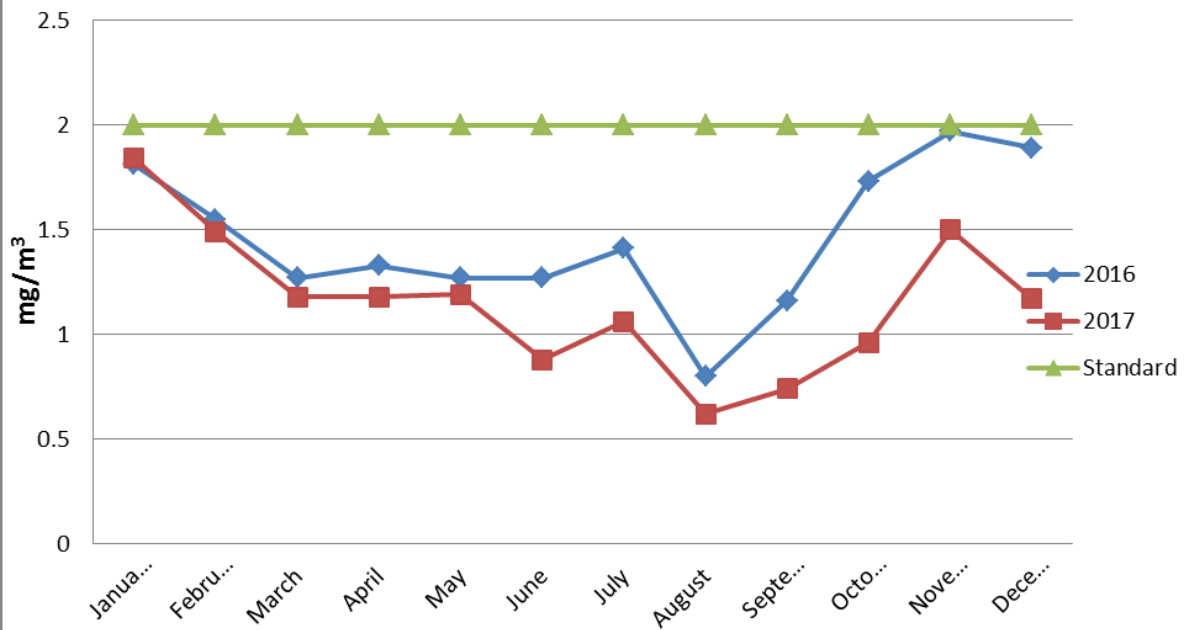
Monthly Variation of Sulphur Dioxide (SO₂) at Collectorate Campus, Muzaffarpur,



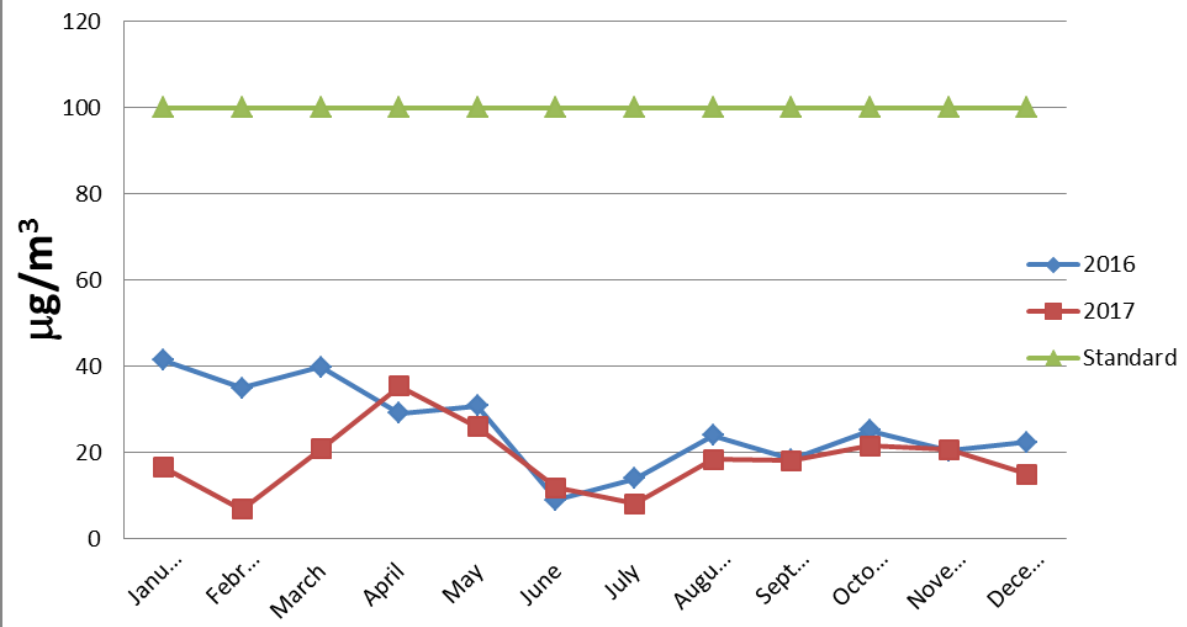
Monthly Variation of Nitrogen Dioxide (NO₂) at Collectorate Campus, Muzaffarpur,



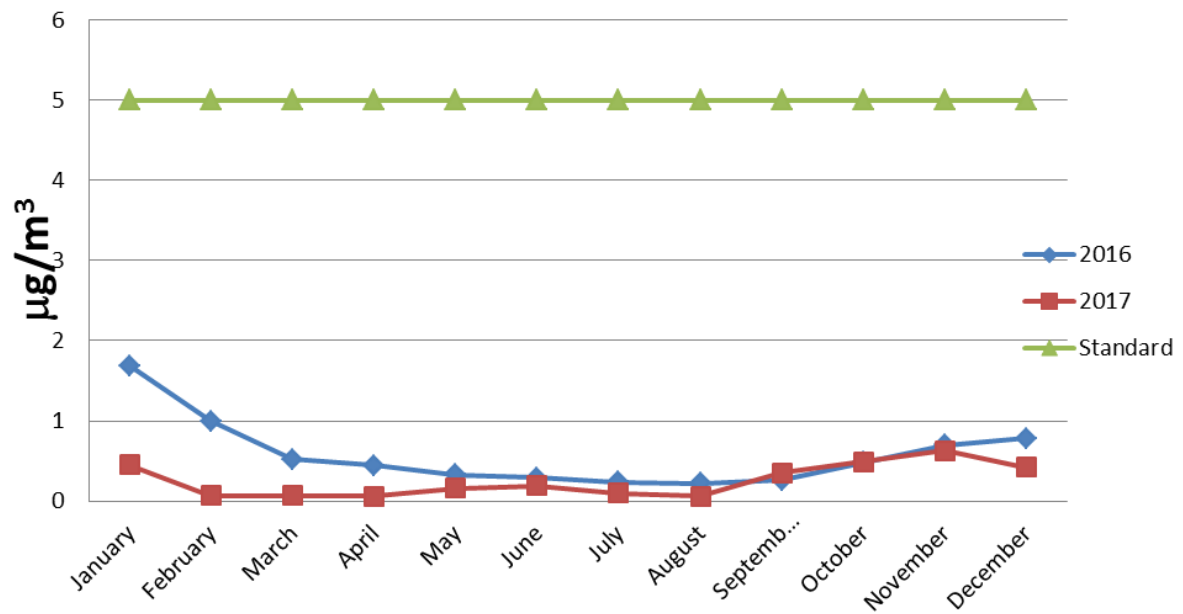
Monthly Variation of Carbon Monoxide (CO) at Collectorate Campus, Muzaffarpur,



Monthly Variation of Ozone (O₃) at Collectorate Campus, Muzaffarpur,



Monthly Variation of Benzene (C_6H_6) at Collectorate Campus, Muzaffarpur,



Advisory

- Not to burn dry leaves, crops residue, wood, coal, Gobar Upla etc. plant more trees to make your city green. Trees like Neem, Sheesham, Peepal, Keekar , Gulmohar etc. make the air clean and healthy , create green belt in and around the capital
- Use carpooling and public transport, as much as possible. Walk or use non-polluting mode of transport for short distance
- Avoid going outdoor during early morning and late evening for walk or outdoor physical activity as the pollution levels are maximum during this time
- Avoid going to high pollution areas during peak hours. Stay indoor as much as possible
- Schools may avoid outdoor assembly, sports activities and other physical activities in the early morning
- Take extra precautions for high risk group as mentioned above, use N95 mask if going outdoor during the peak pollution hours
- Do not smoke, as it harms not only you but others also.
- If you feel irritation in the throat and nose, take steam and do salt water gargles. Drink plenty of warm water and maintain good hydration.
- If any time you are feeling breathless or palpitation, immediately go to nearest medical facility. Treatment is absolutely free in all the government Health facilities.