



Air Quality Monthly Report

January, 2024



Department of Environment
Ministry of Environment Forest and Climate Change, Bangladesh.

Table of Content

- Introduction
- Standards of Ambient Air Quality
- Location Map of Air Monitoring Station
- Station Information
- Summary of Components

Introduction:

Department of Environment (DoE), Bangladesh has been established a countrywide air quality monitoring (AQM) network. The continuous monitoring of 6 (six) criteria pollutants ($PM_{2.5}$, PM_{10} , SO_2 , CO, NO_x and O_3) is being done by 31(thirty one) Continuous Air Monitoring Stations (CAMS) and Compact Continuous Air Monitoring Stations (C-CAMS) located in the divisional and industrial districts of the country; The network encompasses all the regions of the country - Dhaka, Narayanganj Gazipur, Savar, Mymensing, Narsindi in the center, Chittagong in the south-east. Khulna Cumilla and Barisal in the south, Rajshahi in the west, and Sylhet in the north-east regions, Rangpur in the north west of the country. And C-CAMS are located in Faridpur, Jashore, Satkhira, Bagerhat, Gopalganj, Tangail, Bogura, Tongi, BUET campus, Brahmanbaria, Feni, Noakhali, BSRM(Chattogram), Cox's-Bazar, Nagor Bhaban, Dhaka. The data and information generated from those stations are automatically collected in the central server and are disseminated through DoE website. Air Quality Index (AQI) for each city is calculated and published online daily for notifying the public about the status of air quality in their respective city.

Quality Assurance/Quality Control (QA/QC) methods and procedures are implemented with full documentation and are validated through an international certified calibration reference laboratory. Forms and log sheets document every activity in the air monitoring stations and document all maintenance, calibration, operation and other activities such as all visits to the stations. This monthly report provides an overview and analysis of air quality monitoring data in Bangladesh for the month wise monitoring results.

The report summarizes the data of different CAMS located in different cities of Bangladesh.

Standards of Ambient Air Quality

The Government of Bangladesh has enacted Air Pollution (Control) Rules – 2022 with ambient air quality standards. This report establishes the Air Quality Index (AQI) followed by USEPA guideline to evaluate air pollution.

Table 1 National Ambient Air Quality Standards (NAAQS) for Bangladesh

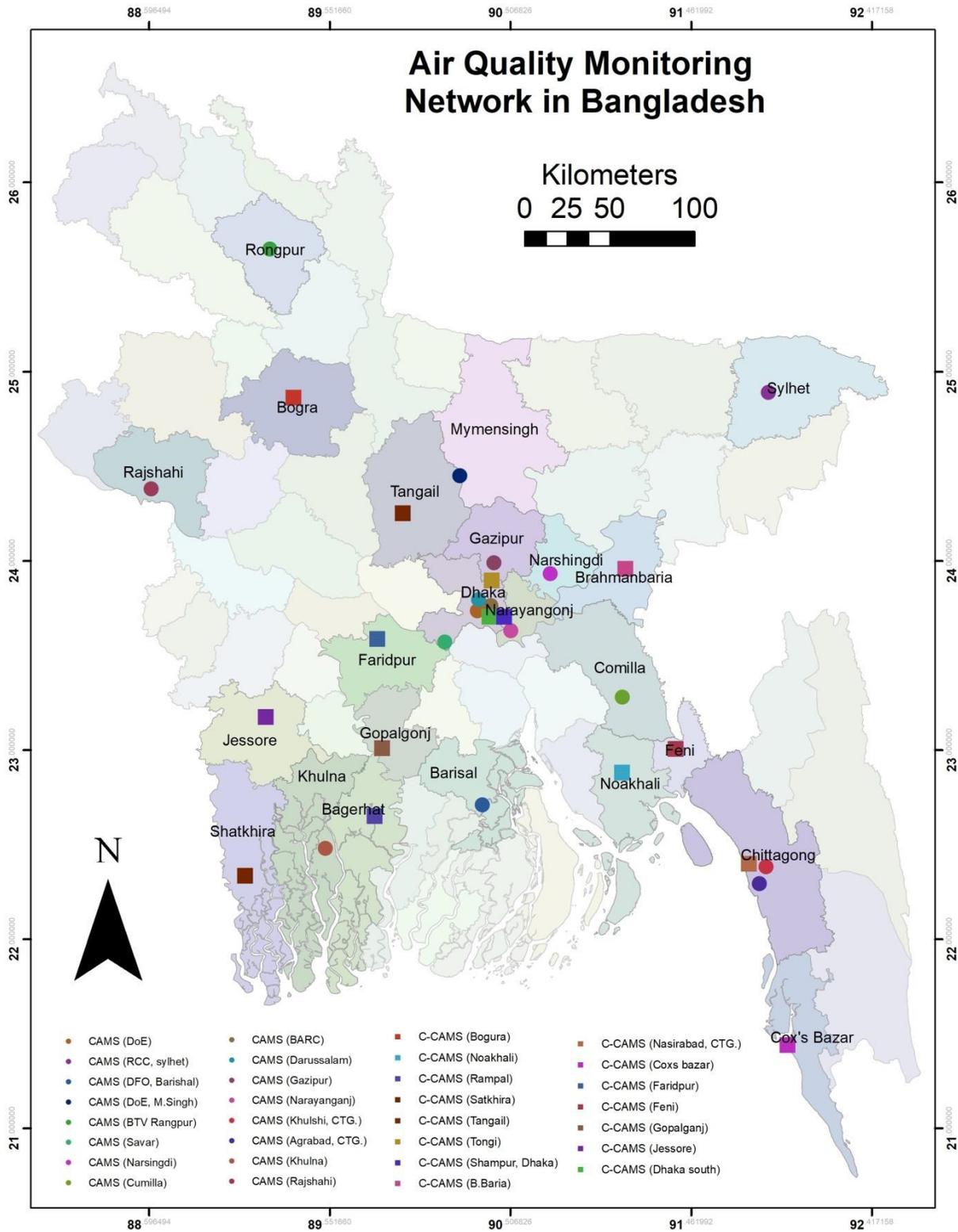
Pollutant	Limit Value	Averaging time
CO	5 mg/m ³	8 hours ^a
	20 mg/m ³	1 hour ^a
Pb	0.25 µg/m ³	Annual
	0.50 µg/m ³	24 hours
NO _x	40 µg/m ³	Annual
	80 µg/m ³	24 hours
PM ₁₀	50 µg/m ³	Annual ^b
	150 µg/m ³	24 hours ^c
PM _{2.5}	35 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	180 µg/m ³	1 hour ^d
	100 µg/m ³	8 hours
SO ₂		Annual
	80 µg/m ³	24 hours ^a

Table 2 Air quality index (AQI) in Bangladesh

Air quality index (AQI)	Category		Colour
	In English	In Bangla	
0-50	Good	ভালো	Green
51-100	Moderate	মোটামুটি	Yellow Green
101-150	Caution	সতর্কতামূলক	Yellow
151-200	Unhealthy	মোটামুটি অস্বাস্থ্যকর	Orange
201-300	Very Unhealthy	খুব অস্বাস্থ্যকর	Red
301-500	Extremely Unhealthy/Hazardous	অত্যন্ত অস্বাস্থ্যকর	Purple

Location Map of Air Monitoring Station

Figure 1 Locations Map of Continuous Air Monitoring Stations (CAMS) under Department of Environment in Bangladesh.



Station Information

Table 3 Overview of the locations and capacity of the CAMS

City	ID	Location	Latitude/ Longitude	Monitoring Capacity	Year of Est.	Type	Inlet & Met tower Height(m)
Dhaka	CAMS-1	Dept of Environment	23°.77'73.94"N 90°.37'26.03"E	PM ₁₀ , PM _{2.5} , SO ₂ , CO, O ₃ & NO _x with Meteorological Parameters	2012	UB/Res	4.8 & 8
	CAMS-2	Farmgate	23°.75'94.10"N 90°.38'86.79"E		2008	Rd/Com	8.8 & 11
	CAMS-3	Darussalam	23°.78'07.75"N 90°.35'54.10"E		2012	UB/Com	8.8 & 11
Gazipur	CAMS-4	Gazipur	23°.99'41.28"N 90°.42'23.15"E		2012	SUB	8.8 & 11
Narayanganj	CAMS-5	Narayanganj	23°.62'60.79"N 90°.50'72.00"E		2012	UB industry	8.8 & 11
Chattogram	CAMS-6	TV Station, Khulshi	22°.36'04.87"N 91°.80'04.54"E		2006	UB1	4.8 & 7
	CAMS-7	Agrabad	22°.32'30.20"N 91°.80'23.36"E		2012	UB/Res	8.8 & 11
Khulna	CAMS-8	Boyra	22°.83'57.75"N 89°.52'90.56"E		2008	UB	6.8 & 10
Rajshahi	CAMS-9	Sapura	24°.38'33.20"N 88°.60'80.07"E		2008	Rd/Res	6.8 & 10
Sylhet	CAMS-10	Red Crecent Campus	24°.88'83.34"N 91°.86'73.47"E		2012	Rd/UB/Res	13.8 & 15
Barishal	CAMS-11	DFO Office Campus	22°.71'02.87"N 90°.36'25.98"E		2012	UB/Res	6.8 & 10
Mymensingh	CAMS-12	DoE Office, Divisional Headquarter	24°.76'24.58"N 90°.40'21.02"E		2019	UB	8.8 & 11
Rangpur	CAMS-13	BTV Rangpur Station	25°.74'73.71"N 89°.22'89.31"E		2019	UB	8.8 & 11
Savar	CAMS-14	Atomic Energy Research Institute	23°.95'37.04"N 90°.27'97.94"E		2019	SUB	10.8 & 14
Narsingdi	CAMS-15	Sadar Upazila Complex	23°.93'24.56"N 90°.71'65.98"E		2019	SUB	8.8 & 11
Cumilla	CAMS-16	Court Area	23°.47'29.88"N 91°.18'06.71"E		2019	UB	8.8 & 11

UB: Urban; Rd: Road; Res: residential; Com: Commercial; SUB: Suburban; Rural: Rural

Table 4 Overview of the locations and capacity of the C-CAMS

City	ID	Location	Lat/Lon	Year of Est.	Type	Monitoring Capacity	Inlet & Met tower Height(m)
Faridpur	C-CAMS-17	Sadar, Faridpur (Municipal Office)	23°.60'64.11"N 89°.83'88.19"E		SUB		9 & 11
Jashore	C-CAMS-18	Sadar, Jashore (circuit house)	23°.16'22.16"N 89°.20'63.70"E		SUB		12 & 14
Satkhira	C-CAMS-19	Shyamnagar, Satkhira	22°.31'59.96"N 89°.04'31.70"E		Rural		5.2 & 7.2
Bagerhat	C-CAMS-20	Rampal, Bagerhat (Maytree Super Thermal Power Project)	22°.59'60.86"N 89°.55'37.20"E		Rural/Industrial		5.7 & 7.7
Gopalganj	C-CAMS-21	Sadar, Gopalganj	23°.00'88.53"N 89°.82'91.60"E		SUB		22 & 24
Tangail	C-CAMS-22	Sadar, Tangail (DoE office)	24°.24'97.96"N 89°.92'93.57"E		SUB		15 & 17
Bogura	C-CAMS-23	Sadar, Bogura (DoE Office)	24°.86'17.79"N 89°.36'11.46"E		SUB		9 & 11
Tongi	C-CAMS-24	BSCIC, Tongi, Gazipur	23°.89'41.74"N 90°.41'12.10"E		Com/Industrial	PM ₁₀ , PM _{2.5} , SO ₂ , CO, O ₃ & NO _x with Meteorological Parameters	18 & 20
BUET	C-CAMS-25	Department of Chemical Engineering, BUET, Dhaka	23°.72'75.91"N 90°.39'27.97"E	2020	UB		10 & 12
Brahmanbaria	C-CAMS-26	Sadar, B.Barria (municipal Office)	23°.97'43.71"N 91°.10'97.69"E		SUB		18 & 20
Feni	C-CAMS-27	Sadar, Feni (DoE Office)	23°.00'62.97"N 91°.38'13.05"E		SUB		18 & 20
Noakhali	C-CAMS-28	Maijdi Bazar, Noakhali (DoE Office)	22°.88'11.48"N 91°.09'69.66"E		SUB		15 & 17
Chattogram BSRM	C-CAMS-29	BSRM, Nasirabad, Chattogram	22°.37'28.38"N 91°.81'80.54"E		UB/Industrial		12 & 14
Cox's-Bazar	C-CAMS-30	Saymon Road, Sadar, Cox's-Bazar (DoE Office)	21°.44'22.08"N 91°.97'10.83"E		SUB		9 & 11
Nagor Bhaban, Dhaka	C-CAMS-31	Nagar Bhaban, DSCC, Dhaka	23°.72'40.75"N 90°.40'91.42"E		UB/Com		13 & 15

UB: Urban; Rd: Road; Res: residential; Com: Commercial; SUB: Suburban; Rural: Rural

Summary of Components

Month of January, 2024

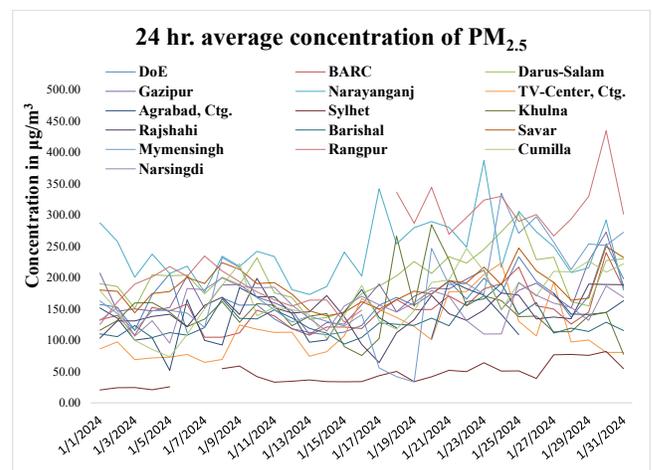
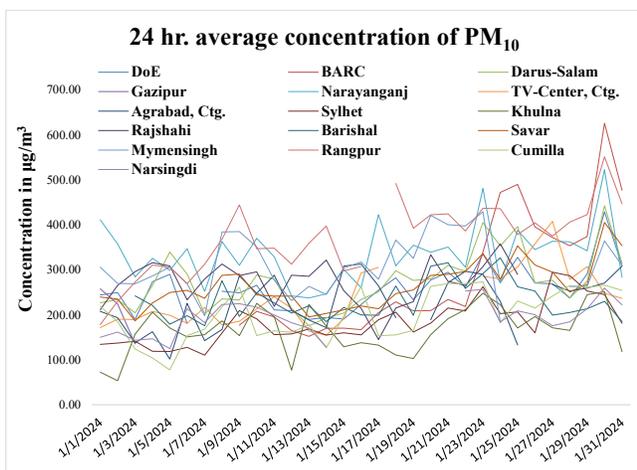
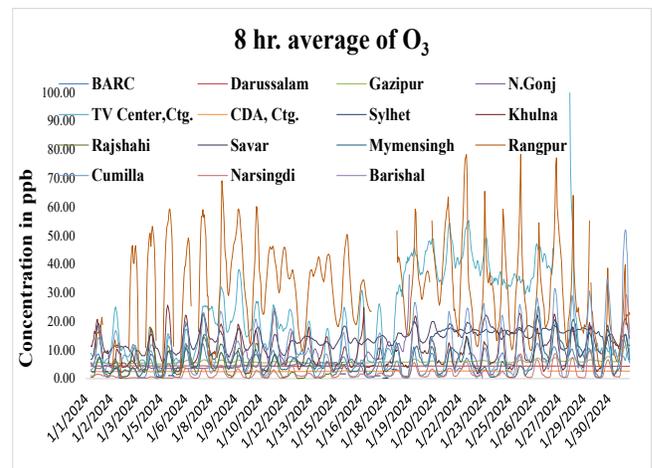
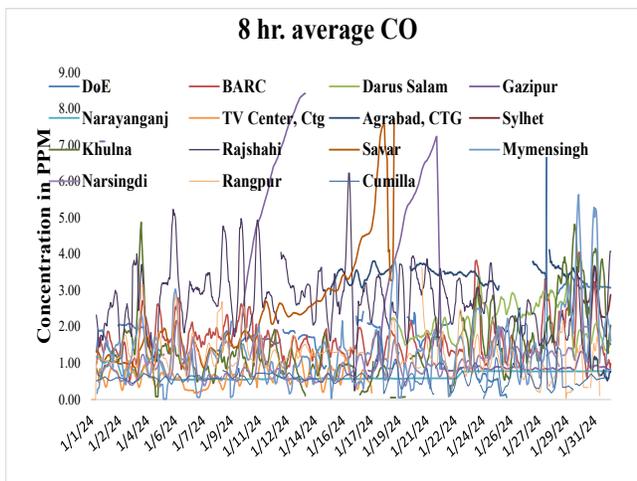
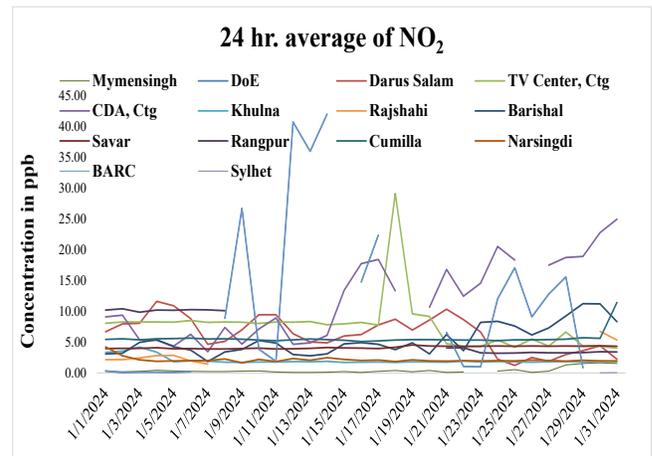
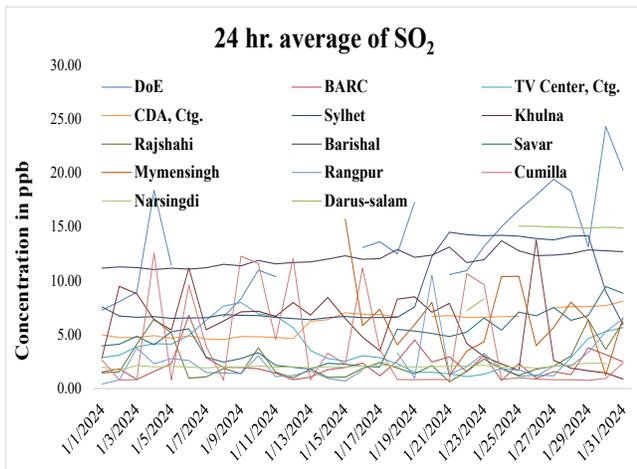
Table 5 Summary of components_ Month of January, 2024

Summary Report on Monthly Air Quality Data																		
Clean Air And Sustainable Environment Project, DoE																		
Name of the Month: January-2024																		
Parameter	Summary	DoE	BARC	Darus-salam	Gazipur	Narayangan	TV-Station	Agrabad, C	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi	
SO2 -24 hr	Average	10.3	2.2	13.1	10.4	DNA	3.6	6.1	9.1	5.8	2.4	12.0	4.7	5.2	2.4	4.0	2.1	
	Max	14.6	6.8	14.9	11.2	DNA	8.0	8.1	14.5	13.8	6.4	13.7	9.4	13.9	10.5	12.6	2.4	
	Min	5.2	0.7	7.2	10.1	DNA	1.1	4.5	5.9	0.9	0.6	11.0	1.8	1.2	0.4	0.8	1.7	
	Excedance(Days)	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	67.7	100.0	32.3	100.0	DNA	100.0	93.5	100.0	100.0	100.0	100.0	100.0	45.2	96.8	100.0	96.8	
NO2 -24 hr	Average	5.0	DNA	6.4	0.2	DNA	6.9	7.1	0.1	2.1	3.0	5.4	4.2	0.4	6.3	5.5	2.2	
	Max	11.9	DNA	11.7	0.2	DNA	11.1	12.0	0.1	4.2	5.6	11.3	4.6	1.7	10.4	6.4	4.3	
	Min	0.1	DNA	1.3	0.2	DNA	4.0	3.5	0.1	1.7	1.5	1.9	3.9	0.1	3.2	5.1	1.7	
	Excedance(Days)	0.0	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Data capture(%)	71.0	DNA	100.0	100.0	DNA	100.0	87.1	6.5	100.0	29.0	100.0	100.0	96.8	61.3	100.0	100.0	
CO-8hr	Average	0.0	1.6	2.2	1.2	0.7	0.7	3.2	2.8	1.3	2.4	DNA	1.9	1.2	1.2	0.6	0.9	
	Max	0.0	3.1	3.4	4.0	1.2	1.4	4.1	3.7	3.5	3.8	DNA	3.9	3.7	3.6	2.3	2.2	
	Min	0.0	0.5	1.1	0.7	0.5	0.2	0.5	2.3	0.0	0.2	DNA	0.5	0.0	0.0	0.1	0.4	
	Excedance(Hour)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	
	Data capture(%)	62.1	98.8	42.6	43.1	99.1	52.7	43.5	5.4	96.4	98.5	DNA	52.6	98.7	92.3	98.3	89.9	
O3-8hr	Average	DNA	5.0	4.4	5.9	5.6	21.0	2.6	13.1	9.3	4.4	DNA	13.7	6.0	26.7	9.4	2.1	
	Max	DNA	14.2	4.5	11.8	36.3	49.6	2.7	18.6	25.7	18.1	DNA	22.2	25.2	50.5	34.7	29.3	
	Min	DNA	0.3	4.3	5.1	0.2	2.1	2.4	0.1	1.4	0.1	DNA	5.6	0.4	0.6	0.3	0.1	
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	
	Data capture(%)	DNA	98.9	99.1	99.1	61.3	95.2	88.6	41.9	98.9	46.4	DNA	99.1	99.1	82.4	98.7	98.7	
PM2.5 -24hr	Average	162.0	146.9	200.0	172.1	242.5	115.5	157.0	74.4	146.2	145.2	128.2	185.6	177.0	241.3	164.3	156.8	
	Max	253.9	239.8	302.4	272.6	387.0	223.2	318.5	122.3	284.6	198.9	190.5	249.8	334.7	434.8	246.4	199.7	
	Min	108.6	104.7	133.4	109.4	173.2	64.6	52.0	52.8	75.7	64.3	93.9	138.8	33.4	125.3	73.6	95.4	
	Excedance(Days)	30.0	31.0	31.0	31.0	31.0	30.0	28.0	13.0	31.0	30.0	31.0	31.0	28.0	30.0	31.0	31.0	
	Data capture(%)	96.8	100.0	100.0	100.0	100.0	100.0	93.5	71.0	100.0	100.0	100.0	100.0	100.0	96.8	100.0	100.0	
PM10 -24hr	Average	258.7	287.7	274.4	205.9	334.9	238.7	218.0	182.8	166.7	272.4	231.1	264.8	309.7	368.1	200.7	196.1	
	Max	429.2	626.4	443.0	258.0	523.1	408.0	312.9	294.7	251.2	357.9	326.6	405.5	429.2	551.7	273.1	259.5	
	Min	181.0	152.1	175.5	135.3	237.7	154.8	101.7	110.5	53.3	145.3	175.8	186.5	184.1	178.4	77.7	124.6	
	Excedance(Days)	30.0	23.0	31.0	2.0	31.0	26.0	24.0	24.0	22.0	24.0	29.0	31.0	28.0	30.0	27.0	19.0	
	Data capture(%)	96.8	74.2	100.0	9.7	100.0	83.9	93.5	100.0	100.0	80.6	93.5	100.0	90.3	96.8	100.0	74.2	
Solar rad. 1hr	Average	86.42	136.60	56.0	16.9	DNA	518.2	128.1	DNA	674.8	806.2	55.6	179.6	87.2	183.3	144.0	194.2	
	Max	466.78	424.8	1020.0	48.2	DNA	554.8	597.8	DNA	989.1	892.5	351.8	652.0	412.0	619.6	560.6	671.9	
	Min	21.07	0.1	1014.2	12.4	DNA	231.3	9.0	DNA	40.2	754.6	8.3	0.0	0.0	0.1	0.0	0.0	
	Data capture(%)	75.67	24	24	99	DNA	96	85	DNA	73	98	96	59.9	57.7	49.3	63.4	54.8	
	Average	68.37	81.1	77.9	DNA	DNA	58.1	72.1	DNA	69.8	90.0	67.3	76.9	93.8	91.7	84.0	39.7	
Relative Humidity 1hr	Max	91.11	100.0	96.2	DNA	DNA	91.9	100.0	DNA	89.8	92.5	75.3	100.0	99.4	99.7	100.0	76.4	
	Min	21.79	40.2	25.4	DNA	DNA	57.1	21.1	DNA	59.1	9.1	58.4	18.5	41.7	40.2	19.2	15.9	
	Data capture(%)	75.67	19.9	99.9	DNA	DNA	95	81	DNA	97	98	96	56.5	100.0	98.8	6.2	99.5	
	Average	19.79	17.6	20.0	DNA	DNA	18.7	26.2	DNA	18.1	17.4	15.1	15.9	15.8	14.1	16.4	16.2	
	Max	24.99	21.7	26.4	DNA	DNA	31.6	42.8	DNA	27.2	27.8	28.6	24.5	24.9	24.6	25.3	25.8	
Ambient Temp. 1hr	Min	9.61	15.0	14.9	DNA	DNA	11.5	7.3	DNA	11.4	10.3	7.1	9.5	10.4	7.1	9.9	9.8	
	Data capture(%)	9.95	12.4	100	DNA	DNA	96	47	DNA	97	98	94	99.1	99.7	98.4	99.6	99.9	
	Average	DNA	DNA	0.8	0.1	DNA	DNA	DNA	DNA	DNA	DNA	0.3	DNA	DNA	DNA	DNA	DNA	
	Max	DNA	DNA	0.8	0.1	DNA	DNA	DNA	DNA	DNA	DNA	0.8	DNA	DNA	DNA	DNA	DNA	
	Min	DNA	DNA	0.8	0.0	DNA	DNA	DNA	DNA	DNA	DNA	0.0	DNA	DNA	DNA	DNA	DNA	
Rainfall 1hr	Data capture(%)	DNA	DNA	67	62	DNA	DNA	DNA	DNA	DNA	89	DNA	DNA	DNA	DNA	DNA	DNA	
	Average	DNA	DNA	0.8	0.1	DNA	DNA	DNA	DNA	DNA	DNA	0.3	DNA	DNA	DNA	DNA	DNA	
	Max	DNA	DNA	0.8	0.1	DNA	DNA	DNA	DNA	DNA	DNA	0.8	DNA	DNA	DNA	DNA	DNA	
	Min	DNA	DNA	0.8	0.0	DNA	DNA	DNA	DNA	DNA	DNA	0.0	DNA	DNA	DNA	DNA	DNA	
	Data capture(%)	DNA	DNA	67	62	DNA	DNA	DNA	DNA	DNA	89	DNA	DNA	DNA	DNA	DNA	DNA	
CAMS= Continuous Air Monitoring Station, NAAQS=National Ambient Air Quality Standard, a=Refurbishment CAMS, PM= Particulate Matter																		
DNA= Data Not Available																		

Table 6: Air Quality Index (AQI)_ Month of January-2024.

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Norshingdi
1/1/2024	213	171	254	DNA	65	173	174	178	214	212	185	223	190
1/2/2024	214	DNA	200	307	91	190	191	176	228	202	211	201	202
1/3/2024	188	152	213	261	93	155	188	186	177	184	204	174	177
1/4/2024	225	157	206	261	88	238	192	191	DNA	205	254	164	186
1/5/2024	276	161	162	261	92	158	175	176	DNA	192	255	139	196
1/6/2024	205	167	252	268	86	185	185	178	DNA	196	251	178	232
1/7/2024	200	158	200	227	78	191	205	183	DNA	184	284	200	222
1/8/2024	206	161	240	228	151	229	234	232	289	293	284	235	222
1/9/2024	206	213	234	256	115	186	197	192	262	267	239	270	236
1/10/2024	228	194	226	300	116	209	228	195	236	218	228	200	233
1/11/2024	212	190	209	285	96	211	162	205	240	260	219	203	234
1/12/2024	228	196	202	236	98	183	198	194	223	189	204	203	206
1/13/2024	183	172	178	224	103	191	196	187	198	194	228	197	192
1/14/2024	185	169	190	236	100	205	216	180	202	189	214	175	181
1/15/2024	188	179	187	263	103	162	185	177	200	173	191	195	204
1/16/2024	196	233	216	252	100	156	159	186	214	195	209	240	220
1/17/2024	215	179	195	343	114	173	139	189	206	150	209	190	206
1/18/2024	235	203	202	292	124	240	172	221	208	78	395	185	196
1/19/2024	233	187	229	323	93	229	190	185	231	88	322	208	210
1/20/2024	233	191	233	299	110	209	223	207	223	353	364	239	229
1/21/2024	244	237	236	329	136	286	184	207	242	273	313	244	220
1/22/2024	233	227	244	297	123	182	192	204	241	268	300	288	257
1/23/2024	251	231	262	419	150	223	202	223	261	297	358	252	212
1/24/2024	261	243	207	266	126	226	224	253	241	337	366	204	230
1/25/2024	296	185	229	348	126	193	221	223	294	305	303	244	242
1/26/2024	246	191	247	295	107	215	195	213	262	345	337	222	222
1/27/2024	242	234	225	302	156	246	195	184	241	306	310	256	209
1/28/2024	205	188	209	280	154	182	195	181	224	260	312	255	202
1/29/2024	212	179	228	242	140	191	243	178	219	300	354	259	190
1/30/2024	296	184	299	353	146	204	238	190	297	349	370	260	236
1/31/2024	252	190	236	253	151	161	242	181	282	294	387	273	216

Table 7 Graphical representation of Gaseous and Particulate matter.



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