



Air Quality Monthly Report

January, 2023



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

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Introduction:

Department of Environment (DoE), Bangladesh has 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	ভাল	Green
51-100	Moderate	মধ্যম	Yellow Green
101-150	Caution	সাবধানতা/সতর্কীকরণ	Yellow
151-200	Unhealthy	অস্বাস্থ্যকর	Orange
201-300	Very Unhealthy	খুব অস্বাস্থ্যকর	Red
301-500	Extremely Unhealthy/Hazardous	অত্যন্ত অস্বাস্থ্যকর	Purple

Location Map of Air Monitoring Stations

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.Barua (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, 2023

Table 5: Summary of components_ Month of January, 2023

Parameter	Summary	DoE	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi	
SO ₂ -24 hr	Average	10.0	8.2	7.6	7.7	DNA	3.9	6.1	7.2	1.8	DNA	6.8	1.6	1.5	2.9	1.6	3.9	
	Max	29.6	18.9	9.3	10.3	DNA	6.3	6.9	9.3	1.9	DNA	7.7	2.4	1.6	11.9	2.1	43.1	
	Min	0.1	2.2	5.9	6.5	DNA	1.7	5.4	6.3	1.5	DNA	6.0	0.9	1.4	0.2	0.8	1.0	
	Excedance(Days)	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	2.0
	Data capture(%)	38.7	80.6	6.5	100.0	DNA	58.1	67.7	61.3	100.0	DNA	93.5	22.6	90.3	93.5	77.4	100.0	
NO ₂ -24 hr	Average	6.8	54.6	7.8	DNA	1.2	10.5	16.9	6.0	DNA	14.0	2.5	11.2	12.5	2.6	5.1	4.4	
	Max	14.0	85.0	15.3	DNA	1.3	11.8	28.6	15.0	DNA	49.6	6.3	14.6	17.2	6.9	5.2	11.3	
	Min	0.2	31.9	0.8	DNA	1.1	1.3	7.1	3.6	DNA	1.5	0.1	7.3	7.2	0.4	5.0	3.6	
	Excedance(Days)	0.0	19.0	0.0	DNA	0.0	0.0	0.0	0.0	DNA	2.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Data capture(%)	80.6	77.4	93.5	DNA	96.8	61.3	100.0	71.0	DNA	100.0	90.3	87.1	90.3	93.5	87.1	100.0	
CO-8hr	Average	3.0	3.2	9.0	DNA	1.1	2.4	DNA	DNA	1.3	1.1	DNA	2.3	0.9	3.2	1.5	3.3	
	Max	7.5	11.1	13.2	DNA	1.4	3.8	DNA	DNA	3.0	1.9	DNA	2.7	2.8	6.3	7.1	6.5	
	Min	0.0	0.1	8.0	DNA	1.0	1.7	DNA	DNA	0.4	0.7	DNA	2.0	0.3	2.1	0.0	1.6	
	Excedance(Hour)	126.0	160.0	720.0	DNA	0.0	0.0	DNA	DNA	0.0	0.0	DNA	0.0	0.0	98.0	3.0	70.0	
	Data capture(%)	49.6	91.0	96.8	DNA	62.2	11.4	DNA	DNA	92.7	99.1	DNA	84.0	88.6	93.3	69.2	94.5	
O ₃ -8hr	Average	DNA	4.2	2.5	10.2	DNA	5.6	34.6	DNA	4.9	12.9	DNA	30.6	18.1	13.3	24.1	3.4	
	Max	DNA	13.3	29.2	13.5	DNA	8.2	48.1	DNA	18.6	21.2	DNA	50.2	48.7	41.7	63.3	29.0	
	Min	DNA	0.1	0.1	8.3	DNA	1.2	34.3	DNA	0.4	5.9	DNA	12.7	6.8	2.1	2.2	0.1	
	Excedance(Hour)	DNA	0.0	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	0.0	45.0	0.0	
	Data capture(%)	DNA	94.2	61.7	12.0	DNA	13.0	46.9	DNA	96.6	93.7	DNA	83.9	88.4	92.2	77.7	89.1	
PM _{2.5} -24hr	Average	213.3	225.6	250.4	218.0	288.1	101.0	127.5	155.0	163.0	255.6	127.9	144.2	190.4	237.4	107.8	143.8	
	Max	348.5	389.1	491.9	352.7	415.2	134.1	183.9	301.9	316.9	393.9	195.9	229.6	284.3	348.3	145.7	206.3	
	Min	110.4	7.7	149.4	133.6	218.8	67.9	89.6	86.1	51.2	143.9	83.9	29.1	122.0	137.1	86.4	33.5	
	Excedance(Days)	29.0	30.0	30.0	31.0	31.0	5.0	28.0	15.0	30.0	31.0	29.0	15.0	28.0	29.0	19.0	27.0	
	Data capture(%)	93.5	100.0	96.8	100.0	100.0	16.1	90.3	48.4	100.0	100.0	93.5	64.5	90.3	93.5	61.3	96.8	
PM ₁₀ -24hr	Average	356.1	244.0	338.7	338.4	392.1	DNA	244.7	224.3	262.2	DNA	250.8	307.4	343.3	DNA	58.5	310.3	
	Max	549.1	290.5	737.4	525.2	834.6	DNA	348.8	369.9	453.3	DNA	391.3	568.6	509.3	DNA	150.0	426.9	
	Min	220.4	196.8	202.1	208.5	282.3	DNA	151.1	109.0	134.3	DNA	150.4	137.3	246.5	DNA	38.1	227.4	
	Excedance(Days)	29.0	4.0	29.0	31.0	25.0	DNA	31.0	22.0	29.0	DNA	29.0	23.0	28.0	DNA	1.0	30.0	
	Data capture(%)	93.5	12.9	93.5	100.0	80.6	DNA	100.0	77.4	100.0	DNA	93.5	77.4	90.3	DNA	61.3	96.8	
Solar rad. 1hr	Average	DNA	267.75	75.3	10.7	DNA	833.7	128.9	DNA	110.6	DNA	107.9	199.9	111.9	247.7	195.6	246.2	
	Max	DNA	296.6	1019.9	12.1	DNA	962.8	584.6	DNA	454.5	DNA	511.0	612.7	306.2	638.2	548.7	708.9	
	Min	DNA	2.6	1008.3	7.0	DNA	815.3	9.1	DNA	0.0	DNA	8.4	0.0	0.0	0.1	0.0	0.0	
	Data capture(%)	DNA	74	75	48	DNA	38	97	DNA	60	DNA	87	47.2	38.8	46.2	42.3	45.2	
	Relative Humidity 1hr	Average	DNA	73.7	70.9	DNA	DNA	62.3	62.7	DNA	71.6	61.5	79.0	75.2	85.2	86.8	82.5	52.3
Max	DNA	99.9	97.0	DNA	DNA	99.8	100.0	DNA	72.0	73.8	87.8	100.0	99.4	99.7	99.7	86.8		
Min	DNA	42.9	20.2	DNA	DNA	57.1	15.2	DNA	63.8	16.3	73.0	36.6	37.5	38.5	28.0	18.6		
Data capture(%)	DNA	60.9	95.7	DNA	DNA	51	93	DNA	98	96	87	55.2	76.2	91.5	74.2	87.9		
Ambient Temp. 1hr	Average	DNA	22.3	17.6	32.1	DNA	21.3	23.9	DNA	19.8	31.8	17.4	16.9	18.2	15.9	18.3	17.8	
	Max	DNA	31.7	25.3	32.1	DNA	30.3	42.8	DNA	30.5	34.3	32.2	26.8	26.8	27.2	29.4	28.5	
	Min	DNA	13.7	7.0	32.1	DNA	12.4	7.0	DNA	11.4	16.5	7.1	9.3	10.8	9.0	10.9	10.6	
	Data capture(%)	DNA	98.3	85	0	DNA	53	52	DNA	98	96	85	84.1	76.1	90.3	73.4	86.2	
	Rainfall 1hr	Average	DNA	12.13	0.64	1.01	DNA	DNA	DNA	DNA	DNA	0.06	0.67	DNA	0.30	0.02	DNA	DNA
Max	DNA	16.68	0.64	12.98	DNA	DNA	DNA	DNA	DNA	DNA	0.12	1.20	DNA	3.91	0.02	DNA	DNA	
Min	DNA	0.03	0.01	0.10	DNA	DNA	DNA	DNA	DNA	DNA	0.03	0.04	DNA	0.01	0.02	DNA	DNA	
Data capture(%)	DNA	98.25	22.72	32.53	DNA	DNA	DNA	DNA	DNA	DNA	95.97	86.83	DNA	71.64	0.13	DNA	DNA	

AMS= Continuous Air Monitoring Station, NAAQS=National Ambient Air Quality Standard, a=Refurbishment CAMS, PM= Particulate Mat

DNA= Data Not Available

Table 6: Air Quality Index (AQI), Month of January, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-01-23	245	183	209	267	DNA	219	416	194	242	196	252	178	184
02-01-23	231	185	249	308	DNA	192	253	DNA	249	214	313	DNA	195
03-01-23	256	171	264	382	DNA	184	200	183	281	198	249	DNA	202
04-01-23	202	183	191	269	176	170	196	168	196	192	193	DNA	189
05-01-23	249	178	217	315	188	184	226	179	243	190	236	DNA	192
06-01-23	259	189	273	322	DNA	197	224	184	243	190	227	DNA	209
07-01-23	272	167	230	329	DNA	217	255	187	225	190	200	DNA	198
08-01-23	302	170	275	365	DNA	207	268	169	276	227	243	DNA	198
09-01-23	272	178	245	368	195	220	253	183	271	235	255	DNA	201
10-01-23	263	191	248	294	171	195	255	178	254	221	DNA	DNA	187
11-01-23	283	181	252	350	166	198	294	184	237	207	DNA	DNA	194
12-01-23	329	DNA	285	399	246	245	298	196	237	238	317	DNA	240
13-01-23	334	DNA	402	410	345	254	382	211	237	272	318	DNA	258
14-01-23	248	DNA	316	289	DNA	176	319	175	237	245	406	DNA	242
15-01-23	256	181	239	284	DNA	211	314	DNA	236	239	303	DNA	192
16-01-23	212	158	248	297	DNA	209	263	186	237	226	242	175	192
17-01-23	243	187	273	275	199	232	299	189	237	185	292	173	195
18-01-23	255	191	302	335	245	226	307	190	237	217	329	179	204
19-01-23	265	192	270	326	219	270	344	190	239	239	376	178	227
20-01-23	273	169	296	324	194	250	338	191	223	222	337	198	220
21-01-23	313	181	294	391	224	294	400	195	188	273	359	DNA	234
22-01-23	392	183	331	441	219	169	430	197	186	267	402	175	225
23-01-23	338	185	282	376	188	136	438	240	DNA	282	402	189	214
24-01-23	268	191	233	330	196	220	373	228	DNA	277	273	188	205
25-01-23	337	204	270	337	DNA	263	364	214	DNA	333	296	181	212
26-01-23	338	225	337	350	DNA	231	366	228	DNA	326	332	DNA	248
27-01-23	272	243	297	280	DNA	208	325	190	DNA	267	330	DNA	237
28-01-23	276	197	251	313	DNA	347	201	165	DNA	215	195	DNA	217
29-01-23	240	184	228	257	DNA	190	263	176	DNA	219	216	174	208
30-01-23	307	179	224	327	DNA	292	312	176	DNA	278	271	168	194
31-01-23	303	205	314	381	DNA	187	327	172	DNA	262	270	184	199

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