



Air Quality Monthly Report

March, 2022



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 people 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 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.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	Majidi 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 March, 2022

Table 5: Summary of components, Month of March, 2022

Parameter	Summary	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	2.4	DNA	DNA	DNA	7.4	6.1	DNA	6.0	5.4	DNA	1.2	4.4	3.7	2.4	5.7
	Max	3.2	DNA	DNA	DNA	12.6	8.1	DNA	7.8	7.8	DNA	2.2	8.4	5.8	3.1	12.3
	Min	0.4	DNA	DNA	DNA	1.7	4.5	DNA	4.0	3.3	DNA	0.5	0.6	2.6	1.0	0.2
	Excedance(Days)	0.0	DNA	DNA	DNA	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	100.0	DNA	DNA	DNA	58.1	93.5	DNA	100.0	100.0	DNA	100.0	100.0	96.8	100.0	100.0
NO ₂ -24 hr	Average	10.5	5.8	DNA	DNA	18.7	7.1	11.3	3.0	11.5	1.1	11.4	15.0	2.3	3.3	8.1
	Max	75.1	12.5	DNA	DNA	60.6	12.0	14.2	3.5	15.8	2.8	17.2	26.2	7.0	18.9	10.0
	Min	0.3	0.5	DNA	DNA	5.4	3.5	7.0	2.6	7.2	0.1	4.9	7.1	0.3	2.8	7.5
	Excedance(Days)	4.0	0.0	DNA	DNA	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	100.0	67.7	DNA	DNA	87.1	87.1	100.0	67.7	100.0	61.3	100.0	100.0	71.0	96.8	100.0
CO-8hr	Average	0.8	DNA	DNA	DNA	4.6	3.2	3.4	5.6	0.8	DNA	0.8	0.8	0.7	1.4	1.4
	Max	3.0	DNA	DNA	DNA	8.7	4.1	5.4	8.4	1.6	DNA	2.2	1.9	2.6	3.4	3.2
	Min	0.0	DNA	DNA	DNA	0.2	0.5	2.3	0.4	0.1	DNA	0.3	0.2	0.1	0.4	0.6
	Excedance(Hour)	0.0	DNA	DNA	DNA	0.0	0.0	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	98.5	DNA	DNA	DNA	42.2	43.5	98.9	65.6	99.1	DNA	93.4	99.1	92.9	99.1	99.1
O ₃ -8hr	Average	3.4	1.9	DNA	2.8	20.0	2.6	6.1	4.5	26.2	DNA	28.7	19.1	22.2	13.4	24.0
	Max	16.4	16.0	DNA	9.5	99.0	2.7	15.0	17.1	81.4	DNA	75.9	50.9	71.5	50.1	62.4
	Min	1.4	0.5	DNA	1.8	3.3	2.4	1.6	0.4	7.0	DNA	5.2	2.8	0.4	1.4	0.9
	Excedance(Hour)	0.0	0.0	DNA	0.0	4.0	0.0	0.0	0.0	2.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	91.3	98.0	DNA	50.3	75.1	88.6	98.9	99.1	99.1	DNA	97.7	99.1	92.1	99.1	99.1
PM _{2.5} -24hr	Average	167.3	134.0	132.3	149.8	141.1	138.3	101.0	79.9	96.0	89.1	145.7	132.7	167.1	116.4	95.1
	Max	237.5	211.8	269.8	235.0	252.6	195.8	148.1	167.3	135.2	141.2	196.3	195.0	249.2	206.6	149.1
	Min	62.4	58.0	52.5	46.7	49.4	52.0	31.4	23.0	64.5	34.1	67.4	71.0	68.2	29.5	41.7
	Excedance(Days)	30.0	29.0	28.0	26.0	22.0	28.0	24.0	20.0	29.0	10.0	31.0	31.0	30.0	23.0	23.0
	Data capture(%)	100.0	100.0	100.0	100.0	74.2	93.5	100.0	100.0	100.0	41.9	100.0	100.0	96.8	100.0	100.0
PM ₁₀ -24hr	Average	217.4	223.3	252.1	293.1	73.6	226.9	195.2	246.0	236.6	DNA	253.8	252.7	268.9	183.0	186.0
	Max	380.6	341.4	462.9	429.2	144.6	312.9	288.6	418.5	339.3	DNA	337.2	412.9	367.1	320.1	430.8
	Min	113.2	110.2	106.1	115.8	16.3	101.7	60.5	100.2	148.0	DNA	117.1	157.5	114.0	59.1	29.6
	Excedance(Days)	19.0	21.0	24.0	26.0	0.0	25.0	24.0	30.0	29.0	DNA	25.0	31.0	29.0	22.0	16.0
	Data capture(%)	74.2	90.3	100.0	100.0	87.1	93.5	100.0	100.0	100.0	DNA	100.0	100.0	96.8	100.0	100.0
Solar rad. 1hr	Average	DNA	172.4	DNA	DNA	DNA	128.1	DNA	137.4	251.2	169.8	334.8	294.1	394.4	300.9	353.3
	Max	DNA	768.7	DNA	DNA	DNA	597.8	DNA	652.1	692.9	712.3	856.1	782.5	897.3	731.6	893.4
	Min	DNA	7.4	DNA	DNA	DNA	9.0	DNA	0.0	0.4	9.9	0.0	0.0	0.1	0.0	
	Data capture(%)	DNA	99	DNA	DNA	DNA	85	DNA	98	47	100	57.9	53.9	49.2	58.6	59.4
Relative Humidity 1hr	Average	40.9	53.2	DNA	DNA	59.1	72.1	DNA	58.5	53.7	78.5	61.0	66.7	74.1	73.0	56.6
	Max	47.8	87.8	DNA	DNA	95.0	100.0	DNA	71.8	56.6	95.6	97.9	99.3	99.6	99.5	86.4
	Min	20.1	25.0	DNA	DNA	57.7	21.1	DNA	53.9	46.6	58.0	23.8	21.7	24.5	24.1	15.7
	Data capture(%)	86.4	76.6	DNA	DNA	56	81	DNA	98	99	100	93.3	100.0	91.9	48.7	100.0
Ambient Temp. 1hr	Average	27.1	31.4	DNA	DNA	25.3	26.0	DNA	28.8	29.2	28.4	26.3	26.0	25.0	26.2	26.2
	Max	35.7	40.0	DNA	DNA	28.1	39.9	DNA	37.0	40.7	39.9	33.8	34.4	34.0	34.2	35.2
	Min	10.6	21.2	DNA	DNA	22.2	11.1	DNA	21.2	11.3	15.4	17.4	17.6	15.4	17.0	17.6
	Data capture(%)	83.7	95	DNA	DNA	59	41	DNA	98	99	98	97.6	100.0	91.7	99.3	100.0
Rainfall 1hr	Average	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.53	0.24	0.08	DNA	DNA	0.16
	Max	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	1.17	0.58	0.20	DNA	DNA	0.39
	Min	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.03	0.06	0.01	DNA	DNA	0.01
	Data capture(%)	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	99.46	0.54	100.00	DNA	DNA	0.54

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 March, 2022

Date	Dhaka	Chattogram	Gazipur	Narayanganj	Sylhet	Khulna	Rajshahi	Barishal	Savar	Mymensingh	Rangpur	Cumilla	Norshindi
01-03-2022	325	157	311	337	184	163	225	212	288	286	338	250	212
02-03-2022	263	130	267	310	183	156	204	DNA	264	233	316	218	178
03-03-2022	280	144	223	371	190	181	211	DNA	288	211	299	280	189
04-03-2022	328	151	325	326	203	193	180	DNA	258	285	314	320	231
05-03-2022	366	185	335	368	236	215	200	DNA	288	302	316	332	282
06-03-2022	296	188	193	369	176	172	180	DNA	288	259	381	229	198
07-03-2022	353	162	268	337	174	202	176	DNA	325	213	336	304	209
08-03-2022	336	251	241	334	195	169	187	194	288	234	304	351	203
09-03-2022	319	224	257	345	211	177	190	180	288	273	288	329	184
10-03-2022	341	222	220	369	229	194	229	189	323	252	328	312	184
11-03-2022	334	DNA	236	383	211	204	173	212	330	237	355	313	188
12-03-2022	326	DNA	226	359	247	234	213	DNA	322	280	DNA	328	180
13-03-2022	311	DNA	209	304	269	236	203	DNA	323	DNA	351	246	182
14-03-2022	337	174	301	345	266	201	182	DNA	330	DNA	350	222	221
15-03-2022	368	236	329	355	254	234	181	DNA	337	273	334	258	199
16-03-2022	357	237	341	332	289	215	202	DNA	288	339	349	326	263
17-03-2022	344	198	316	318	199	177	176	DNA	274	343	347	275	254
18-03-2022	347	225	299	308	239	193	163	DNA	288	320	362	289	285
19-03-2022	319	194	299	348	248	222	195	DNA	288	335	349	284	298
20-03-2022	194	167	263	195	269	132	158	DNA	246	337	304	201	232
21-03-2022	223	162	264	167	188	166	179	DNA	248	313	278	180	165
22-03-2022	242	161	308	178	185	179	228	DNA	272	261	243	185	207
23-03-2022	328	152	286	257	228	178	230	DNA	322	332	349	188	252
24-03-2022	187	88	205	162	156	121	208	89	185	276	321	117	159
25-03-2022	151	56	135	120	78	82	187	83	288	167	222	71	112
26-03-2022	127	84	120	127	93	69	192	DNA	153	158	194	74	105
27-03-2022	182	102	167	133	103	100	172	DNA	175	170	197	79	112
28-03-2022	188	99	178	153	117	134	173	157	190	180	187	90	136
29-03-2022	175	103	161	158	122	121	169	153	181	164	204	92	127
30-03-2022	182	97	162	152	131	92	159	DNA	181	169	173	98	122
31-03-2022	163	81	124	112	115	74	146	DNA	165	160	153	93	116

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