



Air Quality Monthly Report

January, 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.Baria (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

Table 5: Summary of components, Month of January, 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 (ppb)	Average	3.5	DNA	DNA	DNA	3.3	18.2	DNA	4.0	3.0	6.6	5.2	3.0	4.0	1.5	1.2
	Max	10.8	DNA	DNA	DNA	6.5	19.6	DNA	5.9	8.0	12.7	8.8	8.0	6.6	4.5	2.3
	Min	0.5	DNA	DNA	DNA	0.4	16.8	DNA	1.0	0.1	5.0	0.4	0.1	1.7	0.5	0.9
	Excedance(Days)	0.0	DNA	DNA	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	100.0	DNA	DNA	DNA	100.0	96.8	DNA	100.0	100.0	35.5	87.1	90.3	96.8	77.4	100.0
NO ₂ -24 hr (ppb)	Average	3.2	12.0	0.2	DNA	8.3	22.0	DNA	DNA	9.6	1.8	9.9	16.3	1.1	2.8	5.9
	Max	3.7	18.9	0.3	DNA	16.2	39.7	DNA	DNA	16.4	6.1	15.4	26.3	2.6	2.8	34.4
	Min	3.0	9.3	0.1	DNA	3.6	1.7	DNA	DNA	4.6	0.5	7.7	9.9	0.5	2.7	0.6
	Excedance(Days)	0.0	0.0	0.0	DNA	0.0	0.0	DNA	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	100.0	100.0	16.1	DNA	100.0	96.8	DNA	DNA	100.0	80.6	100.0	93.5	16.1	96.8	54.8
CO-8hr (ppm)	Average	0.9	DNA	DNA	3.6	3.0	DNA	4.6	1.8	1.0	DNA	3.6	0.8	1.0	0.7	1.0
	Max	2.2	DNA	DNA	6.1	8.9	DNA	6.3	8.2	1.5	DNA	5.6	1.9	3.6	2.5	2.2
	Min	0.0	DNA	DNA	2.1	0.3	DNA	3.1	0.1	0.8	DNA	0.2	0.3	0.0	0.0	0.0
	Excedance(Hour)	0.0	DNA	DNA	0.0	0.0	DNA	0.0	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	99.1	DNA	DNA	90.9	85.8	DNA	23.9	80.2	99.1	DNA	98.0	88.7	99.1	19.9	98.8
O ₃ -8hr (ppb)	Average	2.0	1.7	DNA	2.0	6.3	DNA	4.6	12.7	26.7	DNA	10.1	12.6	7.7	7.8	33.0
	Max	13.8	2.7	DNA	2.9	41.6	DNA	13.2	88.2	97.3	DNA	44.2	42.3	29.9	30.1	87.5
	Min	0.1	0.9	DNA	1.2	3.6	DNA	0.9	0.2	0.4	DNA	0.6	0.1	0.4	0.2	0.1
	Excedance(Hour)	0.0	0.0	DNA	0.0	0.0	DNA	0.0	23.0	107.0	DNA	0.0	0.0	0.0	0.0	146.0
	Data capture(%)	69.5	4.2	DNA	85.3	97.0	DNA	97.7	81.9	98.5	DNA	95.8	86.4	83.2	90.7	83.3
PM _{2.5} -24hr (ug/m ³)	Average	297.6	175.7	157.5	202.3	169.2	48.1	91.3	96.8	121.8	87.7	213.1	132.6	169.5	121.8	110.5
	Max	341.4	352.9	241.9	283.9	314.5	120.9	156.8	224.2	224.9	131.5	326.2	196.4	259.2	193.7	169.1
	Min	170.7	110.0	96.7	115.3	118.4	20.7	57.9	42.9	67.1	37.4	114.8	84.3	103.7	81.6	74.7
	Excedance(Days)	31.0	31.0	30.0	29.0	17.0	2.0	27.0	24.0	31.0	13.0	22.0	29.0	31.0	30.0	31.0
	Data capture(%)	100.0	100.0	96.8	93.5	54.8	19.4	100.0	100.0	100.0	48.4	71.0	93.5	100.0	96.8	100.0
PM ₁₀ -24hr (ug/m ³)	Average	213.4	192.9	244.3	298.1	80.2	169.3	144.7	198.6	211.1	DNA	281.4	239.2	237.9	157.2	247.1
	Max	364.5	308.1	391.7	419.6	149.1	300.9	294.4	373.4	401.9	DNA	487.3	383.5	372.4	220.5	371.9
	Min	128.1	124.6	162.2	157.2	16.2	59.5	88.6	87.8	87.7	DNA	147.3	57.2	141.2	90.2	164.1
	Excedance(Days)	27.0	23.0	30.0	29.0	0.0	15.0	10.0	22.0	25.0	DNA	19.0	22.0	30.0	17.0	31.0
	Data capture(%)	100.0	100.0	96.8	93.5	100.0	83.9	100.0	100.0	96.8	DNA	64.5	87.1	100.0	96.8	100.0
Solar rad. 1hr (W/m ²)	Average	0.60	DNA	DNA	DNA	DNA	120.0	DNA	505.3	33.2	102.2	266.1	223.5	259.9	238.3	288.0
	Max	0.6	DNA	DNA	DNA	DNA	600.6	DNA	914.0	804.7	516.4	677.0	584.5	704.3	592.2	739.3
	Min	0.3	DNA	DNA	DNA	DNA	9.0	DNA	142.7	0.1	8.6	1.8	1.5	0.1	2.8	2.0
	Data capture(%)	100	DNA	DNA	DNA	DNA	87	DNA	97	56	100	47.7	43.7	50.4	41.3	46.5
Relative Humidity 1hr (%)	Average	50.4	75.3	DNA	DNA	76.8	74.2	DNA	41.5	90.1	86.2	74.7	81.2	87.3	90.2	50.2
	Max	54.4	95.0	DNA	DNA	86.4	94.9	DNA	68.4	92.3	95.8	98.0	99.3	99.6	99.5	79.5
	Min	49.3	42.0	DNA	DNA	75.1	36.4	DNA	30.1	82.4	63.6	39.0	39.1	40.5	39.7	21.6
	Data capture(%)	99.7	64.8	DNA	DNA	45	51	DNA	97	99	100	71.1	96.9	99.9	33.1	99.5
Ambient Temp. 1hr (degreeC)	Average	22.4	21.0	DNA	DNA	22.2	21.4	DNA	18.5	18.4	17.1	17.8	17.9	16.0	18.5	18.4
	Max	32.1	31.9	DNA	DNA	32.0	31.9	DNA	27.5	28.0	31.3	25.9	26.7	25.8	27.4	28.0
	Min	11.5	10.6	DNA	DNA	9.4	8.1	DNA	11.4	9.2	8.0	10.6	10.6	8.2	11.1	10.6
	Data capture(%)	99.7	100	DNA	DNA	26	16	DNA	97	98	98	98.5	96.6	99.7	88.0	99.1
Rainfall 1hr (mm)	Average	1.05	DNA	DNA	DNA	DNA	DNA	DNA	DNA	1.70	0.55	DNA	0.10	DNA	DNA	DNA
	Max	1.29	DNA	DNA	DNA	DNA	DNA	DNA	DNA	3.46	1.05	DNA	0.27	DNA	DNA	DNA
	Min	0.68	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.04	0.10	DNA	0.03	DNA	DNA	DNA
	Data capture(%)	32.93	DNA	DNA	DNA	DNA	DNA	DNA	DNA	23.12	82.26	DNA	96.51	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, 2022

Date	Dhaka	Chattogram	Gazipur	Narayanganj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Norshingdi
01-01-2022	238	53	188	256	191	130	189	114	DNA	192	199	DNA	252
02-01-2022	323	88	282	348	145	172	187	164	DNA	208	261	249	215
03-01-2022	333	145	307	364	165	174	264	184	DNA	237	260	263	198
04-01-2022	356	163	261	373	176	165	310	DNA	DNA	224	286	201	250
05-01-2022	341	168	319	397	176	180	230	DNA	DNA	237	324	182	230
06-01-2022	356	169	345	391	156	163	306	DNA	DNA	DNA	345	218	243
07-01-2022	342	163	DNA	369	152	160	260	DNA	DNA	DNA	328	194	235
08-01-2022	333	154	DNA	360	156	172	236	156	DNA	DNA	316	184	215
09-01-2022	303	160	238	315	154	152	181	158	DNA	235	343	188	187
10-01-2022	290	166	244	DNA	175	178	209	158	DNA	284	317	228	182
11-01-2022	316	161	254	DNA	149	224	241	DNA	307	291	358	181	185
12-01-2022	254	151	206	293	179	168	180	DNA	318	254	320	170	164
13-01-2022	333	153	DNA	338	156	164	236	152	DNA	DNA	316	184	215
14-01-2022	375	181	294	378	168	184	188	DNA	DNA	246	270	286	224
15-01-2022	325	168	210	330	173	DNA	156	DNA	DNA	210	303	170	178
16-01-2022	286	174	185	304	214	157	161	DNA	326	204	258	240	168
17-01-2022	348	183	228	323	170	DNA	172	DNA	363	198	309	246	183
18-01-2022	399	178	304	393	162	179	192	DNA	DNA	242	275	289	216
19-01-2022	401	215	322	407	135	185	240	DNA	406	276	320	331	248
20-01-2022	390	200	328	401	138	188	248	DNA	308	282	311	308	268
21-01-2022	484	270	377	393	305	313	312	DNA	406	347	312	321	319
22-01-2022	392	221	390	428	228	246	375	DNA	470	326	364	270	312
23-01-2022	405	172	370	443	199	307	335	DNA	430	336	309	277	259
24-01-2022	246	190	328	213	192	167	284	DNA	308	317	309	170	166
25-01-2022	377	132	339	380	161	189	258	DNA	369	305	312	175	190
26-01-2022	320	155	260	395	158	189	254	DNA	311	249	333	190	196
27-01-2022	287	168	227	318	155	169	153	158	295	196	234	169	192
28-01-2022	242	158	190	245	162	155	178	DNA	252	186	297	DNA	170
29-01-2022	332	147	DNA	341	189	175	193	DNA	356	264	357	195	229
30-01-2022	358	188	231	336	273	224	214	195	355	242	332	290	223
31-01-2022	394	202	399	415	317	257	304	263	471	350	394	278	274

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