



Air Quality Monthly Report

October, 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

Summary of Components Month of October, 2022

Table 5: Summary of components, Month of October, 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	0.7	DNA	DNA	DNA	3.4	8.3	4.6	0.8	5.0	DNA	2.0	1.6	1.8	1.5	1.5
	Max	1.9	DNA	DNA	DNA	8.3	9.2	5.9	0.9	6.8	DNA	2.6	3.8	3.8	3.7	5.8
	Min	0.2	DNA	DNA	DNA	0.2	6.6	4.0	0.6	3.5	DNA	1.3	1.3	0.3	0.6	0.8
	Excedance(Days)	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(%)	16.1	DNA	DNA	DNA	100.0	100.0	58.1	100.0	77.4	DNA	22.6	54.8	90.3	83.9	96.8
NO ₂ -24 hr	Average	10.6	3.3	DNA	DNA	12.7	8.4	12.6	7.9	5.3	0.3	14.4	2.1	3.7	5.2	5.6
	Max	25.5	7.6	DNA	DNA	13.0	52.6	19.7	8.2	31.5	1.3	33.7	5.0	8.7	5.4	6.1
	Min	3.0	0.1	DNA	DNA	11.7	2.0	7.8	7.7	1.7	0.1	4.5	0.3	1.8	4.9	5.4
	Excedance(Days)	0.0	0.0	DNA	DNA	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	38.7	96.8	DNA	DNA	100.0	100.0	58.1	100.0	100.0	45.2	83.9	93.5	100.0	87.1	90.3
CO-8hr	Average	2.9	DNA	DNA	DNA	2.1	DNA	DNA	2.6	0.9	DNA	DNA	0.5	1.2	1.3	1.7
	Max	8.2	DNA	DNA	DNA	3.9	DNA	DNA	8.0	1.3	DNA	DNA	2.3	2.7	3.1	3.7
	Min	0.1	DNA	DNA	DNA	1.4	DNA	DNA	0.1	0.6	DNA	DNA	0.1	0.0	0.0	0.8
	Excedance(Hour)	124.0	DNA	DNA	DNA	0.0	DNA	DNA	141.0	0.0	DNA	DNA	0.0	0.0	0.0	0.0
	Data capture(%)	46.1	DNA	DNA	DNA	99.1	DNA	DNA	89.9	99.1	DNA	DNA	93.4	94.9	60.6	91.0
O ₃ -8hr	Average	3.3	6.0	DNA	DNA	6.1	DNA	DNA	11.1	12.3	DNA	22.0	11.4	17.2	17.7	14.2
	Max	26.4	58.6	DNA	DNA	26.9	DNA	DNA	46.6	17.0	DNA	47.7	25.5	37.7	48.1	52.4
	Min	0.1	0.6	DNA	DNA	1.8	DNA	DNA	1.3	9.4	DNA	11.0	1.4	3.5	1.1	0.2
	Excedance(Hour)	0.0	8.0	DNA	DNA	0.0	DNA	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	2.0
	Data capture(%)	51.6	19.1	DNA	DNA	99.1	DNA	DNA	91.7	99.1	DNA	77.8	93.1	95.0	83.1	90.3
PM _{2.5} -24hr	Average	85.9	71.4	57.5	75.3	DNA	37.3	48.4	34.5	73.8	34.9	59.9	62.4	51.2	31.9	59.2
	Max	186.8	154.2	91.9	196.8	DNA	77.4	138.3	124.8	126.5	54.5	106.8	102.7	117.8	68.1	124.7
	Min	29.6	25.4	19.9	14.7	DNA	10.0	7.9	8.3	29.6	18.5	17.2	26.4	12.4	10.1	8.9
	Excedance(Days)	13.0	14.0	12.0	16.0	DNA	2.0	3.0	2.0	19.0	0.0	10.0	12.0	9.0	2.0	10.0
	Data capture(%)	58.1	100.0	90.3	96.8	DNA	100.0	54.8	83.9	100.0	29.0	77.4	96.8	100.0	87.1	77.4
PM ₁₀ -24hr	Average	133.4	118.3	98.0	130.1	33.4	77.9	111.8	53.3	116.6	37.7	89.8	104.0	98.4	87.2	59.7
	Max	346.1	293.9	172.0	312.8	63.2	150.5	336.5	121.7	207.3	68.3	166.5	283.3	239.2	177.8	114.9
	Min	44.6	51.9	37.2	29.7	9.4	34.4	20.9	18.9	41.5	14.8	33.8	11.5	38.8	34.2	18.9
	Excedance(Days)	5.0	7.0	3.0	10.0	0.0	1.0	4.0	0.0	7.0	0.0	2.0	4.0	4.0	1.0	0.0
	Data capture(%)	58.1	77.4	90.3	67.7	87.1	100.0	54.8	80.6	100.0	16.1	83.9	87.1	96.8	61.3	90.3
Solar rad. 1hr	Average	DNA	115.6	DNA	DNA	DNA	156.4	DNA	117.1	60.2	148.0	243.5	234.8	362.9	243.7	292.1
	Max	DNA	849.5	DNA	DNA	DNA	820.9	DNA	835.9	804.7	729.0	927.6	752.0	920.9	791.7	959.6
	Min	DNA	7.4	DNA	DNA	DNA	9.2	DNA	0.2	1.2	8.5	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	DNA	95	DNA	DNA	DNA	87	DNA	77	7	40	67.7	38.8	51.5	52.0	53.5
Relative Humidity 1hr	Average	68.0	67.2	DNA	DNA	59.2	76.6	DNA	69.3	73.2	89.6	71.7	90.2	84.4	94.3	47.0
	Max	74.9	94.9	DNA	DNA	96.3	94.6	DNA	72.0	90.2	95.8	97.7	99.4	99.5	99.6	81.4
	Min	33.9	25.1	DNA	DNA	57.1	37.7	DNA	58.8	45.5	58.8	45.8	49.8	45.2	55.0	19.3
	Data capture(%)	32.4	92.9	DNA	DNA	100	81	DNA	77	99	40	36.7	67.1	93.5	79.4	87.5
Ambient Temp. 1hr	Average	31.9	25.9	DNA	DNA	27.7	28.3	DNA	29.0	32.8	29.6	26.5	26.2	26.2	26.7	26.6
	Max	37.5	34.6	DNA	DNA	34.2	42.0	DNA	35.8	38.0	39.6	32.9	33.9	33.7	33.3	33.1
	Min	26.6	15.6	DNA	DNA	20.5	10.1	DNA	21.2	19.2	16.2	19.2	16.6	16.4	19.0	18.8
	Data capture(%)	32.4	96	DNA	DNA	100	49	DNA	77	99	40	100.0	66.4	93.0	78.5	87.0
Rainfall 1hr	Average	4.91	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.55	DNA	0.19	DNA	DNA	DNA
	Max	13.84	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	1.19	DNA	4.37	DNA	DNA	DNA
	Min	3.24	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.04	DNA	0.03	DNA	DNA	DNA
	Data capture(%)	24.60	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	39.65	DNA	90.46	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 October, 2022

Date	Dhaka	Chattogram	Gazipur	Narayanganj	Sylhet	Khulna	Rajshahi	Barishal	Savar	Mymensingh	Rangpur	Cumilla	Norshindi
01-10-2022	203	85	164	DNA	108	116	197	38	187	158	161	77	87
02-10-2022	146	33	102	DNA	41	38	169	14	109	102	135	51	61
03-10-2022	101	45	72	DNA	63	60	131	12	89	61	80	24	22
04-10-2022	116	52	68	58	60	32	93	14	51	57	55	36	23
05-10-2022	321	120	193	328	DNA	144	193	DNA	191	179	180	172	195
06-10-2022	121	30	128	43	DNA	32	150	DNA	DNA	157	87	47	20
07-10-2022	136	62	156	88	DNA	36	184	DNA	DNA	154	115	41	32
08-10-2022	159	84	148	102	DNA	46	165	DNA	DNA	131	105	42	34
09-10-2022	139	26	99	66	DNA	31	180	DNA	DNA	132	98	DNA	26
10-10-2022	89	34	54	43	DNA	32	81	DNA	71	106	110	28	32
11-10-2022	96	69	60	41	30	DNA	68	DNA	52	103	54	40	98
12-10-2022	75	39	88	64	DNA	52	62	54	42	114	85	31	62
13-10-2022	93	40	97	115	DNA	54	141	45	115	125	155	46	94
14-10-2022	153	59	DNA	182	DNA	58	129	54	116	145	138	66	135
15-10-2022	144	77	DNA	158	DNA	110	154	92	127	135	160	81	146
16-10-2022	75	39	88	64	DNA	52	62	54	42	114	85	31	62
17-10-2022	190	81	182	220	DNA	52	108	87	159	155	91	72	116
18-10-2022	183	75	158	235	48	133	175	113	178	134	69	85	157
19-10-2022	170	110	147	186	DNA	DNA	166	108	159	158	55	76	142
20-10-2022	154	91	133	171	DNA	DNA	176	129	152	157	58	98	156
21-10-2022	142	90	140	166	DNA	DNA	167	DNA	143	129	60	DNA	138
22-10-2022	137	120	122	194	DNA	DNA	125	DNA	142	147	76	82	128
23-10-2022	197	133	168	DNA	DNA	154	139	DNA	186	156	57	155	156
24-10-2022	53	44	81	DNA	DNA	36	117	DNA	132	129	113	53	55
25-10-2022	75	30	68	94	DNA	59	63	DNA	48	100	77	68	58
26-10-2022	161	60	174	146	DNA	82	163	DNA	159	178	143	99	113
27-10-2022	217	102	158	269	DNA	DNA	220	DNA	174	175	219	93	108
28-10-2022	179	105	180	288	DNA	DNA	193	DNA	189	164	178	116	124
29-10-2022	230	76	167	275	DNA	73	184	DNA	178	165	177	125	170
30-10-2022	262	114	179	DNA	DNA	DNA	159	DNA	170	191	163	154	185
31-10-2022	198	131	162	DNA	DNA	DNA	192	115	190	165	154	132	178

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