



Air Quality Monthly Report

August, 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.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 August, 2023

Table 5: Summary of components_ Month of August, 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 (ppb)	Average	17.1	4.5	12.4	16.3	10.7	4.3	3.5	9.3	13.1	3.9	9.3	1.6	5.5	4.7	3.5	1.3
	Max	28.3	7.7	13.6	18.3	10.9	12.4	5.9	10.9	27.0	5.0	12.6	4.1	40.4	15.6	5.9	3.6
	Min	6.0	0.7	11.9	15.7	10.4	1.1	0.1	2.5	0.7	1.9	8.7	0.4	0.9	2.3	0.1	0.1
	Excedance(Days)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
	Data capture(%)	96.8	80.6	100.0	32.3	12.9	80.6	35.5	93.5	100.0	100.0	90.3	100.0	71.0	77.4	35.5	100.0
NO ₂ -24 hr (ppb)	Average	3.5	37.3	4.3	0.2	DNA	4.3	8.4	DNA	4.5	3.3	1.5	4.4	5.9	3.9	8.4	8.4
	Max	6.9	113.4	7.7	0.2	DNA	11.9	16.1	DNA	5.0	4.3	2.8	17.5	6.5	9.5	16.1	9.1
	Min	2.3	2.8	2.7	0.2	DNA	1.2	3.0	DNA	3.6	1.8	0.3	2.7	5.4	0.3	3.0	7.6
	Excedance(Days)	0.0	7.0	0.0	0.0	DNA	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	96.8	83.9	100.0	90.3	DNA	87.1	96.8	DNA	100.0	100.0	64.5	100.0	100.0	77.4	96.8	100.0
CO-8hr (ppm)	Average	2.4	5.3	2.8	DNA	0.7	1.3	DNA	2.6	2.8	3.7	DNA	0.6	1.1	2.1	DNA	0.3
	Max	3.0	12.8	4.5	DNA	0.7	2.3	DNA	2.8	12.1	13.9	DNA	3.0	1.7	67.6	DNA	0.9
	Min	1.9	0.7	2.0	DNA	0.7	0.1	DNA	2.3	0.1	0.6	DNA	0.3	1.0	0.1	DNA	0.1
	Excedance(Hour)	0.0	334.0	12.0	DNA	0.0	0.0	DNA	0.0	196.0	234.0	DNA	0.0	0.0	4.0	DNA	0.0
	Data capture(%)	86.7	78.0	99.1	DNA	99.1	78.5	DNA	99.1	97.2	98.8	DNA	99.1	95.4	74.2	DNA	99.1
O ₃ -8hr (ppb)	Average	DNA	7.2	1.5	35.5	3.2	13.2	4.9	3.1	12.5	18.0	114.8	10.2	22.8	79.6	4.9	11.0
	Max	DNA	28.4	7.9	40.0	5.4	30.5	5.2	12.0	102.4	27.0	120.0	30.6	48.0	119.1	5.2	28.4
	Min	DNA	0.7	0.1	32.1	2.8	4.7	4.7	0.1	6.2	10.8	87.6	2.0	2.0	20.7	4.7	0.1
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	137.0	0.0	0.0	296.0	0.0	0.0
	Data capture(%)	DNA	78.0	73.7	68.3	77.8	78.6	71.8	40.7	95.6	99.1	18.4	99.1	88.2	44.6	71.8	99.1
PM _{2.5} -24hr (ug/m3)	Average	37.3	72.2	51.2	51.7	45.1	22.2	42.5	51.2	32.1	42.4	31.8	64.5	61.4	61.1	42.5	25.8
	Max	93.4	352.6	128.6	97.1	188.7	56.6	366.3	367.5	89.8	132.1	62.1	126.8	124.1	131.9	366.3	75.0
	Min	13.7	32.9	21.5	10.5	13.5	7.0	8.8	10.3	7.4	10.5	11.8	21.6	22.8	29.9	8.8	8.3
	Excedance(Days)	3.0	8.0	5.0	8.0	3.0	0.0	4.0	4.0	3.0	5.0	0.0	14.0	11.0	7.0	4.0	2.0
	Data capture(%)	96.8	74.2	100.0	100.0	83.9	87.1	83.9	100.0	96.8	100.0	74.2	100.0	100.0	77.4	83.9	100.0
PM ₁₀ -24hr (ug/m3)	Average	76.0	75.6	97.4	87.1	110.7	48.8	70.5	82.5	57.5	76.6	58.4	103.5	158.4	96.9	70.5	55.3
	Max	218.8	245.5	246.5	236.5	392.7	76.9	175.1	171.5	200.9	193.9	163.0	245.1	290.9	280.6	175.1	191.7
	Min	28.1	11.4	45.9	29.2	28.2	22.7	18.6	29.6	13.8	20.8	23.8	40.3	70.9	19.9	18.6	12.0
	Excedance(Days)	3.0	2.0	4.0	3.0	3.0	0.0	2.0	2.0	2.0	4.0	2.0	4.0	16.0	4.0	2.0	2.0
	Data capture(%)	96.8	64.5	100.0	100.0	96.8	87.1	77.4	32.3	100.0	80.6	100.0	100.0	100.0	77.4	77.4	100.0
Solar rad. 1hr (W/m2)	Average	91.46	163.95	125.8	2.4	DNA	459.0	127.4	DNA	147.3	839.3	82.9	181.1	161.6	246.0	127.4	189.1
	Max	717.93	734.8	1003.1	15.4	DNA	503.5	746.5	DNA	767.5	905.6	611.4	987.7	994.2	919.3	746.5	1038.1
	Min	20.39	0.1	980.0	0.7	DNA	82.9	9.4	DNA	0.2	788.2	8.4	0.0	0.0	0.1	9.4	0.0
	Data capture(%)	84.81	38	93	99	DNA	66	94	DNA	63	93	95	77.4	81.0	51.2	94.4	81.3
Relative Humidity 1hr (%)	Average	52.38	85.5	80.6	DNA	DNA	59.2	87.1	DNA	58.7	91.7	62.0	80.6	95.6	89.8	87.1	46.2
	Max	59.59	100.0	94.7	DNA	DNA	88.3	99.9	DNA	71.1	95.6	89.4	100.0	99.4	99.6	99.9	65.5
	Min	42.29	16.7	49.7	DNA	DNA	57.1	54.5	DNA	58.3	89.8	50.7	53.3	54.9	54.1	54.5	20.7
	Data capture(%)	84.81	18.7	98.8	DNA	DNA	77	88	DNA	90	93	95	23.0	99.9	72.6	87.8	99.9
Ambient Temp. 1hr (degreeC)	Average	DNA	26.1	28.3	DNA	DNA	27.9	31.9	DNA	29.9	31.7	29.5	27.3	28.1	28.6	31.9	27.9
	Max	DNA	32.5	32.9	DNA	DNA	34.7	43.0	DNA	36.2	39.2	39.8	35.1	36.0	35.1	43.0	34.7
	Min	DNA	17.4	15.2	DNA	DNA	24.1	11.5	DNA	26.4	27.5	24.7	24.3	24.5	24.5	11.5	23.4
	Data capture(%)	DNA	39.5	32	DNA	DNA	77	32	DNA	90	93	95	54.6	98.0	71.8	31.9	99.2
Rainfall 1hr (mm)	Average	178.21	DNA	0.41	0.04	DNA	16.16	DNA	DNA	0.29	DNA	0.34	0.06	0.50	0.44	DNA	0.08
	Max	195.12	DNA	0.80	0.04	DNA	30.80	DNA	DNA	0.29	DNA	0.87	0.52	15.71	8.71	DNA	0.67
	Min	161.29	DNA	0.04	0.03	DNA	0.52	DNA	DNA	0.29	DNA	0.01	0.01	0.01	0.01	DNA	0.01
	Data capture(%)	0.27	DNA	96.51	18.55	DNA	44.09	DNA	DNA	0.13	DNA	91.13	10.08	70.70	7.26	DNA	11.02

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 August, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-08-23	120	42	48	89	52	32	90	60	87	91	DNA	60	65
02-08-23	89	51	44	53	47	41	75	39	70	58	DNA	63	37
03-08-23	115	58	81	62	38	52	109	DNA	149	82	DNA	50	64
04-08-23	104	58	157	0	101	55	109	DNA	149	82	DNA	51	DNA
05-08-23	135	73	149	154	122	81	151	DNA	153	158	157	DNA	107
06-08-23	104	46	100	105	DNA	74	108	DNA	134	130	DNA	56	64
07-08-23	110	50	104	96	51	64	65	42	140	124	DNA	68	58
08-08-23	95	45	50	88	56	31	66	73	116	94	DNA	75	DNA
09-08-23	128	67	DNA	103	100	30	69	73	160	157	115	88	38
10-08-23	130	83	166	116	89	94	74	73	160	151	121	99	38
11-08-23	131	80	156	108	90	97	83	99	176	153	151	110	65
12-08-23	123	77	153	113	102	81	94	73	161	162	130	86	76
13-08-23	113	74	122	74	80	85	81	73	139	119	117	73	78
14-08-23	146	58	158	118	DNA	124	74	73	163	143	145	83	162
15-08-23	158	82	161	150	DNA	117	105	73	167	175	151	156	154
16-08-23	146	88	161	137	156	151	103	73	169	182	161	87	108
17-08-23	131	74	120	136	137	121	87	73	158	145	158	87	104
18-08-23	83	48	78	53	54	DNA	55	73	136	101	126	52	53
19-08-23	86	50	83	51	41	38	58	73	104	92	114	58	66
20-08-23	99	75	125	79	DNA	69	94	75	125	136	124	124	113
21-08-23	117	55	84	132	DNA	75	140	73	132	159	166	136	116
22-08-23	117	55	84	132	DNA	75	140	73	132	159	166	136	116
23-08-23	73	40	130	61	52	52	94	73	93	115	93	89	51
24-08-23	107	38	132	69	56	72	141	64	131	111	141	79	63
25-08-23	80	41	113	57	43	68	100	64	94	121	88	62	60
26-08-23	102	71	109	DNA	96	72	113	73	117	148	105	94	98
27-08-23	160	91	155	DNA	82	DNA	177	73	169	159	175	149	109
28-08-23	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
29-08-23	178	147	156	DNA	94	DNA	170	73	156	158	148	DNA	146
30-08-23	187	109	171	DNA	155	158	175	153	188	169	187	163	DNA
31-08-23	188	99	172	169	127	DNA	189	135	181	173	190	146	160

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