



Air Quality Monthly Report

November, 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 November, 2023

Table 5: Summary of components_ Month of November, 2023

Parameter	Summary	DoE	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
SO ₂ -24 hr (ppb)	Average	17.8	3.8	12.6	10.3	DNA	3.9	7.9	6.2	13.2	8.8	11.1	2.3	15.2	2.2	8.4	1.7
	Max	22.7	6.2	17.5	11.2	DNA	22.8	10.5	7.9	26.7	20.0	16.2	5.7	38.1	3.4	19.2	4.0
	Min	14.8	2.5	9.7	9.9	DNA	1.9	6.4	5.2	0.3	3.7	10.1	0.4	1.2	1.2	0.6	1.0
	Excedance(Days)	0.0	0.0	0.0	0.0	DNA	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	87.1	9.7	96.8	DNA	58.1	96.8	96.8	77.4	96.8	80.6	96.8	12.9	96.8	96.8	96.8
NO ₂ -24 hr (ppb)	Average	6.0	86.9	7.4	0.2	DNA	5.0	5.2	DNA	3.6	3.3	4.9	4.0	4.4	2.4	5.3	7.6
	Max	10.5	116.8	11.6	0.2	DNA	35.5	8.8	DNA	3.8	4.7	8.1	4.1	5.3	22.5	5.4	7.6
	Min	1.6	65.5	1.6	0.2	DNA	2.4	0.4	DNA	3.5	1.8	1.5	3.9	3.8	0.4	5.1	7.5
	Excedance(Days)	0.0	30.0	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	96.8	96.8	96.8	DNA	96.8	96.8	DNA	90.3	87.1	96.8	96.8	25.8	45.2	6.5	58.1
CO-8hr (ppm)	Average	2.4	3.6	13.0	DNA	0.7	1.4	4.3	3.5	1.4	5.0	DNA	0.8	1.3	1.8	1.6	0.6
	Max	3.4	11.0	20.0	DNA	0.8	5.6	6.3	9.2	3.9	9.8	DNA	1.9	3.7	39.4	4.3	1.4
	Min	1.6	1.0	3.3	DNA	0.7	0.0	3.1	2.3	0.2	1.1	DNA	0.2	0.7	0.2	0.7	0.2
	Excedance(Hour)	0.0	209.0	615.0	DNA	0.0	24.0	468.0	154.0	0.0	463.0	DNA	0.0	0.0	14.0	2.0	0.0
	Data capture(%)	95.8	84.4	83.9	DNA	95.7	50.7	80.2	95.8	80.0	92.7	DNA	88.8	95.8	96.8	3.0	95.2
O ₃ -8hr (ppb)	Average	DNA	6.3	4.4	5.9	5.2	13.9	1.5	3.3	9.8	14.2	98.4	13.6	7.9	43.8	10.3	4.7
	Max	DNA	23.0	5.0	8.9	19.4	43.0	2.7	4.3	33.6	28.0	98.4	55.6	23.7	118.9	37.4	30.2
	Min	DNA	0.4	4.2	5.1	3.5	3.0	0.5	0.7	2.1	4.2	98.4	1.9	0.5	2.1	0.3	0.2
	Excedance(Hour)	DNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	3.0	0.0	255.0	0.0	0.0
	Data capture(%)	DNA	94.5	95.8	95.6	29.7	93.5	84.5	66.9	87.0	95.8	1.1	95.8	95.8	88.2	94.5	95.8
PM _{2.5} -24hr (ug/m3)	Average	82.3	73.5	117.9	90.8	178.1	63.8	82.7	DNA	96.2	147.4	81.2	120.5	106.0	134.0	54.3	49.0
	Max	150.4	158.6	221.7	135.3	246.8	117.6	187.4	DNA	158.8	250.3	193.3	212.0	159.5	204.9	100.7	82.8
	Min	19.6	17.9	20.7	12.2	75.2	12.8	33.2	DNA	17.1	32.5	24.9	25.0	21.1	50.2	14.9	12.8
	Excedance(Days)	21.0	21.0	28.0	16.0	27.0	11.0	18.0	DNA	23.0	28.0	23.0	28.0	28.0	29.0	8.0	9.0
	Data capture(%)	90.3	93.5	96.8	64.5	87.1	96.8	90.3	DNA	93.5	96.8	96.8	96.8	96.8	96.8	96.8	87.1
PM ₁₀ -24hr (ug/m3)	Average	144.0	79.3	185.8	194.5	273.2	120.8	95.7	114.1	154.8	165.3	158.7	170.1	267.7	217.1	62.5	148.6
	Max	228.4	108.2	304.0	323.4	387.3	197.8	227.6	178.1	249.4	243.7	480.0	286.8	371.7	354.4	71.2	234.0
	Min	24.9	67.6	27.0	26.7	34.9	24.5	21.6	27.2	22.3	112.4	49.4	39.6	57.2	48.8	53.8	35.3
	Excedance(Days)	15.0	0.0	22.0	24.0	25.0	5.0	5.0	3.0	16.0	18.0	13.0	20.0	28.0	23.0	0.0	13.0
	Data capture(%)	96.8	12.9	96.8	96.8	87.1	61.3	93.5	96.8	93.5	80.6	87.1	96.8	96.8	96.8	6.5	96.8
Solar rad. 1hr (W/m2)	Average	102.72	219.91	63.9	12.6	DNA	516.1	137.5	DNA	218.6	792.2	85.9	258.7	213.0	364.5	241.6	328.8
	Max	563.52	677.6	1020.0	25.0	DNA	540.9	633.4	DNA	915.9	822.1	494.5	734.7	751.3	845.3	634.3	803.9
	Min	19.78	0.1	1005.0	11.5	DNA	381.1	9.1	DNA	0.2	773.3	8.3	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	91.67	44	75	94	DNA	93	90	DNA	52	95	93	55.6	45.6	47.4	50.7	49.2
	Relative Humidity 1hr (%)	Average	54.30	70.5	67.5	DNA	DNA	58.6	71.0	DNA	66.6	90.2	56.9	65.2	87.5	77.7	89.4
	Max	61.61	100.0	93.5	DNA	DNA	85.2	99.8	DNA	93.4	94.1	78.4	100.0	99.4	99.5	99.9	85.6
	Min	46.64	34.7	33.7	DNA	DNA	57.1	21.4	DNA	59.7	88.8	51.8	32.6	40.7	39.1	37.7	15.4
	Data capture(%)	91.67	73.7	96.4	DNA	DNA	93	89	DNA	90	95	93	57.7	90.5	96.6	96.2	96.0
Ambient Temp. 1hr (degreeC)	Average	DNA	22.4	25.8	DNA	DNA	26.0	27.0	DNA	26.2	26.7	25.3	29.7	23.5	23.3	24.4	24.4
	Max	DNA	29.7	31.4	DNA	DNA	36.2	43.0	DNA	34.0	35.5	38.7	42.4	29.6	31.4	32.9	33.3
	Min	DNA	15.6	15.4	DNA	DNA	18.5	7.0	DNA	19.6	19.8	16.0	7.3	17.7	16.5	17.7	17.7
	Data capture(%)	DNA	82.7	96	DNA	DNA	93	56	DNA	90	95	93	4.4	89.4	96.0	93.3	95.0
	Rainfall 1hr (mm)	Average	138.27	DNA	0.80	0.31	DNA	DNA	DNA	DNA	DNA	DNA	0.35	0.02	0.50	0.03	DNA
	Max	192.53	DNA	0.80	0.32	DNA	DNA	DNA	DNA	DNA	DNA	0.86	0.04	8.10	0.06	DNA	0.05
	Min	86.13	DNA	0.60	0.08	DNA	DNA	DNA	DNA	DNA	DNA	0.01	0.01	0.01	0.01	DNA	0.01
	Data capture(%)	0.67	DNA	29.57	2.55	DNA	DNA	DNA	DNA	DNA	DNA	89.65	1.21	81.85	0.40	DNA	1.48

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 November, 2023

Date	Dhaka	Chittagong	Gazipur	Narayangonj	Sylhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narsingdi
01-11-23	159	143	154	233	100	152	170	148	170	159	121	100	148
02-11-23	157	113	161	190	88	160	199	154	169	159	188	101	155
03-11-23	162	126	170	211	94	171	189	165	175	178	195	154	164
04-11-23	169	163	189	222	91	169	210	168	176	185	195	155	163
05-11-23	170	160	217	209	94	178	217	163	193	183	206	143	164
06-11-23	164	155	173	182	102	169	213	165	186	167	184	156	160
07-11-23	173	182	171	312	104	185	230	155	194	175	191	163	161
08-11-23	173	175	175	268	93	184	242	167	204	171	208	157	160
09-11-23	188	169	192	240	88	184	299	168	213	191	240	149	124
10-11-23	173	148	189	265	96	203	298	172	224	183	216	156	136
11-11-23	173	158	172	212	79	175	219	163	199	175	190	152	160
12-11-23	168	156	174	249	82	152	187	160	186	172	202	132	97
13-11-23	161	150	228	238	86	154	175	157	167	163	187	133	159
14-11-23	172	165	184	243	92	167	183	153	178	184	183	151	155
15-11-23	161	159	153	214	81	162	192	159	175	181	183	150	153
16-11-23	180	120	140	280	70	150	163	126	185	172	181	127	155
17-11-23	83	53	51	114	22	75	95	DNA	109	83	165	55	52
18-11-23	86	99	66	71	47	65	97	71	100	86	109	48	37
19-11-23	125	114	135	134	60	70	157	125	143	165	161	70	88
20-11-23	151	113	163	145	86	164	156	119	160	164	191	101	89
21-11-23	187	108	163	186	86	160	175	154	185	186	189	126	92
22-11-23	211	124	172	255	88	187	276	173	235	193	238	147	90
23-11-23	211	145	181	281	88	208	266	186	262	214	253	174	90
24-11-23	200	188	185	294	74	195	232	177	260	191	232	160	88
25-11-23	178	120	176	235	88	189	224	162	194	214	229	122	90
26-11-23	153	109	205	257	90	145	223	155	180	173	188	122	92
27-11-23	143	169	205	209	76	172	206	148	162	159	169	132	88
28-11-23	177	144	110	231	112	214	225	152	204	191	175	116	88
29-11-23	170	127	105	242	89	200	251	189	207	185	196	139	88
30-11-23	125	133	107	292	104	164	177	151	179	235	222	111	152

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