



Air Quality Monthly Report

September, 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 September, 2022

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

Parameter	Summary	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattagram	Agrabad, Chattagram	Syhet	Khulna	Rajshahi	Barisal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi
SO ₂ -24 hr	Average	3.1	DNA	DNA	DNA	2.2	4.6	4.1	1.2	4.5	DNA	6.7	11.8	3.8	2.5	2.4
	Max	4.1	DNA	DNA	DNA	10.8	7.1	4.5	4.5	6.3	DNA	13.3	28.5	14.3	8.0	5.3
	Min	1.0	DNA	DNA	DNA	0.1	2.4	3.9	0.4	1.4	DNA	0.6	0.1	0.9	0.6	1.3
	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(%)	29.0	DNA	DNA	DNA	87.1	74.2	96.8	80.6	93.5	DNA	25.8	64.5	71.0	87.1	96.8
NO ₂ -24 hr	Average	5.4	2.6	DNA	1.0	12.9	5.0	6.6	8.3	8.2	0.2	4.2	5.5	3.7	5.2	5.7
	Max	7.3	7.7	DNA	4.9	13.1	18.7	14.8	8.5	52.5	0.7	6.0	5.9	6.1	5.4	6.1
	Min	4.0	0.3	DNA	0.1	12.6	0.3	4.4	7.7	1.2	0.1	3.9	5.2	0.8	4.9	5.4
	Excedance(Days)	0.0	0.0	DNA	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	35.5	77.4	DNA	25.8	96.8	71.0	96.8	83.9	93.5	32.3	87.1	96.8	90.3	90.3	96.8
CO-8hr	Average	2.4	DNA	DNA	DNA	2.1	DNA	DNA	3.2	0.9	DNA	9.2	1.2	1.7	1.6	3.2
	Max	4.1	DNA	DNA	DNA	3.3	DNA	DNA	8.7	3.0	DNA	10.6	2.3	15.6	2.8	4.5
	Min	0.0	DNA	DNA	DNA	0.6	DNA	DNA	0.3	0.6	DNA	5.9	0.8	0.1	0.5	2.7
	Excedance(Hour)	4.0	DNA	DNA	DNA	0.0	DNA	DNA	175.0	0.0	DNA	377.0	0.0	7.0	0.0	14.0
	Data capture(%)	87.5	DNA	DNA	DNA	96.8	DNA	DNA	76.6	93.5	DNA	50.7	98.9	88.3	86.7	96.8
O ₃ -8hr	Average	7.4	2.0	DNA	DNA	10.8	DNA	DNA	21.8	24.3	DNA	14.9	52.6	18.1	15.0	9.9
	Max	13.5	5.8	DNA	DNA	32.3	DNA	DNA	31.1	89.7	DNA	40.3	179.4	39.8	98.8	31.1
	Min	0.1	0.6	DNA	DNA	4.4	DNA	DNA	1.2	7.9	DNA	10.3	2.7	3.5	0.2	0.6
	Excedance(Hour)	0.0	0.0	DNA	DNA	0.0	DNA	DNA	0.0	46.0	DNA	0.0	137.0	0.0	4.0	0.0
	Data capture(%)	99.1	24.6	DNA	DNA	99.1	DNA	DNA	79.0	86.8	DNA	80.2	69.2	86.2	85.3	99.1
PM _{2.5} -24hr	Average	70.9	54.7	59.5	28.0	27.3	50.2	52.5	29.6	74.9	DNA	53.3	58.2	50.0	21.4	28.1
	Max	174.4	141.3	100.8	81.1	53.5	102.1	102.8	91.9	137.2	DNA	104.1	159.1	83.6	60.7	84.3
	Min	26.3	26.8	23.2	13.3	9.3	11.9	26.1	6.3	35.7	DNA	23.1	25.8	21.0	7.5	9.5
	Excedance(Days)	15.0	5.0	3.0	1.0	0.0	9.0	4.0	1.0	14.0	DNA	7.0	8.0	9.0	0.0	1.0
	Data capture(%)	96.8	87.1	19.4	35.5	29.0	74.2	54.8	77.4	93.5	DNA	87.1	96.8	93.5	90.3	96.8
PM ₁₀ -24hr	Average	134.6	86.5	71.8	74.8	24.5	27.2	125.8	62.8	124.0	35.6	76.2	130.3	89.3	60.0	37.2
	Max	248.8	208.9	133.9	171.8	48.9	76.9	211.2	109.1	239.6	90.6	133.9	275.0	185.7	144.3	67.2
	Min	39.3	42.3	21.5	24.2	11.6	11.0	57.7	21.6	24.4	11.6	41.0	47.2	27.9	19.0	15.2
	Excedance(Days)	13.0	3.0	0.0	2.0	0.0	0.0	1.0	0.0	9.0	0.0	0.0	10.0	2.0	0.0	0.0
	Data capture(%)	96.8	87.1	93.5	67.7	96.8	74.2	19.4	71.0	90.3	77.4	87.1	96.8	93.5	80.6	96.8
Solar rad. 1hr	Average	DNA	127.7	DNA	DNA	DNA	142.4	DNA	141.9	DNA	115.8	191.8	213.6	311.5	212.3	240.4
	Max	DNA	1019.9	DNA	DNA	DNA	798.3	DNA	828.1	DNA	758.5	890.7	958.4	986.0	847.2	1018.3
	Min	DNA	999.8	DNA	DNA	DNA	9.2	DNA	0.1	DNA	8.3	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	DNA	74	DNA	DNA	DNA	67	DNA	69	DNA	70	67.5	57.3	45.7	57.9	69.9
Relative Humidity 1hr	Average	70.4	71.3	DNA	DNA	59.0	80.0	DNA	63.2	73.8	87.7	74.7	93.6	88.3	96.9	48.4
	Max	78.3	89.9	DNA	DNA	80.4	95.0	DNA	71.9	90.7	95.8	97.6	99.4	99.6	99.6	78.2
	Min	34.4	35.6	DNA	DNA	57.1	48.2	DNA	57.7	28.9	61.6	47.3	22.3	53.7	68.4	19.5
	Data capture(%)	96.4	76.2	DNA	DNA	100	54	DNA	69	88	70	22.2	81.7	78.2	76.3	98.9
Ambient Temp. 1hr	Average	31.5	30.7	DNA	DNA	27.7	28.9	DNA	30.3	32.4	29.3	27.4	28.4	27.6	27.5	27.6
	Max	38.5	41.4	DNA	DNA	34.5	41.9	DNA	36.0	38.0	40.3	34.6	35.7	33.3	35.0	34.1
	Min	15.0	20.3	DNA	DNA	14.9	9.6	DNA	18.2	17.5	13.9	16.6	7.8	13.7	16.3	16.0
	Data capture(%)	96.4	76	DNA	DNA	100	30	DNA	69	88	70	87.0	80.0	76.1	78.1	98.7
Rainfall 1hr	Average	4.33	DNA	DNA	DNA	DNA	DNA	DNA	DNA	1.65	DNA	DNA	DNA	DNA	DNA	DNA
	Max	10.50	DNA	DNA	DNA	DNA	DNA	DNA	DNA	3.69	DNA	DNA	DNA	DNA	DNA	DNA
	Min	3.24	DNA	DNA	DNA	DNA	DNA	DNA	DNA	0.04	DNA	DNA	DNA	DNA	DNA	DNA
	Data capture(%)	62.23	DNA	DNA	DNA	DNA	DNA	DNA	DNA	19.76	DNA	DNA	DNA	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 September, 2022

Date	Dhaka	Chattogram	Gazipur	Narayanganj	Sylhet	Khulna	Rajshahi	Barishal	Savar	Mymensingh	Rangpur	Cumilla	Norshindi
01-09-2022	75	37	30	42	60	84	113	20	75	124	153	26	57
02-09-2022	80	26	22	56	65	72	92	14	91	125	DNA	41	68
03-09-2022	91	20	32	42	54	78	118	15	90	126	108	31	51
04-09-2022	133	28	30	66	56	90	106	15	136	108	153	26	38
05-09-2022	116	26	35	69	68	63	96	12	113	108	111	20	39
06-09-2022	116	29	32	DNA	81	86	136	18	130	125	102	31	32
07-09-2022	152	97	29	94	95	81	127	DNA	108	128	136	28	46
08-09-2022	162	33	46	168	63	73	136	DNA	158	154	94	38	64
09-09-2022	144	49	44	70	DNA	79	162	DNA	116	119	71	38	64
10-09-2022	151	31	42	DNA	78	92	137	DNA	83	85	90	31	29
11-09-2022	91	36	22	30	DNA	23	97	16	70	94	53	20	27
12-09-2022	65	29	22	38	DNA	16	62	12	56	71	DNA	37	21
13-09-2022	79	28	14	18	DNA	DNA	122	12	76	64	52	17	21
14-09-2022	93	29	15	16	DNA	DNA	146	11	95	57	60	26	33
15-09-2022	98	32	18	28	DNA	DNA	147	22	88	62	87	35	46
16-09-2022	130	77	120	134	DNA	DNA	150	28	95	88	122	49	74
17-09-2022	154	67	72	DNA	DNA	DNA	165	DNA	DNA	161	136	51	83
18-09-2022	187	37	80	DNA	DNA	DNA	163	DNA	195	189	157	81	95
19-09-2022	169	44	72	DNA	DNA	43	182	28	163	128	171	42	62
20-09-2022	100	25	19	28	DNA	45	121	8	81	106	105	28	32
21-09-2022	114	34	23	30	DNA	50	121	12	DNA	108	85	44	52
22-09-2022	99	42	42	40	64	43	142	21	97	127	109	64	72
23-09-2022	142	50	45	48	52	40	164	24	124	136	146	51	96
24-09-2022	156	43	48	DNA	64	43	170	23	136	142	121	51	93
25-09-2022	167	50	47	48	76	48	214	25	151	144	96	66	98
26-09-2022	208	90	49	DNA	107	64	210	34	175	142	112	59	81
27-09-2022	185	47	84	DNA	87	65	160	26	DNA	148	199	74	108
28-09-2022	291	73	159	DNA	88	72	178	35	DNA	142	131	107	129
29-09-2022	249	102	155	DNA	85	120	140	42	DNA	159	152	141	170
30-09-2022	169	92	147	DNA	112	84	180	32	114	134	167	93	102

CONTACT US

Call us: **(+880)222218569;**

E-mail us: aqm.doe@gmail.com

Department of Environment, Ministry of Environment Forest and Climate Change, Bangladesh.

Know more about us: <http://www.doe.gov.bd/>