



Air Quality Monthly Report

June, 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.Barua (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	Majidi 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 June, 2022

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

Parameter	Summary	BARC	Darus-salam, Dhaka	Gazipur	Narayanganj	TV-Station, Chattogram	Agrabad, Chattogram	Sylhet	Khulna	Rajshahi	Barishal	Savar	Mymensingh	Rangpur	Cumilla	Narshingdi
SO ₂ -24 hr (ppb)	Average	1.7	DNA	DNA	DNA	4.4	2.2	4.9	3.1	3.2	DNA	0.7	4.7	1.4	2.9	1.6
	Max	2.6	DNA	DNA	DNA	13.9	3.0	5.6	3.9	4.8	DNA	2.6	13.9	4.7	6.4	2.0
	Min	1.1	DNA	DNA	DNA	0.5	1.5	4.3	1.7	2.2	DNA	0.4	0.9	0.4	1.2	1.3
	Exceedance(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(%)	80.6	DNA	DNA	DNA	93.5	96.8	32.3	93.5	96.8	DNA	77.4	54.8	90.3	96.8	96.8
NO ₂ -24 hr (ppb)	Average	4.7	6.9	0.3	0.2	11.0	8.2	10.9	7.8	5.8	0.2	7.6	0.4	11.2	5.1	7.8
	Max	32.3	14.9	0.5	0.3	14.0	15.5	13.8	8.9	7.5	0.7	12.6	1.7	34.8	5.1	8.1
	Min	1.0	0.8	0.1	0.1	8.9	3.1	8.6	5.6	3.5	0.1	4.6	0.1	4.9	5.0	7.5
	Exceedance(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	0.0	0.0	0.0
	Data capture(%)	93.5	96.8	51.6	77.4	93.5	96.8	32.3	93.5	96.8	54.8	93.5	93.5	90.3	96.8	96.8
CO-8hr (ppm)	Average	0.9	DNA	0.9	DNA	3.8	DNA	2.6	1.1	0.9	DNA	3.2	1.2	0.8	1.2	1.6
	Max	1.9	DNA	0.9	DNA	7.5	DNA	3.3	3.2	3.0	DNA	9.0	3.7	24.4	1.6	1.9
	Min	0.1	DNA	0.8	DNA	2.4	DNA	2.3	0.1	0.5	DNA	0.1	0.0	0.1	0.5	1.2
	Exceedance(Hour)	0.0	DNA	0.0	DNA	0.0	DNA	0.0	0.0	0.0	DNA	0.0	0.0	7.0	0.0	0.0
	Data capture(%)	99.1	DNA	3.1	DNA	2.8	DNA	3.2	94.0	99.1	DNA	90.7	98.7	90.5	98.8	96.8
O ₃ -8hr (ppb)	Average	9.2	3.5	6.7	2.8	14.7	DNA	DNA	34.6	64.5	DNA	19.1	6.0	21.0	25.9	17.2
	Max	11.1	6.2	11.8	3.9	34.7	DNA	DNA	57.5	98.9	DNA	73.8	25.2	50.9	56.0	42.9
	Min	8.7	1.8	2.9	1.9	3.3	DNA	DNA	10.3	5.7	DNA	1.6	0.4	3.4	2.5	0.6
	Exceedance(Hour)	0.0	0.0	0.0	0.0	0.0	DNA	DNA	0.0	187.0	DNA	0.0	0.0	0.0	0.0	0.0
	Data capture(%)	96.9	21.2	4.2	9.9	82.9	DNA	DNA	94.9	95.7	DNA	93.7	99.1	90.7	98.5	99.1
PM _{2.5} -24hr (ug/m3)	Average	47.2	42.2	39.9	33.0	31.2	17.3	10.5	26.6	44.4	17.4	38.7	173.8	41.0	23.4	20.4
	Max	84.3	68.5	57.5	75.3	56.4	34.7	10.5	66.3	70.0	30.3	80.4	334.7	78.3	50.4	33.7
	Min	17.9	21.3	19.1	21.4	11.3	8.8	10.5	10.3	21.2	9.4	15.4	33.4	11.9	12.5	10.7
	Exceedance(Days)	5.0	2.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	0.0	2.0	27.0	1.0	0.0	0.0
	Data capture(%)	96.8	96.8	96.8	74.2	67.7	93.5	3.2	93.5	96.8	87.1	93.5	96.8	93.5	96.8	96.8
PM ₁₀ -24hr (ug/m3)	Average	116.5	73.1	74.8	81.0	17.0	53.7	33.0	53.8	139.3	22.7	73.2	309.7	70.1	59.9	58.6
	Max	174.5	115.6	257.9	124.5	25.0	100.1	46.8	98.5	374.7	28.8	132.3	429.2	122.3	94.8	91.6
	Min	39.2	44.2	38.4	46.0	9.9	20.9	18.8	12.6	51.9	17.0	39.1	184.1	48.5	25.3	33.3
	Exceedance(Days)	7.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	27.0	0.0	0.0	0.0
	Data capture(%)	96.8	96.8	96.8	74.2	80.6	90.3	32.3	93.5	96.8	29.0	93.5	87.1	93.5	96.8	96.8
Solar rad. 1hr (W/m2)	Average	DNA	139.0	13.5	DNA	513.3	171.0	DNA	140.9	159.6	119.6	216.5	87.2	223.2	185.3	172.1
	Max	DNA	1004.1	14.0	DNA	527.9	897.9	DNA	879.8	805.0	820.3	973.0	412.0	905.9	901.1	950.3
	Min	DNA	997.7	13.2	DNA	441.8	9.3	DNA	0.1	0.1	10.0	0.0	0.0	0.1	0.0	0.0
	Data capture(%)	DNA	99	3	DNA	3	100	DNA	91	88	72	75.8	57.7	59.7	79.4	84.9
Relative Humidity 1hr (%)	Average	73.3	72.0	DNA	DNA	62.7	82.8	DNA	67.9	62.9	91.5	82.2	93.8	90.9	96.9	52.3
	Max	94.7	89.1	DNA	DNA	94.7	95.0	DNA	71.9	90.7	95.8	98.0	99.4	99.6	99.5	70.8
	Min	46.3	43.3	DNA	DNA	57.1	64.6	DNA	57.5	27.7	75.3	47.3	41.7	53.7	70.4	19.5
	Data capture(%)	89.0	98.9	DNA	DNA	85	30	DNA	92	99	72	49.3	100.0	87.0	62.4	100.0
Ambient Temp. 1hr (degreeC)	Average	31.1	33.6	DNA	DNA	27.7	35.5	DNA	30.8	32.6	30.4	27.7	15.8	27.0	27.3	27.3
	Max	37.3	41.0	DNA	DNA	33.3	42.0	DNA	37.8	35.4	38.4	34.0	24.9	33.9	33.5	32.8
	Min	16.9	25.9	DNA	DNA	14.9	24.4	DNA	18.2	17.5	24.4	16.6	10.4	13.7	16.3	16.0
	Data capture(%)	99.7	99	DNA	DNA	86	13	DNA	92	99	72	99.7	99.7	85.6	97.6	99.7
Rainfall 1hr (mm)	Average	11.12	DNA	DNA	DNA	0.98	DNA	DNA	DNA	1.57	0.60	DNA	1.48	DNA	DNA	DNA
	Max	19.71	DNA	DNA	DNA	1.30	DNA	DNA	DNA	3.44	1.22	DNA	4.48	DNA	DNA	DNA
	Min	3.55	DNA	DNA	DNA	0.48	DNA	DNA	DNA	0.37	0.10	DNA	0.01	DNA	DNA	DNA
	Data capture(%)	62.10	DNA	DNA	DNA	23.79	DNA	DNA	DNA	32.26	71.51	DNA	33.74	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 June, 2022

Date	Dhaka	Chattogram	Gazipur	Narayanganj	Sylhet	Khulna	Rajshahi	Barishal	Savar	Mymensingh	Rangpur	Cumilla	Norshindi
01-06-2022	158	57	132	89	DNA	DNA	137	DNA	167	159	164	110	83
02-06-2022	138	68	130	84	DNA	99	132	52	152	135	72	119	67
03-06-2022	126	53	102	66	DNA	95	138	DNA	130	112	142	108	66
04-06-2022	109	75	96	67	DNA	84	141	50	103	77	44	75	42
05-06-2022	133	42	110	82	DNA	80	142	60	89	91	35	91	59
06-06-2022	155	56	111	80	DNA	69	138	65	54	119	30	74	64
07-06-2022	147	53	82	88	DNA	135	141	72	132	108	104	76	75
08-06-2022	161	61	136	107	DNA	99	141	74	120	106	119	98	79
09-06-2022	125	52	129	122	DNA	104	133	65	95	103	86	54	82
10-06-2022	138	61	136	107	DNA	72	133	70	71	83	120	76	85
11-06-2022	123	53	129	78	DNA	79	110	DNA	54	126	DNA	69	70
12-06-2022	115	42	108	79	DNA	75	112	49	38	122	123	58	55
13-06-2022	119	38	99	85	DNA	77	128	43	119	124	124	47	48
14-06-2022	105	35	86	68	95	57	103	48	106	107	137	52	54
15-06-2022	101	49	104	68	21	77	92	44	106	134	137	56	48
16-06-2022	90	39	91	74	32	59	98	34	104	122	135	43	58
17-06-2022	74	26	65	55	20	43	49	39	69	68	97	35	34
18-06-2022	45	25	58	53	DNA	35	60	43	62	DNA	92	32	35
19-06-2022	83	22	93	56	13	25	67	DNA	89	119	92	39	53
20-06-2022	72	35	74	62	12	DNA	104	DNA	79	88	107	29	38
21-06-2022	102	31	102	73	DNA	49	113	29	114	98	115	35	60
22-06-2022	97	23	100	58	DNA	51	134	29	110	123	119	52	45
23-06-2022	80	24	105	92	DNA	30	78	25	80	127	121	37	82
24-06-2022	83	25	72	66	DNA	34	59	26	64	88	105	35	64
25-06-2022	87	24	53	DNA	DNA	39	64	28	87	75	87	32	28
26-06-2022	84	25	56	DNA	DNA	37	68	27	76	82	89	35	30
27-06-2022	71	34	47	DNA	DNA	35	72	28	67	101	90	37	32
28-06-2022	67	28	66	DNA	15	41	67	28	71	85	80	39	36
29-06-2022	94	24	64	DNA	14	40	69	33	79	97	88	37	31
30-06-2022	134	34	96	142	42	87	44	35	111	83	89	32	44

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