

Government of Nepal
Ministry of Forest and Environment
Department of Environment

Ambient Air Quality monitoring program

Report of the year 2017

September 2018

Table of content

Chapter I.Introduction.....	3
1.1 Background	3
1.2 Objectives	3
1.3 Parameters of Air Quality Monitored	3
1.4Methods of Data collection and Data analysis.	4
Chapter II. RESULTS	7
2.1 PM 2.5.....	7
2.1 .1 Annual Average PM 2.5 for 2017.....	7
2.1.2 National Ambient Air quality compliance status.....	8
2.1.3 Monthly Average PM 2.5 at different stations	9
2.2PM 10	14
2.2.1Annual Average PM 10 value for 2017	14
2.2.2National Ambient Air quality compliance status.....	15
2.2.3 Monthly Average PM 10 at different stations	16
2.3 Total suspended particulate Matter (TSPM)	20
2.3.1Annual Average TSPM for 2017	20
2.3.2 National Ambient Air quality compliance status.....	21
2.3.3Monthly Average Total suspended particulateMatter (TSPM) at different stations	22
Chapter III. Conclusion.....	26

Chapter I. Introduction

1.1 Background

Establishment and operation of air quality monitoring stations is a basis for air quality management program. Government of Nepal has started to establish air quality monitoring station since 2016. By the end of 2017, 11 monitoring stations came into operation whole over the country. Department of Environment is working in coordination with many organizations like ICIMOD in establishment and operation of these monitoring stations. The main purpose of the establishment of the network of stations is to provide the basis for decision makers to perform air quality management and increase the public awareness. Together with improved quantitative understanding of emissions sources, a modeling framework to simulate and forecast pollution transport and chemistry, and exposure studies it will form the basis for science based air pollution management and policymaking.

Nepal Government has set and enforced National ambient air quality standard (NAAQS) and has a legal obligation to maintain this standard. This report has been prepared on the basis of analysis of data of the year 2017 from the monitoring stations to know the status of compliance with reference to the National Ambient Air Quality Standard. All the monitoring stations measure PM 1, PM 2.5, PM10 and Total Suspended Particulate Matter. Since we do not have National Ambient air Quality standard for PM 1, this is not included in this report.

1.2 Objectives

The overall objective of this report is to present the status of air quality on the basis of data collected from various stations for the year 2017 and the specific objectives are:

- To analyze the PM2.5 data of various stations and compliance status
- To analyze the PM 10 data of various stations and compliance status
- To analyze the Total Suspended Particulate Matter data of various stations and compliance status

1.3 Parameters of Air Quality Monitored

Although NAAQS has defined nine parameters for the measurement purpose the monitoring stations whole over the country commonly measures following parameters:

Total Suspended Particulate Matter(TSPM): These includes all the solid and liquid droplets particulate present in the air mostly within the range of 0.1 μ to 100 μ .

PM10: These includes the particulate matter with an aerodynamic diameter less than 10 μ diameter.

PM2.5: These includes the particulate matter with an aerodynamic diameter less than 2.5 μ diameter and important in terms of health impacts.

The other parameters in NAAQS like ozone, NO_x, Sox, Benzene, lead are not considered for analysis as these parameters are not measured by all stations. Only one station is facilitated to measure ozone and some gaseous pollutants.

1.4 Methods of Data collection and Data analysis.

Each monitoring station has Grimm Electronic Dust Monitor(EDM) 180 to measure particulate matter of different sizes. It use the use light-scattering technology fo particle count. A semiconductor-laser serves as the light-source. The particle size analyser/dust monitor determines the dust-concentration (counts/litre) through the optical-light-scattering method directly; however, the mass concentration is determined by extrapolation. All the stations are the real time monitoring stations.

Monitoring stations

By the end of 2017, the following 11 monitoring stations came in to operation:

1. Ratnapark :-This station lies in Ratnapark of Kathmandu District.
2. Pulchowak :-This station lies within pulchowok engineering campus premises in Lalitpur District.
3. Dhulikhel :-This station lies on the premises of Kathmandu university high school, Dhulikhel, Kavre district.
4. .Lumbini :- This station lies on the Lumbini, the birth place of Gautam Buddha.
5. Sauraha :-This station lies on the Sauraha, chitwan district.
6. BirendraSchool :-This station lies on the premises of SainikAawasiyaMahabiddhyalayforemerBirendrasainik school, SallaghariBhaktapur district.
7. Bhaisepati :-This station lies on BhaisepatiLalitpur district.
8. Shankhapark :-This station lies within Shankhapark, Maharajgunj Kathmandu district.
9. DHM Pokhara:-This station lies in the premises of western regional climate office, , Department of Hydrology and Meteorology, Pokhara, Kaski District.

10. Pokhara university:-This station lies in the premises of Pokhara University, Pokhara, Kaski District.

11. Gandaki Boarding School :-This stations lies in the premises of Gandaki Boarding School, LamachaurPokhara District.

The first five stations came in operation since 2016 and rest of seven stations came in operation since August of September 2017.

The instrument collects data in every minute. The data collected from the instrument is transmitted to a server located at National information Technology (NITC). Data management software is used for the management and analysis of the data.

The measurement from the monitoring stations is communicated to the public through the website www.pollution.gov.np.

For the analysis of the data, daily average data was downloaded from the server. From those daily averages, monthly average and annual average was calculated. Only the days that have complete data is chosen for data analysis. The no of days with valid data and the no of days that exceeds national standard was calculated.

Since some of the stations were came into operation only after august it's not possible to calculate average data that represents the whole year. In Sauraha data for about 5 months is completely absent so it is not possible to calculate annual average in this case too. So annual average value was calculated for Ratnapark, Lumbini, Pulchowak and Dulikhel and for the rest of stations average value for the data available periods were calculated. For this reason Bar diagram of annual average of Ratnapark, Lumbini, Pulchowak and Dulikheland rest stations were presented differently.

National Ambient Air Quality Standard, 2012(NAAQS).

The following standard issued by the Nepal government is used to know the compliance status:

Parameters	Units	Averaging time	Concentration max	Test Methods
TSP	$\mu\text{g}/\text{m}^3$	Annual	-	High Volume Sampling and Gravimetric Analysis
		24-hours*	230	
PM ₁₀	$\mu\text{g}/\text{m}^3$	Annual	-	High Volume Sampler and Gravimetric Analysis, TOEM, Beta Attenuation
		24-hours*	120	
Sulfur Dioxide	$\mu\text{g}/\text{m}^3$	Annual**	50	Ultraviolet Fluorescence, West and Gaeke Method
		24-hours*	70	Same as annual
Nitrogen Dioxide	$\mu\text{g}/\text{m}^3$	Annual	40	Chemiluminescence
		24-hours*	80	Same as annual
Carbon Monoxide	$\mu\text{g}/\text{m}^3$	8 hours*	10,000	Non Dispersive Infra Red spectrophotometer (NDIR)
Lead	$\mu\text{g}/\text{m}^3$	Annual**	0.5	High Volume Sampling, followed by atomic absorption spectrometry
Benzene	$\mu\text{g}/\text{m}^3$	Annual**	5	Gas Chromatographic Technique
PM _{2.5}	$\mu\text{g}/\text{m}^3$	24-hours*	40	PM _{2.5} sampling gravimetric analysis
Ozone	$\mu\text{g}/\text{m}^3$	8-hours*	157	UV spectrophotometer

Chapter II. RESULTS

2.1 PM 2.5

2.1 .1 Annual Average PM 2.5 for 2017

The following figure provides the annual average PM 2.5 concentration in microgram per cubic meter ($\mu\text{g}/\text{m}^3$) for the stations that have data for whole year.

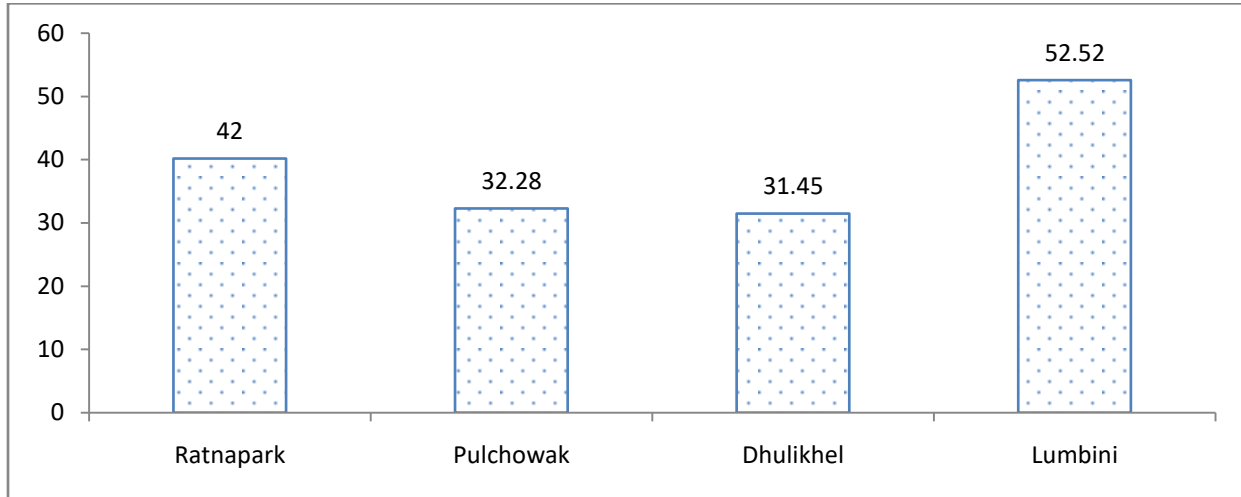


Fig 2.1:Annual average PM 2.5 for 4 stations

The annual averages ranges in between 31 to 52 $\mu\text{g}/\text{m}^3$ with Lumbini having the highest annual average value and Dhulikhel the lowest.

The following figure provides the annual average PM2.5 concentration for rest of the stations:

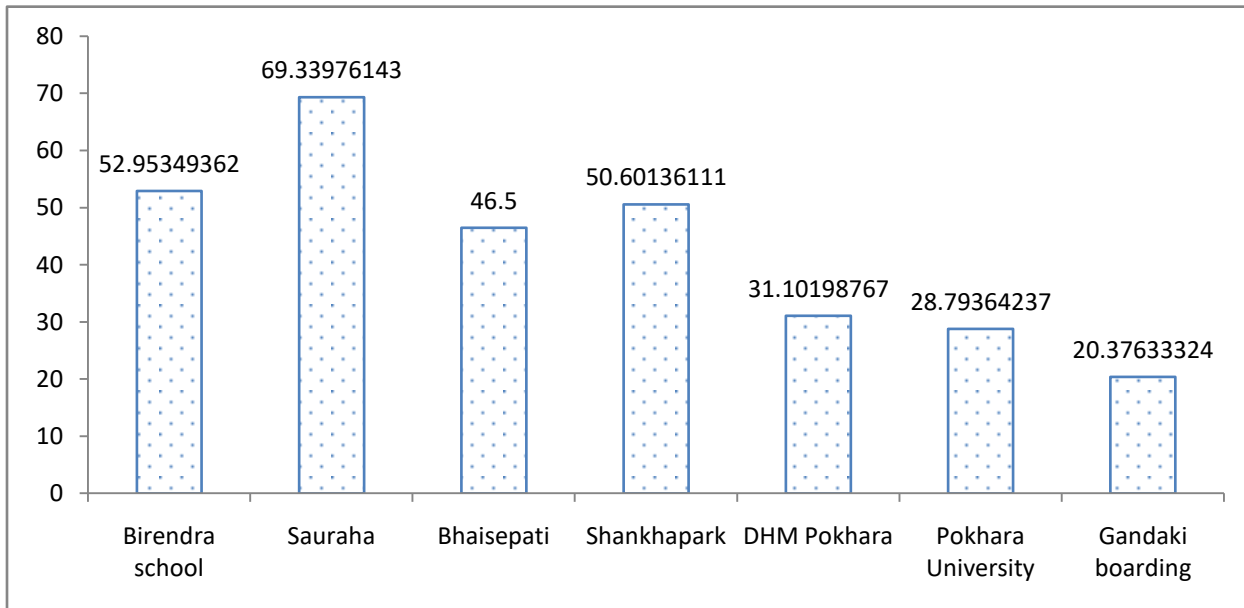


Fig2.2:Annual Average PM 2.5 for rest 7 stations

The annual average value for the above stations ranges in between 20 to 69 $\mu\text{g}/\text{m}^3$ with highest value at Sauraha and lowest value at Gandaki Boarding. The PM10 concentrations are found relatively low in the Pokhara based stations.

2.1.2 National Ambient Air quality compliance status

The following diagram presents the no of days with valid PM2.5 data and the no of days that exceed the national standard for the PM2.5 for four stations that have whole year data.

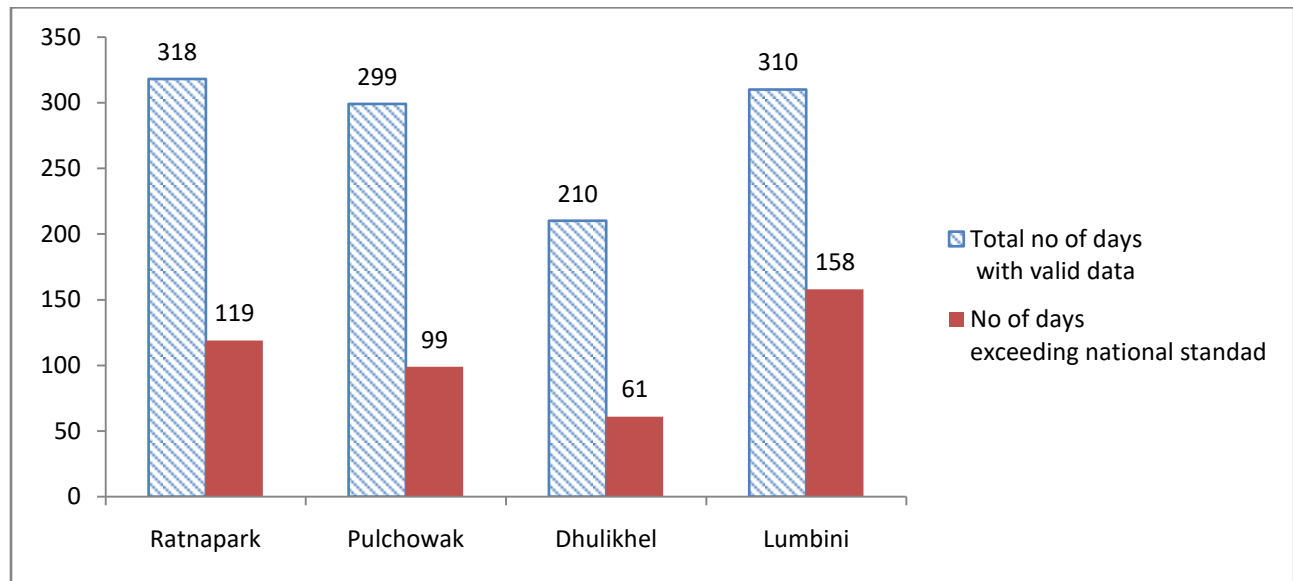


Fig2.3: NAAQS compliance status of PM 2.5 for 4 stations

The following diagram presents the no of days with valid PM 2.5 data and the no of days that exceed the national standard for the PM 2.5 for rest of the stations.

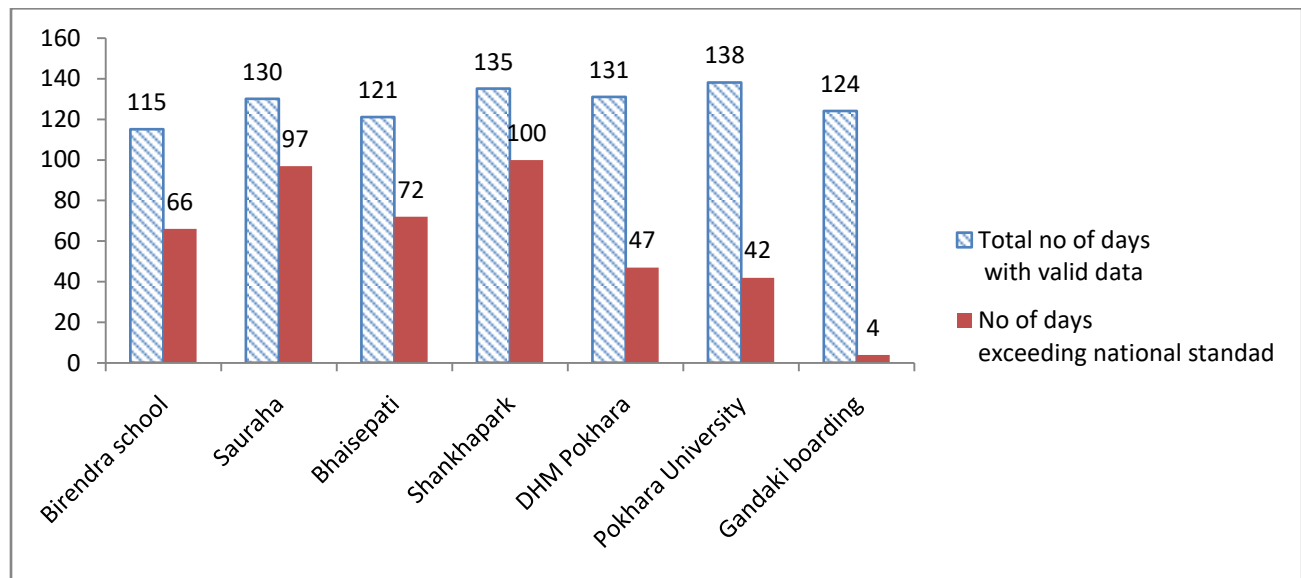


Fig2.4: NAAQS compliance status of PM 2.5 for rest 7 stations

2.1.3 Monthly Average PM 2.5 at different stations

The following table presents monthly average PM 2.5 in $\mu\text{g}/\text{m}^3$ and also the month wise compliance status.

Table 2.1: Monthly Average PM 2.5 at different stations.

Stations ↓	Month →	Jan	Feb	Mar	Apr	May	June	July	August	September	October	November	December	Total
Ratnapark	Monthly Average PM 2.5 ($\mu\text{g}/\text{m}^3$)	80.86	79.8	45.12	67.16	42.35	29.08	18.47	15.91	24.67	25.01	30.22	41.2	
	Total days with valid data	24	25	19	26	28	30	31	31	30	31	16	27	318
	No of days exceeding National Standard	24	25	11	24	17	4	0	0	0	1	1	12	119
Pulchowak	Monthly Average PM 2.5 ($\mu\text{g}/\text{m}^3$)	69.61	68.4	50.49	45.64	30.07	16.63	6.07	6.74	7.73	12.04	17.67	24.58	
	Total days with valid data	27	28	29	30	30	28	30	23	5	21	22	26	299
	No of days exceeding National Standard	27	28	26	14	4	0	0	0	0	0	0	0	99
Dulikhel	Monthly Average PM 2.5	31.8	55.81	43.58	41.52	24.87	16.3	7.04	-	-	25.83	30.78	31.54	

	($\mu\text{g}/\text{m}^3$)													
	Total days with valid data	22	20	20	26	19	20	17	-	-	27	11	28	210
	No of days exceeding National Standard	8	18	14	8	1	0	0	-	-	6	1	5	61
Lumbini	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	108.43	91.53	49.06	44.34	29.5	20.85	10.33	13.86	19.33	55.47	84.99	94.31	
	Total days with valid data	30	28	31	27	29	30	31	31	8	15	19	31	310
	No of days exceeding National Standard	29	28	23	11	6	0	0	0	0	12	18	31	158
Birendra school Bhaktapur	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	16.01	29	37.86	75.46	86.85	
	Total days with valid data	-	-	-	-	-	-	-	12	23	31	18	31	115
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	2	14	18	31	65

Sauraha	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	77.1	79.54	64.21	123.95	19.61		8.3	8.29	-	-	-	-	
	Total days with valid data	22	27	31	22	7	1	9	11	-	-	-	-	130
	No of days exceeding National Standard	21	27	26	22	0	1	0	0		-	-	-	97
Bhaisepati	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	-	40.72	37.4	47.85	59.93	
	Total days with valid data	-	-	-	-	-	-	-	-	30	31	29	31	121
	No of days exceeding National Standard	-	-	-	-	-	-	-	-	13	10	18	31	72
Shankhapark	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	21.28	49.86	41.38	57.01	66.6	
	Total days with valid data	-	-	-	-	-	-	-	13	30	31	30	31	135
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	24	15	30	31	100

	exceeding National Standard													
DHM Pokhara	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	10.39	15.47	25.25	39.7	49.91	
	Total days with valid data	-	-	-	-	-	-	-	10	29	31	30	31	131
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	6	13	28	47
Pokhara University	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	8.92	15.16	24.91	38.27	46.93	
	Total days with valid data	-	-	-	-	-	-	-	16	30	31	30	31	138
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	5	10	27	42
Gandaki Boarding	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	6.99	11.5	17.1	24.46	30.63	
	Total days with valid data	-	-	-	-	-	-	-	8	25	31	30	30	124

	valid data													
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	2	2	4

2.2PM 10

2.2.1Annual Average PM 10 value for 2017

The following diagram provides the annual average PM 10 concentration in microgram per cubic meter ($\mu\text{g}/\text{m}^3$) for the stations that have data for whole year.

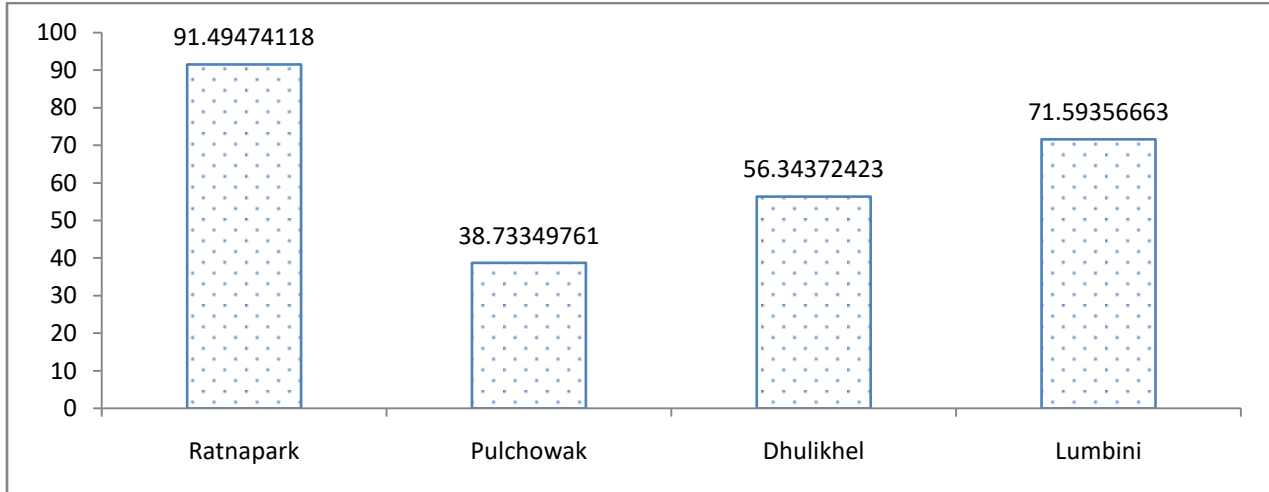


Fig2.5:Annual average PM 10 for 4 stations

The annual average ranges in between 38 to 91 $\mu\text{g}/\text{m}^3$ with Ratna Park having the highest and Pulchowk having the lowest values.

The following diagram presents the annual average PM10 concentration for 2017 for rest of the stations.

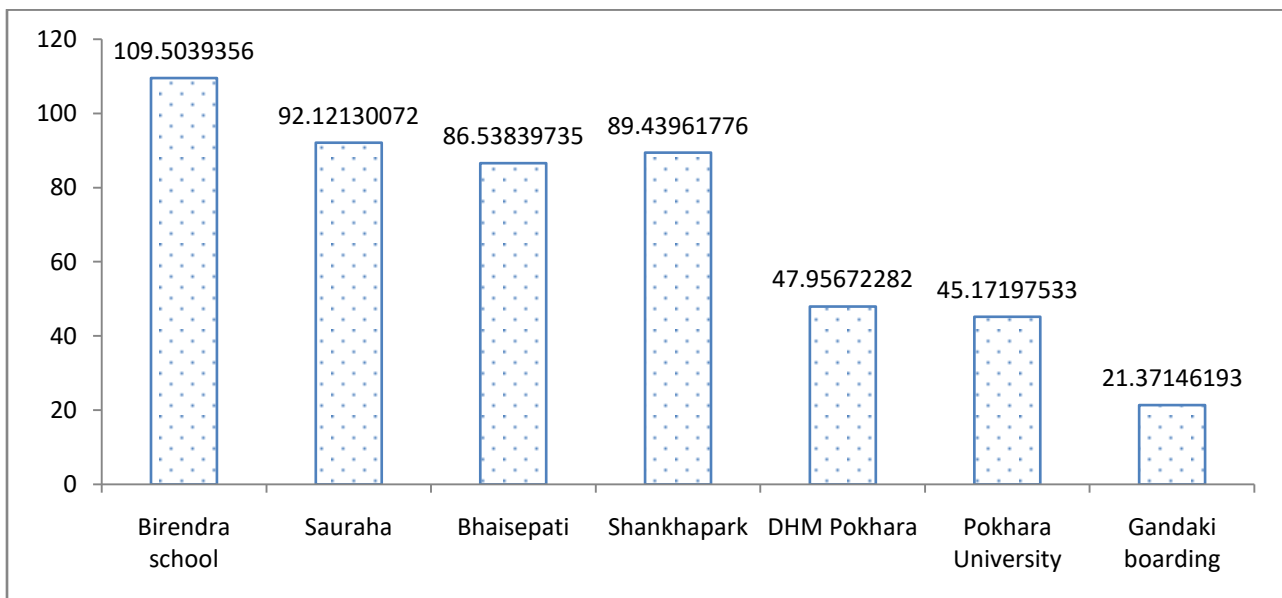


Fig 2.6:Annual average PM 10 for rest 7 stations

The annual average ranges in between 21 to 109 $\mu\text{g}/\text{m}^3$ with Birendra School having the highest and Gandaki Boarding School having the lowest values.

2.2.2 National Ambient Air quality compliance status

The following diagram presents number of days with valid PM 10 data and the number of days that exceed the national standard for the PM 10 for four stations that have whole year data.

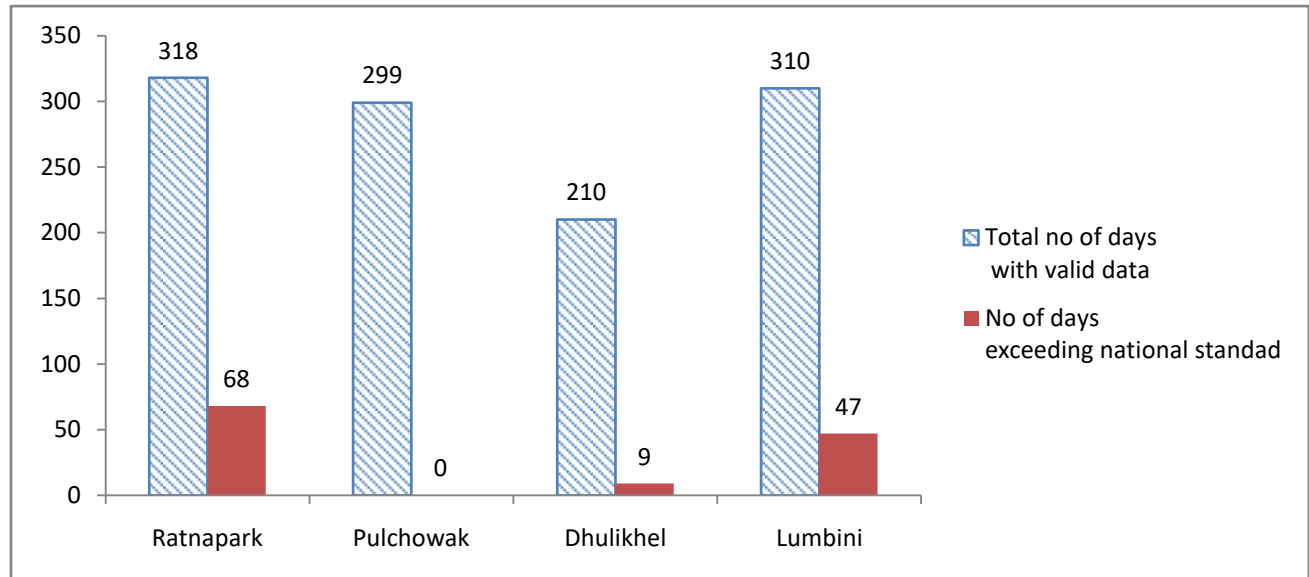


Fig 2.7: NAAQS compliance status for PM10 for 4 stations

Also the following diagram presents number of days with valid PM 10 data and the number of days that exceed the national standard for the PM 10 for rest of the station.

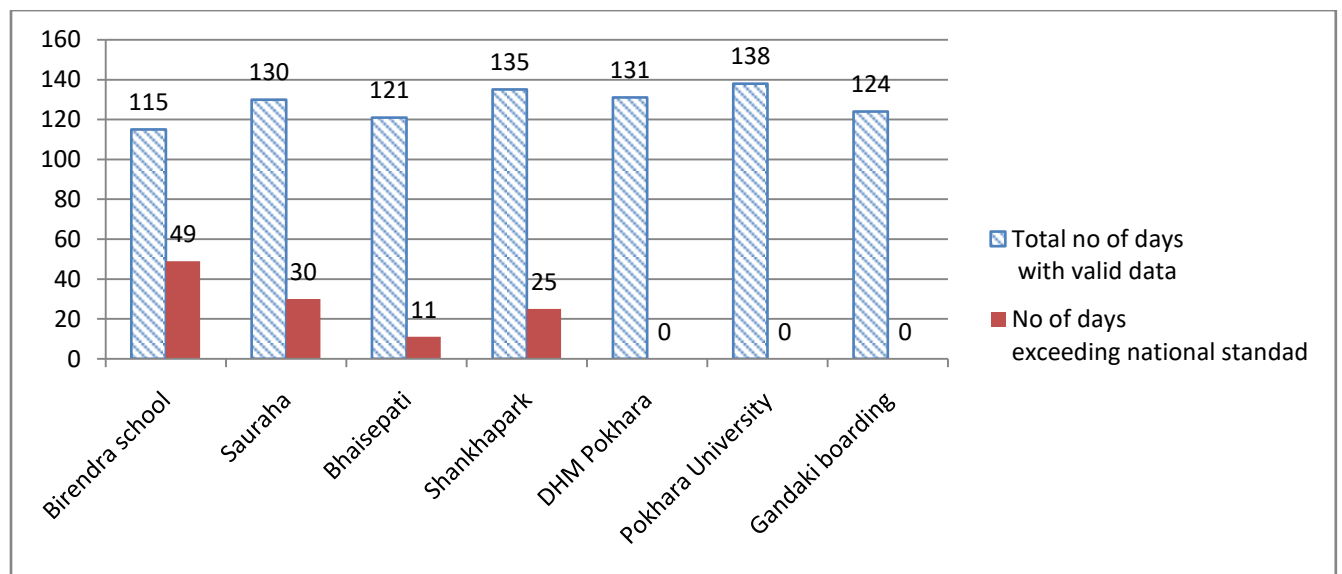


Fig2.8. National Ambient Air quality compliance status for PM 10 for rest 7 stations

2.2.3 Monthly Average PM 10 at different stations

The following table presents monthly average PM 10 in $\mu\text{g}/\text{m}^3$ and also the month wise compliance status.

Table 2. Monthly Average PM 2.5 at different stations.

Stations	Month	Jan	Feb	Mar	April	May	June	July	August	September	October	November	December	Total
Ratnapark	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	108.1	112.38	87.08	270.52	120.59	98.59	59.67	41.48	64.22	50.62	48.21	46.83	
	Total days with valid data	24	25	19	26	28	30	31	31	30	31	16	27	318
	No of days exceeding National Standard	6	9	7	23	15	8	0	0	0	0	0	0	68
Pulchowak	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	82.09	82.65	64.1	58.1	38.63	19.83	6.73	7.24	8.07	12.38	18.22	25.52	
	Total days with valid data	27	28	29	30	30	28	30	23	5	21	22	26	299
	No of days exceeding National Standard	0	0	0	0	0	0	0	0	0	0	0	0	
Dulikhel	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	48.35	94.97	78.26	77.45	40.66	32.88	10.5	-	-	44.98	61.16	63.52	
	Total days with valid data	22	20	21	26	19	20	17	-	-	27	11	27	210

	No of days exceeding National Standard	0	4	1	4	0	0	0	-	-	0	0	0	9
Lumbini	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	124.57	106.06	63.6	111.96	66.3	37.11	14.9	17.96	25.48	71.99	107.85	100.1	
	Total days with valid data	30	28	31	27	29	30	31	31	8	15	19	31	310
	No of days exceeding National Standard	18	5	1	10	1	0	0	0	0	0	8	4	47
Birendra school Bhaktapur	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	30.75	57.17	72.45	159.01	187.11	
	Total days with valid data	-	-	-	-	-	-	-	12	23	31	18	31	115
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	4	16	29	49
Sauraha	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	92.84	95.16	87.91	186.43	39.1	23.15	12.43	11.47	-	-	-	-	
	Total days with valid data	22	27	31	22	7	1	9	11	-	-	-	-	130
	No of days exceeding National Standard	5	1	8	16	0	0	0	0	-	-	-	-	30

Bhaisepati	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	-	59.18	69.9	91.1	111.5	
	Total days with valid data	-	-	-	-	-	-	-	-	30	31	29	31	121
	No of days exceeding National Standard	-	-	-	-	-	-	-	-	0	0	1	10	11
Shankhapark	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	44.	79.4	81.7	117.0	98.97	
	Total days with valid data	-	-	-	-	-	-	-	13	30	31	30	31	135
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	1	4	15	5	25
DHM Pokhara	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	16.	23.92	37.6	61.51	77.71	
	Total days with valid data	-	-	-	-	-	-	-	10	29	31	30	31	131
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	
Pokhara University	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	14.	24.31	38.5	60.11	73.35	
	Total days with valid data	-	-	-	-	-	-	-	16	30	31	30	31	138

	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	
Gandaki Boarding	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	8.3	12.56	17.9	25.47	31.6	
	Total days with valid data	-	-	-	-	-	-	-	8	25	31	30	30	124
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	

2.3 Total suspended particulate Matter (TSPM)

2.3.1 Annual Average TSPM for 2017

The following figures provides the annual average data of TSPM in microgram per cubic meter ($\mu\text{g}/\text{m}^3$) for the stations that have data for whole year. The data for Lumbini is not available for this analysis.

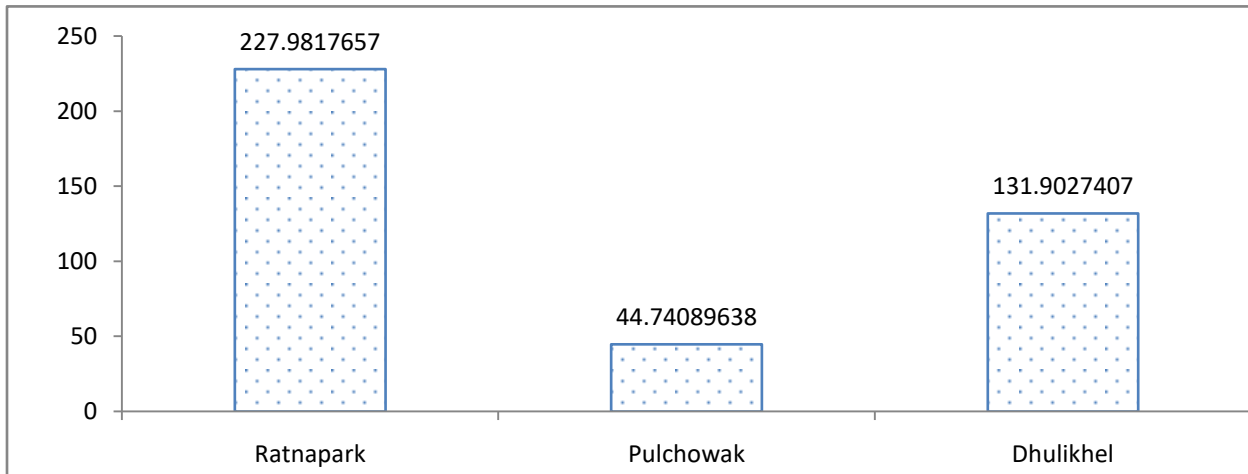


Fig 2.9: Annual average of TSPM for 4 stations

The annual average value ranges in between 44 to 227 $\mu\text{g}/\text{m}^3$ with Ratnapark having the highest value and Pulchowk the lowest one.

The following diagram presents the annual average TSPM concentration for 2017 for rest of the stations.

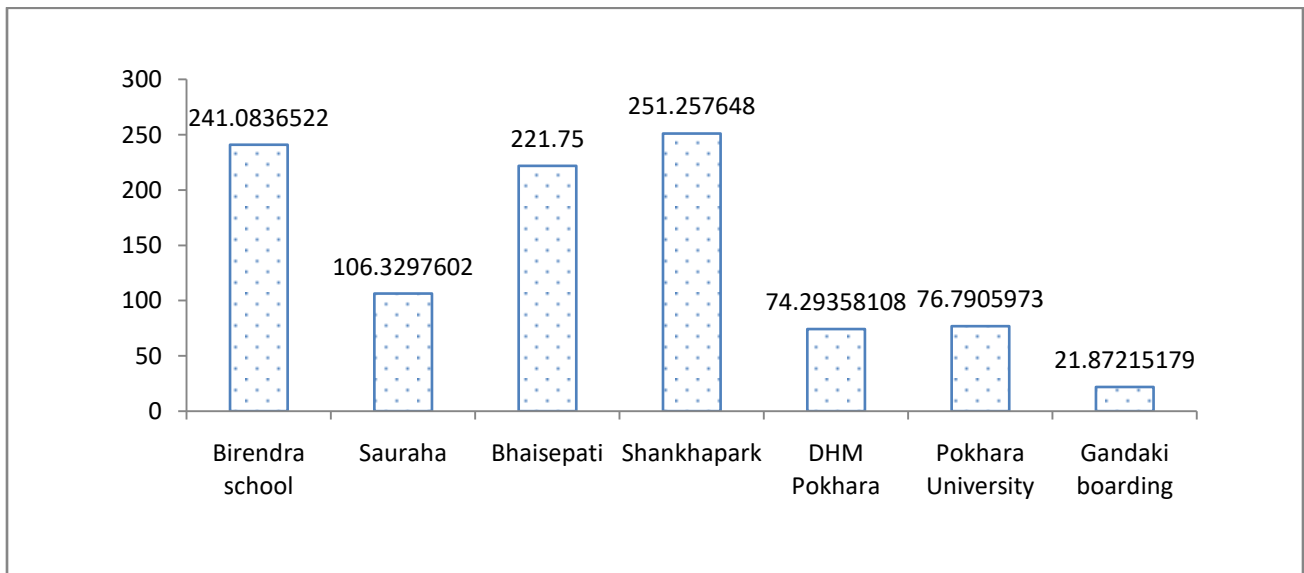


Fig2.10: Annual average TSPM for rest 7 stations

The annual average value ranges in between 21 to 251 $\mu\text{g}/\text{m}^3$ with Gandaki Boarding School having the lowest and Shankapark having the highest.

2.3.2 National Ambient Air quality compliance status

The following diagram presents no of days with valid TSPM data and the no of days that exceed the national standard for the TSPM for four stations that have whole year data.

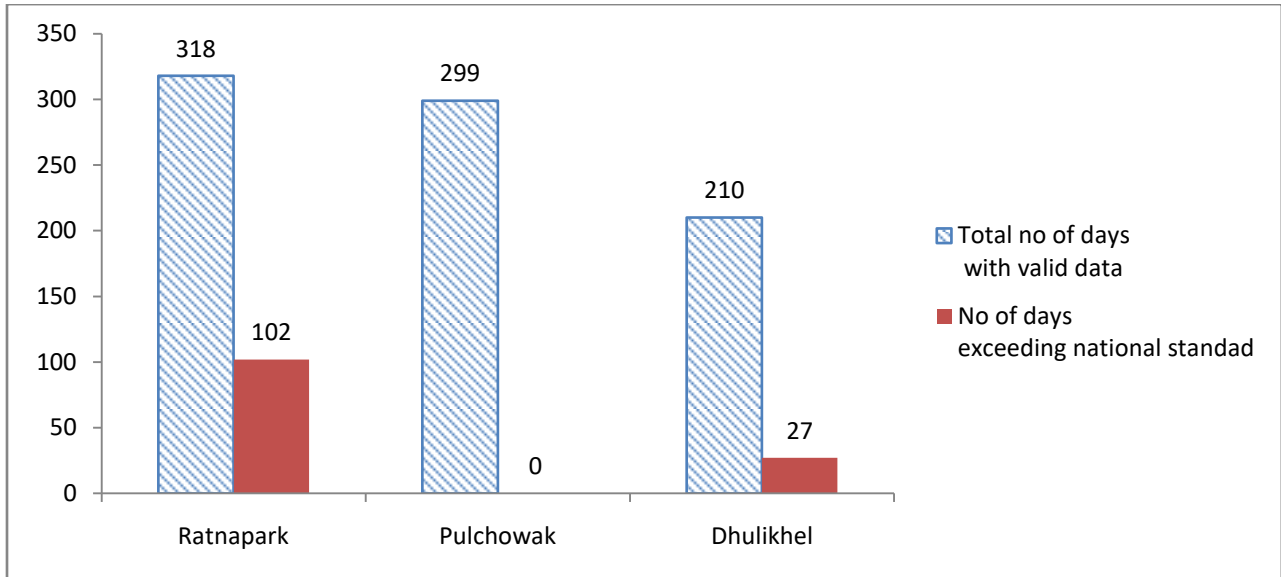


Fig 2.11: NAAQS compliance status for TSPM for 4 stations

The following diagram presents the no of days with valid TSPM data and the no of days that exceed the national standard for the TSPM for rest of the station.

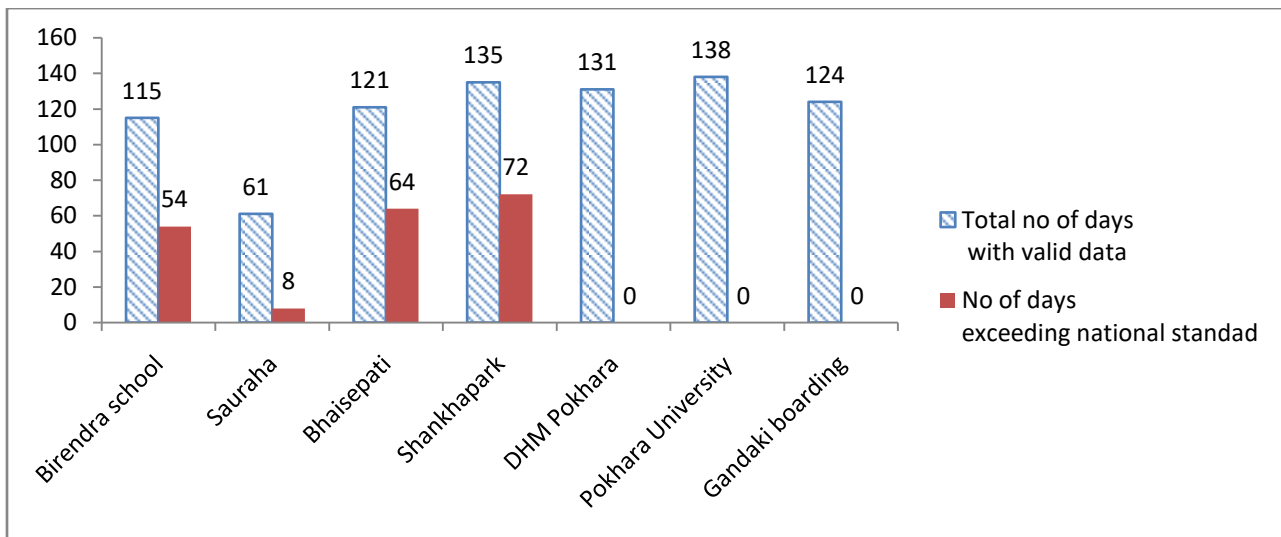


Fig2.12: NAAQS compliance status for TSPM for rest 7 stations

2.3.3 Monthly Average Total suspended particulate Matter (TSPM) at different stations

The following table presents the monthly average total suspended particulate matter in $\mu\text{g}/\text{m}^3$ and also the month wise compliance status.

Stations ↓	Month →	Jan	Feb	Ma rch	Ap ril	Ma y	Jun e	Jul y	Au gus t	Septe mber	Oct ober	Nov ember	Dec emb er	Total
Ratnapark	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	136.37	141. 23	200 .78	714 .89	350 .75	306 .93	208 .73	142. 14	202.3 7	134. 39	106.7	53.3 6	
	Total days with valid data	24	25	19	26	28	30	31	31	30	31	16	27	318
	No of days exceeding National Standard	0	1	9	24	23	24	8	2	11	0	0	0	102
Pulchowak	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	100.1	96.9 9	74. 01	69. 06	43. 68	21. 05	7.2 7	7.53	9.09	13.0 3	18.67	26.2 8	
	Total days with valid data	27	28	29	30	30	28	30	23	5	21	22	26	299
	No of days exceeding National Standard	0	0	0	0	0	0	0	0	0	0	0	0	
Dulikhel	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	106.17	251. 77	199 .21	188 .58	75. 82	68. 69	19. 47	-	-	93.9 9	143.9 8	147. 59	

	Total days with valid data	22	20	21	26	19	20	17	-	-	27	11	27	210
	No of days exceeding National Standard	0	9	6	8	0	1	0	-	-	0	0	3	27
Lumbini	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total days with valid data	-	-	-	-	-	-	-	-	-	-	-	-	-
	No of days exceeding National Standard	-	-	-	-	-	-	-	-	-	-	-	-	-
Birendra school Bhaktapur	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	69.2	134.7	158.	362.4	398.	
	Total days with valid data	-	-	-	-	-	-	-	12	23	31	18	31	115
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	1	7	17	29	54
Sauraha	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	108	201	74.	40.	20.	17.1	-	-	-	-	
	Total days with valid data	-	-	9	22	9	1	9	11	-	-	-	-	61

	valid data													
	No of days exceeding National Standard	-	-	0	8	0	0	0	0	-	-	-	-	8
Bhaisepati	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	-	144.37	219.24	249.98	272.75	
	Total days with valid data	-	-	-	-	-	-	-	-	30	31	29	31	121
	No of days exceeding National Standard	-	-	-	-	-	-	-	-	2	15	20	27	64
Shankhapark	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	119.8	192.72	255.22	364.49	249.47	
	Total days with valid data	-	-	-	-	-	-	-	13	30	31	30	31	135
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	9	18	29	16	72
DHM Pokhara	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	26.96	36.16	55.66	96.74	122.13	
	Total days with valid data	-	-	-	-	-	-	-	10	29	31	30	31	131

	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	
Pokhara University	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	26.0 3	40.44	64.0 4	106.3 8	122. 26	
	Total days with valid data	-	-	-	-	-	-	-	16	30	31	30	31	138
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	
Gandaki Boarding	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	-	-	-	-	-	-	-	8.69	12.87	18.1 8	25.98	32.5 8	
	Total days with valid data	-	-	-	-	-	-	-	8	25	31	30	30	124
	No of days exceeding National Standard	-	-	-	-	-	-	-	0	0	0	0	0	

Chapter III. Conclusion

The annual average PM_{2.5} value for the stations like Ratnapark and Lumbini are found above the National Ambient Air Quality Standard. The annual averages of PM_{2.5} for the stations like Sauraha, Bhaisepati, Shankapark and Birendra School are also found non-compliance with respect to national standard. The annual average PM_{2.5} for the stations in Pokhara is found compliance with respect to national standard. The number of days exceeding the standard is found high in Ratnapark and Lumbini along with Bhainsepati, Sankhapark, Birendra School and Sauraha. The monthly averages PM_{2.5} value of winter months like December, Janaury, February and Pre-monsoon months March, April and May are found high in comparison to remaining summer and autumn months.

The annual average PM₁₀ value for all the monitored stations are found within National Ambient Air Quality Standard but the Ratnapark and Lumbini stations values are found relatively high. The number of days exceeding the PM₁₀ standards is found high in Ratnapark and Lumbini along with Bhainsepati, Sankhapark, Birendra School and Sauraha. The monthly averages PM₁₀ value of winter months like December, Janaury, February and Pre-monsoon months March, April and May are found high in comparison to remaining summer and autumn months.

The annual average TSPM value for Ratnapark is near by the breaching point with respect to the National Ambient Air Quality Standard. The annual averages of TSPM for the stations like Bhaisepati, Shankapark and Birendra School are found non-compliance with respect to the national standard. The annual average TSPM for the stations in Pokhara are found compliance with respect to national standard. The number of days exceeding the standards is found high in Ratnapark along with Bhainsepati, Sankhapark and Birendra School. The monthly averages TSPM value of winter months like December, Janaury, February and Pre-monsoon months March, April and May are found high in comparision to remaining summer and autumn months.

Air quality status of Kathamandu Valley, Lumbini and Sauraha is a matter of serious concern. Pokhara Valley is relatively safe in terms of air quality status.