Data sheet on summer ozone in Delhi

Delhi has recorded significant ozone build-up this summer with ozone levels exceeding the permissible limit frequently. The Centre for Science and Environment has analysed the real time 8 hourly average data of ozone available from monitoring stations of the Delhi Pollution Control Committee located in R K Puram, Civil Lines, Punjabi Bagh, Indira Gandhi International Airport and Mandir Marg from 1st January to 6th June 2014. However, continuous data was not available for IGI airport and Civil Lines due to website maintenance. For Mandir Marg data for March, April and May have been considered. A special spotlight was also put on ozone build up during the heat wave that lashed Delhi in the first week of June.

1. Ozone and heat wave

While summer ozone has remained consistently high there has been a rapid rise in levels during the first week of June when the average temperature increased from 35 degree C on June 1, 2014 to more than 44 degree C on June 6, 2014. During this period ozone level shot up quickly by 87 per cent in Civil Lines, 82 per cent at IGI airport, 171 per cent in Punjabi Bagh, and 315 per cent at Mandir Marg. The average of all locations that was 73 microgramme per cubic metre on June 1 doubled beyond the standards by June 5.

Table 1: Ozone levels during heat wave in Delhi during June 3 to June 6

Date of monitoring	8-hourly maximum ozone in microgramme per cubic metre					Average temperature in degree centigrade
	Civil lines	IGI	R K Puram	Punjabi Bagh	Mandir Marg	
1/6/2014	115	97	13	81	61	35
2/6/2014	115	133	6	245	194	38
3/6/2014	196	174	138	224	167	40
4/6/2014	184	157	184	194	192	42
5/6/2014	215	177	203	218	254	43
6/6/2014	190	180	220	211	197	44

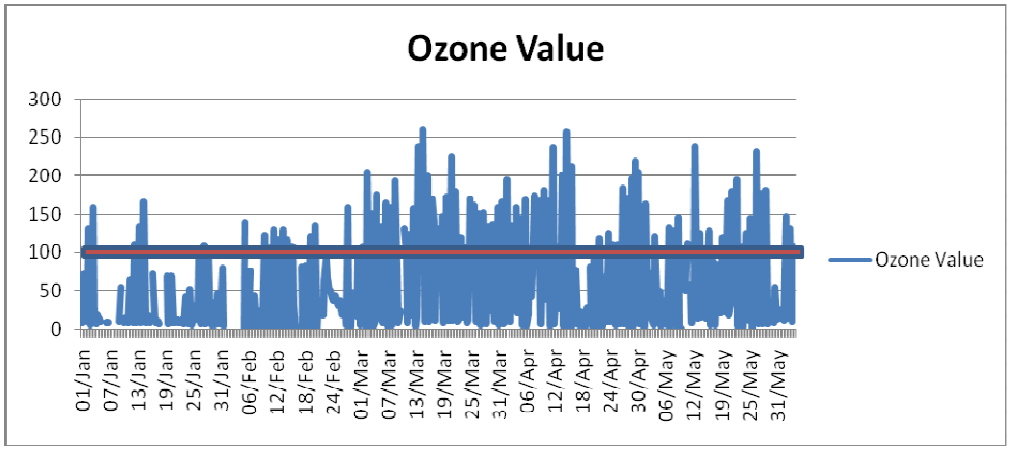
Note: Standard 8-hourly average standard 100 microgramme per cubic metre

Source: CSE analysis of air quality data from Delhi Pollution Control Committee

2. Snap shot of ozone levels in different locations in Delhi

There is a clear trend across all locations. With some variation all locations show more frequent violation of standards. The location-wise trends are as follow:

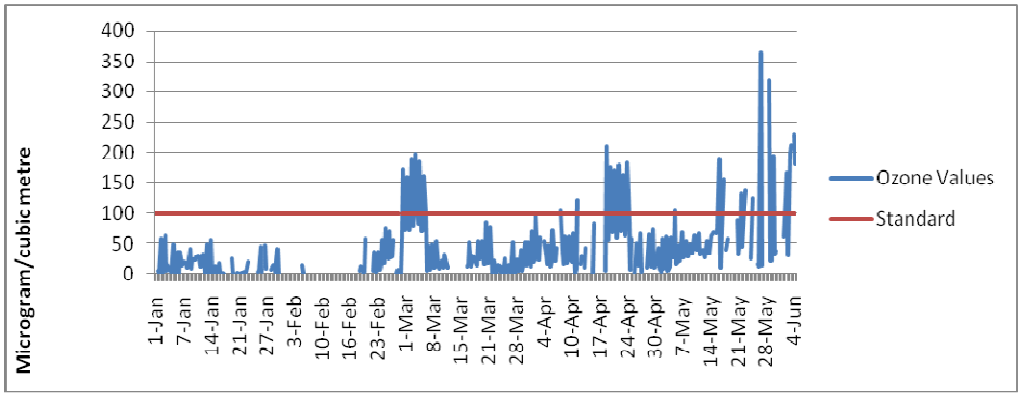
i. RK Puram: January -- June 2014.



Source: CSE analysis of air quality data from Delhi Pollution Control Committee

- The number of days exceeding safe standards for ozone concentration was prominently higher in March, April and May (peak summer). About 22.5% of the days in January, 39.2% days in February, 87% days in March, 80% days in April and 64.5% days in May exceeded the safe (100 microgram per cubic metres) standards for Ozone.
- Ozone levels have hit critical peaks of more than 250 microgramme per cum.

ii. Punjabi Bagh: January -- June, 2014.

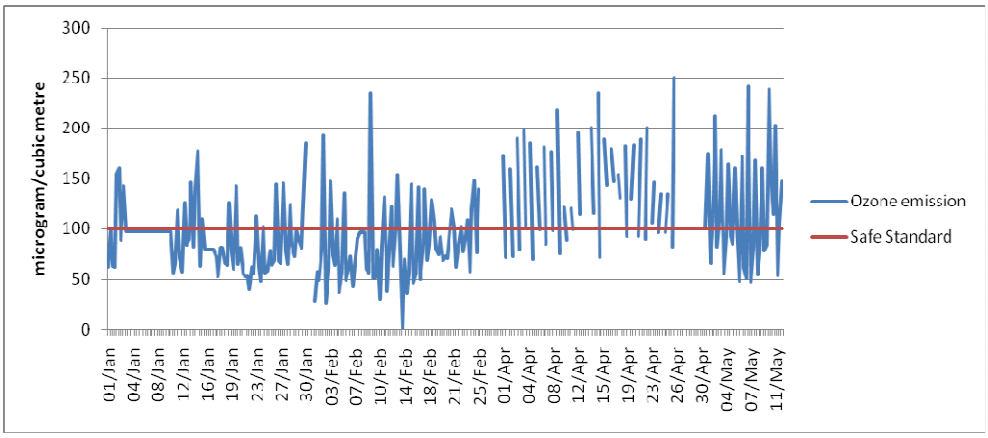


Source: CSE analysis of air quality data from Delhi Pollution Control Committee

- None of the days exceeded the safe standards in January and February. But the number of days exceeding safe standards was higher in March, April and May -- 19.3%, 70% and 35.4% of the days, respectively.

- While peak levels remained within 200 microgramme per cum end of May the peak hit as high as more than 300 to 350 microgramme per cum.

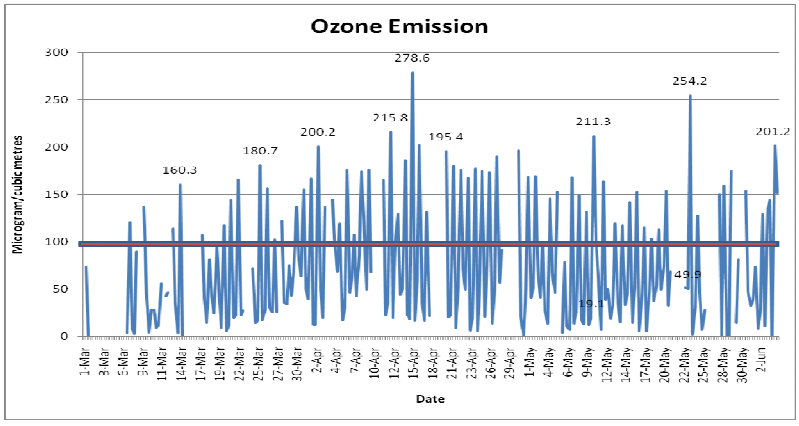
iii. Civil Lines: January – May, 2014



Source: CSE analysis of air quality data from Delhi Pollution Control Committee

- There was a clear ozone level build up between January and May.
- 48% of the days exceeded the safe standards in January, 60.7% in February, 86.6% in April and all 12 days analysed in May.

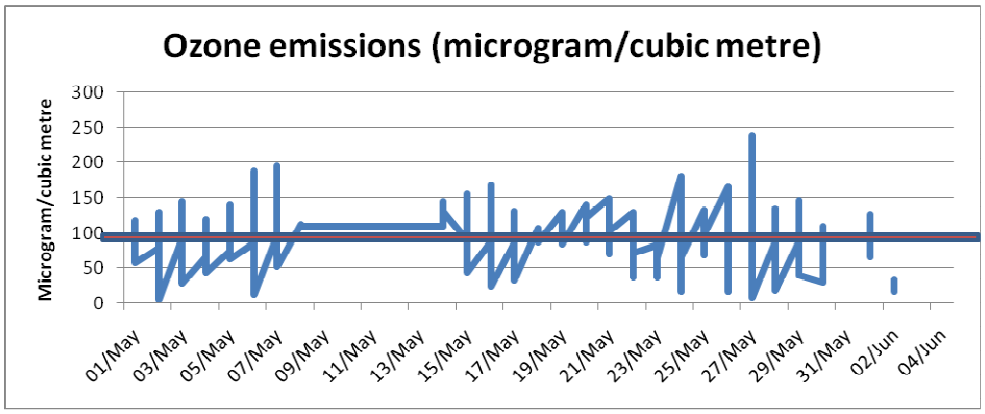
iv. Mandir Marg: March – May, 2014



Source: CSE analysis of air quality data from Delhi Pollution Control Committee

- This location shows rapid build up through the summer. About 58% of the days exceeded safe standards in March, 83.3% of the days exceeded in April and 83.8% of the days exceeded safe standards in May.
- This location also shows frequent peaks hitting more than 200 microgramme per cum – double the standards.

v. IGI Airport: May-June 2014



Source: CSE analysis of air quality data from Delhi Pollution Control Committee

- For this monitoring location data is available for the month of May. About 29 out of 31 days observed in May or 93.5% of days have exceeded the safe ozone standard.