

Greenpeace City Rankings, First Quarter 2016 PM2.5: As eastern China's air quality improves rapidly, 69 cities in central and western China see air quality deteriorating

Greenpeace East Asia's first quarter City Rankings of PM2.5 concentration shows that strict policies implemented in eastern China's 'key regions', Beijing-Tianjin-Hebei (Jing-Jin-Ji), the Yangtze River Delta and the Pearl River Delta, have had a significant effect on air pollution levels. At the same time, however, many cities in central and western China have shown deteriorating air quality.

Since the promulgation of 2012 New Air Quality Standards, 367 cities nationwide have publicly released their air quality monitoring data of six air pollutants, including PM2.5. Greenpeace's City Rankings was put together by analyzing 362 cities that release real-time air pollution monitoring data after excluding invalid data.

2016 First Quarter Findings

- The three provinces with the highest average concentrations of PM2.5 were the Xinjiang Uighur Autonomous Region, Henan Province and Hubei Province.
- The three provinces with the lowest readings were Hainan Province, Tibet Autonomous Region and Fujian Province.
- The average PM2.5 concentration for the 362 cities nationwide was 60.7 ug/m³
- Of the 362 cities, the five cities with the highest average PM2.5 concentration were all located in the Xinjiang Uighur Autonomous Region: Kashgar District, Wujiaqu, Urumqi, Hetian, and Kezilesu Prefecture.
- The five cities with the lowest averages were: Linzhi District, Altay Prefecture, Diqing Tibetan Autonomous Prefecture, Sanya, and Xilin Gol Prefecture.
- 310 of the 362 cities' average PM2.5 concentrations failed to meet the Level 2 National Ambient Air Quality Standards target of 35 ug/m³, or 85.6% of monitored cities.

Comparison With the First Quarter of 2015

- Of the 355 comparable cities, average PM2.5 concentrations fell 8.8%.^[1]
- Beijing's average PM2.5 concentration fell 27% to 67.7ug/m³; Shanghai's average PM2.5 concentration fell 12% to 60.0ug/m³; Guangzhou's PM2.5 level fell 23% to 38.9ug/m³.
- Compared with the first quarter of 2015, Xinjiang Uighur Autonomous Region, Anhui, Jiangxi, Sha'anxi and Shanxi provinces all climbed in the rankings.

Beijing-Tianjin-Hebei

Since the release of the Air Pollution Prevention and Control Action Plan in 2013 the Beijing-Tianjin-Hebei region has been taking a series of steps toward managing smog and applying a regional cap on coal consumption, establishing and updating air quality goals and leading the establishment of the Joint Prevention and Control Mechanism for 6 cities within the region.

The city ranking data shows that the Beijing-Tianjin-Hebei regional air pollution management policies have had a notable impact. 13 cities in the region have seen average PM2.5 concentration levels fall from 96.9ug/m³ in the first quarter of 2015 to 74.7ug/m³ in the first quarter of 2016, an average decrease of 22.9%.

Central and Western China

While the 'key areas' targeted for air pollution prevention and treatment have shown significant improvements in air quality, a number of cities in central and western regions saw air quality deteriorate. Compared with the first quarter of 2015, 91 out of 355 cities saw increases in PM2.5 concentration. 69 of these cities are located in central and western provinces and saw an average increase of 20.1%. The remaining 22 cities that saw worsening air pollution, located in eastern and northeastern China, saw a comparatively modest average increase of 6.6%. Of the 20 cities with the highest levels of PM2.5, seven are in Xinjiang Uighur Autonomous Region and seven are in Henan Province.

Moving West: an analysis

The Action Plan for Air Pollution Prevention and Control in the Beijing-Tianjin-Hebei area, Yangtze River Delta, and Pearl River Delta has established far more stringent prevention and control goals for PM2.5 levels than in central and western China. In addition, the central government has enacted many pollution limiting guidelines in the east that have had the unintended effect of encouraging pollution emitting industry to shift investment to central and western areas that have yet to become subject to the same controls.

According to Greenpeace statistics, the coal-power industry between 2012 and 2015 was continuously allowed by the Ministry of Environmental Protection or its provincial counterparts to expand its capacity in central and western China. In 2015, 75% of all Environmental Impact Assessment (EIA) permits for coal fired power plants, with a total capacity of 128GW, were located in central and western China.

——Greenpeace Calls for:

- The central government should strictly rein in air pollution by introducing a national coal consumption cap in the upcoming 13th Five Year Plan for Energy Development.
- The central government should complete a mid-term evaluation of the Air Pollution Prevention and Control Action Plan and publish the results as soon as possible. All provinces and cities in their jurisdictions should reassess their PM2.5 goals accordingly, and update the goals for the 13th Five Year Plan period.
- For provinces and cities whose PM2.5 concentrations have increased, it is recommended that emissions be immediately cut down through strict emissions regulations and strengthened policy implementation, as has been enacted in the three key regions.

How the data was compiled

Greenpeace's city ranking statistics were downloaded from the China National Environment Monitoring Center,[2] which provides hourly air quality readings from 367 cities around China. Greenpeace's City Rankings are released quarterly and aim to provide comprehensive data on national air quality and to monitor the implementation of government initiatives on air quality.

Greenpeace surveyed a total of 367 cities. The majority of data for Zhuji City, Changshu City, Haimen City, Ganzi Prefecture and Naqu Prefecture was missing. The rankings, therefore, include 362 cities.

The 362 cities had 1499 monitoring stations, with 56 stations missing 10% or more of their hourly data in the first quarter and two stations with less than 100 hours of recorded data. When calculating city averages, these stations' data were not included.

[1] In the first quarter of 2015, 367 cities published PM2.5 monitoring data. Out of the 367 cities, 355 could be compared with Greenpeace's 2015Q1 and 2016Q1 City Ranking results.

[2] China National Environment Monitoring Center, <http://113.108.142.147:20035/emcpublish>

Appendix 1: Ranking by city, 1 – 20

Number	City	2016 First Quarter PM2.5 average concentration (ug/m3)	Province
1	Kashgar	276.1	Xinjiang
2	Wujiaqu	170.4	Xinjiang
3	Urumqi	160.3	Xinjiang
4	Hetian	146.9	Xinjiang
5	Kizilsu Prefecture	135.4	Xinjiang
6	Xinxiang	125.7	Henan
7	Zaozhuang	119.1	Shandong
8	Shihezi	117.1	Xinjiang
9	Zhoukou	114.4	Henan
10	Heze	113.7	Shandong
11	Shangqiu	113.1	Henan
12	Liaocheng	111.4	Shandong
13	Jiaozuo	111.1	Henan
14	Dezhou	110.2	Shandong
15	Luoyang	108.2	Henan
16	Hengshui	108.2	Hebei
17	Aksu Prefecture	108.0	Xinjiang
18	Luohe	108.0	Henan
19	Zhengzhou	107.1	Henan
20	Jining	106.1	Shandong

Appendix 2: Ranking by province

Number	Province	2016 First Quarter
		PM2.5 average concentration (ug/m3)
1	Xinjiang	102.4
2	Henan	101.8
3	Hubei	80.3
4	Shandong	77.6
5	Hebei	75.7
6	Shaanxi	74.5
7	Anhui	72.7
8	Jiangsu	71.8
9	Tianjin	70.6
10	Shandong	68.0
11	Beijing	67.7
12	Chongqing	65.6
13	Hunan	63.9
14	Sichuan	63.6
15	Shanghai	60.0
16	Zhejiang	56.5
17	Ningxia	56.0
18	Jilin	55.3
19	Liaoning	55.1
20	Jiangxi	54.6
21	Guangxi	45.4
22	Gansu	44.5
23	Qinghai	44.3
24	Guizhou	40.2
25	Inner Mongolia	39.3
26	Heilongjiang	38.5
27	Shandong	35.9
28	Yunnan	35.3
29	Fujian	34.2
30	Tibet	22.8
31	Hainan	21.0

