Most up-to-date data presents the world air quality status - Greenpeace Media Briefing

The world air quality status

AirVisual brings together the most recent data on PM2.5[1] pollution from public monitoring sources to report the world air quality status in 2018, into an unprecedentedly detailed and timely global dataset, with a focus on data which has been published to citizens in real-time. These sources include government monitoring networks, as well as measurements from IQAir AirVisual air quality monitors operated by individuals, researchers and NGOs.

Air pollution levels remain dangerously high in many parts of the world. WHO data shows that 9 out of 10 people breathe air containing high levels of pollutants[2]. Outdoor air pollution alone presents the world's 4th leading contributing cause of early deaths, and these losses are estimated to burden the global economy with a staggering annual cost of $225 billion (USD)[3].

The new report shows:

- Out of the over 3000 cities included, 64% exceeded the WHO's annual exposure guideline (10μg/m3) for fine particulate matter, also known as PM2.5. Every single one of measured cities with data in the Middle East and Africa exceeded this guideline, while 99% of cities in South Asia, 95% of cities in Southeast Asia and 89% of cities in East Asia also exceed this level. As many areas lack up-to-date public air quality information and are for this reason not represented in this report, the total number of cities exceeding the WHO PM2.5 threshold is expected to be far higher.
- More public monitoring is needed in large parts of the world without access to this information. Real-time, public air quality information is essential not only to empower populations to respond to current conditions and protect human health, but also is a cornerstone in generating public awareness and driving action to combat air pollution in the long-term.

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[1] While the global health impacts of air pollution are dominated by PM2.5, there are other air pollutants like ultrafine particles, nitrogen dioxide and ozone that pose severe health risks. Looking at PM2.5 only does not give a complete picture of air quality and health risks in some regions with relatively low PM2.5 levels.

[2] https://www.who.int/news-room/detail/02-05-2018-9-out-of-10-people-worldwide-breathe-polluted-air-but-more-countries-are-taking-action

[3] http://www.worldbank.org/en/news/press-release/2016/09/08/air-pollution-deaths-cost-global-economy-225-billion

South Asia: Severe smog more common than understood, Delhi barely makes top 10

The new data reveals the true scale of South Asian air pollution crisis: out of 20 most polluted cities in the world, 18 are in India, Pakistan and Bangladesh. The data also exposes nine South Asian cities that are even worse than Delhi. India, Pakistan, Bangladesh are among the most polluted countries in 2018. The extent of air pollution levels in Pakistan has only recently been made publicly accessible through a community-driven network of air quality monitors established across the country.
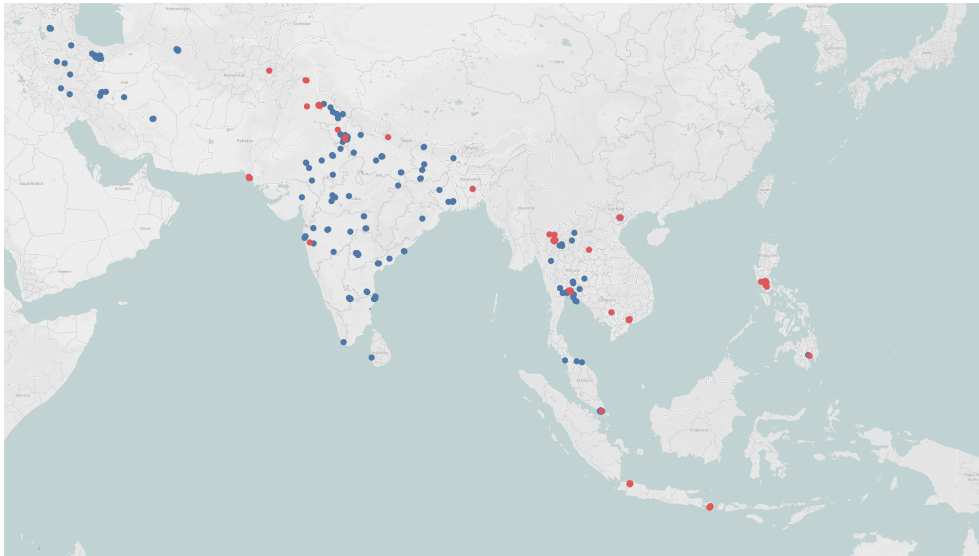
Figure 1. Distribution of PM2.5 air quality monitoring stations included in this report in South Asia and Southeast Asia.

Blue dots indicate government stations. Red dots indicate data from independently operated air monitors. There are very few government stations in South Asia and Southeast Asia countries.
Indonesia has the fourth largest population in the world, but only have one government station in Jakarta nationwide, which is just online from May 2018. It leaves large population without proper information on the air they breath everyday.
In Thailand, government monitors have been concentrated mostly in Bangkok and the surrounding area. There are at least 10 national stations and more than 50 municipal stations operated in Bangkok, but they don't release to the public in real-time, sometimes malfunctioned.

Southeast Asia

Jakarta and Hanoi are Southeast Asia's two most polluted cities, while Samut Sakhon, a province near Bangkok, ranks third. With Beijing's air quality getting better, Jakarta risks overtaking China's famously polluted capital soon, as 2018 pollution levels in Jakarta were just approximately 12% lower than in Beijing. Three out of the five most polluted places are in Thailand.

China's skies remain gray but progress is impressive

Average concentrations in the cities in China fell by 12% from 2017 to 2018. Beijing ranks now as the 122nd most polluted city in the world, according to the AirVisual dataset, with PM2.5 levels falling more than 40% since 2013. If Beijing's PM2.5 concentration had stayed at 2013 level, the city would rank as the 21st on the list in 2018.

South Korea stands out among OECD

Among OECD countries, Japan has 1010 stations included in the ranking, which is the highest number of any country/region in the report, followed by USA and South Korea. South Korea has 44 cities in the top 100 most polluted cities in OECD countries in 2018 and 43 cities in 2017 respectively. Among OECD countries, Korea is among the countries suffered from air pollution the most. In our dataset, there is a slight improvement, which is an approximately 5% decrease in the yearly mean from 2017 to 2018.

Air quality crisis in Western Balkans and Turkey

10 cities in the Western Balkans - Bosnia Herzegovina, Macedonia and Kosovo - and four in Turkey have PM2.5 levels more than 3 times the WHO guidelines. 8 cities in the Balkans are among the world's most polluted 10%, out of all the cities with data.

Impact of PM2.5 pollution on health

Exposure to PM2.5 pollution increases the risk of diseases such as lung cancer, stroke, heart attack and respiratory diseases, including asthma symptoms. On average, global life expectancy is lowered by 1.8 years due to air pollution - in other words, if everyone had clean air, we would live on average 1.8 years longer[4].

For example, for children living in Beijing, Jakarta and Hanoi, air pollution increases risk of death from respiratory infections by 40% and asthma attacks by 20%[5]. For adults, the risk of lung cancer increases by 25-30% and the risk of stroke doubles.[6]

Greenpeace is calling on governments to:

1. Expand and improve air quality monitoring and access to air quality data, and that people everywhere, take up monitoring where their governments do not. It is only with the knowledge that people will act to breathe cleaner air.

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[4] https://aqli.epic.uchicago.edu/pollution-facts/

[5] Based on concentration-response relationship recommended by WHO http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/health-risks-of-air-pollution-in-europe-hrapie-project.-recommendations-for-concentrationresponse-functions-for-costbenefit-analysis-of-particulate-matter,-ozone-and-nitrogen-dioxide

[6] Calculated from AirVisual concentration data using the Global Burden of Disease risk model for PM2.5: http://ghdx.healthdata.org/record/global-burden-disease-study-2010-gbd-2010-ambient-air-pollution-risk-model-1990-2010

2. Set targets and timelines and create action plans to bring air quality to acceptable levels as soon as possible.

3. Urgently reduce air pollutant emissions in areas that suffer from poor air quality by shifting to clean renewable energy sources and sustainable transport systems and strengthening emissions standards and enforcement for power plants, industries, vehicles and other major emissions sources.

Table 1. World and regional top 20 most PM2.5 polluted cities in 2018

Rank	World			Southern Asia			South-eastern Asia		
	Country/region	city	2018 avg.	Country/region	city	2018 avg.	Country/region	city	2018 avg.
1	India	Gurugram	135.8	India	Gurugram	135.8	Indonesia	Jakarta	45.3
2	India	Ghaziabad	135.2	India	Ghaziabad	135.2	Vietnam	Hanoi	40.8
3	Pakistan	Faisalabad	130.4	Pakistan	Faisalabad	130.4	Thailand	Samut Sakhon	39.8
4	India	Faridabad	129.1	India	Faridabad	129.1	Thailand	Nakhon Ratchasima	37.6
5	India	Bhiwadi	125.4	India	Bhiwadi	125.4	Thailand	Tha bo	37.2
6	India	Noida	123.6	India	Noida	123.6	Thailand	Saraburi	32.6
7	India	Patna	119.7	India	Patna	119.7	Philippines	Meycauyan City	32.4
8	China	Hotan	116.0	India	Lucknow	115.7	Thailand	Samut Prakan	32.2
9	India	Lucknow	115.7	Pakistan	Lahore	114.9	Thailand	Ratchaburi	32.2
10	Pakistan	Lahore	114.9	India	Delhi	113.5	Thailand	Mae Sot	32.2

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Rank	Country/region	city	2018 avg.	Country/region	city	2018 avg.	Country/region	city	2018 avg.
11	India	Delhi	113.5	India	Jodhpur	113.4	Philippines	Caloocan	31.4
12	India	Jodhpur	113.4	India	Muzaffarpur	110.3	Thailand	Si Maha Phot	30.9
13	India	Muzaffarpur	110.3	India	Varanasi	105.3	Thailand	Pai	29.4
14	India	Varanasi	105.3	India	Moradabad	104.9	Thailand	Chon Buri	27.3
15	India	Moradabad	104.9	India	Agra	104.8	Vietnam	Ho Chi Minh City	26.9
16	India	Agra	104.8	Bangladesh	Dhaka	97.1	Thailand	Chiang Dao	26.1
17	Bangladesh	Dhaka	97.1	India	Gaya	96.6	Philippines	Pasay	25.2
18	India	Gaya	96.6	India	Jind	91.6	Thailand	Bangkok	25.2
19	China	Kashgar	95.7	India	Kanpur	88.2	Thailand	Kanchanaburi	24.9
20	India	Jind	91.6	India	Singrauli	86.8	Thailand	Chiang Mai	24.5

Rank	Eastern Asia			Balkans and Turkey		
	Country/region	city	2018 avg.	Country/region	city	2018 avg.
1	China	Hotan	116.0	Bosnia Herzegovina	Lukavac	55.6
2	China	Kashgar	95.7	Bosnia Herzegovina	Zivinice	54.0
3	China	Xingtai Shi	76.7	Bosnia Herzegovina	Gracanica	48.4

4	China	Shijiazhuang	76.7	Macedonia	Tetovo	44.6
5	China	Aksu	74.1	Turkey	Kazimkarabekir	42.7
6	China	Handan	74.0	Bosnia Herzegovina	Sarajevo	38.4
7	China	Anyang	72.9	Turkey	Kesan	38.3
8	China	Baoding	70.7	Macedonia	Kumanovo	37.2
9	China	Linfen	68.2	Macedonia	Bitola	36.3
10	China	Wujiaqu	67.8	Bosnia Herzegovina	Tuzla	35.9
11	China	Xianyang	67.8	Macedonia	Skopje	34.0
12	China	Jiaozuo	66.9	Turkey	Amasya	34.0
13	China	Hengshui Shi	65.7	Kosovo	Pristina	30.4
14	China	Xuzhou	65.5	Turkey	Pinarhisar	30.0
15	China	Cangzhou Shi	65.2	Turkey	Erzincan	28.9
16	China	Pingdingshan	65.1	Turkey	Bursa	28.4
17	China	Kaifeng	64.6	Bulgaria	Sofia	28.2
18	China	Xuchang	64.2	Romania	Iasi	27.0

19	China	Zhengzhou	64.1	Croatia	Slavonski Brod	26.0
20	China	Tangshan	63.5	Turkey	Corum	24.8

Graphic assets and data credits

Graphic assets and data credits related to the ranking such as maps, can be found at:
https://drive.google.com/drive/folders/1ucxnG2KUWmtmHONIEoFEXMhP54MjJJ5G?usp=sharing

Crediting guidance for using IQAir AirVisual's
2018 World Air Quality Report* and *Interactive Ranking Webpage
graphic assets & information

We welcome the sharing of the graphic assets, data and information provided within IQAir AirVisual's '2018 World Air Quality Report' and supplemental interactive ranking webpage: https://www.airvisual.com/world-most-polluted-cities.

To help make more air quality information easily accessible to a wide audience, we ask that you credit the graphics and information provided using the following guidelines:

When referencing:
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- The city/country/region's air quality, please use "[location] air quality/air pollution (with a hyperlink to that city/country/region's page on the AirVisual website). You can search for a city/country/region on the AirVisual webpage by typing the location into the search bar.
  E.g.: Bangladesh air quality … (> https://www.airvisual.com/bangladesh)
       Hanoi air pollution … (> https://www.airvisual.com/vietnam/hanoi)

- IQAir AirVisual air quality monitors, operated by individuals, researchers and NGOs, please use "air quality monitor" with the text "air quality monitor" hyperlinked to, https://www.airvisual.com/air-quality-monitor

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