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Pollution

China tops WHO list for deadly outdoor air pollution

More than 1 million people died from dirty air in one year, according to World Health Organisation



Students wearing face masks walk across the street in a line in Jinan, in east China's Shandong province. Photograph: AFP/Getty Images

Adam Vaughan

@adamvaughan_uk

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China is the world's deadliest country for outdoor air pollution, according to analysis by the World Health Organisation (WHO).

The UN agency has previously warned that tiny particulates from cars, power plants and other sources [are killing 3 million people worldwide each year](#).

For the first time the WHO has broken down that figure to a country-by-country level. It reveals that of the worst three nations, more than 1 million people died from dirty air in **China** in 2012, at least 600,000 in India and more than 140,000 in Russia.

At 25th out of 184 countries with data, the UK ranks worse than France, with 16,355 deaths in 2012 versus 10,954, but not as poorly as Germany at 26,160, which has more industry and 16 million more people. Australia had 94 deaths and 38,043 died in the US that year from particulate pollution.

Maria Neria, director of the WHO's public health and the environment department, told the Guardian: "Countries are confronted with the reality of better data. Now we have the figures of how many citizens are dying from air pollution. What we are learning is, this is very bad. Now there are no excuses for not taking action."

Gavin Shaddick, who led the international team that put together the data, said: "Globally, air pollution presents a major risk to public health and a substantial number of lives could be saved if levels of air pollution were reduced."

World's deadliest countries for air pollution How countries compare for annual deaths from PM2.5 and PM10 pollution

Country	Total number of deaths	Deaths per 100,000 capita
Afghanistan	11,145	37
Albania	1,842	64
Algeria	11,424	31
Andorra	22	27
Angola	7,058	31
Antigua and Barbuda	17	19
Argentina	9,756	23
Armenia	2,750	92
Australia	93	0
Austria	2,890	34
Azerbaijan	4,297	46
Bahamas	57	15
Bahrain	148	11
Bangladesh	37,449	24
Barbados	44	15
Belarus	9,450	100
Belgium	3,343	30
Belize	36	11
Benin	2,606	26
Bhutan	192	26
Bolivia	2,521	25
Bosnia and Herzegovina	3,538	92
Botswana	273	13
Brazil	26,241	13
Brunei Darussalam	1	0
Bulgaria	8,634	118
Burkina Faso	4,623	28
Burundi	3,001	30
Cambodia	2,934	20
Cameroon	7,000	32
Canada	1,886	5
Cape Verde	128	25
Central African Republic	1,215	26
Chad	4,340	34
Chile	2,822	16
China	1,032,833	76
Colombia	6,502	14
Comoros	125	17
Congo	1,244	29
Costa Rica	644	14
Croatia	2,842	66
Cuba	4,127	36
Cyprus	223	20
Czech Republic	6,110	58
Côte d'Ivoire	4,970	24
Democratic People's Republic of Korea	15,596	63
Democratic Republic of the Congo	23,034	33
Denmark	1,138	20
Djibouti	212	25
Dominica	13	18
Dominican Republic	2,008	20
Ecuador	1,771	11

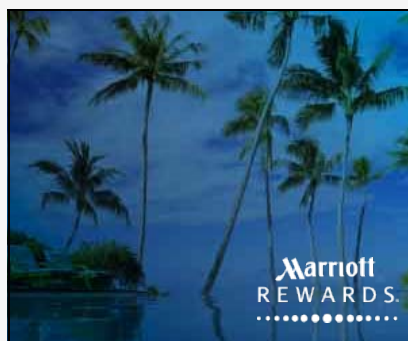
Egypt	43,531	51
El Salvador	1,498	25
Equatorial Guinea	228	29
Eritrea	1,243	25
Estonia	319	24
Ethiopia	13,257	14
Fiji	2	0
Finland	327	6
France	10,954	17
Gabon	385	24
Gambia	386	21
Georgia	3,741	90
Germany	26,160	33
Ghana	5,728	22
Greece	5,008	45
Grenada	22	21
Guatemala	1,980	13
Guinea	2,466	21
Guinea-Bissau	464	27
Guyana	230	30
Haiti	3,022	29
Honduras	1,575	20
Hungary	8,147	82
Iceland	21	6
India	621,138	49
Indonesia	61,792	25
Iran	26,267	34
Iraq	10,085	31
Ireland	681	15
Israel	1,219	16
Italy	21,057	35
Jamaica	693	25
Japan	30,790	24
Jordan	1,483	21
Kazakhstan	10,293	61
Kenya	5,102	12
Kiribati	0	0
Kuwait	487	14
Kyrgyzstan	2,129	38
Lao PDR	1,857	29
Latvia	1,859	91
Lebanon	1,434	29
Lesotho	387	19
Liberia	236	6
Libya	2,054	33
Lithuania	2,216	73
Luxembourg	106	20
Madagascar	4,215	19
Malawi	2,706	17
Malaysia	6,251	22
Maldives	48	14
Mali	5,218	32
Malta	129	31
Mauritania	978	26
Mauritius	252	20
Mexico	16,798	14
Micronesia	0	0
Monaco	8	20
Mongolia	1,123	40
Montenegro	382	61
Morocco	8,134	25
Mozambique	3,343	13
Myanmar	22,664	43
Namibia	306	13
Nepal	9,943	36
Netherlands	4,017	24
New Zealand	20	0
Nicaragua	1,247	21
Niger	6,183	35
Nigeria	46,750	28
Norway	636	13
Oman	477	13
Pakistan	59,241	33
Panama	425	11
Papua New Guinea	519	7
Paraguay	1,159	18

Peru	4,239	14
Philippines	28,696	30
Poland	26,589	69
Portugal	1,769	17
Qatar	179	9
Republic of Korea	11,523	23
Republic of Moldova	3,008	74
Romania	14,497	73
Russian Federation	140,851	98
Rwanda	2,227	21
Saint Lucia	38	21
Saint Vincent and the Grenadines	21	19
Sao Tome and Principe	25	14
Saudi Arabia	8,119	28
Senegal	2,005	15
Serbia	5,435	61
Seychelles	18	19
Sierra Leone	1,783	30
Singapore	1,094	21
Slovakia	3,465	64
Slovenia	732	35
Solomon Islands	0	0
Somalia	2,144	21
South Africa	14,356	27
South Sudan	2,632	24
Spain	6,860	15
Sri Lanka	7,792	38
Sudan	8,093	21
Suriname	74	14
Swaziland	188	15
Sweden	40	0
Switzerland	1,482	18
Syria	5,994	30
Tajikistan	3,615	46
Thailand	22,375	33
FYR Macedonia	1,366	66
Timor-Leste	210	19
Togo	1,454	22
Trinidad and Tobago	351	26
Tunisia	4,631	43
Turkey	32,668	44
Turkmenistan	3,667	71
Uganda	7,989	23
Ukraine	54,507	120
United Arab Emirates	655	7
United Kingdom	16,355	26
United Republic of Tanzania	5,765	12
United States of America	38,043	12
Uruguay	713	21
Uzbekistan	16,282	57
Vanuatu	2	1
Venezuela	6,113	20
Viet Nam	27,340	30
Yemen	6,667	27
Zambia	2,411	16
Zimbabwe	1,856	13

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Sixteen scientists from eight international institutions worked with WHO on the analysis, which gathered data from 3,000 locations, using pollution monitors on the ground, modelling and satellite readings.

Advertisement



They looked at exposure to tiny particulates 2.5 microns in size, known as PM2.5s, which penetrate the lungs and are the air pollutant most strongly associated with an increased risk of death. “The real driver of ill health is ultra-fine particles, 2.5s – they have the ability to permeate the membrane of the lungs and enter our blood system,” said Shaddick, who is based at the University of Bath. “Increasingly there is an understanding that there are not just respiratory diseases but cardiovascular ones associated with PM2.5s.”

In the UK more than 90% of the population lives in areas with levels of PM2.5s above the WHO’s air-quality limits of 10 micrograms per cubic metre for the annual mean. The government is in the high court on 18 and 19 October facing a legal challenge by environmental law group ClientEarth, which says ministers’ clean-up plans for another pollutant – nitrogen dioxide – are inadequate.

Globally, 92% of the population breathes air that breaches WHO limits but the world map of deaths caused by PM2.5s changes when looked at per capita. When ranked by the number of deaths for every 100,000 people, Ukraine jumps to the top of the list at 120.

It is followed by eastern European and former Soviet states, and Russia itself, probably due to a legacy of heavy industry in the region. **China** drops down to 10th, at 76 per 100,000, and India falls to 27th, with 49 per 100,000.

Air pollution in the Ukraine caused **four times more deaths per capita** than than the five cleanest countries combined



Most of the air pollution comes from cars, coal-fired plants and waste burning but not all of it is created by humans. Dust storms in places close to deserts also contribute to dirty air, explaining partly why Iran is at 16th highest for total deaths, at 26,000 a year.

Most of the total deaths worldwide – two out of three – occur in south-east Asia and the western Pacific, which includes **China**, Vietnam, Japan, Australia, South Korea and small Pacific island states.

Shaddick said: “We might think of [pollution in] Beijing as being very high, but when you fill in the gaps between the big [Chinese] cities, [air pollution in] regions [is] remarkably high compared to the WHO limits [10 grams per cubic metre for the annual mean], up in the 50s and 60s. That’s something we in the west can’t even comprehend. That was probably a bit of a shock [to me].”

The Pacific states of Brunei Darussalam, Fiji and Vanuatu have the lowest number of deaths from air pollution, the WHO found.

Anne Hidalgo, mayor of Paris and chair-elect of a network of cities combating climate change, said: “Fighting pollution is one of my top

priorities as mayor of Paris. It is a vital public health issue and all mayors should take on their responsibility to deliver bold actions.”

The city of Paris voted on Monday to ban cars along a stretch of the river Seine to cut pollution, defeating a minority rightwing opposition.

Hidalgo added: “I have said it before and am saying it again: we cannot negotiate with Parisians’ health.”

Neira said Canada and Scandinavian countries deserved praise for curbing air pollution and singled out France too. “France is taking a lot of action, Paris is taking aggressive measures: aggressive in the good sense. [It] maybe unpopular because it’s for the health of people but they are putting some restrictions on individuals. We all need to understand this is a matter of public health,” she said.

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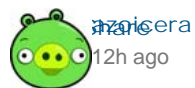
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1 2

Matthew2012 8h ago

Now we have Brexit we can get rid of that pesky EU regulation and start to move back up the list. I think that we might struggle to compete with the developing world but I am sure team Tory will give it their best shot 0



azocera

12h ago

How credible is a study using 3-yr-old data? I live in Beijing and I can tell you the quality of air in 2016 is much better than last year, with over 50% blue-sky days. China is on the right track solving this problem.

2

Reply to azoicera

Science is most reliable when it uses validated data. With something like this even the visible and tangible signs might be misleading.

0

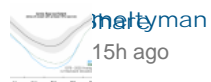
It is to be hoped that things are improving but you'll need to wait a while before science commits to agreeing with you.

1

Reply to azoicera

My Kiwi friend who is an inventor in one his early annual letter to shareholders told of the development of an emission catalyst for Womans Chairman of one of their several Chinese Prefecture Government's who headed up State run R.E S.O.E who asked him when visiting Beijing sometime early nineties when smog was deathly thick most of time. Said in letter a decade later supplies of core materials had been secured their via these ministries to be able to mass produce them. Haven't heard much about it of late. Curious?

1



mertyman

15h ago

While the numbers are truly shocking:

2

"For the first time the WHO has broken down that figure to a country-by-country level. It reveals that of the worst three nations, more than 1 million people died from dirty air in China in 2012, at least 600,000 in India and more than 140,000 in Russia."

3

the subsequent paragraph is bizarre:

At 25th out of 184 countries with data, the UK ranks worse than France, with 16,355 deaths in 2012 versus 10,954, but not as poorly as Germany at 26,160, which has more industry and 16 million more people. Australia had 94 deaths and 38,043 died in the US that year from particulate pollution.

Surely a numerate writer would report the rates rather than the absolute numbers. The latter become quite meaningless when comparing the UK with a much larger nation, say, China.



tachinni

17h ago

In reality it is very difficult to establish which deaths occur secondary to air pollution and which owing to other reasons, e.g. unhealthy lifestyle choices. The last time I checked, pollution of air was not on a death certificate.

1

2

However, it appears that the largest number of deaths is in the industrialised countries relying on old technologies, coal power etc. China, Ukraine, Bulgaria are all good examples. Coal should stay in the ground!

I was a bit surprised about the high proportion of air pollution deaths assigned to Baltic states. Recent economic changes, particularly after joining EU, mean that they have very little industry (or for that matter economy) left. Perhaps the analysis took into account the summary of exposure over the lifetime of people dying?

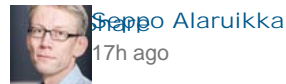
Reply to tachinni

Heating homes by burning coal as well as burning trash, both illegal yet traditional practices may explain your Baltic question. This link briefly describes the problem in southern Poland. <http://mobile.reuters.com/article/idUSKBN0UM1NR20160108>

0

1

When I was there in the summer, the air was smokey and bothersome to breathe. I witnessed a wealthy surgeon even burning trash in his big beautiful landscaped backyard.



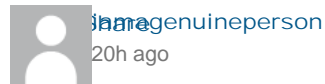
Sappo Alaruiikka

17h ago

There is one typo. Instead of "compared to the WHO limits [10 grams per cubic metre for the annual mean]" it should be "10 micrograms per cubic metre", ($\mu\text{g}/\text{m}^3$).

0

1



genuineperson


20h ago

what doesn't kill you makes you stronger

1

 [Reply Sam](#)
genuine person
no

2
2
3

 [Reply Curulin](#)
disgreening
20h ago

"Life expectancy in Beijing and Shanghai has reached 80 years and it's 82 in Hong Kong. All have massive pollution problems. Life expectancy in Berlin is 79.8, San Francisco and New York are barely 80 and the list goes on. With its population centers performing so well you might expect the entire country to have a high ranking, but that's not the case"


<http://www.worldlifeexpectancy.com/china-health-miracle>

 [Reply Curulin](#)
20h ago


If you consider how much money we spend on fighting terrorism and other supposed risks, if we spent only a fraction of that amount to fight pollution a lot more lives could be saved.

 [Reply Curulin](#)
The Same Time


Unfortunately the pollution fighting lobbyists are up against pretty much every other lobbyist.

 [Reply Macanach](#)
20h ago

Perhaps those who have accused, argued, maintained and assumed the UK was 'the dirty man of Europe' would like to explain these results?

 [Reply deadofnight](#)
21h ago


Welcome to Osborne's golden relationship

 [Reply Jess](#)
21h ago

Interesting that almost all of the highest rate per population are former Warsaw Pact or USSR nations...

 [Reply andrewstooke](#)
21h ago


I'm going to move to a country with low population as fewer are dying, low population density seems an advantage too.


 [Reply saintabroad](#)
21h ago


I live in [China](#), and due to marriage, the country I will settle in is Bulgaria (2nd highest deaths per 100000 people). Given the data.

Might as well learn to smoke. If I can at least derive some pleasure from what is going to happen to my lungs....

Joking aside, "Globally, 92% of the population breathes air that breaches WHO limits": a horrific indictment of why GDP-stat-obsessed politics has led to us all choking to death.

 [Reply saintabroad](#)
GDP per capita is not necessarily correlated with pollution...

 [Reply saintabroad](#)
If you put the cigarette in your mouth unlit, then suck in air...

 [Reply Waky Sr](#)
21h ago

Where's Greenpeace and RAN when you need them?

I hope they open their eyes and brain, to focus and prioritize their eco-talibanism based on UN/WHO produced statistic -- rather than peddling falsehood, pseudo-science and self-concocted stats.

 [Reply Waky Sr](#)


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2

right here: 1
2

<http://www.greenpeace.org/eastasia/campaigns/air-pollution/>

I mean, who do you think is keeping tabs on this problem and publicising it?
<http://www.greenpeace.org/eastasia/press/releases/climate-energy/2016/30-of-Chinas-cities-see-air-pollution-worsen-compared-to-last-spring--Greenpeace/>


 [shrek](#)
22h ago
Surprised this made it into the Guardian environmental, obsessed as it is with anthropocentric CO2. 2
Most neglected topic in the "Green" world, but a proven mass killer. 3


When is diesel going to be banned for cars?
 [Johnboy1945](#)
22h ago
Reminiscent of the UK in the 20Th century, fog and smog. 3


[Magali Luna](#) [Johnboy1945](#)
Reminisce, like thinking about the past? I dont't think that's any comfort for the chinese of today. 4
1


[Magali Luna](#)
Given the death toll per capita puts **China** at 10th, feel sorry for Ukrainians. 2
5
6

 [Gerald Fisher](#)
22h ago
By "we" do you mean **China**? 4


 [Gerald Fisher](#)
22h ago
It's a good job it stays in **China** and doesn't come here after all the efforts we make. 5
2
3

 [maranta](#)
22h ago
And this is the country we're handing control over a potentially lethal source of energy to. 1
Shocked about Ukraine, though I'm not sure why. Chernobyl being a good example. 2

 [marasmus](#)
22h ago
Just for balance, how many people have been killed by nuclear power generation? 7

 [TommyCastro](#)
23h ago
How many Chinese made products do you have in your house, garage, garden, etc ? Don't hypocritically sit on the sidelines bitching and bleating - Buy British ! The more Chinese products you buy, the more filth they will put in the air. 8

[TommyCastro](#)
Considering that Britain was also in the top 25, your idea that the clutter we buy would be produced more safely in GB is certainly unproven. 7
8

 [anybody](#)
23h ago
'China tops WHO list for deadly outdoor air pollution" 3
Fabrication has gone mad. Show the evidence of death numbers and the cause of the death is the air pollution. 4

How many millions of death in American sphere have been resulted at their stage of the industrialisation? Times 10? Times 100? Times

0.1? Or what?

Utter rubbish.

[Reply](#) [Share](#) canbeanybody

Jealous. 2

[Reply](#) [Share](#) canbeanybody

Your are reacting petulantly. Where is your report to refute the WHO's. Do the chinese elites agree with you? 2

3

 [Deeble](#)
23h ago

To reduce your impact on air pollution: 1

- Drive less / use other modes more, and use a smaller, more efficient, non-diesel car 2

- Reduce consumption in general and consumption of non-essential manufactured goods in particular (China's air pollution has got as bad as it has servicing the West's demand)

- Source your electricity from renewables if you can

[Reply](#) [Share](#) Deeble

Should the action start with you? 3

[Reply](#) [Share](#) canbeanybody

Be the change you want to see. 4

1


To make changes on the large scale, campaigning for government action is also necessary, of course. 2

[Reply](#) [Share](#) Deeble

Campaign? Send in the tanks. 0

1

[Reply](#) [Share](#) replies

 [Opencity](#)
23h ago

This has been the issue all along. Allowing the Global Warming debate to take over the agenda has been a big mistake by the green movement as many people don't believe in AGW. However nobody can deny the more evidence based 'tangible' air pollution. You can't taste see or smell Global Warming. 1

[Reply](#) [Share](#) Opencity

This may surprise you but they are both intimately connected.. 4


[Reply](#) [Share](#) Opencity

Totally agree. The word 'Pollution' should have been the focus, rather than some nebulous AGW which people can argue against. There's little to dispute about the infinite ways we manage to pollute this beautiful planet. 5

[Reply](#) [Share](#) Wftw

You know that I know that but in debates with AGW there are a lot of 'sceptics', they can't deny pollution though. We are talking about winning the debate, those sceptics are stuffed with pollution! 0

[Reply](#) [Share](#) reply

 [Sarah Flynn](#)
23h ago

I've read before that developing countries are not interested in being policed on their fossil fuel production - they care about growth and keeping their economies "strong" - your economies won't matter when everyone is dead. 4

[Reply](#) [Share](#) Sarah Flynn

The unfortunate side effect of living in the moment, I'm afraid. 5

Humans (on the whole) have a tendency to ignore problems until they're forced to be dealt with. Regarding China, I don't think we'll see any serious corrective action for another decade, after things look irreparably bad. 2

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