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Climate change

Environmental effects

Our pandemic response is cutting emissions, but it isn’t a climate change fix

Adam Vaughan

People in Chinese cities usually plagued by harmful air pollution are breathing far cleaner air. Boat-free canals in Venice, Italy, are clear enough to see fish. And for the quarter of the global population now living under a coronavirus lockdown, a lack of cars and planes has made the world quieter and birdsong more apparent.

While there are signs of easing pressure on the environment, no credible environmentalists say the response forced by the pandemic is a solution for the challenges the world faces on climate change, pollution and biodiversity loss.

“The crucial thing to observe is this is happening in an unplanned, chaotic way that’s hurting people’s lives. You’d never advocate for such a thing in climate policy,” says Sam Fankhauser at the London School of Economics.

One clear impact has been on air quality. Satellite observations by Europe’s Copernicus Atmosphere Monitoring Service (CAMS) found that China saw a 30 per cent drop in February in two key air pollutants, nitrogen dioxide (NO2) and particulate matter. In Italy, they fell by 40 to 50 per cent in March.

“There is no precedent to something like this,” says Vincent-Henri Peuch at CAMS. He thinks the closest historical parallels for such dramatic drops are the 2008 Olympic games in Beijing, when China took drastic steps to fight pollution, and after the fall of the Berlin Wall, when industries in the former East Germany installed cleaner technology.

It is too early to detect pollution falls linked to the pandemic in other parts of the world, says Peuch. That is because changes in the weather mean pollution levels vary naturally from day to day and year to year. Another complicating factor is that more people may have taken to cars due to limits on public transport ahead of lockdowns, potentially pushing up pollution for a time, says Peuch.

There may be negatives for air quality efforts too. London, which has the UK’s worst NO2 pollution, has temporarily suspended its Ultra Low Emission Zone to help key workers move around. The scheme’s revenues are usually reinvested into clean air efforts.

In the long run, the economic hit may hamper efforts to improve air quality, such as car-makers having less to invest in cleaner models. “The pressure on public finance, but also on private companies’ finance, might make implementing those needed investments over the longer term even more difficult,” says Hans Bruyninckx at the European Environment Agency.

The pandemic will certainly have consequences for climate change (see page 23). Planes grounded across the globe are no longer contributing to global warming, but record atmospheric concentrations of CO2, which climbed to a new high in February, are unlikely to reverse. Experts say it is too early to detect any short-term impact in March from coronavirus responses.

However, observers think that global CO2 emissions are likely to drop in 2020, ending several years of slow growth. “This year, I expect the emissions to decline significantly. But, in my view, this is not a reason to be happy. Emissions are going down for the wrong reasons,” says Fatih Birol at the International Energy Agency.

Based on existing economic forecasts, they will fall at least 0.3 per cent, but probably much more, according to Glen Peters at the Center for International Climate Research in Norway. A separate estimate by the Breakthrough Institute is for a fall of 0.5 to 2.2 per cent. But annual drops of 7.6 per cent are needed to keep global warming below 1.5°C, according to the United Nations.

What is clear is the big effect on the energy sector, which is by far the largest source of global carbon emissions. With many industries and services shut down, every country in Europe has seen electricity demand fall 2 to 7 per cent week-on-week, climate think tank Ember has found.

Oil and gas firms are scaling back new exploration and production projects by $31 billion this year in the face of very low, sub-$30 per barrel oil prices. That brings fossil fuel returns in line with renewable energy projects, making those green alternatives look more attractive.

What happens after the pandemic subsides will be key to the overall climate change impact. After the 2008 financial crash, global emissions leapt nearly 6 per cent in 2010, wiping out the fall resulting from the episode, as governments pumped in public money to assist economies. That is why debate is raging in the US, Europe and elsewhere over coronavirus stimulus measures and bailouts for carbon-intensive sectors such as airlines.

“Governments should use this moment of unexpected paralysis to prepare economic recovery packages that accelerate clean-energy systems,” says Christiana Figueres, who was UN climate chief when the Paris deal was agreed in 2015. Laurence Tubiana, who as a French diplomat also agreed in 2015. Laurence Tubiana, who as a French diplomat also played a key role in the deal, wants “green strings” to any stimulus, such as car-makers having to produce more electric models.

Travel curbs are also making it
hard for the UK and other nations to conduct diplomacy to elicit more ambitious carbon-cutting plans from countries ahead of November’s UN climate summit, says Tubiana. Those plans are crucial for closing the gap between the catastrophic 3°C-plus of warming we are on track for and the 1.5°C limit.

Further environmental impacts from the pandemic might seem trivial but could still be significant, says Bruyninckx. One is a reduction in noise pollution for millions of people. The other is an easing of the stress on water supplies in some areas because of less tourism and industrial activity. By comparison, any extra water consumption from handwashing to tackle the virus will be negligible, says Bruyninckx.

In Venice, the canals may simply be clearer because boats aren’t stirring up sediment from the city’s lagoon and canals. Without measurement, it is impossible to say if water quality is better, says Davide Tagliapietra at the Institute of Marine Sciences, Venice.

Farming may yet be affected by the pandemic too. In the UK, the National Farmers’ Union says there has been no intensification of food production to make up for a slowing of imports. But growers who rely on seasonal workers to pick fruit and vegetables are “extremely concerned” about recruiting them this year, with the risk of food going to waste.

Whatever the crisis’s lasting environmental impact, Figueres says one lesson is the reminder that prevention is better than cure. That is true for both planetary and human health, she says. “We are better off preventing the worst impacts of climate change, rather than trying to deal with what will become unmanageable consequences.”

**Analysis** Coronavirus testing

**Home testing is no quick fix** UK prime minister Boris Johnson says antibody tests for covid-19 are a game changer, but they may not do much in the short term, argues Michael Le Page

The UK has ordered 3.5 million antibody tests designed to reveal whether people have been infected with the new coronavirus. The UK’s prime minister, Boris Johnson, who last week announced that he has tested positive for the virus, has said these tests will be a “game changer”, but the reality is they might not have that much of an impact in the short term.

Almost all testing for the virus around the world is based on looking for its genetic sequence. But such tests require nose or throat swabs to be taken by trained personnel and sent to a specialised lab for analysis, and there is a global shortage of equipment. Genetic tests also detect only active infections.

Antibody tests, by contrast, detect the antibodies our bodies produce to kill the virus, which we keep producing even after the virus is eliminated. These tests can reveal who has been infected even after they have recovered. Handheld tests that require only a drop of blood can give results in 10 minutes, and can be mass produced quickly and cheaply.

The antibody response to the coronavirus may be delayed compared with other infections. The tests can be used only 14 days or more after people develop symptoms, says Adams.

If we know someone has had the virus, they can potentially leave their home without the risk of being reinfected, which would help countries get moving again – although we don’t yet know whether it is possible to be infected a second time. However, the accuracy of the tests has yet to be established. “The one thing that’s worse than no test is an inaccurate test,” Chris Whitty, the UK’s chief medical adviser, said on 25 March. Someone wrongly told they had already had covid-19 could go out and get infected.

**Diagnostic tests in South Korea, which has tested extensively**

How accurate do the tests need to be? “It’s very difficult to say,” says Emily Adams at the Liverpool School of Tropical Medicine in the UK, who is helping assess the tests developed by Mologic, one of the companies supplying the UK. Part of that process will be working out what accuracy is required for different uses, says Adams.

Ideally, we want to find out whether the thousands of health workers who are currently self-isolating because they or someone else in their home have symptoms that might be covid-19 can get back to work. Unfortunately, the antibody test may not help with this.

The antibody response to the coronavirus may be delayed compared with other infections. The tests can be used only 14 days or more after people develop symptoms, says Adams.

This also means antibody testing will be of limited use for tracing the contacts of infected people – which many think is crucial for controlling the outbreak – because health authorities will be weeks behind.

Widespread antibody testing will also reveal whether large numbers of mild infections have gone unnoticed. If so, this would mean the infection fatality rate is lower than thought. Unfortunately, places like South Korea that have been doing lots of genetic testing haven’t found vast numbers of mild cases.

On the plus side, many groups are working on faster genetic tests and antigen tests that can detect the virus in, say, saliva. Testing widely both for active infections and past infections should be a highly effective combination.

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