

US - CANADA AIR QUALITY AGREEMENT

CONSERVATIVE
ENVIRONMENT
NETWORK

CANADA - US AIR QUALITY AGREEMENT

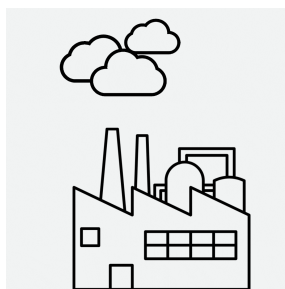
Summary

Environmental issues do not respect boundaries or state lines. Particulates travel and so our air today is only as clean as our neighbour's was yesterday. In the 1990s, this became clear in Canada and the United States as air pollution in both countries was causing acid rain and wiping lakes clean of wildlife¹. For a long time, this air pollution had not been well understood, but by the 1990s there was evidence that it was being caused by sulphur dioxide and nitrous oxides from heavy industry, power stations and cars. There was also evidence that if the lakes were left to recover there were plenty of alkali producing microbes which in time could replenish them². Here was a problem which had a clear cause and effect, and which could be reversed in time if emissions were reduced.

There was also a political appetite to do something about it. The US and Canada focused on working together to protect both nations' natural environments, acting swiftly on the scientific evidence available to them. The result has been that the emissions that cause acid rain have drastically reduced and the worst effects of acid rain have been reversed. This is all the more impressive because in the 1990s there was substantially less knowledge and recognition of climate issues than there is today. It serves as a model for how continued international cooperation can successfully solve major environmental challenges.

Acid rain

Acid rain is a broad term that encompasses any precipitation that is acidic and falls to the ground. Precipitation becomes acidic when sulphur dioxide (SO₂) or nitrogen oxides (NO_x) are emitted into the atmosphere. They are then moved through the atmosphere by wind currents until they react with water and oxygen in the atmosphere to create sulphuric or nitric acid. This is then rained down onto the ground in the form of rain, snow, hail or even dust.



The biggest source of these emissions is from burning fossil fuels for electricity, particularly coal. Vehicles powered by petrol or diesel also emit these pollutants, as do some types of heavy manufacturing, refining and smelting. All of these come from the burning of fossil fuels. The exact proportions however have varied. In

¹ Norman R. Glass, Gary E. Glass, Peter J. Rennie, Effects of acid precipitation in North America, Environment International, Volume 4, Issues 5–6, 1980,

² The bittersweet story of how we stopped acid rain, BBC Future, Lesley Evans Ogden

1980, two thirds of the US sulphur emissions came from power stations, while about half of Canada's sulphur emissions came from non-ferrous smelting plants³.

The effects of acid rain on the ecosystem are severe. Acid rain stripped forests bare across Europe, where it was first identified⁴. This was because the acid leached aluminium, which is toxic to plants in large quantities, and stripped minerals and nutrients from the soil⁵. Acid rain can also hurt man made structures, such as damaging paint on cars and eroding statues. However, the clearest effects of acid rain were on marine environments, such as the eerily clear lakes in Killarney Provincial Park in Canada in the 1990s⁶. The lakes that suffered from acid rain were so clear because after a certain pH they could not support marine life. The effects on marine life are particularly severe because so much of marine life relies upon small creatures, like some types of plankton or shrimp, to eat - and so even before lakes become too acidic for fish to survive, they starve due to the lack of food. At its worst, the rain in the US and Canada was between ten and forty times more acidic than normal⁷. This had effects going up the food chain until the US and Canada were left with whole lakes becoming dead zones.

Air pollution and climate change in 1991

In 1991, 'climate change' was not a commonly used phrase. There had been an environmental movement for decades but its reach had been limited and mostly focused around individual problems. The great smog in England in 1952 led to the Clean Air Act of 1956, which was passed under the Conservative Prime Minister Anthony Eden, and the book *Silent Spring* in 1962 led to a nationwide ban on the pesticide DDT.

Many of these individual campaigns focused around air pollution, which had been a key environmental topic, even before the effects of acid rain were fully realised, due to the health effects of smog. As a result, air pollution legislation had already been passed in both Canada and the US before the Air Quality Agreement. The approach this existing legislation took, however, was to focus monitoring of air pollution levels on the ground where the source of the pollutants was. In order to get around this, many polluting factories and power stations focused on dispersing pollution and built taller and taller smokestacks which allowed it to be spread wider. By pushing pollutants upwards, the smokestacks drove pollution up into stronger winds which travelled further and led to greater transboundary pollution⁸.

Canadian - US collaboration

³Sibley, John M. (1983) "A Canadian Perspective on the North American Acid Rain Problem," NYLS Journal of International and Comparative Law: Vol. 4 : No. 3 , Article 5.

⁴Norman R. Glass, Gary E. Glass, Peter J. Rennie, Effects of acid precipitation in North America, Environment International, Volume 4, Issues 5-6, 1980,

⁵ Effects of Acid Rain, United States Environmental Protection Agency (EPA)

⁶ The bittersweet story of how we stopped acid rain, BBC Future, Lesley Evans Ogden

⁷Sibley, John M. (1983) "A Canadian Perspective on the North American Acid Rain Problem," NYLS Journal of International and Comparative Law: Vol. 4 : No. 3 , Article 5.p531

⁸Sibley, John M. (1983) "A Canadian Perspective on the North American Acid Rain Problem," NYLS Journal of International and Comparative Law: Vol. 4 : No. 3 , Article 5.p533

Many of the coal burning power plants in the US and Canada lie near the border between the two countries. Tensions between the two countries were strained as a result of the air pollution which was crossing both sides of the border. In Canada particularly, most of the population and most power stations are concentrated in the south of the country. And it was a south Canadian coal plant that prompted the first international skirmish over acid rain in 1978. The US claimed that the small coal plant in Atikokan, Canada was causing acid rain over the border. This led to a gathering of a bilateral group of officials to which data was presented by both sides, and it was made clear that, rather than sulphur from Ontario polluting American lakes, more than half of the acid rain in Canadian lakes came from the US, particularly the Ohio Valley and industrial areas in Pennsylvania and New England⁹.

This led to a 1978 resolution of the United States Congress which called upon the US President to 'make every effort to negotiate a cooperative agreement with the Government of Canada aimed at preserving the mutual air space of the United States and Canada'¹⁰. For the next seven years, however, progress on tackling acid rain slowed, particularly in the USA. One thing that changed this was the election of Ronald Reagan. President Reagan had actively campaigned on air pollution as the governor of California, established the California Air Resources Board (CARB) and had been active on the campaign to introduce catalytic converters in Los Angeles in the 1970s.

Republican President Reagan in the US and Conservative Prime Minister Brian Mulroney in Canada broke this stalemate in 1985 when they appointed two special envoys to review the problem of acid rain¹¹. Within a year they had concluded that acid rain was a serious transboundary concern that they needed to combat and the US committed five billion US dollars to develop 'clean coal technologies' which would reduce the amount of sulphur pollution. However, not even the best filters can eliminate harmful particulates from coal burning and in 1991, under the new Republican President George HW Bush, the two countries once again met to combat the problem of air pollution.

The Canada-US Air Quality Agreement

The Canada-US Air Quality Agreement was signed into law by the two conservative-led countries on the 13th March 1991¹². It contained specific provisions to reduce the sulphur dioxide and nitrous oxide emissions which were causing acid rain, the scientific and technical guidelines for monitoring progress reductions, and the impacts of acid rain damage.

The measures included emission reduction standards for vehicles and, from 2007, annual caps of

⁹ The bittersweet story of how we stopped acid rain, BBC Future, Lesley Evans Ogden

¹⁰Sibley, John M. (1983) "A Canadian Perspective on the North American Acid Rain Problem," NYLS Journal of International and Comparative Law: Vol. 4 : No. 3 , Article 5.p538

¹¹ Roelofs, Jeffrey L. (1993) "United States-Canada Air Quality Agreement: A Framework for Addressing Transboundary Air Pollution Problems," Cornell International Law Journal: Vol. 26: Iss. 2, Article 4. p442

¹²COMPENDIUM OF CANADA'S ENGAGEMENT IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS AND INSTRUMENTS,Agreement between the Government of Canada and the Government of the United States on Air Quality (AQA), Government of Canada, 1991

sulphur dioxide emissions from fossil fuel power plants in areas which contributed to acid rain across the borders. The caps varied in size depending on the location of each plant and how much it was contributing to acid rain. In order to meet these caps, Canada and the US were encouraged to tailor domestic policies to their own industries. The caps have been successful, with Canada emitting 71% and the US emitting around 86% under the total cap¹³.

The measures were backed up by monitoring and annual reporting of emissions by both the US Environmental Protection Agency (EPA) and Environment and Climate Change Canada (ECCC). The findings and trend were then collated into progress reports which are released every two years (the last set has been delayed due to the pandemic).

- There has been a 69% reduction in the levels of sulphur dioxide since 1990 in Canada¹⁴. This mostly occurred through the closing of coal fired power plants in Ontario.
- There has been an 88% reduction of sulphur dioxide in the US since 1990. This was caused by a mix of measures including efficiency increases, switching to less cleaner fuels and pollution controls at power plants.

Both Canada and the US have also successfully reduced the levels of nitrogen oxide pollution:

- Canada has increased regulations on industrial boilers, heaters and cement manufacturing, and established mandatory air pollution emission limits for industrial facilities, which are estimated to reduce emissions by two million metric tons in the first 19 years - equivalent to taking all passenger cars off of Canadian roads for 12 years.
- The US has successfully reduced nitrous oxide emissions by 84% between 1990 and 2017. This has been primarily done through a market based emissions trading scheme for coal fired power plants¹⁵.

Because the US-Canada agreement was not prescriptive in terms of what policies were needed to reduce emissions, it created far more flexibility, allowing each country to tailor policies to specific sectors. It means that both countries can adapt to chase ever lower emissions. Additionally, by consistently imposing emissions caps, the agreement allows the private sector to plan and adapt to these targets.

Lessons to be learned from the Canada - US Air Quality Agreement

Policy is only as good as the data it is based on - One of the big reasons that Canada and the US have tackled acid rain so effectively was the solid base of evidence for what was causing acid rain, what its effects were, and what solutions were likely to work. There is a wealth of scientific research on the causes of other major environmental challenges, not least climate change, and on the effects various solutions might have. We need to utilise this knowledge in making good policy.

¹³ Canada-United States air quality agreement progress report 2018, United States, Environment Protection Agency (EPA) <https://www.epa.gov/sites/default/files/2020-12/documents/en85-1-2018-eng.pdf> p4

¹⁴ *Ibid*

¹⁵ *Ibid*

Yesterday's solution may become tomorrow's problem - One of the reasons acid rain travelled so far from the source of the pollution was because of the practice of building particularly tall smokestacks. These reduced the levels of air pollution in the areas directly around the area but allowed pollution to travel much further¹⁶. When considering environmental policies, we need to remember that we are stewards for future generations and plan accordingly.

International cooperation is vital - If only one country had committed to reducing air pollution and the other had allowed pollution to continue unabated, this would have led to worsening international relations and a continuation of the same problem. Halting carbon emissions will require every country in the world to work together and strengthen our ambitions.

Targets can provide a focus - Sensible targets provide certainty for businesses to plan around. While it may not matter in the grand scheme of things whether achieving a cap on emissions occurred on the 31st December 2006 or the 2nd January 2007, it did matter that every business knew that they were working towards this target and so could accurately plan ahead.

Leave some space for variation - Because the targets are for overall pollution, rather than sector by sector, it allows for flexibility so that each country and province/state can scale up policies which tackle its specific issues and lead to cleaner air overall.

The Conservative Environment Network is the independent forum for conservatives who support decarbonisation and conservation. As part of CEN's international work, we are compiling case studies of successful centre-right environmental policies from across the world. If you would like to help contribute or have any further questions, please email fn@cen.uk.com

*Thanks particularly to **Caitie Gillett**, CEN's Clean Air Programme Manager for her comments and suggestions.*

¹⁶Sibley, John M. (1983) "A Canadian Perspective on the North American Acid Rain Problem," NYLS Journal of International and Comparative Law: Vol. 4 : No. 3 , Article 5.p533