



Statements and Speeches

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THE CHALLENGE OF ACID RAIN

An Address by the Honourable John Roberts, Minister of the Environment, to the Sierra Club Environmental Forum, Boston, Massachusetts, March 29, 1981

...Acid rain is the most serious air pollution problem facing our two countries today. The situation is already bad and it promises to get much worse in the future.

We Canadians are now impatient about the acid rain issue. We know how dangerous acid rain is. We know that the technology exists to stop the emissions that cause acid rain. Still, thousands of tons of acid-causing chemicals are being exported to Canada by the United States every day. The impatience of Canadians showed through when President Reagan visited Ottawa earlier this month. Thousands of demonstrators protested on Parliament Hill while the President was conferring with Prime Minister Pierre Trudeau. They were there to make the point that the United States should move, and move quickly, to prevent emissions of sulphur dioxide and oxides of nitrogen which produce acid rain in my country. I was with them in spirit, if not in the flesh.

I would like to take a moment to explain why there was a protest.

The fact is that about eight million tons of sulphur dioxide and close to four million tons of oxides of nitrogen are falling on Canada every year. At least half of that load is sent to us by the United States. In certain particularly sensitive areas, the proportion of pollution of U.S. origin rises to 70 per cent. We send some back, perhaps 10 per cent of the total falling here. We have moved to reduce our own emissions in Canada, but, as must be clear from the figures I have given you, we cannot address this problem without massive co-operation from the United States.

The situation is already intolerable. Unless we take swift action, it's going to get worse instead of better in the years ahead. Both of our countries are switching from oil to coal in the thermal generation of electricity, and that means we will be sending far more SO₂ and NO_x into the atmosphere unless we install equipment to scrub it out of our emissions.

Evidence of
damage

There is ample evidence to show that the acid rain problem is real, that it's widespread and that the effects are worsening. A large and growing number of lakes have reached levels of acidity which render them incapable of supporting fish and other related forms of life. A much larger number of lakes have displayed steady reductions in their alkalinity, that is, in their capacity to buffer or neutralize acid. This gives rise to the prediction that the acidity of many lakes will increase rapidly over the next few years. Literally hundreds of thousands of Canadian lakes are located in geological formations which offer little resistance to acid and such resistance as is now being offered is being rapidly worn down. The impact of acid deposition is, in this sense, cumulative, which means the effects will worsen even if there is no increase in emissions.

Secondary effects

These effects have been perceived not only in Ontario, where our research work is most advanced, but in other provinces including Nova Scotia, which has lost fish life in nine salmon rivers so far. The effects of acid rain have, as you know, also been well documented in many areas of the United States.

The impact of acidity on aquatic systems is magnified by secondary effects, such as the increased mobilization of potentially toxic heavy metals from the soils. These metals enter the waters and kill or injure living organisms. The death of these organisms appears to be affecting other wildlife which feed on them, including some species of migratory water fowl.

Acid rain is leaching magnesium and calcium out of the nutrient poor soils which sustain Canada's boreal forest. It also appears to be inhibiting the restoration to the soil of these key determinants of forest growth by slowing down decomposition in the forest litter. In effect, the soil is being threatened at both ends of the nutrient cycle.

The government of Canada and the provinces affected have become increasingly impatient with those who argue that we do not yet know enough about the effects of acid rain to spend money controlling it.

We know from precipitation chemistry that there is a considerable excess of acidity in the rain and snow falling on our country.

We know from sophisticated weather tracking methods where our acid rain comes from.

We know a great deal about what happens during the summer, when stagnant highs move slowly northward, allowing plenty of time for sulphur dioxide to turn into the much more acidic sulphate. We understand the effects of high stacks on thermal power plants and smelters, how they cause sulphur dioxide to remain aloft longer, travel farther, and to be transformed in greater amounts into sulphate.

Those who contend that we do not know enough about atmospheric processes to spend the money to reduce the emissions from these high stacks, are really saying that we should do nothing until we can calculate precisely the effect on a given lake, of a reduction from a given smoke stack hundreds of miles away.

Action needed now

The simple fact is that our lakes are being grossly overloaded with acid right now and a major reduction in the emissions that cause that deposition is urgently needed. Detailed precision is not required to make that judgment and, given the difficulty of developing such precision, an insistence on achieving it is tantamount to refusing to do anything about the acid rain problem.

On August 5, 1980, Canada and the United States signed a Memorandum of Intent (MOI) to negotiate a bilateral air-quality agreement. This move followed by some two years the far-sighted enactment by Congress of appropriations legislation containing a specific request to the United States Administration to negotiate such an agreement with Canada.

During that two-year period the two countries established a bilateral research consultative group to co-ordinate the research programs under way in both our countries to improve our understanding of the long-range transportation of air pollution.

**Memorandum
of Intent**

The two annual reports produced by that group demonstrated clearly that acid rain was by far the most pressing and serious of the transboundary air pollution problems. Not surprisingly therefore, acid rain is emphasized in the Memorandum of Intent. Specifically, the Memorandum of Intent did three things: First, it committed the two countries to begin formal negotiations on a bilateral air-quality agreement by June 1, 1981. Second, it established five joint Canada/U.S. working groups designed to develop a common information base for both countries to use in the negotiations. Third, it called upon both countries to undertake interim control actions under existing authorities to reduce transboundary air pollution pending the conclusion of a bilateral agreement.

The first interim reports of the work groups have been completed and are now available to the public. Further and more refined reports should be available this summer.

Despite their preliminary character, the interim reports demonstrate very clearly that our concerns about acid rain have not been misplaced. The problem is real, it's widespread and its effects are worsening.

It's superficially logical to argue, as the thermal power companies and smelters in both our countries have, that we should have precise cause-and-effect and cost-benefit analysis before spending one penny on control. The self-serving character of that argument becomes clear when we recognize the unfeasibility of meeting that request within a time frame during which much of the damage could be prevented.

**Interim action
by Canada**

Moreover, any reasonable person can see that if the environment is being seriously overloaded, large reductions in acid-causing pollutants will be necessary, to approach a natural equilibrium. The sooner the controls are instituted, the more damage will be prevented. The recognition of this fact underlay the inclusion in the Memorandum of Intent of the call for interim-control action. In Canada we've begun to move in response to the call for interim action. The allowable daily emissions of sulphur dioxide from the huge Inco smelter in Sudbury, Ontario, already at 50 per cent of uncontrolled levels, have been dropped further from 3,600 tons a day to 2,500 tons a day, and they'll drop again to 1,950 tons next year. We have in place a special federal/provincial task force examining ways of bringing those emissions down even more, probably below 1,000 tons a day. That would represent close to 90 per cent control. A new copper smelter under construction in Timmins, Ontario will have 97 per cent removal of SO₂.

Under a regulation just issued, total sulphur dioxide emissions from Ontario's thermal power stations are to be reduced by 43 per cent during this decade, despite an expected growth in demand.

Like the U.S., we have a federal program to promote the conversion of oil-fired thermal plants to coal. It is coupled with a clear statement that any increase in the use of coal must not harm the environment. Our current administrative target (it's not a legal requirement) is to reduce SO₂ emissions by 50 per cent when converting a plant from oil to coal. We believe, and economists bear out the truth of what I am saying, that there is such a large economic benefit in switching from high cost imported oil to domestic coal that we can more than afford the costs of making sure that we do not harm the environment any further in the process. Indeed we can afford to help the environment.

**Action needed
at source**

These moves are useful but similar actions are needed in the United States. The challenge, in addition to promoting the much needed political will, is to create the necessary mechanisms to do the job. For the most part, the approach that has been followed in both countries to controlling air pollution from existing operations is to set an ambient standard – to measure how much concentration of a pollutant there is around a plant and to set limits on that. However, in acid rain you're not dealing with a concentration around the plant but with a pollutant that moves through the air – air is only the medium. The real problem is on the ground or in the water in a distant place. Thus, emissions from one state might not violate ambient air standards in another, but they could contribute significantly to harmful acid deposition. So a new concept is needed, or perhaps it's an old concept broadened to include existing sources. I refer to the promotion of control at source through technologically-based emission limits on each plant. The philosophical basis for such an approach can be stated very bluntly. The real costs of an economic activity, such as power production, should be borne by those benefiting from that activity and not spread around the countryside in the form of environmental damage. In economic jargon, the costs are internalized rather than passed on to other economic sectors or to other political jurisdictions.

**Trade-offs
unacceptable**

As for cost-benefit analyses, these are designed to allow for trade-offs. Within a nation, such trade-offs may be acceptable, although when more than one state is involved they can become very difficult. Across an international boundary they are totally unacceptable and let me tell you why. According to the principles of cost-benefit analysis, the higher the costs of preventing damage, the more damage is justifiable. Applied to acid rain, that means that the higher the costs of controlling emissions in the United States, the more damage to Canadian lakes, forests and other interests would be justified.

To adopt such an approach would be a denial of the very principles which have governed the environmental relationship between the United States and Canada for seven decades. The essential principle, embodied in the Boundary Waters Treaty of 1909, is that we should not pollute each other – "to the injury of health or property". That same concept was specifically applied to air pollution in the findings of the arbitration tribunal dealing with damage to U.S. crops caused by sulphur dioxide from a smelter in Trail, British Columbia. It is also reflected in the Great Lakes Water Quality Agreement and, on a multilateral basis, in Principle 21 of the 1972 Stockholm Declaration.

Problem not
insurmountable

Canada and the United States have a long and generally successful history of seeking to respect each others' environmental integrity. We recognize that, for the rule of law to operate between nations, we must accept clear limitations on our domestic freedom of action. We've shown time and time again that our mechanisms of co-operation with each other are capable of dealing with very difficult specific transboundary environmental issues, and that we can rise above narrow vested interests affected in this or that instance in order to meet our obligations as good neighbours and as members of the world community of nation states. If the political will is there to maintain this tradition and to deal with acid rain, the means can be found.

I know there are some more expert than I who feel that a specially-financed program authorized by Congress and aimed explicitly at acid rain and its principal sources is needed to overcome this major problem and to meet the United States' obligations to Canada. The specific approach chosen by the U.S. is America's business, not mine as long as the results are acceptable to us. But I can say that we're prepared to meet our obligation towards our neighbour. And we have just recently amended our Clean Air Act by unanimous vote in both the House of Commons and the Senate to ensure we have the authority needed at the federal level to do this. We look for the same attitude from the United States in return.

U.S. Clean Air
Act review

The acid rain problem is so serious that we cannot accept further unnecessary delay. We must move now — as quickly as possible — or we're going to cause even more irreversible damage. The key challenge in the United States at the moment is to ensure that the current congressional review of the Clean Air Act recognizes the need for the United States to prevent existing and future transboundary damage. I am encouraged that the recent report to Congress of the National Commission on Air Quality recognizes the need for special action to reduce sulphur dioxide as a means of reducing acid rain.

Canada expects the United States to recognize that it must internalize the real costs of those activities, especially thermal power generation, which produces acid-causing pollutants, rather than exporting those costs across the border in the form of environmental damage to us. By any reasonable interpretation of existing international legal principles the United States cannot continue to derive significant economic benefits by exporting significant "disbenefits" to Canada, particularly when the technology exists to prevent this from happening. I am confident that the basic inequity of this situation, together with the unacceptable character of the damage inflicted by acid rain on both countries, will move both governments to act together in meeting this challenge. My hope is that that will happen soon and I am looking to many of you here to do what you can to hasten that day.

S/C