Air Pollution Clouds U.S.–Canadian Relations

Canada, eager to regulate, sees strong justification for controlling acid rain; the United States wants more research

Negotiations between the United States and Canada over airborne pollutants may put the Reagan Administration at odds with another ally. The Canadians are quietly but firmly preparing to take up an adversarial role in protecting their air quality. They want to prod the Administration to join with Canada in limiting sulfur and nitrogen emissions, which contribute to acid precipitation. U.S. officials have resisted, saying that the scientific data are too weak to justify the imposition of tough new air pollution controls.

Negotiations between the two countries began with a memorandum of intent signed in August 1980. The signers agreed to begin immediately to sum up cross-boundary pollution problems and use the assembled data as the basis for a treaty. Four meetings were held at the diplomatic level, the last in June 1982. Although the talks began well 2 years ago, the June meeting broke up with the parties in clear disagreement. Another meeting is due to take place this fall, but no date has been set.

Much work has been done already at the technical level. Several groups of U.S. and Canadian scientists agreed on and published second-draft documents before the June diplomatic meeting. The third and final draft was nearly complete this year when, according to the Canadian side, the Reagan Administration replaced some technical members with new experts who disagreed with the wording. Now, 8 months after the final documents were due, most of the disagreements have been smoothed over. However, one critical group, the committee reporting on the impacts of acid precipitation, still has not come to an agreement. The problem is that the Canadians would like to specify a maximum tolerable "loading" of pollutants in the atmosphere. The U.S. delegates argue that there is no scientific basis for setting limits, despite the fact that earlier drafts did just that. The group plans one last meeting in September to try to resolve differences, but a compromise may not be achievable.

There are signs that the Canadians will adopt as their scientific text the next-to-final draft, the one endorsed by both sides before the Reagan team arrived. That paper ("Phase II Interim Working Paper," October 1981) specified a yearly loading target of 11 kilograms of wet sulfate per hectare of surface water, equivalent to an emissions decrease of 50 to 80 percent, according to one recent estimate. Apart from this, the Canadians have said in diplomatic meetings that they would like a "significant" reduction of sulfur dioxide (SO_2) emissions—something like a 50 percent reduction. The U.S. delegates label this "premature." Although the Canadians clearly would be satisfied with a lesser goal, none has been suggested by either side.

In Canada, the fishing, tourism, and forest industries are important to the economy, and all are affected by increasing levels of airborne pollution. It is established beyond doubt that the acidity of lakes on both sides of the eastern U.S.–Canadian border is rising, killing certain fish populations. A few researchers have said that thousands of lakes may become uninhabitable for all but the hardiest forms of life—algae and insects—unless the acidification is reversed.

Some scientists believe that there is a direct relationship between the amount of sulfur and nitrogen oxide put into the air and the amount of acid found in lakes hundreds of miles away. Others say the emissions—chiefly from coal furnaces and autos—have an effect, but not a one-for-one impact on lake acidity.

The effect of fossil fuel burning on aquatic life has taken decades to come to light, and it may take as long to reverse. At the moment, sulfur and nitrogen emissions are still on the rise. Thus, while the mechanism of acidification is not thoroughly understood, the Canadians feel strongly that there is not time to analyze all the elements before taking action.

For the United States, fishing and tourism are not so important. And since the United States produces about seven times Canada's output of sulfur and nitrogen pollutants, control measures would be many times more burdensome here. New controls would most severely affect coal companies and aging electric plants, driving up rates and putting some mines out of business. The Midwest would feel the brunt of the impact. The Reagan Administration has taken up these midwestern concerns, stressing that not enough is known about acid precipitation to design controls.

The scientists in the U.S.–Canadian working groups, all government employees, feel the pressure of the political struggle. Outside experts have been affected as well. For example, one injured party is the group established by the National Academy of Sciences (NAS) to be the U.S. half of a joint committee to review the quality of the technical papers in the treaty. One insider explains that the joint committee came into being because the NAS and its counterpart, the Royal Society of Canada, were looking for a subject to study in tandem, and acid rain offered itself as a convenient topic. This is the first time the Royal Society has tried to do what the NAS does routinely through its business arm, the National Research Council—that is, serve as an official government adviser.

The pilot program did not turn out quite as the NAS had hoped. The Canadian government accepted the offer of advice, but the United States did not. Instead, the Reagan Administration appointed its own committee of reviewers under the aegis of the President's science office. The U.S. review will be chaired by William Nierenberg, director of the Scripps Institution of Oceanography. In effect, only half of the proposed joint committee has been used. The leader of the Canadian half, Kenneth Hare, provost of the University of Toronto, points out that his group includes U.S. citizens, Canadians, a Swede, and a Dane. Nierenberg's committee is an all-U.S. team.

One reason the NAS group was not used, according to several observers, is that the NAS published a controversial report last fall titled *Atmosphere-Biosphere Interactions* (*Science*, 2 October 1981, p. 38). The report suggested in one chapter that, in order to reduce acid precipitation to a tolerable level, it would be prudent to have a goal of reducing SO_2 emissions by 50 percent.

Because some authors of that report now serve on the NAS joint committee with Canada, the Reagan Administration apparently did not think the latter would

0036-8075/82/0917-1118$01.00/0

give favorable advice. The White House went shopping for other experts. James McAvoy, former White House adviser on this issue, told The *New York Times* that he thought the NAS group might not give an "objective" review. One nongovernment expert at the center of this controversy says, "The Administration simply wanted more control over the results."

The official reason for avoiding the NAS is given in a letter to Senator Robert Stafford (R–Vt.) dated 15 July and signed by Kenneth Duberstein, assistant to the President. Duberstein mentions that "literally tens of billions of dollars in additional capital outlays" ride on the acid rain decision. The White House opted to pick its own reviewers, he wrote, "to accelerate the completion of the review. . . ." Thus, as the joint committee was readying to issue its comments, the United States rushed to find a new, swifter group of commenters.

In the meantime, the NAS has commissioned a separate committee to find out what is known about the mechanisms by which pollutants move from the point of combustion, become airborne, mix with other compounds, and get into streams and lakes. This group, chaired by Jack Calvert of the National Center for Atmospheric Research in Boulder, Colorado, calls itself the Committee on Atmospheric Transport and Transformation Chemistry in Acid Deposition. It is meant to have a short life and disband this winter. The group will try to decide whether the evidence is stronger for believing that a 50 percent reduction in emissions would bring about a 40 to 45 percent—or merely a 10 to 15 percent—decrease in acid precipitation.

Everyone involved is sensitive to the suggestion that the Calvert committee may feel pressure to undermine the recommendation of the *Atmosphere-Biosphere* report. The NAS is paying for this review and the joint committee out of its own pocket, to the tune of about $150,000. Some staffers as well as committee members are giving their time on a voluntary basis. Most NAS projects have some government or industry support, but not this one. Clearly the group is avoiding even the appearance of a conflict of interest. However, the President's science office has told the NAS that the government will be ready to finance work by the NAS in this area in the future.

Several reviewers are now converging on this central question of how pollution gets from the factory to the lake. Papers are being prepared by the Environmental Protection Agency, the General Accounting Office, and the congressional Office of Technology Assessment (OTA), to name a few. The Council on Environmental Quality has been asked to coordinate a 12-agency research campaign costing the government $18 million in last year's budget, $22 million this year, and more in the future.

The nub of the issue is whether or not a unit of control at the smokestack will bring about a unit of improvement in the wilderness. The OTA's interim report of July, the most recent publication, concludes that there may be a one-to-one correlation between sulfur emissions and dry sulfur fallout, but preliminary data suggest that wet sulfuric rain is not so closely correlated with emissions.

There is a related debate about the most efficient way to attack the problem. If, as some argue, the presence of nitrogen and hydrogen affects the rate of acid formation, then it may cost less to attack these compounds than to mandate a broad reduction in SO_2. All of this is grist for the research mill, and possibly will be used to seek a long pause before any controls are adopted.

Despite these uncertainties, the Senate Environment and Public Works Committee has already taken the initiative. On 19 August the committee approved (15 to 1) a renewed Clean Air Act incorporating a proposal by Senator George Mitchell (D–Maine) to cut sulfate emissions by 10 million tons. It's unlikely to pass this Congress, but it won't disappear. The goal is to hold SO_2 and nitrogen emissions to the level that existed in January 1981, estimated to be 35 percent less than they would be in 1990 without controls. The cutbacks would be allocated among the 31 states east of the Mississippi, costing the economy perhaps as much as $4.5 billion a year.

During the complex interplay of technical and diplomatic negotiations, U.S.–Canadian relations have not been calmed by the presence of a lobby in Washington known as the Canadian Coalition on Acid Rain, a supporter of Mitchell's bill and generally of a tough Clean Air Act. Canadian embassy officials say that, while the group has received government grants, its lobby in Washington is supported entirely by private funds. But the coalition helped undermine the U.S. position, to the extent it had anything to do with the Senate committee's action.

It is difficult to anticipate where the negotiations will go next. One thing is apparent: the Department of State will not follow the strategy used in an earlier rain controversy, that of yellow rain. In that case the government threw the full weight of its prestige behind a bit of unpublished research by a scientist who had examined a handful of vegetation, blood, and urine samples from Southeast Asia. On the basis of this work, the State Department held press conferences, printed pamphlets, and sent officials to the United Nations to talk about the "conclusive evidence" that Soviet-supplied troops were spraying fungus toxins on backward villagers. Scientists with doubts were not encouraged to speak up.

In the case of acid rain, just the opposite tactic seems to apply. Doubts and uncertainties seem more interesting to the government than a decade's worth of published environmental research finding a correlation between fuel burning and acid levels. The difference, as they say, is a matter of emphasis.

—ELIOT MARSHALL

"I find this acid rain gives a nice little fillip to it."