

Acid Rain

The stalemate concerning the dilemma of how to deal with the problem of acid rain was broken at the Quebec Summit with the appointment of Special Acid Rain Envoys (William Davis and Drew Lewis, former Secretary of Transportation). Their report was delivered on January 8, 1986. The report acknowledges that acid rain is a real, man-made, transboundary problem and recommends that the United States implement a program to demonstrate emerging control technologies; that both countries use existing laws to address transboundary air pollution; that the Prime Minister and the President keep the subject on their agenda (jointly advised by members of their Cabinets); and that a bilateral advisory and consultative group be formed.

The envoys conceived their report not as an answer to the acid rain problem, but as a means for enabling governments to move forward again jointly to resolve the issue. Consequently, the report was written with a view to pointing the way to such progress.

Canadians are concerned about acid rain because it is damaging our environment and threatening the resource-base that sustains much of our economy.

Acid rain is a by-product of the modern industrial lifestyle. It occurs when two common pollutants — sulphur oxides and nitrogen oxides — are discharged into the atmosphere. They move with major weather systems, often traveling many hundreds of kilometres. Transit time in the atmosphere increases the likelihood of chemical transformation of the oxides into acid-producing sulfates and nitrates. These acidifying pollutants fall back to earth in rain, snow or dust.

The main sources of sulphur emissions in North America are coal-fired power generating stations and non-ferrous ore smelters. The primary sources of nitrogen oxides are automobiles and other vehicles.

Large areas of eastern North America have limited ability to neutralize deposited acidic pollutants. In these areas, over time, the neutralizing capacity is exhausted, causing lakes, streams and soils to acidify.

In eastern Canada, the resource base (fishery, tourism and forestry) potentially at risk from acidification sustains about eight percent of the Canadian Gross National Product.

The effects of acid rain in eastern Canada are numerous and wide-ranging. For example:

- about 55% (39 million hectares) of eastern Canada's productive forests are in areas where rainfall is acidic. According to the most recent data, these forests generate \$14 billion in forest products;
- about 85% of the best agricultural lands in eastern Canada receive more than the acceptable levels of acid deposition each year;
- about 14,000 lakes in eastern Canada may already be acidified (a pH of less than 4.7). About half the lakes and rivers located in sensitive areas where sulphate deposition exceeds twenty kilograms per hectare per year (eg. Muskoka, Haliburton, southern Quebec, and southern Nova Scotia) are already showing some biological or chemical effects of acid rain;
- about 90,000 jobs are at risk in the eastern Canadian commercial fishery; thirteen rivers in Nova Scotia have lost their salmon;
- all of the most productive forestry and agricultural lands in New Brunswick are in areas where rainfall is acidic;
- acid rain continues to damage many of Canada's heritage structures, including the Houses of Parliament in Ottawa, the legislative buildings in Ontario and Nova Scotia, and the distinctive sandstone churches of rural Prince Edward Island.

Scientific evidence indicates that there is a point of "critical mass" with regard to acidic precipitation. Damage occurs in the environment when wet acidic deposition is greater than twenty kilograms per hectare per year (18 lbs./acre/year). If deposition can be kept below this level, moderately sensitive lakes and rivers can be protected.