



# Statements and Speeches

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## ACID RAIN AN ISSUE OF CRITICAL IMPORTANCE

Address by Allan Gotlieb, Canadian Ambassador to the United States, to the Joint Session of the Houses of the Minnesota Legislature in the State Capitol Building, St. Paul, Minnesota, USA, May 3, 1983.

Using modern techniques of paleo-ecological research, archaeologists have recently put forward some novel ideas about one of the centres of Mayan civilization. This extraordinary community began at about the time of Homer's Greece, in what is today Guatemala. It grew during the following 17 centuries at a rate such that population approximately doubled every four centuries. Then, about 1 000 years ago, when it had reached its peak culturally, architecturally and agriculturally, the civilization suddenly collapsed. There is emerging evidence that the Mayans put such pressure on the accessible ecosystem that they robbed themselves of their natural endowment.

The principal ingredients of this tragedy seemed to be deforestation, and erosion and impoverishment of topsoil. The land could no longer support the people.

Similarly, North Africa, so much of which is now desert, was once the granary of the Roman Empire.

What has all this got to do with the Canadian Ambassador to the United States visiting the state of Minnesota in 1983 and having the pleasure and great honour of addressing a joint session of the state legislature? It is not to suggest we are latter day Mayans. I do not hold with predictions of imminent doom. We have learned from history — if not from that of the Mayans, then from our own. We know better, though we don't always do it as well as we might. As a distinguished member of your federal legislature once said, "pollution resembles what is euphemistically called a social disease — it is generally caused by human beings doing something they really enjoy without thinking through all the consequences".

My purpose in referring to the Mayans is to provide a backdrop to a basically optimistic position. It is my perception that the people of Canada and the people of Minnesota share a very similar view of our relationship with the natural environment.

We live close to the land and understand its importance, not just in environmental terms but in social and economic terms as well. Here in the north country with our thin soils, our slow growing forests, and our fragile aquatic ecosystems, we know and understand that our economic well-being rests ultimately on the health and fertility of the biosphere. We know and understand that we must act in ways that often go far beyond the arithmetic of cost benefit analysis so as to husband and nurture our endowment of natural resources. We must do this to ensure that the earth will continue to provide us with the products — nutritional, economic and aesthetic — that sustain our lifestyle.

We have learned a lot since the Mayan civilization collapsed. We know what we have to do to avoid similar mistakes. Traditional economic approaches simply aren't good enough when it comes to ensuring that our resource base does not weaken and shrivel under the pressure of overuse and misuse.

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Put in a global context, we in this blessed corner of the world are very fortunate. We still have our forests. By contrast, the amount of wood harvested per person world-wide has been dropping since 1964; and some of the world's major forests, especially in the tropics, will at current rates of harvesting be virtually destroyed by the end of this century. We still have productive lakes and streams with healthy fish populations. By contrast, world-wide overfishing and poor conservation have caused declining *per capita* fish catches since 1970. We still have fertile lands that produce far more food than we can consume. But world-wide *per capita* availability of beef and grain have been dropping for several years.

These statistics reflect only part of the sobering trend. A regional war is allowing a damaged well to spill oil into the Persian Gulf; in parts of the Mediterranean the seafood should be eaten only infrequently because its flesh is laced with man-made chemicals; and some of the forests of central Europe can no longer grow because air pollution is damaging the soil. It is not just overuse that is threatening parts of the biosphere on which ultimately all life depends; some of it is also being poisoned by man-made pollution. That is one problem the Mayans did not have; they didn't know how to make polychlorinated biphenyls (PCBs).

I say this not to make apocalyptic predictions about our imminent collapse as a civilization; quite the contrary. I do it to illustrate my belief that we in North America have made great strides in learning to live in harmony with our natural surroundings. Canada and the United States are not, to misquote Churchill, divided by a common environment.

Our two countries have shown world leadership in attacking some of these problems. We have done this by supporting international efforts of various kinds, through the United Nations and other multilateral bodies. But mostly, we have done it by developing and pursuing responsible environmental and resource management policies at home. We have restricted the use of chemicals which would harm the environment. Perhaps, as in the case of DDT, we did it mainly on the grounds of human health, but then protecting human health means protecting the environment too. Reducing air pollution in our urban areas so people could breathe also reduced the amount of pollution available to damage nearby crops. Controlling discharge of sewage into our lakes and streams so people could drink the water also made the water more hospitable for fish.

We are taking a number of steps to begin to deal with such problems as soil erosion, destruction of prime farmland, excessive harvesting of forests, over-fishing and over-hunting. In myriad ways we are showing that, as societies, we have grown sensitive to the need to stop acting as frontiersmen out to tame a wild land but as thoughtful and responsible custodians of the natural resources that comprise our main legacy to our children. We know that we cannot for long go on eroding the base of civilization as did the Mayans. We must preserve and not exceed the sustainable yield of our resource base. We must no longer engage in the biological equivalent of deficit financing.

The US-Canada border has been a crucible where international co-operation in rational and fair management of scarce natural resources has been tested. It is fair to say that no other two countries on earth have dealt more responsibly with shared resources. We owe this in part to the foresight of those who in

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1909 completed work on the historic Boundary Waters Treaty. We owe it to that unique binational entity, the International Joint Commission, which has studied many bilateral environmental problems and come forward with effective and far-sighted proposals. We owe it to the growing environmental ethic in both our countries. But perhaps most of all we owe it to the sense of good neighbourliness which is manifested so well here in Minnesota.

It would be wrong to speak of these matters as simply questions of environmental protection or as disputes between so-called environmentalists and so-called developers. The history of environmental issues between Canada and the United States is instructive. In virtually every case the reaction on one side of the border to a perceived threat of pollution from the other side, was based, to an important degree, on social and economic considerations. In other words, on both sides of the border, people have demonstrated again and again that their concern for preserving environmental values is in some ways a surrogate for fear that transboundary environmental degradation will undermine their lifestyles and damage the base of their economy. That is why Montanans feel strongly that any coal mining in southeastern British Columbia must be carried out in a way which will fully and effectively protect the Flathead River; they want to preserve the excellent fishing which is an important part of the local economy as well as the local lifestyle. That is why people from my home province of Manitoba feel strongly that any Garrison Diversion Project in North Dakota must be carried out in a way which will prevent damage to Manitoba waters; those waters are the basis of their agriculture, of industry and of recreational and commercial fishing. That is why Canadians and Americans alike supported their governments in the momentous change in attitude that resulted in the massive clean-up of the Great Lakes.

Even setting aside wilderness lands often has an important socio-economic component. One of the best examples of bilateral co-operation here is that pair of environmental jewels, Quetico Park in Ontario and the Boundary Waters Canoe Area in Minnesota. The close working relationship between the managers of those lands deserves special commendation. But even here we know that setting aside and protecting as diligently as we do these two wilderness areas is much more than the expression of a preservationist philosophy. We know that the pristine quality of these beautiful lands provides unique and highly prized recreational opportunities for many of you and many in Canada who have the good fortune to live nearby. And it attracts tourism to a region where outside visitors provide a powerful boost to the local economy. That surely was the determinant of your concern about Ontario's plans for a power plant in Atikokan.

But what would happen to this land and to the local economy if the trees stopped growing and new trees failed to germinate, as is now happening in central Europe? What would happen if the rich and varied aquatic life perished and the lakes and streams became a kind of wet desert as is now happening in central Ontario? That would not only be a tragedy in environmental and ethical terms; it would also be an economic calamity.

It is that synthesis of affection for the land and understanding that we must protect it if it is to sustain us that lies at the heart of the powerful concern that Canadians and Minnesotans share about acid rain.

As the political debate swirling around the acid rain issue has grown in intensity, one major theme has

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become dominant: do we know enough to take action now? The point has been made eloquently and often, that controlling the emissions that produce acid rain would cost a lot of money. And that, depending on how it is done, it might cost jobs and it would cost consumers. The conclusion is then either drawn or implied that until science provides us with some undefined degree of certainty it would be imprudent and irresponsible to reduce pollution.

If our only concern was this month's or this year's balance sheet, and if our only yardstick was economic cost benefit analysis, we should do nothing about acid rain. But by the same token we should have done nothing about DDT or soil erosion or reforestation. We should then also deregulate fishing and hunting seasons and not worry about next year's game. Market forces tend to demand and reinforce short-term decisions. Our sense of history and our social values demand a longer view. How we balance these sometimes competing interests will determine how we respond to acid rain.

Still, the issue of scientific uncertainty is a valid one. Whatever the perceived threat, there must be some reasonable basis of scientific fact before we decide on serious and expensive courses of action. Are we sure we are on the right track? Is it not possible that today's acid rain researchers are like the flat earth astronomers of the middle ages following the beliefs of Ptolemy? Are we still waiting for the Copernicus of acid rain?

It does not seem very likely. First, let us look at what we do know. The small international community of acid rain researchers has been telling us for many years that we have a potentially devastating problem. This group is remarkable, not only for its insights and the rapidity with which it has advanced our understanding of acid rain. It is also remarkable for the broad consensus that exists within it on the central points:

- that acid rain is real;
- that it is essentially man-made;
- that it is associated primarily with major industrial regions;
- that it results from transformation in the atmosphere of sulphur and nitrogen oxides into strong acids;
- that those acids are then deposited, sometimes hundreds, occasionally thousands, of miles away;
- that there are many areas on earth which are not acidifying naturally but are sensitive to unnatural acidification;
- that such acidification is taking place;
- that it has caused the diminution or destruction of fish and other populations in many acid sensitive lakes and streams;
- that far larger numbers are at risk; (including 2 000 in your state)

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- that there is strong and growing evidence suggesting that forests in such regions are also at risk;
  - that acid rain, often in combination with other pollutants, is doing great damage to man-made structures, including the relentless obliteration of some priceless historical buildings and monuments;
  - that a variant of long-range pollution, photo-chemical oxidants, is damaging many agricultural crops and reducing yields;
  - that mobilization of toxic heavy metals is beginning to render some water supplies unfit for human consumption.

What are the alternative explanations? Well, we have heard that acid rain might be some kind of natural phenomenon that comes along every few hundred years. The trouble is that there is no supportive scientific evidence. Indeed, the geological record shows quite the reverse. We have been told that natural sources of acidity might be more important than we think and that these include volcanoes, swamps, sea spray and lightning bolts. We have also been told about super bowls in the sky, where pollutants mingle in some magical ways so that what comes down is not necessarily a direct function of what goes up. Again, this hypothesis has everything to commend it except a shred of scientific evidence.

I would say that the science of acid rain is as persuasive as it is frightening. Aside from defining for us the risks and establishing the causes, it has also now told us what we have to do. Studies in Europe and North America have demonstrated that for all the complications, the principal culprit is sulphur. When the amount of sulphur that falls on an acid sensitive ecosystem goes above about 18 lbs, per acre per year, sooner or later damage occurs. Below that threshold all but the most sensitive areas will be able to cope and will not be harmed. Clearly then, what we must do is reduce the deposition of sulphur in sensitive areas to that critical level. That in turn means reducing emissions of sulphur dioxide in eastern North America by about 50 per cent. And so we see that the proposal that Canada made to the United States for a joint 50 per cent reduction in emissions in sulphur dioxide was not a handy round figure pulled out of a hat. Rather it is a straightforward interpolation of scientific data. We remain ready to join with you in effecting such an emission reduction.

At the same time we are sensitive to the employment and cost implications of such a step in both countries. We are concerned that the emission reduction strategies be designed to minimize short-term socio-economic costs but we are anxious that the job begin as soon as possible. Even if we were to succeed in negotiating a bilateral agreement tomorrow, it would still be many years before the necessary legislative, regulatory and practical problems would be worked out and emission reductions affected. In the meantime more lakes would die, more forests would be damaged, and the long-term economic costs of continuing environmental degradation would multiply.

Perhaps I should be more specific and give some idea of the resources at risk in Canada as well as the costs of reducing emissions to non-damaging levels. Gross economic activity generated by sport fishing in eastern Canada in 1981 exceeded \$1.1 billion. Tourism revenues as a whole were \$10.4 billion and an important part of that amount, in Canada as in Minnesota, is a function of the general public's

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perception of a clean, healthy, enjoyable outdoor world. Shipments of forest products from eastern Canada amounted to \$14.6 billion in 1981. Together these revenues accounted for about 8 per cent of the gross national product for the entire country. One in ten working Canadians owes his or her job directly or indirectly to the forest products sector. This makes it proportionately far more important than, for example, the automobile industry in either country. No one has yet begun to calculate the inevitable decline in land values and loss of stable population, especially in important tourist areas, that would accompany destruction of local fishing, but it would surely happen. It is this, the enormous long-term economic risk and related social dislocation that makes acid rain an issue of critical importance for Canadians as it does for Minnesotans.

And what would it cost to bring emissions down by 50 per cent in Canada? Naturally it depends to a degree on the kind of scenario that is worked out. But our best estimates for a 50 per cent reduction in sulphur dioxide emissions in eastern Canada suggest an initial capital investment of just over \$3 billion. This gives rise to operating and amortization costs of about \$1 billion per year, or about \$41 *per capita*. By comparison, the Congressional Office of Technology Assessment has calculated that a 50 per cent reduction in the eastern United States would cost between \$2.5 and \$4.75 billion per year or \$9 to \$20 *per capita*. Bearing in mind that such costs would be brought on gradually over a period of years. I fail to see how we could do other than conclude that the costs are not only necessary but eminently affordable. The alternative is to play economic Russian Roulette with the lakes, streams and forests that are sensitive to acidification.

I know that Minnesota has been at the forefront of calling for action to deal with acid rain as well as in carrying out research. I salute you for your important pioneering role. I know that some of the early research in acid rain was done in your state by EPA's Duluth laboratory and that much important data collection and interpretation is now being conducted by the state's pollution control agency. Their just released report makes sobering reading. I know that you have proposed state legislation designed to do the only thing that really counts: to reduce emissions of the pollutants that lead to acid rain. I know that Minnesota and Ontario are enlarging their co-operative activity in this field. Such co-ordination of research activities and information exchange is very important in this rapidly evolving field and is to be encouraged.

In Canada we have also taken some first steps. I know this is of interest to you because perhaps one fifth of Minnesota's acid rain comes from my country. We have amended our Clean Air Act to give the federal government unquestioned authority to control transboundary pollution. The Inco smelter is under order to bring emissions down to 1950 tons per day, and Ontario Hydro is proceeding with a 43 per cent  $so_2/no_x$  reduction to be completed by 1990. We are now working toward a unilateral 25 per cent sulphur dioxide emission reduction plan for eastern Canada. We remain committed to doubling that percentage when the United States indicates its willingness to move with us. We hope that day will come soon.

The debate over acid rain should not be viewed as an isolated or anomalous event. It is a part of the continuing evolution of our societies as we throw off old comfortable habits and grope toward putting ourselves on a sustainable footing. It is a strand in the fabric of environmental responsibility that the people of both our countries accept and support.

Finally, it is a test of our sense of equity. It is not equitable, and it is a distortion of market forces, when some costs of production are not internalized but are allowed to be carried by the wind to inflict costs on others. I am convinced that is not how we want to act toward one another.

For those reasons, I am confident we will deal with acid rain on this continent. And I know that a chief locus urging such action will be the state of Minnesota.