

**TOXIC AND OXIDANT AIR POLLUTION  
PROJECT REPORT**

A report on the project titled "Toxic and oxidant air pollution: the need for Canadian and American law reform to solve a shared problem"

submitted to the Donner Canadian Foundation  
by the Canadian Environmental Law Research  
Foundation

June, 1986

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Canadian Institute for Environmental Law and  
Policy  
Toxic and Oxidant Air Pollution Project Report**

**RN 27310**

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## 1. Purpose

The project was based on the premise that attention focussed to date on acid rain (sulphur dioxide and nitrogen oxides) has hampered our ability to deal with other, equally serious, air pollution problems. The project was intended to accomplish the following objectives:

- . to summarize current scientific understanding of local and long-range air pollution problems in North America, other than sulphur dioxide and nitrogen oxides
- . to analyze the adequacy of domestic legislation in the United States and Canada, and bilateral mechanisms, for coping with these air pollution problems
- . to develop recommendations for legislative reform
- . to disseminate the study findings and recommendations as widely as possible in order to stimulate discussion and, eventually, action

This joint American-Canadian project grew out of contacts established by the Canadian Coalition on Acid Rain with Washington-based environmental organizations. An underlying purpose of the project was to demonstrate ways in which American and Canadian organizations, with financial support from both countries, could

together address environmental issues requiring both domestic and bilateral action by American and Canadian governments.

As set out below, it is believed that the project has successfully achieved these objectives.

## 2. Administration

At a meeting in February, 1983, the Board of Directors of the Donner Canadian Foundation approved challenge grant funding of \$115,000 for the project, conditional upon receipt of \$50,000 (U.S.) from American sources. By the summer of 1983, the Environmental Law Institute, Washington, D.C., had been successful in gaining approval for \$50,000 funding from the George Gund Foundation and the W. Alton Jones Foundation.

Initial planning for the project was done in August, 1983, at meetings in Toronto attended by Mr. Bill Futrell and Mr. Gregory Wetstone, of ELI, Mr. Greg Howard, Mr. Brian Kelsall, Mr. Doug Macdonald and Mr. Stephen Garrod of CELRF. Mr. Wetstone and Mr. Garrod were appointed American and Canadian project directors and Ms. Marcia Valiante was subsequently hired to do Canadian research and writing.

At those August meetings it was decided that funding and workload would be shared equally by both organizations, with adjustments made as necessary during the life of the project. Financial administration was done separately by each organization and the report submitted here encompasses only the \$115,000 provided by the Donner Canadian Foundation.

Primary points of contact between the two organizations were through Doug Macdonald (CELR) and Roger Dower, Director of Research (ELI). A number of meetings of all research staff were held both in Washington and Toronto during the course of the project.

Early in 1984, Greg Wetstone left ELI and was replaced by Ms. Leslie Ritts. In 1985 she, too, left ELI and was replaced by Ms. Margaret Mellon. Although many people contributed to the project, authors of the book titled The Regulation of Toxic and Oxidant Air Pollution in North America are listed as Margaret Mellon, Leslie Ritts, Stephen Garrod and Marcia Valiante.

### 3. Project History

#### (a) Narrative

As mentioned previously, initial planning subsequent to approval of funding was done in August, 1983. In September, 1983, members of the Canadian advisory committee were appointed, as follows:

- . Professor Kenneth Hare, Trinity College, U. of T.
- . Dr. Hans Martin, Atmospheric Environment Service, Environment Canada
- . Mr. Neil Mulvaney, Director of Legal Service, Ontario Ministry of the Environment

Concurrently, the American advisory committee was appointed as follows:

- . Mr. Fred Andes, Attorney, Chemical Manufacturers' Association
- . Mr. William Becker, Executive Director, State and Territorial Air Pollution Program Administrators

At the initial planning meeting it had been decided that CELRF would undertake all research and writing on atmospheric transport of air pollutants, toxic air pollution, Canadian law and bilateral mechanisms. ELI would be responsible

for oxidant air pollution and American law.

Research on the two science portions began in the fall of 1983 which led to discussions in Washington in December 1983. The Canadian advisory committee met with CELRF researchers on January 11, 1984, to discuss the science drafts.

Leslie Ritts replaced Greg Wetstone in the spring of 1984 and met with CELRF staff in April, 1984. The Canadian law portion was completed in draft form and discussed with the advisory committee in June, 1984. Drafts of the American and Canadian law portions were exchanged and subsequently discussed at a meeting in Washington in August 1984. The complete text was discussed with the Canadian advisory committee at a meeting on October 2, 1984.

A workshop was held on October 31, 1984, attended by Canadian and American officials to discuss the draft findings and recommendations. A list of those attending that workshop is included as an appendix to this report. In the fall of 1985 the task of revising the draft manuscript commenced. Ms. Ingrid Cook and Mr. Dana Cook of Newmarket, Ontario, were hired as editors. The manuscript was discussed at a meeting in Toronto in February, 1985, attended by all CELRF and ELI staff in addition



to Ingrid and Dana Cook. By that time Ms. Margaret Mellon had replaced Ms. Leslie Ritts as the primary ELI author.

In the spring of 1985 a number of Canadian publishers were approached with the result that CCH Canadian Limited agreed to publish the manuscript and to work with its parent company for distribution in the United States.

Prior to completion of the manuscript, the Canadian researchers began to accept speaking engagements in order to publicize the study findings. Examples include presentations by Steve Garrod at the International Bar Association, Stratford-upon-Avon, England, April, 1985 and to the Rawson Academy, May, 1985 and presentations by Marcia Valiante to a conference on Lake Superior water quality, September, 1984 and to a Federal Water Inquiry workshop on risk assessment in February of 1985. In addition, the CELRF submission to the Federal Water Inquiry Hearings was based upon work done for this project. A complete list of speaking engagements and presentations is included in a later section.

The final, edited manuscript was submitted to CCH in October, 1985. The two organizations then worked with the publisher through to publication of the book in mid-April, 1986.

The study findings and recommendations were released in Canada at a press conference on April 28, 1986. A copy of the

press release and clippings are included in the appendices to this report.

The report was then discussed in detail at a symposium on toxic and oxidant air pollution held in Toronto on May 5, 1986. Mr. Futrell and Ms. Mellon of ELI met with CELRF staff at that time to discuss plans for a comparable event in Washington.

3. (b) Financial statement

The financial statement which follows was prepared by the CELRF bookkeeper, Ms. Carol Rowntree.

Canadian Environmental Law Research Foundation

Transboundary Air Project (Donner Foundation)

Start - October 1983

Completion - April 1986

Revenue

Donner Canadian Foundation \$115,000

Expenditure

Salaries -  
Project Director 15,000  
Research assistant 28,332  
Secretarial 4,548  
  
Employee benefits 3,260  
  
Environmental Law Institute 19,398  
  
Supplies, photocopying 8,909  
Travel 4,650  
Report - editor 5,860  
Miscellaneous expenses 5,208  
Beyond Acid Rain conference 140  
Administration fee 20,833

Total expenses \$116,138  
Net deficit (1,138)

\*Note: deficit has been covered by the organization's administration budget.

and that the re-examination of the conceptual approach to air pollution regulation, which has begun in a number of jurisdictions, be accelerated and broadened.

A summary of the project findings and recommendations are presented in the project summary and press release provided in the appendix to this report.

5. Presentation

(a) In Canada

The project recommendations have been formally presented to:

- . ministers of the environment for Canada, Ontario, Alberta, British Columbia, Quebec
- . Canadian and U.S. Chairmen of the International Joint Commission
- . Council of Canadian Resource and Environmental Ministers
- . federal and Ontario environmental critics in the federal House and Ontario Legislature

The study findings have been presented in the following fora:

- . Superior: State of Lake Conference, Northland College, Wisconsin, September 22, 1984
- . Rawson Academy: Canadian Waters, the State of the Resource, Toronto, May 26, 1985

#### 4. Findings and Recommendations

The major findings of the study were as follows:

- . toxic and oxidant air pollution pose serious threats to human health, water quality, agriculture, forestry and the natural environment, including both immediate effects and build-up of contaminants over time
- . because attention has focused upon the more easily manageable problem of sulphur dioxide emissions, regulatory initiatives in Canada and the United States have not proceeded as expeditiously as they should
- . the conceptual foundation for existing air pollution regulation cannot adequately cope with the problems of inter-jurisdictional transport, transformation during transport, cross-media movement and build-up in the environment, all of which are characteristics of toxic and oxidant air pollution

These findings led to the major recommendations of the study, to the effect that priority be given to all air pollution problems, instead of a narrow focus upon sulphur dioxide emissions,

- . FACE conference, "Toxics and the Environment",  
Ottawa, June 12, 1985
  
- . International Bar Association meeting, April 20-26,  
1986, England
  
- . "Water quality and air-borne toxics: symbol of the  
next generation of environmental problems", submission  
made to the Inquiry on Federal Water Policy, November 2, 1984
  
- . Air Pollution Control Association Meeting, Hamilton,  
April 29, 1985
  
- . Air Pollution Control Association; Canadian Prairie  
and Northern Section, Edmonton, June 4, 1986
  
- . University of Waterloo, June 3, 1986
  
- . United Nations Association Forum, Environment Week,  
Toronto, June 1, 1986
  
- . approximately twenty radio and television interviews  
were broadcast subsequent to the April 28 press conference



- . the report was presented in detail at a symposium on May 5, 1986. Agenda and list of delegates are provided in the appendix to this report

(b) In the United States

The Environmental Law Institute has provided copies of The Regulation of Toxic and Oxidant Air Pollution in North America to a number of elected and appointed officials and is in the process of developing plans for a one-day conference in Washington. Representatives of the Canadian Environmental Law Research Foundation will participate in that conference.

## 6. Evaluation

As a joint product of Canadian and American research organizations, the study findings and recommendations will carry more weight in both Canada and the United States than if it had been done completely within either country. Such transboundary collaboration, however, is difficult. As well as mechanical difficulties of communication between Toronto and Washington, inevitable differences in perspective between Canadian and American researchers had to be continually accommodated. Further difficulties were posed by the fact that at different times three different people headed the ELI research team.

The scope of the project, including both toxics and oxidants in one study, was ambitious. The result was a less detailed analysis, both in terms of science and law, than if a more narrow focus had been adopted. The offsetting benefit, however, is a comprehensive treatment of all forms of air pollution other than the well known sulphur dioxide and nitrogen oxides.

The study was successful in presenting, for the first time, a summarized overview of current knowledge of the issue.

It can be confidently stated that the project has been successful in meeting its objectives. Perhaps the best criterion is the reception given it by the Canadian and Ontario ministers of the environment. Both ministers accepted the study findings and main thrust of recommendations and have since been at pains to point out the steps taken within their respective ministries to meet this new regulatory challenge.

During the course of the next year both organizations will continue to present the study findings as widely as possible, A further report on that process will be submitted to the Donner Canadian Foundation in approximately one year's time.

Appendix (a) Project summary

## THE REGULATION OF TOXIC AND OXIDANT AIR POLLUTION IN NORTH AMERICA

### EXECUTIVE SUMMARY

The Canadian Environmental Law Research Foundation, Toronto, and the Environmental Law Institute, Washington, D.C., have recently completed a joint study of the ways in which governments in Canada and the United States can move to control the environmental threat posed by toxic and oxidant air pollution. The study was initiated in 1983 with funding provided by both Canadian and American sources - the Donner Canadian Foundation, the George Gund Foundation and the W. Alton Jones Foundation.

It is believed that toxic and oxidant air pollution pose potentially greater threats to the environment and human health than does acid rain.

The Foundation and Institute undertook the study of these pressing and serious local and long-range air pollution problems because they have been overshadowed by the attention focused to date upon acid rain.

Hazardous substances such as PAH, PCDDs, Benzene and heavy metals are emitted from industrial processes, fuel combustion, waste disposal and other sources. Photochemical oxidants are produced by the interaction in the atmosphere of nitrogen oxides and volatile organic compounds, coming from fuel combustion and vapourization of petro-chemical products.

These emissions can cause both local and long-range air pollution problems. In addition, such things as toxic contamination of the Great Lakes and ozone damage in Ontario, Quebec and the Maritimes resulting from U.S. sources, pose serious transboundary pollution problems.

Toxics and oxidants represent a new generation of air pollution problems, characterized by chemical transformation during air-borne transport and large numbers of small-volume sources. As such, they present a whole new set of regulatory problems.

After detailed examination of legislation in both countries, it is the conclusion of both organizations that existing Canadian and American legislation is inadequate and incapable of meeting this new regulatory challenge. Deficiencies include the following:

1. Existing legislation is incapable of addressing the problem of chemical transformation during transport.
2. The problem of long-range transport, crossing provincial and international boundaries and causing extra-jurisdictional effects, cannot be completely solved using existing legislation.
3. Existing legislation does not address the problem of accumulation and build-up of toxic substances in the environment.
4. Existing legislation is medium-specific and does not provide an opportunity to address the problem of pollutants which move from air to water to land and back again.

The Research Foundation and Law Institute recommend that both governments give increased priority to addressing the problems of toxic and oxidant air pollution. Additional resources should be allocated for co-operative research and monitoring programs and steps should be taken to implement the law reforms necessary to meet these new air pollution challenges within the context of comprehensive programs for control of toxic chemicals in both countries.

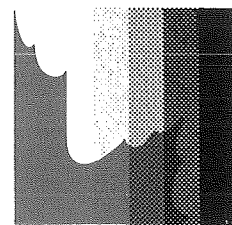
It is recommended that American-Canadian acid rain discussions, arising from acceptance of the Envoy's Report, address all forms of transboundary air pollution and that, at a minimum, ozone control be included in any air pollution agreement negotiated between the two countries.

It is further recommended that atmospheric deposition of toxics be addressed during negotiation of the next Great Lakes Water Quality Agreement.

A number of more detailed recommendations for action in both countries are contained in the publication titled The Regulation of Toxic and Oxidant Air Pollution.

Appendix (b) Press release and letters to Canadian  
and Ontario ministers of the environment





THE REGULATION OF TOXIC AND OXIDANT AIR POLLUTION IN NORTH AMERICA

P R E S S   R E L E A S E

**Embargoed until 10:00 am, Monday, April 28, 1986**

The Canadian Environmental Law Research Foundation is pleased to present findings and conclusions of a study of toxic and oxidant air pollution which has been done jointly with the Environmental Law Institute of Washington, D.C. . The study was initiated in 1983 with funding provided by both Canadian and American sources - the Donner Canadian Foundation, the George Gund Foundation and the W. Alton Jones Foundation.

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These emissions can cause both local and long-range air pollution problems. In addition, such things as toxic contamination of the Great Lakes and ozone damage in

Ontario, Quebec and the Maritimes resulting from U.S. sources, pose serious trans-boundary pollution problems.

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2. The problem of long-range transport, crossing provincial and international boundaries and causing extra-jurisdictional effects, cannot be completely solved using existing legislation.
3. Existing legislation does not address the problem of accumulation and build-up of toxic substances in the environment.
4. Existing legislation is medium-specific and does not provide an opportunity to address the problem of pollutants which move from air to water to land and back again.

The Research Foundation recommends that the federal and provincial governments in Canada initiate a program of regulatory reform to redress these deficiencies.

The Research Foundation advances the following recommendations to governments in Canada:

1. Make policy objectives explicit in air pollution legislation.
2. Regulate toxic substances in a comprehensive manner, recognizing movement from air to water to land.

3. Establish toxic air pollution standards at the federal instead of provincial level.
4. Reform the standard-setting process to ensure full accountability and public participation.
5. Allocate significantly increased resources for research on sources, transport and effects of toxic and oxidant air pollutants; as part of this effort, establish an integrated monitoring network in North America.
6. Take steps to establish a comprehensive federal control strategy for oxidants.
7. Transfer authority to regulate mobile sources of oxidant pollution from the Motor Vehicle Safety Act to the Clean Air Act, administered by Environment Canada rather than Transport Canada.
8. Expand emission controls beyond light duty passenger vehicles to include other forms of transportation.
9. Institute federal mandatory inspection and maintenance programs for in-use vehicles.
10. During air pollution negotiations which have been revived by acceptance of the Envoy's Report, press for control of transboundary oxidant pollution.
11. During negotiation of the next Great Lakes Water Quality Agreement address the problem of atmospheric deposition as a source of toxic contamination of the Great Lakes.

Attached are copies of letters to the Canadian and Ontario ministers of the environment present the study findings. Recommendations will be presented in a similar method to other members of both governments and other government officials responsible for air pollution control in Canada.

The Foundation is working to stimulate discussion of the steps which must be taken to solve these difficult and pressing problems. To initiate that process a symposium titled Beyond Acid Rain will be held in Toronto on Monday, May 5. Representatives of government, industry and the environmental sector will meet to discuss reform of air pollution regulation.

For information on registration contact Mr. Doug Macdonald (416) 977-2410. For further information on the study contact Mr. Macdonald, Mr. Stephen Garrod (519) 837-0500 or Ms. Margaret Mellon, Environmental Law Institute, Washington, D.C. (202) 328-5150.

Appendix (c) sample press clippings

G 8 M April 28/86

# A 'new generation' of air pollution risks cited in major study

BY MICHAEL KEATING  
The Globe and Mail

Toxic air pollution is doing hundreds of millions of dollars in damage and is threatening the health of North Americans, according to a report by two major environmental groups.

"We are looking beyond acid rain," said Douglas Macdonald of the Canadian Environmental Law Research Foundation, one of the groups that has prepared a 350-page study to be released today.

The report, jointly produced with the Environmental Law Association in Washington, talks of "a new generation of air pollution problems," Mr. Macdonald said. "There is a large number of chemicals being released by a large number of sources."

Acid rain is attacking the environment over millions of square kilometres of the world, principally eastern North America and Europe, and is killing the life in thousands of lakes. Acidic air pollution consists mainly of sulphur and nitrogen air pollutants from large smelters, coal-burning power plants and motor vehicles.

But, in recent years, scientists have been saying that acid rain is just part of a much wider problem that has been dubbed toxic rain or toxic air pollution.

Earlier this year, a draft report by 150 scientists from 11 nations said that a wide range of pollutants is changing the Earth's atmosphere and no one knows the consequences. It could take the atmosphere centuries to recover from the effects, the report said.

Other studies have said air pollution is:

- Poisoning the food chain by bombarding fish, crops and the milk and meat of animals we eat with a host of chemicals;
- Likely to trigger a climate warming unprecedented since the last ice age, 10,000 years ago. The so-called greenhouse effect is predicted to cause dust bowl conditions in the North American and Soviet grain belts and floods in coastal areas in coming decades;
- Depleting the ozone in the high atmosphere. This gas forms a shield which protects us from excessive ultra-violet radiation. Its depletion could cause increased rates of skin cancer;
- Increasing the levels of ozone and other oxidant chemicals at ground level. These chemicals attack human respiratory systems and the surface of plants;
- Almost certainly responsible for the widespread death of trees in Central Europe and for a similar destruction of trees that is starting

It became a public issue after a poison gas leak in December, 1984, killed more than 2,000 people in Bhopal, India.

Every year, tens of millions of tonnes of chemicals and fine metal particles are spewed into the air around the world and many are carried hundreds, even thousands of kilometres. The substances include polychlorinated biphenyls, benzene, pesticides and a wide range of industrial chemicals. A number of them are known or suspected to cause cancer and other health problems.

They come from a wide range of sources including chemical factories, steel mills and smelters and every car and truck on the road.

The immediate effects of this air pollution are less dramatic than the Bhopal leak, but the cumulative effects threaten to be global. Chemicals like PCBs and DDT turn up in the flesh of polar bears and penguins and air pollution is creating a phenomenon called Arctic haze.

Mr. Macdonald said no one knows how bad the situation is, but "we know enough to say that it is a serious problem."

He said the researchers in the two environment groups found that existing laws are inadequate to deal with a problem, on a local, national or international basis. Canada has long complained that half of its acid rain comes from the United States, but there is a much wider exchange of air pollution.

In March, Prime Minister Brian Mulroney won an agreement from President Ronald Reagan that the two nations would discuss transboundary acid rain. Mr. Macdonald said these talks should be broadened to include all toxic fallout.

In an effort to press governments at all levels to deal with the issue, the Canadian Environmental Law Research Foundation is holding a conference on the matter on May 5.

The study by the environmental law groups is the latest in a growing series of reports on toxic air pollution.

in parts of North America.

In a statement last week to a special parliamentary acid rain committee, David Bates of the University of British Columbia talked about how air pollution is attacking human health.

Dr. Bates, an international authority on the issue, said several common air pollutants are harmful to children, asthmatics and people who exercise. He said some of the pollutants are known to reduce the ability of animals to fight infection and so are likely increasing the severity of infections that humans contract.

His study in southern Ontario found an increase in hospital admissions for respiratory ailments at times of high air pollution and other studies have linked air pollutants to a premature decrease in lung function.

Several years ago, other researchers suggested that one common form of air pollution may cause as many as 50,000 people in the United States and 5,000 in Canada to die prematurely each year.

Dr. Bates said such numbers have never been proved, but there is "a strong general relationship between respiratory mortality and aerosol sulphate levels for the USA."

Last year, two reports created a furor when they linked toxic fallout to potentially dangerous levels of chemicals in food around the Great Lakes basin.

Environment Canada released a pamphlet called Storm Warning that said air pollution was a major source of pollution in the Great Lakes. This became evident after researchers found that fish in Lake Superior contained high levels of chemicals that had been airborne.

The Royal Society of Canada and the U.S. National Research Council released a joint report saying that toxic fallout was carrying chemicals throughout the Great Lakes basin, helping to make it one of the most polluted areas on the continent.

# Canada, U.S. neglecting threat of toxic air pollution, report says

BY MICHAEL KEATING  
The Globe and Mail

Canada and the United States have been neglecting air pollution threats "at least as serious as those posed by acid rain," two major environmental groups said yesterday.

In addition to the acidic air pollution that is sterilizing lakes across eastern North America and northern Europe, there is a whole gamut of other pollutants that have received little attention, the groups said.

Toxic fallout is bombarding North America and much of the world with a fine mist of chemicals and fine metal particles, poisoning air, water and food, the report said. One type of fallout, known as oxidants, forms a corrosive air pollution that destroys plant tissue and attacks human respiratory systems.

According to the Canadian Environmental Law Research Foundation in Toronto and the Environmental Law Institute in Washington, D.C., scientists have been pointing out the problems for years. However, the Canadian and U.S. governments have focused most of their attention on sulphuric acid rain and paid relatively little attention to the wide range of other pollutants, the report says.

The toxic air pollution includes such chemicals as PCBs, dioxins, pesticides, benzene and a wide range of industrial substances. They have been found in remote areas where the only source could be airborne fallout. The chemicals come from a wide range of sources, including coal-burning power plants, smelters, steel mills, chemical factories and every car, truck and bus on the road. Some of the chemicals combine in the atmosphere to form even more dangerous compounds.

According to Stephen Garrod, a Guelph, Ont., environmental lawyer

who was one of the authors of the report, oxidants, particularly ozone "are highly reactive. They have the ability to burn plant life" and irritate human respiratory tracts.

Oxidants come particularly from motor vehicle exhausts and petrochemical industries and form the brownish haze seen over many cities.

He said there is an "ozone corridor" reaching from Southern Ontario as far as the Maritimes, and that much of the pollution in the Ontario end came from U.S. sources.

Mr. Garrod said the toxic substances are in the food chain and "clearly we are consuming this stuff all the time. We are breathing it and we are consuming it in our food."

## 'Ozone corridor' runs from Ontario to the Maritimes

The report said that "the spectrum of potential effects associated with toxic air pollutants is very broad and ranges from temporary eye, nose and throat irritation to irreversible conditions such as cancer, genetic mutation, birth defects, acute neurotoxic effects, behavior problems and learning disabilities."

Oxidants such as ozone are doing \$200-million in damage a year to crops in eastern Canada and a similar amount of damage in California. They can even defoliate trees such as the white pine, which was recently made Ontario's official tree.

Though the report criticized governments for not paying enough attention to the toxic and oxidant side of air pollution, it was welcomed, by federal Environment Minister Thomas McMillan and his Ontario counterpart, James Bradley.

Both ministers agreed that most of the attention has been focused on sulphuric acid rain, but said that was one problem that governments could deal with.

Mr. Bradley said the wider toxic air issue is, "as great a problem as any we have to face," and his department is creating a monitoring system for toxic air pollution. It is also expanding its regular air monitoring system to study more pollutants in 25, rather than seven, locations in Ontario.

In addition, his officials are revamping Ontario's 18-year-old air quality law and "it is exceedingly important that we upgrade and toughen this regulation."

Mr. Bradley said that he plans to severely restrict pollution going into Ontario's waters in order to reduce the amount of chemicals in lakes that can evaporate and fall back to earth as toxic rain.

In a speech yesterday, Mr. Bradley said his ministry is starting to evaluate chemical hazards and the initial list may involve 3,000 to 4,000 substances.

Mr. McMillan said that the federal Government has ordered better pollution controls for cars sold in Canada in the future and the eventual elimination of lead in gasoline.

Earlier this year, Prime Minister Brian Mulroney won an agreement from President Ronald Reagan to resume negotiations between the two nations on a clean air pact. Mr. McMillan said yesterday that he will raise the issue of transboundary oxidant pollution as part of the talks on acid rain controls.

He said that the issue of toxic fallout will be raised with U.S. negotiators when the two countries discuss the future of their Great Lakes Water Quality Agreements later this year.

Mr. Garrod noted that the toxic fallout issue had been raised by the Canada-U.S. International Joint Commission on Boundary Waters in 1980.

Since then, he said, research in Canada has waned. "When Suzanne Blais-Grenier was appointed federal environment minister, some of her first steps were to cut research and monitoring programs," Mr. Garrod said. "Now there is even less (information) than there was."

Mr. McMillan yesterday agreed that the federal Government needs to spend more money researching the toxic air problem, but was reluctant to talk about specific programs. He said that he wants industry to help finance research on toxic issues generally.

The minister has been under fire for stopping circulation of an Environment Canada booklet, called Storm Warning, that raised the problem of toxic rain last fall.

Mr. McMillan said yesterday that he was not planning to re-release that booklet, but plans to release a new publication explaining the toxic fallout problem to the public.

In their sweeping report, the environment groups said that current laws are "incapable of addressing the problem" of air pollution and that a new set is needed.

Laws do not cover many air pollutants, such as those formed in the atmosphere, the report said. They do not deal with the problem of air pollution that goes into the water and returns to the air through evaporation, and there is not enough enforcement of existing standards.

As examples, the report notes that most Canadian cars do not run as cleanly as they should and suggests that there be mandatory auto inspections, possibly when renewing licence permits.

In addition, it recommends that exhaust controls applied to cars should be extended to cover trucks and buses.

## Acid rain hazards, scientist urges

Mr. Mercier and 3,000 other delegates to the convention wore black arm bands in silent tribute to the dead and injured. Three municipalities — Metro Toronto, St. John's and Brantford, Ont. — sent word that they agreed to the CLC request to co-sponsor the day as an official annual event.

Apart from the pain and suffering, there is a staggering expense "for all taxpayers" associated with workplace accidents and work-related diseases, Mr. Mercier said.

The labor congress is pressing for tougher health and safety legislation — and adequate budgets to enforce the health and safety laws — across the country.



# Toxic 'fallout' worse than acid rain as threat to human health, study says

By David Israelson  
Toronto Star

Canada and the United States are threatened by "toxic rain" — a form of air pollution that could be worse than acid rain, says a report on study by Canadian and U.S. environmental groups.

The toxic rain, which contains many of the thousands of chemicals produced by industry, poses

"potentially greater threats to the environment and human health," says the report released today by Canadian Environmental Law Research Foundation and the Washington-based Environmental Law Association.

The pollution threatens drinking water, particularly in the Great Lakes area, and can accumulate in the food chain and in human tissue. The potential health effects

range from "temporary eye, nose or throat irritations to irreversible conditions such as cancer, genetic mutation, birth defects, acute neurotoxicities (damage to the nervous system), behavior problems and hearing disabilities," the report says.

## Important pathway

The toxic rain, or toxic "fallout," is also a likely contributor to the Great Lakes of significant amounts of cancer-causing substances such as dioxin and PCBs (polychlorinated biphenyls, a chemical once used in electrical transformers but now banned world-wide).

The report says air pollution is responsible for 80 per cent of the PCBs in the upper Great Lakes.

"The atmosphere is also an important pathway to the Great Lakes for pesticides" and other hazardous substances, the document says.

Toxic fallout is also suspected of causing hundreds of millions of

See TOXIC/page A4

## Radioactive cloud hits Sweden

STOCKHOLM (AP-Special) — A radioactive cloud swept across Scandinavia today, prompting experts to speculate there was a nuclear accident in the Soviet Union.

"We have registered radioactivity just about everywhere we have looked," Ragnar Boge of the Swedish Radiation Institute said. "They have found unusual concentrations in Denmark and yesterday they found even higher concentrations in Finland."

Boge and other experts said winds likely carried the radiation after a nuclear accident or leak in the Soviet Union.

Nuclear accidents never have been reported in the Soviet Union but exiled Soviet scientists have said there was a major nuclear accident in the Ural Mountains in 1958 that killed hundreds of people and contaminated a large area that has since been off limits to everyone.

# Toxic 'fallout' far worse than acid rain, study says

...issued from page A1

...of its worth of losses to North American agriculture and forest.

The two groups call on governments on both sides of the border to revamp existing laws and pollution standards.

"Existing legislation is incapable of addressing the problem," they say.

## More complicated

The Canadian group has sent the study, and 11 recommendations for legal reform, to Environment Minister Tom McMillan and his U.S. counterpart, Jim Bradley.

Toxic rain, like acid rain, comes largely from industrial emissions that mix with water vapor to form cloud droplets.

The material can then condense as rain or snow, or reach the ground as "dry deposition" — a process scientists use to describe microscopic particles mixed with

...ver, toxic rain is considered more complicated than acid rain, says Doug Macdonald of the Canadian group.

"Toxic rain is simpler because it is mainly of two types of pollutants, sulphur dioxide and

nitrogen oxides, which can be traced to large or easily identifiable sources, such as smelters, coal-fired power plants and automobiles.

But with toxic rain, "you've got small amounts, coming from a large number of sources," Macdonald says. This makes it difficult to regulate the polluters.

Also, some toxic chemicals "undergo transformation between the time of emission and the time of landing," he says. New materials, called "photochemical oxidants," are formed by chemicals which react with each other and with sunlight.

"They become different substances. So you have a problem regulating that. You can regulate what's coming out (of pollution sources) but it may then be something else that you're dealing with."

"This represents a new generation of air pollution problems," Macdonald says toxic rain does not respect borders, so it's essential that Canada, the U.S. and their respective regional and local governments cooperate if solutions are to be found.

"We've got to rethink our approach," he says.

"The law is broken down accord-

ing to different media — air, water, land. But these (pollutants) are things that move from one to the other. You have a problem using the system to get at them."

Also, while regulations now in effect may set standards based on current measurements of pollution in the air or water, "they don't deal with the concept of a (pollution) build-up over a period of years," he says.

Last year the U.S. Congress held hearings on toxic rain, but so far in Canada, the problem has been given little attention.

Late last year, Environment Canada published — but soon banned — a pamphlet dealing with the issue.

## 'Major threat'

The booklet, called *Storm Warning*, said that "airborne pollutants pose a distinct threat to human health," and that the problem "is rapidly emerging as a major, if not the major environmental threat within the Great Lakes basin."

The department has no plans to reissue the banned pamphlet, although shortly after it was withdrawn a group of prominent Canadian and American scientists agreed with it and noted that

...ple living near the Great Lakes have more toxic contamination in their food than anyone else in North America.

## Mass hunger over, study says

Continued from page A1

...visited the region in December 1984.

Two members of the Kenyan party in 1984 — Jerry Tinker, a committee minority counsel, and John Wise, a food consultant for the Krause Milling Co. of Milwaukee — returned to Ethiopia and Sudan for two weeks last month and told of "a new harvest of hope brought by the 'short rains' this spring."

However, their report said that one of the most tragic legacies of the drought is an estimated 20,000 to 25,000 orphans and abandoned children under the age of 16.

They recommended the United States assist any reasonable Ethiopian government effort to build orphanages, establish foster homes and reunite orphans with

## What's in a breath?

It is a little depressing to discover on a bright spring morning that the air is not as sweet as it seems. It dampens the spirits to be informed that even when due allowance is made for the Chernobyl nuclear accident and the more familiar phenomenon of acid rain, these are no more than a couple of names in a roll-call of airborne horrors requiring attention. Some others get less publicity.

The large and menacing cloud produced by mankind's headlong rush toward industrial expansion and chemical innovation brings an impressive combination of ingredients. In the endless variety and volatility of the mixture, we find polychlorinated biphenyls, benzene, pesticides and a representative collection of metal particles.

The Canadian Environmental Law Research Foundation, in cooperation with the Environmental Law Association in Washington, has brought us the awful truth that neutralizing the long-range bite of acid rain — by no means a pushover — could be regarded as no more than a preliminary assault, a mere probing of the enemy's defences. The joint report talks of "a new gen-

eration of air pollution problems," caused by the world-wide discharge of tens of millions of tonnes of materials, a number of them known or suspected to cause cancer and other health problems.

Official responses to the news could take several forms, one being to ignore the report in the hope that it will go away — not as unlikely an option as it might seem, since much of the reaction to suspicions about the harmful effects of acid rain took this form. Another might be to acknowledge the problem but postpone the remedy, arguing that we can deal with only one problem at a time.

We prefer to think that the problem will be viewed as a whole and that a serious attempt will be made to reverse the habits which, scientists warn, are poisoning the food chain by bombarding fish, crops, milk and meat with all manner of chemicals, threatening to alter the climate, reducing our shield against excessive ultra-violet radiation by deleting the ozone in the high atmosphere and causing the deaths of lakes and trees.

Against an enemy like this, a pre-emptive strike might be useful.

# Ontario promises new rules to fight toxic rain

By David Isaacson Toronto Star

Ontario is changing its air pollution rules to fight toxic rain, Environment Minister Jim Bradley says.

The changes — which could take up to a year — are needed to “curb the new breed of pollutants,” Bradley told a one-day conference held yesterday by the Canadian Environmental Law Research Foundation.

“The latest statistics indicate that 46,000 tonnes a year of contaminants are dumped into Lake Ontario alone by toxic rain,” he told the private, non-profit research group.

Bradley agreed with the group's finding that “the existing regulation is simply inadequate” to handle toxic rain — which could be far worse than acid rain.

Toxic rain consists of two types of pollution — a “chemical soup” made up of thou-

sands of poisonous chemicals from smokestacks and cars, and contamination called “photochemical oxidants.”

The latter, also called smog, is created when nitrogen oxides, produced by burning fuel, mix with vaporized petroleum and petrochemical byproducts.

Toxic rain causes vast crop and forest damage and pollutes the Great Lakes with dangerous contaminants like dioxin and PCBs (polychlorinated biphenyls, once used in transformers as insulation but now banned worldwide), the study said.

Health hazards range from temporary eye, nose or throat irritations to irreversible conditions such as cancer, genetic mutation, birth defects, damage to the nervous system, behavior problems and learning disabilities, the study said.

“Most of the fallout comes from U.S. sources,” Bradley said. But many environmental groups say Canada must stiffen its own laws before demanding action from Washington.

Present pollution standards are set according to how much the contamination disperses and spreads into the air. “This method was considered advanced and even revolutionary in the 1960s,” Bradley said.

But he said the current rule fails to control the long-range movement of such pollution. It also fails to deal with how the pollution falls, or what new pollutants are formed in the air when toxic chemicals combine.

While toxic chemicals “may enter the environment through the air, they can trans-evaporate and make their way into water and soil through rain, snow and dry

deposition (microscopic particles which with air and fall to earth),” he said.

The new regulations will aim at reducing the total amount of pollution that comes of each smokestack, Bradley said.

He said other steps by the ministry include:

□ The recent discovery of a “safe” level of human intake of dioxin — a byproduct of incinerators that can be deadly even in microscopic doses. This will enable “experts” to set health-related guidelines for various types of exposure.

□ A review of thousands of chemicals in Ontario's environment, showing “amounts produced, emitted, imported and stored in the province, and providing data on their toxicity and their “health, environmental and aesthetic effects.”

Appendix (d) October 31, 1984, workshop:  
agenda, delegates list

TOXIC AND OXIDANT AIR POLLUTION:  
THE NEED FOR CANADIAN AND AMERICAN LAW REFORM  
TO SOLVE A SHARED PROBLEM

AGENDA

October 31 Workshop

9:00 - Welcoming Remarks:

Doug Macdonald - Canadian Environmental  
Research Foundation  
Roger Dower - Environmental Law Institute

9:30 - Overview of Project Findings

- o Canadian Law and Policy - Steve Garrod
- o U.S. Law and Policy - Leslie Sue Ritts
- o Bilateral Arrangements - Marcia Valiante

10:45 - Coffee

11:00 - Small Group Discussion

12:00 - Luncheon at Town Hall Restaurant

1:30 - Small Group Summaries

2:15 - Plenary Discussion: Bilateral Issues

- o Adequacy of Existing Bilateral Mechanisms
- o Potential Reforms

3:00 - Coffee

3:15 - Continuing Plenary Discussion

- o Bilateral Science

4:00 - Toxic and Oxidant Air Pollution: Where Will the  
Issues Go From Here?

4:30 - Adjournment

TOXIC AND OXIDANT AIR POLLUTION:  
THE NEED FOR CANADIAN AMERICAN  
LAW REFORM TO SOLVE A SHARED PROBLEM

✓ = present

LIST OF PARTICIPANTS

*Michael*  
Dr. Michael Halberstad, ✓  
Director of the Environmental Department  
Motor Vehicle Manufacturers Association

Mr. Stan Gooch ✓  
Director, U.S. Transboundary Division,  
Department of External Affairs

Mr. Artie Sherwood,  
Assistant Director  
South Coast Association of Governments

Mr. Doug Hallett ✓  
Science Advisor  
Environment Canada

Mr. Bill Becker  
Executive Director  
State and Territorial Air Pollution  
Program Administrators

Professor J.G. W. Manzig ✓  
Law Faculty  
University of Windsor

Mr. Fred Andes ✓  
Chemical Manufacturers Association

Mr. Don Munton ✓  
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GM Research Labs

Mr. Al Potter ✓  
Board of Directors  
Canadian Environmental Law Research  
Foundation

Mr. Stewart Low  
General Motors of Canada

Mr. Stephen Garrod ✓  
Canadian Environmental Law Research  
Foundation

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Ministry of the Environment

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Environmental Law Institute

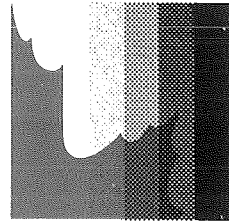
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Ms. Marcia Valiante ✓  
Canadian Environmental Law Research  
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Ms. Cindy Nicholas  
Donner Canadian Foundation

Mr. Doug Macdonald ✓  
Canadian Environmental Law Research  
Foundation

Appendix (e) May 5, 1986, symposium:  
agenda, delegates list



**BEYOND ACID RAIN**

A one-day symposium

Toronto, May 5, 1986

**AGENDA**

- 9:00      1.      **Introduction**
- Mr. Bill Futrell, President, Environmental Law Institute
- Mr. Doug Macdonald, Executive Director, Canadian Environmental  
                 Law Research Foundation
- 9:15      2.      **The Environmental Threat**
- (a)      Toxic Air Pollution
- Mr. Douglas Hallett, Eco Logic Inc.  
                 Dr. William Strachan, Canada Centre for Inland Waters
- 10:00      (b)      Oxidant Air Pollution
- Mr. Thomas Dann, Environment Canada  
                 Dr. S.H. Linzon, Ontario Ministry of the Environment
- 10:45      **COFFEE**
- 11:00      3.      **The Regulatory Challenge**
- Mr. Stephen Garrod, Barrister and Solicitor  
                 Ms. Marcia Valiante, Canadian Environmental Law Research  
                 Foundation



11:20

4. The American Approach

Mr. William Becker, State and Territorial Air Pollution  
Program Administrators  
Ms. Margaret Mellon, Environmental Law Institute

12:00

**CASH BAR  
LUNCH  
LUNCHEON ADDRESS - The Honourable James Bradley**

2:00

5. Regulatory Reform

(a) Toxic Air Pollution

Mr. David Balsillie, Air Resources Branch, Ministry of the  
Environment  
Mr. S.C. Johnson, Health, Safety, Environmental Services,  
Allied Chemical  
Ms. Joanna Kidd, Pollution Probe  
Mr. Ed Piche, Ontario Ministry of the Environment

2:45

(b) Photochemical Oxidants

Mr. David Balsillie, Ministry of the Environment  
Mr. Doug Bissett, Shell Canada Limited  
Environment Canada representative  
Mr. Michael Perley, Canadian Coalition on Acid Rain

3:30

COFFEE

3:45

6. Bilateral Action

Dr. Tom Bridges, Atmospheric Environment Service, Environment  
Canada  
Mr. Robert Coe, State Department  
Ms. Margaret Mellon, Environmental Law Institute  
Mr. George Rejhon, former Deputy Envoy on Acid Rain

4:30

ADJOURNMENT

CONFERENCE REGISTRATION

MS. DIANE BARKER  
ONTARIO HYDRO

MS. MARIE-FRANCE BEDARD  
ENVIRONMENT CANADA

MR. BOB BOLD  
KITCHENER-WATERLOO RECORD

MR. C. RICHARD BOZEK  
EDISON ELECTRIC INSTITUTE

MR. IAN BRINDLE  
BIOTOXICITY PROJECT  
BROCK UNIVERSITY

MR. LEONARDO BUFFA  
ENVIRONMENT CANADA

MR. BRUCE CASWELL

DR. R. B. CATON  
CONCORD SCIENTIFIC RESEARCH

MR. PETER CHEN  
ENVIRONMENT CANADA

MR. J. D. COOK  
IMPERIAL OIL

MS. KATHY COOPER  
ENVIRONMENTAL CONSULTANT

MS. BARBARA COYNE  
MINISTRY OF THE ENVIRONMENT

MR. ROBERT DALYRIMPLE  
AMERICAN MOTORS CANADA INC.

DR. CLAUDE S. DAVIS  
CONCORD SCIENTIFIC RESEARCH

MR. JAMES DELONG  
MURPHY AND DELONG

DR. MIKE DICKMAN  
BIOTOXICITY PROJECT  
BROCK UNIVERSITY

MR. W. B. DROWLEY

MR. MOHAMED T. EL-ASHRY  
WORLD RESOURCES INSTITUTE

DR. PAUL FORSYTHE

MR. TONY GIBB  
GIBB ENGINEERING

MR. DON GILES

MR. PETER GORRIE  
CANADIAN PRESS

MR. DAVID GRIGGS  
CANADIAN WILDLIFE FEDERATION

MS. MARY HANRAHAN

MS. PAT HAYES  
BROCK UNIVERSITY

MR. STEFAN HAZELL  
CANADIAN WILDLIFE FEDERATION

MR. DAVID HEENEY  
ONTARIO WASTE MANAGEMENT CORP.

MR. DAVID ISRAELSON  
THE TORONTO STAR

MR. JOHN JACKSON

MR. MICHAEL KEATING  
THE GLOBE AND MAIL

MR. JOE KOZAK  
ENVIRONMENT CANADA

MR. MARIS LUSIS  
MINISTRY OF THE ENVIRONMENT

DR. TESS MCGRATH  
MINISTRY OF LABOUR

MR. ROB MILNE  
LIBERAL PARTY RESEARCH

MR. KAI MILYARD  
POLLUTION PROBE

CONFERENCE REGISTRATION continued

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CANADIAN ENVIRONMENTAL  
LAW RESEARCH FOUNDATION

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BROCK UNIVERSITY

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DOW CHEMICAL CANADA

MR. V. W. PINK

DR. CHRISTIAN POPA  
ENVIRONMENT CANADA

MR. STEVEN PRAHACS  
PULP AND PAPER RESEARCH  
INSTITUTE OF CANADA

DR. J. PUCKETT, ARQA  
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THE CENTRE FOR POLICY NEGOTIATION

MR. HARVEY SHEAR  
DEPARTMENT OF FISHERIES & OCEANS

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MRS. BEVERLY THORPE  
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MS. TOBY VIGOD  
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MS. BARBARA WALLACE

MS. MADELYN WEBB  
CENTER FOR THE GREAT LAKES

MRS. IVY WILE  
MINISTRY OF THE ENVIRONMENT

MR. GREG WOODSWORTH  
ENVIRONMENT CANADA

DR. J. W. S. YOUNG  
ENVIRONMENT CANADA

MR. HAROLD ZWICK  
MONITEQ

THE HONOURABLE JAMES BRADLEY  
MINISTER OF THE ENVIRONMENT

MR. GORDON SOVA  
CORPUS

MS. LEE BOTTS  
NORTHWESTERN UNIVERSITY

DEBORAH REID  
PROGRESSIVE CONSERVATIVE RESEARCH

MR. PHILIP GILES  
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MR. DAVID OVED  
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