

REDUCING AND ELIMINATING TOXIC SUBSTANCES EMISSIONS: AN ACTION PLAN FOR CANADA

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**NEW DIRECTIONS GROUP
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INTRODUCTION

This paper presents a plan for reducing and eliminating the emission of toxic substances – two central elements of the philosophy of zero discharge. The ultimate goal is to ensure no negative effect on the environment. The plan reflects the views of the New Directions Group, a voluntary network of concerned Canadians from industry, environmental groups and other non-government organizations (See Appendix I).

It is time to act in new ways. Good science and common sense are essential to ensure that the most significant pollutants are dealt with first. These substances need to be prioritized for action based on toxicity¹, persistence¹, bioaccumulation¹, exposure, risk and within the framework of the four principles below.

The New Directions Group recognizes that good work is underway in all sectors. However, more needs to be done. This plan is intended to help focus and promote action and is designed to complement federal and provincial/territorial government initiatives, as well as those of industry. The plan is not intended to supplant any regulatory initiatives currently underway by the federal or provincial governments.

FOUR PRINCIPLES

There are four principles that guide this action plan: sustainable development; pollution prevention; a crossmedia approach; and public participation.

Sustainable Development

The World Commission on Environment and Development has defined sustainable development as:

Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Economic activity and environmental protection, often viewed as conflicting goals, can be mutually supportive. Canadians can only expect to maintain economic prosperity if we protect the environment and our resource base, the building blocks of development. Correspondingly, economic prosperity enables

¹ Definitions for these terms are provided in Appendix II.

us to support wise resource management and protect environmental quality. To achieve sustainable development, we need both a strong economy and a healthy environment. The two are inseparable.

Pollution Prevention

Preventing a problem is always better than trying to react to one. Priority must be given to pollution prevention that eliminates or reduces toxic substance emissions. This may mean a change in raw materials, processes, product formulations or management systems.

A pollution prevention approach requires a shift in focus from “react and cure” to “anticipate and prevent.” Minimizing the generation of pollution must be given priority over controlling discharges by end-of-pipe treatment.

Crossmedia Approach

Since toxins move through air, water, land, and biota, reduction programs must aim to reduce these substances in all media, not merely shift them from one medium to another.

Public Participation

Public participation is crucial in environmental matters because it allows for fuller and more informed discussion. It also provides the support and understanding for management decisions in both the public and private sectors. Public participation is most effective when resources, including technical and scientific expertise, are accessible. Processes in which timely and effective public involvement takes place, are fairer to all concerned and will result in better decisions that have support throughout society.

The New Directions Group recommends that:

The principles of sustainable development, pollution prevention, the crossmedia approach and public participation should guide the action plan for the reduction or elimination of toxic substance emissions.

ACTION PLAN

The two steps for action are: emission inventories; and targeted reductions/eliminations.

Emission Inventories

Reducing or eliminating the emission of toxic substances calls for detailed knowledge about the nature and quantities of the substances being released into the Canadian environment. A national emissions inventory would provide:

- a quantitative measure to assess progress in reducing the emission of pollutants into the environment; and
- information that will assist both industry and government to prioritize action and to set targets.

The intent of this inventory is to include all emissions for all sectors, using the same protocol on a national basis. In December 1990, the federal Green Plan committed the federal government to a national emissions inventory. It promised a national release protocol by the end of 1992, with the first reports to be issued in 1994. The development of this inventory must commence immediately.

The New Directions Group recommends that:

A national emission inventory protocol should be established no later than the end of 1992, with the first report to be publicly available in 1994.

The federal Minister of the Environment should establish immediately a working group of industry, environmental groups, and federal and provincial governments to develop the inventory protocols.

Targeted Reductions/Eliminations

Targeting reductions involves both the phasing out (“sunsetting”) of selected substances and a reduction of emissions from all sources. There are five main steps involved in this process.

- developing scientific criteria and data to identify the substances of most concern;
- identifying the substances that fit the criteria together with their uses;
- assessing reduction / elimination constraints and opportunities (i.e. availability and development of alternatives, old plants versus new plants, commercial products versus by-products, and quantities);
- establishing target levels for reduction; and
- setting timetables for achieving these levels or sunsetting.

The process of phasing out and reducing emissions is just that – a process involving the five steps described above. If this process is to work, it must include all stakeholders.

The New Directions Group recommends that:

Before the end of 1991, the federal Minister of the Environment should establish a multi-stakeholder group to develop the five-step reductions/eliminations process as set out in this paper. The process should be fully implemented before the end of 1992.

Sunsetting of Selected Substances

“Sunsetting” refers to a comprehensive and scientifically based program designed to identify those substances that are to be phased out and banned from generation, use and release. The initial focus needs to be on substances which are persistent and toxic and which bioaccumulate.

Action can take place now on a short list of substances. The International Joint Commission’s list of 11 critical pollutants (See Appendix III) is one starting point.

The New Directions Group recommends that:

Some substances should be immediately identified for phase-out, with first priority given to those that are persistent and toxic and which bioaccumulate.

Reduction of Emissions from All Sources

The sunseting process is designed to address and eliminate the worst pollutants. A similar process using a different approach is needed for other substances which are of concern. In this instance, a preventative approach must be entrenched to reduce emissions to the environment. Clear reduction goals on an industry-by-industry basis must be set. Data must be made public so that progress towards the goal can be measured. This kind of targeted reduction is central to the kind of pollution prevention planning necessary for all Canadians in the 1990's.

The New Directions Group recommends that:

Sector by sector, before the end of 1994 Canadian industry should develop and publish pollution prevention action plans to achieve targeted levels set by the multi-stakeholder group for reduction of toxic emissions by the year 2000. The goal is to ensure no negative effect on the environment.

SUMMARY CONCLUSION:

The two steps proposed in this action plan include a national emissions inventory and a process for targeted reductions, including the phasing-out of some substances. Together, these would represent a major advance in an effective and coordinated toxic chemical program for Canada. The use of a multi-stakeholder process ensures that the views of all interests will be represented. This process will only be effective, however, if there are strict timelines with clearly established goals and targets. We believe these are possible, and all are necessary for meaningful progress.

New Directions Group

In summary, the New Directions Group makes the following recommendations.

- The principles of sustainable development, pollution prevention, the crossmedia approach and public participation should guide the action plan for the reduction or elimination of toxic substance emissions.
- A national emissions inventory protocol should be established no later than the end of 1992, with the first report to be publicly available in 1994.
- The federal Minister of the Environment should establish immediately a working group of industry, environmental groups, and federal and provincial governments to develop the inventory protocols.
- Before the end of 1991, the federal Minister of the Environment should establish a multi-stakeholder group to develop the five-step reductions/eliminations process as set out in this paper. The process should be fully implemented before the end of 1992.
- Some substances should be immediately identified for phase-out, with first priority given to those that are persistent and toxic and which bioaccumulate.
- Sector by sector, before the end of 1994 Canadian industry should develop and publish pollution prevention action plans to achieve targeted levels set by the multi-stakeholder group for the reduction of toxic emissions by the year 2000. The goal is to ensure no negative effect on the environment.

APPENDIX I

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Assisting the New Directions Group during the preparation of this paper were Don Hames and Paul Muldoon.

APPENDIX II

Definitions of Terms

When addressing issues such as toxicity, persistence, bioaccumulation, exposure and risk it should be recognized that there is no single number which defines a substance of concern. For example, numbers like eight weeks for a half-life are meant to be used for screening purposes. The intent is for the substances with the highest numbers to be addressed first.

Toxicity

The Canadian Environmental Protection Act defines a substance as toxic if it enters the environment in a quantity or concentration or under conditions such that it has an immediate or long-term harmful effect on the environment or human health.

Persistence

Any substance with a half-life in water greater than eight weeks is considered persistent.

Bioaccumulation

If a substance accumulates to levels that produce adverse toxic or aesthetic effects in humans or wildlife, it is considered bioaccumulative.

APPENDIX III

CRITICAL POLLUTANTS Identified by the Water Quality Board

- Total Polychlorinated Biphenyls (PCBs)
- DDT and metabolites
- Dieldren
- Toxaphene
- 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (2, 3, 7, 8-TCDD)
- 2, 3, 7, 8-Tetrachlorodibenzofuran (2, 3, 7, 8-TCDF)
- Mirex
- Mercury
- Alkylated lead
- Benzo(a)pyrene
- Hexachlorobenzene