Law Reform Commission of Canada
Commission de réforme du droit du Canada

pesticides in canada: an examination of federal law and policy

PROTECTION OF LIFE SERIES

STUDY PAPER

Canada

PESTICIDES IN CANADA: AN EXAMINATION OF FEDERAL LAW AND POLICY

Protection of Life Series

Available by mail free of charge from:

Law Reform Commission of Canada
130 Albert St., 7th Floor
Ottawa, Canada
K1A 0L6

or

Suite 310
Place du Canada
Montréal, Québec
H3B 2N2

Catalogue No. J32-3/39
ISBN 0-662-55413-2

Reprinted 1989

PESTICIDES IN CANADA: AN EXAMINATION OF FEDERAL LAW AND POLICY

Protection of Life Series

A Study Paper prepared for the

Law Reform Commission of Canada

by

J.F. Castrilli, B.A., LL.B., Barrister and Solicitor,
Toronto, Ontario

Toby Vigod, B.A., LL.B., Counsel, Canadian Environmental
Law Association, Toronto, Ontario

Table of Contents

Authors' Acknowledgements

The authors wish to express their appreciation to Ted Keyserlingk, Co-ordinator of the Protection of Life Project, and to former Commissioner Louise Lemelin for their constant encouragement, guidance and invaluable assistance during the course of the preparation of this Study Paper. The administrative assistance of Commission staff was also indispensable during the course of revisions to the paper.

Appreciation is also expressed for the government and non-government reviewers, too numerous to name, who read earlier drafts and commented critically on them.

Of course, the views expressed in this paper remain the responsibility of the authors.

Abbreviations

Acts and Regulations

AIA	*Access to Information Act*, S.C. 1980-81-82-83, c. 111
ECA	*Environmental Contaminants Act*, S.C. 1974-75-76, c. 72
FA	*Fisheries Act*, R.S.C. 1970, c. F-14
FDA	*Food and Drugs Act*, R.S.C. 1970, c. F-27
FD Regulations	*Food and Drug Regulations*, C.R.C. 1978, c. 870
PCPA	*Pest Control Products Act*, R.S.C. 1970, c. P-10
PCP Regulations	*Pest Control Products Regulations*, C.R.C. 1978, c. 1253
US *FFDCA*	United States, *Federal Food, Drug and Cosmetic Act*, 21 U.S.C.
US *FIFRA*	United States, *Federal Insecticide, Fungicide and Rodenticide Act*, 7 U.S.C.
US *TSCA*	United States, *Toxic Substances Control Act*, 15 U.S.C.

Chemical Products and Technical Terminology

ADI	acceptable daily intake
EBDC	ethylenebisdithiocarbamate
ETU	ethylenethiourea
IPM	integrated pest management
MRLs	maximum residue limits
NOEL	no-effect level
ppm	parts per million
PSR	product specific registration
RPAR	rebuttable presumption against registration

Departments, Organizations and Agencies

CACA	Canadian Agricultural Chemicals Association*
CAPCO	Canadian Association of Pesticide Control Officials
CCPA	Canadian Chemical Producers' Association
CCREM	Canadian Council of Resource and Environment Ministers
CELA	Canadian Environmental Law Association
CELRF	Canadian Environmental Law Research Foundation
CPIC	Crop Protection Institute of Canada*
CWS	Canadian Wildlife Service
ENGOs	Environmental Non-Governmental Organizations
FPL	Forest Protection Ltd.
IBT	Industrial Bio-Test Laboratories, Inc.
OECD	Organization for Economic Co-operation and Development
OMAF	Ontario Ministry of Agriculture and Food
UNEP	United Nations Environment Programme
US CEQ	United States Council on Environmental Quality
US DA	United States Department of Agriculture
US EPA	United States Environmental Protection Agency
US FDA	United States Food and Drug Administration
US GAO	United States General Accounting Office
WCELA	West Coast Environmental Law Association

Introduction

Pesticides[1] are used extensively in agriculture, forestry and the home in both Canada[2] and other nations[3] to control insects, weeds and other pests. Accepted as essential beneficial ingredients particularly in global[4] as well as Canadian[5] agricultural food production programmes, pesticides also pose serious environmental and human health threats domestically[6] and internationally.[7] In Canada, the contradiction between agricultural and other benefits on the one hand, and environmental health damage on

---

Note: This paper is accurate to February 1985, except where otherwise indicated.

1. A "pesticide" has been defined as "any substance or mixture of substances intended for preventing or controlling any unwanted species of plants and animals and also includes any substances or mixture of substances intended for use as a plant-growth regulator, defoliant or dessicant." Food and Agriculture Organization of the United Nations, *Report of the Ad Hoc Government Consultation on International Standardization of Pesticide Registration Requirements*, U.N. Doc. AGP: 1977/M/9 at 57.

2. The magnitude of pesticide use is reflected across Canada. For example, aerial insecticide use in New Brunswick in 1980 amounted to 613,000 kilograms covering over 1.6 million hectares of forest area. Government of Canada, *Toxic Chemicals: An Atlantic Region Profile* (Dartmouth, Nova Scotia: Government of Canada, July 1982) at 20-21.

   Similarly, in Ontario total herbicide use on field crops increased by more than 104 per cent (2652 tonnes to 5411 tonnes) between 1973 and 1983. Ontario Ministry of Agriculture and Food, *Survey of Pesticide Use in Ontario, 1978* (Toronto: OMAF, August 1979) at 7 [hereinafter OMAF 1979]; see also *Survey of Pesticide Use in Ontario, 1983* (Toronto: OMAF, September 1984) at 9.

   In Saskatchewan, where herbicide use is regarded as one of the heaviest in Canada, nearly equalling the total usage of the other three western provinces combined, over 8.3 million pounds of herbicides were sold for agricultural use in 1979. Peter von Stackelberg, "Chemical Warfare against Bugs Is Big Business" *The [Regina] Leader Post* (10 November 1980) 17.

3. In the United States, for example, pesticide usage rose from slightly over 400 million pounds in 1970 to almost 1.2 billion pounds in 1980. At the same time, pesticide sales went from less than $1 billion (U.S.) in 1970 to in excess of $3.5 billion in 1980. US GAO, *Stronger Enforcement Needed against Misuse of Pesticides*, Report to Congress by the Comptroller General of the United States, CED-82-5 (Washington, D.C.: US GAO, October 1981) at 1-2.

4. International environment organizations have noted that the contribution of pesticides "to increased agricultural production cannot be denied." United Nations Environment Programme, *Annual Review 1978* (Nairobi, Kenya: UNEP, 1980) at 7. The UNEP has also stated that the "extensive use of chemicals for pest ... control ... has been a principal factor in boosting agricultural productivity in many parts of the world." UNEP, *The State of the Environment, 1979* (Nairobi, Kenya: UNEP, 1979) at 10 [hereinafter UNEP 1979].

5. See, for example, speech by the Honourable Eugene F. Whelan, former federal Minister of Agriculture, notes for an address to the Canadian Agricultural Chemicals Association (CACA) 23th annual conference (Jasper, Alberta: 9 September 1975).

6. *Infra* at 9-14.

7. UNEP, *The State of the Environment, 1981* (Nairobi, Kenya: UNEP, 1981) at 13.

the other, has increasingly drawn federal, provincial and municipal governments as well as the public to seek both preventive and remedial solutions to the problem.

This paper will focus initially on the environmental and human health problems presented by pesticides. A discussion of the adequacy of, and difficulties in applying, common law remedies to pesticide-related damage follows. Constitutional underpinnings of federal and provincial legislative authority in this area are briefly noted. The paper then analyses the origins and adequacy of current legislation and policy, with emphasis on the federal level, regarding both the front and back end of pesticide regulation. Front-end or preventive techniques, such as pesticide registration, tolerance setting for residues on food and permitted usages, are examined in conjunction with back-end or remedial enforcement approaches of an administrative, criminal and quasi-criminal nature such as re-evaluation, reclassification, suspension, cancellation, administrative orders and prosecutions. Non-regulatory mechanisms and their relationship to existing law are also examined where they may suggest areas of future regulatory control or alternatives that would reduce dependence on pesticide use and its resulting enforcement needs. The paper concludes with a number of law reform recommendations and a brief final assessment of current and future prospects for preventive and remedial strategies in the control of pesticides in Canada.

CHAPTER ONE

The Nature and Magnitude of the Environmental and Human Health Problems Posed by Pesticides in Canada

The use of pesticides involves the deliberate application to land or water of chemicals which are intended to be poisonous to selected organisms.[8] Since the 1940s, when synthetic organic pesticides became commercially available, there has been a substantial, if not dramatic, increase in pesticide sales and use both in Canada[9] and world-wide.[10] According to federal officials, between 1971 and 1981 total pesticide sales in Canada increased twelvefold in current dollars ($57.3 million to $698 million) and more than fourfold when adjusted according to the Statistics Canada price index for pesticides ($57.3 million to $243 million).[11] At least 10 million acres in 1975 were treated with herbicides on the Canadian Prairies, where the greatest increase in herbicide use has been experienced.[12] By 1978, this had increased to at least 15.5 million acres.[13] In both 1976 and 1977 an average of 9.6 million pounds of phenoxy herbicides alone were sold each year by the Canadian agricultural chemical industry.[14] Moreover, between 1975 and 1979 expenditures on pesticides[15] by Canadian farmers increased from $163 million a year to more that $350 million, an increase of over 100 per cent.[16] According to the federal government, this indicated "a substantial rise in the use of pesticides, principally herbicides."[17] Whether these figures represent the total

8. Ross H. Hall, *A New Approach to Pest Control in Canada* (Report No. 10) (Ottawa: Canadian Environmental Advisory Council, July 1981) at 1.

9. *Supra*, note 2 and *infra* notes 11-18 and accompanying text.

10. The world expenditure for pesticides in 1975 was estimated at $5 billion. UNEP 1979, *supra*, note 4 at 10. See also UNEP, *Annual Review 1978*, *supra*, note 4 at 7.

11. Interview with Phil Blagdon, Pesticides Officer, Environment Canada, Environmental Protection Service, Ontario Region, Toronto (27 May 1983).

12. The Honourable Eugene F. Whelan, former federal Minister of Agriculture, notes for an address to the CACA 24th annual conference (Ottawa, Ontario: 15 September 1976).

13. Agricultural Institute of Canada, *Pesticides, Agriculture and the Environment* (Ottawa: AIC, January 1981) at 4.

14. Statistics Canada, *Sales of Pest Control Products by Canadian Registrants* (Ottawa, October 1977) at 9; Statistics Canada, *Sales of Pest Control Products by Canadian Registrants* (Ottawa, October 1978) at 8.

15. "Pesticides" are defined for the purpose of this statistic to include herbicides, insecticides and fungicides.

16. Agriculture Canada, *Canada's Agricultural Food System: An Overview* (Ottawa: Supply and Services Canada, 1981) at 22-23.

17. *Ibid.* at 22. The increase was almost 75 per cent after adjustment for inflation.

picture regarding pesticide use in Canada is unclear because, according to the federal government, expenditures by all levels of government for control of forest insects and weeds along rights of way, "are not readily available."[18] Moreover, despite recent attempts by some provinces to determine exactly which pesticides are used, by whom, how frequently, at what application rates, on how much acreage, where and in what quantities information of this type does not appear to be systematically available nationally.[19]

While the application of pesticides has been viewed as providing benefits to society in the form of increased agricultural yields and the control of diseases,[20] two main categories of undesirable effects resulting from pesticide use have been identified. These are: (1) the development of resistance in pest species[21]; and (2) the impact on non-target species and ecosystems.[22] With regard to the latter concern, the UNEP has noted that:

> When carelessly applied, chemical pesticides can result in acute and long-term side-effects including sickness and death of people, useful animals, fish and birds, and destruction of crops. Even when properly used, chemical pesticides have a number of unavoidable side-effects. Their persistence and ubiquitous nature, coupled with a tendency for some compounds to concentrate in organisms as they move up the food chain, may increase their toxicity to fish, birds and other forms of life, including man, and cause other harmful effects on man's health and well-being.[23]

Recent examples across Canada demonstrate that the human health and environmental problems posed by pesticides are national in scope and the sources or pathways of possible contamination are numerous; they include air, water, land, food and drinking water. The following examples also show problems arising at all stages of pesticide regulation, namely, registration, use and disposal.

---

18. Statistics Canada, *Human Activity and the Environment* (Ottawa: Supply and Services Canada, 1978) at 26.

19. One of the more comprehensive provincial surveys is the Ontario survey of pesticide use, *supra*, note 2, begun in 1973. However, it only comes out once every five years. Other provincial surveys, while they come out more frequently, offer only very general information such as total quantities of a particular pesticide sprayed by air or on the ground, in the province as a whole. See, for example, Environment New Brunswick, *Pesticide Usage in New Brunswick* (Fredericton, N.B.: ENB, 1982). Even Statistics Canada's annual pesticide sales surveys were discontinued in 1977.

    The lack of comprehensive use data has been deplored in other countries. See, for example, National Academy of Sciences, *Contemporary Pest Control Practices and Prospects*, vol. 1 (Washington, D.C.: NAS, 1975) at 13.

20. The UNEP notes that in addition to boosting agricultural productivity: "Extensive use of chemicals for pest and vector control has dramatically reduced morbidity and mortality due to vector-borne diseases ..." UNEP 1979, *supra*, note 4 at 10.

21. According to the UNEP, the "repeated application of pesticides to a pest population can result in the selection of individuals which can tolerate doses of the pesticide higher than that required to kill the majority. The individual members of 'resistant strains' can breed and thus produce resistant populations ..." UNEP 1979, *ibid.* Currently there are at least 428 resistant species, from a wide range of insects. UNEP, *Performance Report: List of Dangerous Chemical Substances and Processes*, UNEP/GC/10/5 Add.3 (Nairobi, Kenya: UNEP, 1982) at 25 [hereinafter UNEP 1982].

22. UNEP 1982, *ibid.* at 25.

23. UNEP 1979, *supra*, note 4 at 10.

I. Fish and Wildlife Kills

In New Brunswick during 1975, at least three million birds were killed from aerial spraying of approximately seven million acres of forest to combat the spruce budworm. The insecticide phosphamidon (later discontinued) and to a lesser extent fenitrothion were primarily responsible for the kills. Although the rates of application of individual insecticide compounds used are registered for forest protection, the practice of multiple application of insecticides is not covered by the registration process. As well, the overlapping of aerial sprays has resulted in increased dosages of insecticides and consequently greater mortality rates.[24]

Carbofuran, a highly toxic carbamate insecticide, caused mortality in wild ducks in the Fraser River delta in British Columbia between 1973 and 1975. During autumn migration, ducks feeding in fields were killed by ingestion of the insecticide granules in three separate incidents during this period. Following the third duck kill, the manufacturer voluntarily withdrew the product from British Columbia markets. Lack of proper field testing of the product in the area of proposed use prior to registration has been argued to be a reason for the kills.[25]

Millions of honey-bees were killed by insecticides throughout southern Québec in 1980, following regular farmer aerial spraying of corn crops for caterpillar control. Fifty per cent of the province's honey producers were affected, with financial losses estimated to be at least $5 million.[26] In 1981, aerial spraying of corn crops again killed scores of bees, this time in eastern Ontario.[27]

In 1979 in Ontario, following the roadside spraying of the herbicides 2,4-D and 2,4-DP along a ditch to control brush and weeds, 70,000 trout were killed when the chemicals reached a nearby body of water. The fish kill involved at least 20 per cent of a trout farmer's stocks and resulted from the unsupervised spraying of the road right of way by an unlicensed twenty-year-old sprayer.[28]

---

24. P.A. Pearce, D.B. Peakall & A.J. Erskine, "Impact on Forest Birds of the 1975 Spruce Budworm Spray Operation in New Brunswick" in Environment Canada, Canadian Wildlife Service, (March 1976) 62 Biology Notes 1 at 1-3. See also Douglas J. Forsyth, CWS, "Evaluation of Pesticides by the Canadian Wildlife Service" (Address at the Canadian Council of Resource and Environment Ministers Workshop on Pesticide Use in Canada, *Proceedings*) (Ottawa: CCREM, 1982) at 97.

25. Forsyth, *ibid.* at 96.

26. "Quebec Beekeepers Hurt by Pesticides" *The [Regina] Leader-Post* (16 August 1980).

27. "Beekeepers Fear Losses from Spray" *The Toronto Star* (20 August 1981) A5.

28. *R.* v. *Caswell and Caswell* (28 October 1980), Markdale (Ont. Prov. Ct. Crim. Div.) [unreported] Ormestead, Pr. Ct. J.; and *R.* v. *Caswell and Caswell* (27 July 1981), Markdale (Co. Ct.) [unreported] Thompson, C. Ct. J. in which the trial judge's findings of fact were upheld, but his acquittal of the defendants was overruled and a conviction entered instead.

II. Farm Worker Poisonings and Other Effects from Pesticide Exposure

In 1983, a coroner's inquest into the death of a twenty-year-old British Columbia farm worker ended in a jury finding that his pesticide poisoning was the result of a preventable homicide. Testimony at the inquest indicated that: the farm worker was poisoned by the chemical, monitor, at a farm where pesticides were sprayed while workers harvested nearby; pesticide containers were disposed of haphazardly; little protective clothing or washing facilities were provided to workers; and workers were transported in vans that carried pesticides.[29]

A 1982 federally sponsored study investigating the effects of pesticides on farm workers in British Columbia generally, found that: 55 per cent of workers surveyed had been directly sprayed; 79.5 per cent had to work in fields which had just been sprayed; more than 25 per cent had their living quarters sprayed; and while seven out of ten became physically ill after a direct spraying, less than 4 per cent of growers obtained medical help for their workers. Over 50 per cent of workers exposed to pesticides reported that they suffered headaches; 44 per cent suffered from skin rashes; 35 per cent had experienced dizziness; and 36 per cent suffered from burning eyes. Almost 70 per cent of the workers had no proper wash-up facilities and over 80 per cent had no choice but to eat lunch in sprayed field areas.[30] The study concluded that current agricultural practices in British Columbia may result in farm workers facing widespread low-level exposure to dozens of extremely toxic pesticides.[31]

A 1983 survey conducted by the Alberta Department of Agriculture found that 10 per cent of Alberta grain farmers may be experiencing pesticide poisoning symptoms every year. Government officials believe this may represent approximately 5,000 grain farmers in the province.[32]

---

29. British Columbia Coroner's Office, Verdict of Coroner's Jury into the October 30, 1982 death of Jarnail Singh Deol in Surrey, B.C., pursuant to the *Coroners Act*, R.S.B.C. 1979, c. 68 (Vancouver: 11 March 1983). See also "Pesticide Death Called Homicide" *The [Toronto] Globe and Mail* (17 March 1983) 8; and Arthur Moses, "Finding on B.C. Poison Death May Prompt Farm Labour Action" *The [Toronto] Globe and Mail* (21 March 1983) 8.

30. Matsqui-Abbotsford Community Services, *Agricultural Pesticides and Health Survey Results* (Abbotsford, B.C.: MACS, October 1982) at 5-9 [hereinafter MACS survey]. See also Kevin Cox, "55% in Survey Sprayed by Pesticides" *The [Toronto] Globe and Mail* (15 October 1982).

31. MACS survey, *ibid.* at 9.

32. Paul McLoughlin, "Poisoning Mentioned by 1 in 10" *Western Producer* (26 January 1984) 1.

III. Human Health Concerns in the General Population

Forest aerial spraying of herbicides in the Maritimes has raised concerns that public health is being adversely affected and that diseases such as Reyes Syndrome are increasing as a result.[33] These findings are disputed and the issue remains unresolved.[34]

Toronto drinking water from Lake Ontario contains several pesticides which may be carcinogenic including lindane, heptachlor epoxide, dieldrin, BHC and B-BHC. Moreover, existing water treatment plants fail to eliminate most of these pesticides in the water supply. One study that compared organic contaminants before and after treatment at a Toronto water treatment plant found that 100 per cent of all of the above pesticides except dieldrin pass through the treatment process undiminished.[35] However, other data has shown the removal of some organochlorine pesticides in Toronto's filtration plants, but the data is generally equivocal.[36]

IV. Environmental Contamination

DDT was one of the first synthetic organo-chemical insecticides to be used in the 1940s, and it is still used on a large scale in many parts of the world.[37] In Canada, the use of DDT reached 1,250 tons in 1966, but has been restricted to small quantities since 1970. DDT seriously affected the reproduction of carnivorous birds, such as the peregrine falcon, of which by 1972 fewer than ten pairs remained in Canada between the Rockies and the Atlantic.[38] Even though DDT was severely restricted in Ontario

---

33. See Ted Schrecker, "Living with the Inescapable: Risks and Benefits in Pesticide Policy" in *Pesticide Policy: The Environmental Perspective* (Ottawa: Friends of the Earth Canada, April 1984) at 17-18.

34. A 1982 task force in New Brunswick has concluded that "there is no basis, at the present time, for concluding that a relation exists between the aerial forestry spray programme and Reye's Syndrome" in that province. However, the task force also concluded that while a review of the scientific evidence failed to reveal that an emulsifier (Atlox 3409) was implicated in any alleged incidence of Reye's Syndrome, it considered it "prudent to recommend that, beginning this year, another emulsifier be used." The task force further recommended that the government have an alternative contingency plan for forestry protection against spruce budworm ready at all times. "Report of the New Brunswick Task Force on the Environment and Reye's Syndrome" (1982) 5 *Clinical and Investigative Medicine* 203 at 204, 206-7.

35. Pollution Probe Foundation, *Drinking Water: Make It Safe* (Toronto: Probe, 1983) at 12 and Table 9.

36. City of Toronto, Department of Public Health, *Toronto's Drinking Water: A Chemical Assessment* (Toronto: DPH, April 1984) at 56.

37. CCREM, *Task Force Report on Toxic Substances* (Toronto: Ontario Ministry of the Environment, 1981) at 11-12. This report also notes at 11-12 that: "Ten years after almost total restriction of DDT use in Canada and the United States, significant levels can still be detected in human tissues ...." See also UNEP, *Annual Review 1978*, *supra*, note 4 at 10.

38. Government of Canada, "Report of the Scientific Sub-Committee: Scientific and Technical Aspects of the Environmental Contaminants Problem" in *Report of the Cross-Mission Task Force on Environmental Contaminants Legislation* (Ottawa: Government of Canada, September 1972) at A9-A10.

over a decade ago, its extremely persistent breakdown product, PP DDE, is still detected in Lake Ontario and passes through Toronto's water treatment process undiminished.[39] Despite the early 1970s bans or restrictions of DDT in both Canada and the United States, by 1978 the average concentration of DDT in Lake Superior fish had not declined from levels reported in previous years.[40]

Of the estimated 2.5 million kilograms of agricultural pesticides used annually in the land draining into the Detroit and St. Clair Rivers connecting channels, approximately 70 per cent of these pesticides have been identified as potentially environmentally hazardous.[41]

Federal environmental researchers in 1981 discovered that agricultural and industrial chemicals used in the Prairies are causing significant numbers of mutations in some animal life in a major Saskatchewan lake. The high incidence of mutations in one species of insect in the lake indicates that the impact of chemical contaminants on the lake's ecosystem is substantial and suggests possible future environmental problems in the Prairies.[42]

Endrin, a chlorinated insecticide used primarily on potatoes and grains in the Maritimes, has been found in concentrations in Prince Edward Island estuary sediments very similar in magnitude to endrin residue concentrations in southern latitutes where the chemical has been used extensively. However, the quantity of endrin used in the Altantic provinces is unknown. Fish kills in Prince Edward Island from endrin have resulted from improper agricultural handling of the pesticide.[43] Endrin is extremely persistent, bio-accumulates and can affect the liver and central nervous system.[44]

A 1979 clean-up programme conducted in southern Alberta by the provincial government, recovered nearly 1,000 pesticide containers from 18 landfills or dumps south of Lethbridge, Alberta. Six of the sites were classified as "having a high risk of pesticide residue getting into a waterbody or system," and an additional four sites were classified as being "environmental hazards."[45] In Saskatchewan, where almost one million herbicide and pesticide containers are used a year, a growing problem also exists of empty cans accumulating at town dumps and posing a pollution hazard. In

---

39. *Supra*, note 35 at 5, 12 and Table 9.

40. International Joint Commission, *Water Quality of the Upper Great Lakes*, Report to the Governments of Canada and the United States (Ottawa and Washington, D.C.: IJC, May 1979) at 54.

41. Environment Canada and the Ontario Ministry of the Environment, *Pollution of the St. Clair River (Sarnia Area)*, (Situation Report prepared under the Canada-Ontario Agreement respecting Great Lakes Water Quality) (Toronto: EC/OME, November 1985) at 5.

42. Environment Canada, Environmental Protection Service, *Tobin Lake Study: Background Information* (Regina, Sask: EC, 17 February 1981). See also Peter von Stackelberg, "Tests Find Mutations in Lake Animal Life" *The [Regina] Leader Post* (18 February 1981) A3.

43. Government of Canada, *supra*, note 2 at 62.

44. *Ibid.*; see also *supra*, note 35 at Table 1.

45. Reid, Crowther & Partners, *Hazardous Wastes in Northern and Western Canada: The Need for a Waste Management Strategy*, prepared for Environment Canada and the Governments of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, the Yukon and Northwest Territories, vol. 1 (Calgary: Reid, Crowther, 1980) at 151.

1982, one town alone had 150 such containers at its local dump with other cans littering river banks in the area.[46]

Studies in 1980 indicated that fenitrothion, an organophosphate insecticide used for the control of forest pests, particularly the spruce budworm, has the potential to contaminate at trace levels, shellfish including clams, mussels and oysters, over a widespread area of the Maritimes. Shellfish in areas as far as fifty kilometers from sprayed areas were found to be contaminated. Significantly high, if transitory, contamination levels were evident the closer shellfish were found to sprayed areas.[47]

V. Scientifically Invalid Pesticide Safety Testing

The United States Food and Drug Administration (US FDA) and the United States Environmental Protection Agency (US EPA), as a result of a series of audits beginning in 1976 regarding chemical safety testing practices at United States laboratories, reported finding "serious deficiencies" in tests conducted by Industrial Bio-Test Laboratories, Incorporated (IBT), an Illinois-based commercial testing laboratory. These deficiencies were found in tests IBT conducted for manufacturers to support the registration and marketing of numerous pesticides, chemicals and drugs in both the United States and Canada.[48] When problems in IBT's data were discovered, the two federal governments in 1977 began joint investigations to re-examine the studies on all pesticides whose registration was supported in whole or in part by IBT data.[49] Of the original 1,205 IBT studies respecting 212 pesticides identified by the US EPA, 801 studies on 140 pesticides are considered significant to regulatory decisions respecting induction of tumors, birth defects, genetic mutations, neurotoxicity and other chronic reproductive effects.[50] Among the 801 health studies reviewed, 74 per cent of these studies have been found to be invalid by the US EPA and the Health Protection Branch, Health and Welfare Canada as of July 1983. Eighty-six per cent of the tests IBT performed to determine if the pesticides cause birth defects are invalid; 83 per cent of the tests for cancer are invalid; 79 per cent of the tests for mutations are invalid; and

---

46. "New Plans for Safe Disposal of Herbicide Cans Due Soon" *The [Regina] Leader Post* (2 April 1983).

47. Environment Canada, Environmental Protection Service, Atlantic Region, *A Review of Environmental Impacts Associated with Particular Foresty Practices in Eastern Canada*, Brief presented to the Newfoundland and Labrador Royal Commission on Forest Protection and Management (Dartmouth, N.S.: EC, 1981) at 54-56.

48. See, e.g., US EPA, Office of Pesticide Programs, *Summary of the IBT Program* (Washington, D.C.: US EPA, July 1983) at 1; R. Jeffrey Smith, "Creative Penmanship in Animal Testing Prompts FDA Controls" (23 December 1977) 198 Science 1227; and Keith Schneider, "Faking It: The Case against Industrial Bio-Test Laboratories" (Spring 1983) 4:4 The Amicus Journal 14.

49. US EPA, "Deficiencies in Pesticide Safety Tests Report by EPA; Audit Requested," *News Release* (August 1977) at 2; Health and Welfare Canada, "Validity of Data on the Safety of Numerous Chemicals Being Investigated," *News Release* (15 August 1977) at 2; and Health and Welfare Canada, "Pesticide Safety Being Reassessed," *News Release* 1980-49 (23 June 1980) at 1-2.

50. US EPA, "EPA Releases Report on IBT Lab Studies; Warns of Suspension Action," *News Release* (11 July 1983) at 1.

71 per cent of the tests for reproductive problems are invalid.[51] In Canada, 113 pesticides were originally dependent in whole or in part on IBT data.[52] While replacement studies have been completed or were under way in many instances,[53] as of June 1983 the safety of over 40 of the pesticides tested by IBT and in use in Canada was still in question.[54] In 1981, four former IBT executives were indicted by a federal grand jury in Chicago.[55] The indictment alleged that the defendants entered into a scheme to defraud the sponsors of the studies, the US EPA and the US FDA, by producing reports which contained false study descriptions, fabricated data, and fraudulent conclusions.[56]

The above examples indicate that pesticide damage is occurring across Canada through multiple environmental pathways and that problems have arisen at many stages in the regulatory process. As well, the increasing total quantities of pesticides used in Canada include a large number of new and existing active pesticide ingredients[57] and formulated control products,[58] which now number approximately 600 and 5,000 respectively.[59] Given the widespread use of pesticides, many segments of society including farmers, industry, the medical and public health community, governments and

51. US EPA, *supra*, note 48 at 2 and Exhibit B.

52. "Current Status of IBT Pesticides," Health and Welfare Canada, *News Release* (6 May 1982) at 1. While the Health and Welfare Canada audit has encompassed as many as 113 pesticides in Canada, earlier estimates of the total involved have fluctuated widely. See, e.g., Michael Keating, "Safety Tests Faked, but 79 Pesticides Left on Market" *The [Toronto] Globe and Mail* (27 April 1981) 1.

53. Health and Welfare Canada, "Current Status of IBT Pesticides," *News Release* (2 November 1982) at 1.

54. Kevin Cox, "Safety of Chemicals Queried 10 Years after Bogus Tests" *The [Toronto] Globe and Mail* (30 June 1983) 1. Suggestions by some members of the public that some or all of the pesticides tested by IBT be removed from the market pending retesting were not adopted by the federal government. The principal governmental concerns appear to be that unless conclusive evidence of hazards exists, "precipitous decisions ... could lead to significant effects on the availability and cost of food as well as sharply disrupting the agricultural sector of our economy." "Pesticide Safety ...," *supra*, note 49 at 3.

55. *United States of America* v. *Joseph C. Calandra*, No. 81CR235 (22 June 1981) [United States District Court (Northern District of Illinois-Eastern Division)].

56. *Ibid.* See also United States Department of Justice, United States Attorney Northern District of Illinois, *Information Release* (Chicago, Illinois: 22 June 1981) at 1.

57. "'[A]ctive ingredient' means that ingredient of a control product to which the effects of the control product are attributed, including a synergist, but does not include a solvent, diluent, emulsifier or component that by itself is not primarily responsible for the control effect of the control product; ..." *Pest Control Products Regulations*, C.R.C. 1978, c. 1253, s. 2 [hereinafter *PCP Regulations*].

58. "'[C]ontrol product' means any product, device, organism, substance or thing that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest, and includes (*a*) any compound or substance that enhances or modifies or is intended to enhance or modify the physical or chemical characteristics of a control product to which it is added, and (*b*) any active ingredient used for the manufacture of a control product; ..." *Pest Control Products Act*, R.S.C. 1970, c. P-10, s. 2(1) [hereinafter *PCPA*].

59. Interview with Wayne Ormrod, Director, Pesticides Division, Agriculture Canada, Ottawa (30 June 1983). In June 1977 there were approximately 475 active ingredients and 3,500 formulated control products. See Agriculture Canada, Fisheries and Environment Canada, Health and Welfare Canada, *Pesticide Use and Control in Canada*, prepared for the CCREM Meeting of 1-2 June 1977 (Ottawa: Government of Canada, February 1978) at 13.

environmental groups, have an interest in the purposes and effectiveness of the regulatory and enforcement process for pesticides in Canada. Before proceeding to a discussion of the institutional framework that has evolved for control of pesticides, we undertake a brief examination of the role the common law has played in compensating or enjoining pesticide-related injury.

CHAPTER TWO

The Role of the Courts in Control of Pesticides Damage — An Evaluation of the Effectiveness of the Common Law

The increased use of chemical pesticides since the end of World War II as well as greater public awareness of adverse human and environmental impacts associated with exposure to these chemicals, have led many to seek redress in the courts for damage to health and property. There are a number of traditional common law causes of action available to those seeking compensation (damages) or an injunction for pesticide damage.

These include the torts of nuisance (both private and public), strict liability, trespass, negligence, and assault and battery.[60] There may also be actions for breach of contract or warranty regarding the fitness for their intended purpose of certain pesticides. The scope and restrictions on these causes of action are discussed below. An analysis of the cases shows that while the common law may provide adequate redress for short-term health impacts and damage to property, there are considerable obstacles to obtaining compensation for long-term health effects from pesticide exposure.

There has been a significant number of decided cases in Canada involving short-term pesticide-related damage. One explanation for this may be the fact that pesticides are, by design, meant to be toxic to certain organisms and as such are deliberately applied to the environment.[61]

I. Private Nuisance

"Private nuisance" is defined as an unreasonable interference with the owner's or occupier's use and enjoyment of land.[62] This is the cause of action most often used in cases involving pesticide drift, where damages have occurred to health or property. The

60. In many of the pesticides cases, relief is sought under a number of these causes of action. For example, trespass, nuisance, negligence and *Rylands* v. *Fletcher* (*infra*, note 119) are often pleaded together in cases involving damage from spray drift. Often the courts will find liability under one of these causes of action and decline to make a ruling as to the applicability of the other torts.

61. See CACA, *Pesticides: A Position Statement* (Ottawa: CACA, undated) at 2; and Hall, *supra*, note 8, for the proposition that pesticides are poisonous and deliberately applied to the environment as such.

62. Allen M. Linden, *Canadian Tort Law*, 3d ed. (Toronto: Butterworths, 1982) at 537.

elements to be proved in a private nuisance action depend on what sort of damage has occurred, that is, whether there has been material damage to property such as loss of crops, health damage or personal inconvenience or annoyance. Whether, standing alone, injuries to health are actionable under nuisance theory is still unclear, unless "there is also interference with the use and enjoyment of land."[63] If the activity results in actual damage to property or health, it will be found to be a nuisance even if the defendant's use of land was reasonable and valuable to the community.[64] If it results in only personal inconvenience and annoyance, the interference must be substantial, that is, more than the ordinary person ought to bear in the circumstances. The "circumstances" involve: consideration of the character of the neighbourhood (for example, rural or industrial);[65] the severity and frequency of the annoyance; and whether the plaintiff reacts as an ordinary person would.[66] While this distinction between physical harm to land and inconvenience is not always an easy one to make,[67] it appears that material damage to crops and health from pesticide exposure would fall into the former category.

In all cases, actual damage is an essential element to be proved. However, the courts have held that the burden of proving damages is a relatively easy one and that even where there is only interference with comfort and convenience caused by pesticide drift, no permanent loss or injury to health need be proved.[68]

While a nuisance is usually created by acts done on land occupied by the defendant, adjoining or in the neighbourhood of the plaintiff's land, such is not invariably the case. A nuisance may be created elsewhere: "e.g. on a highway adjoining the plaintiff's land, or in a navigable river, or in some place of public resort."[69] Stevenson J. in *Bridges Brothers*[70] extended that proposition to the defendants' aerial spraying of fenitrothion for spruce budworm in New Brunswick on forest lands adjacent to the plaintiff's property, where ownership of these lands was not established. In that case, the plaintiff suffered property damage when the insecticide reduced the number of pollinating bees, adversely affecting the pollination of blueberry flowers.

---

63. *Ibid.* at 539. However, the recent Nova Scotia spray case, *Palmer*, *infra*, note 89, may be read as authority for the proposition that present or prospective injury to health may be sufficient to found an action in nuisance.

64. *St. Helen's Smelting Co.* v. *Tipping* (1865), 11 H.L. Cas. 642 at 650, 11 E.R. 1483.

65. See, e.g., *Sturges* v. *Bridgman* (1879), 11 Ch.D. 852 at 865.

66. See, e.g., *Robinson* v. *Kilvert* (1889), 41 Ch.D. 88 (C.A.); *Rattray* v. *Daniels* (1959), 17 D.L.R. (2d) 134 (Alta. C.A.).

67. *Salmond on the Law of Torts*, 14th ed. (London: Sweet and Maxwell, 1965) at 89, 94. See discussion in Linden, *supra*, note 62 at 538, in which he does not make the distinction between material harm to land and personal inconvenience and annoyance. Instead he says courts generally balance the severity of harm caused against the utility of the defendant's conduct in all the circumstances.

68. *Newman* v. *Conair Aviation Ltd.* (1972), 33 D.L.R. (3d) 474 at 479 (B.C.S.C.) [hereinafter *Newman*].

69. *Salmond on the Law of Torts*, 16th ed. (1973) at 52, as cited in *Bridges Brothers Ltd.* v. *Forest Protection Ltd.* (1976), 14 N.B.R. (2d) 91, 72 D.L.R. (3d) 335 at 358 [hereinafter *Bridges Brothers*, cited to D.L.R.].

70. *Ibid.*

The Court also adopted the reasoning in *Newman*,[71] another case involving pesticide drift of an insecticide dimethoate (Cygon 4E). The Court in that case found that it was no defence to an action for nuisance to show that the defendant's operation of his farm is useful and necessary to the public interest, or that it is carried on with all care and skill and every effort is made to prevent it from being a nuisance.[72] The Court indicated that negligence does not have to be shown in a claim for nuisance.[73]

Further, although a nuisance usually arises from a continuing state of affairs, isolated or temporary events have also been held to be nuisances. Salmond states that "[t]he truth is that all wrongful escapes of deleterious things, whether continuous, intermittent, or isolated, are equally capable of being classed as nuisances" as cited with approval in the *Bridges Brothers* case,[74] and it is clear that a single spray event can be held to be a nuisance.

The main defences to a nuisance include: (1) statutory authority; (2) prescription;[75] or (3) acquiescence.[76] The principal defence raised in regard to damages caused by pesticide use is statutory authority. It applies where a defendant can show that he was permitted by statute to act in a way which resulted in the nuisance. This defence only applies when the nuisance is the inevitable result of the authorization, not when it can be avoided.[77] Further, the onus of proving inevitability lies with the defendant, who may satisfy it by showing that all reasonable care was exercised according to the state of scientific knowledge at the time and practical feasibility.[78] The statute or permit is usually construed very strictly.

In the *Bridges Brothers* case, the defendant claimed that its activity was justified by the statutory authority provided by section 3 of the New Brunswick *Forest Service Act* which provided that the Lieutenant-Governor in Council was to maintain a forest service to protect the forest from insects. Subsection 3(2) provided that "[s]ubject to the approval of the Lieutenant-Governor in Council, the Ministry may enter into agreements ... with any person to undertake and carry out operations for protecting the forests from fire, insects and disease."[79] While the shareholders in the defendant

71. *Supra*, note 68.

72. *Ibid.* at 479.

73. *Ibid.* See, e.g., *Russell Transport Ltd.* v. *Ontario Malleable Iron Co.* (1952), [1952] O.R. 621, [1952] 4 D.L.R. 719 (H.C.).

74. *Supra*, note 69 at 360.

75. The defence of prescription refers to a right to pollute acquired by a defendant because he has caused a private nuisance to his neighbour's lands continuously for twenty years. The defence cannot be used with respect to a public nuisance. For a general discussion of the defence of prescription, as well as that of statutory authority, see John P.S. McLaren, "The Common Law Nuisance Actions and the Environmental Battle — Well-Tempered Swords or Broken Reeds?" (1972) 10 Osgoode Hall L.J. 505 at 543-47.

76. Linden, *supra*, note 62 at 555 states: "For acquiescence to be invoked there must be overt consent to or active encouragement of the defendant's activity."

77. See R.F.V. Heuston, ed., *Salmond on the Law of Torts* [hereinafter *Salmond*], 12th ed. (London: Sweet and Maxwell, 1957) at 51-52; *Schenck* v. *R.*; *Rokeby* v. *R.* (1981), 34 O.R. (2d) 595.

78. Linden, *supra*, note 62 at 552. See, e.g., *Manchester Corp.* v. *Farnworth* (1929), [1929] All E.R. Rep. 90, 99 L.J.K.B. 83, [1930] A.C. 171.

79. *Forest Service Act*, R.S.N.B. 1952, c. 93, s. 3(2) [now R.S.N.B. 1973, c. F-23].

company, Forest Protection Ltd. (FPL), included the province of New Brunswick and eight companies engaged in the pulp and paper industry, the Court found that: (1) there was no evidence that FPL was considered as constituting part of the forest service maintained by the Lieutenant-Governor in Council, and (2) there was no evidence of either written agreements or more importantly, any order-in-council as required by subsection 3(2).[80] Therefore, FPL could not avail itself of the defence of statutory authority.

In *Friesen* v. *Forest Protection Ltd.*,[81] another case involving damages caused by the spraying of fenitrothion, the defendant company again claimed that its spraying activity was justified by the statutory authority of section 3 of the New Brunswick *Forest Service Act*. This time there was an order-in-council and a written agreement between the Minister of Natural Resources and FPL to undertake the aerial spraying of approximately 9.6 million acres of the forests in New Brunswick in 1976, which the defendant relied upon.[82] Notwithstanding these clauses, the Court held that the defendant could not avail itself of the defence of statutory authority as there was no express authority to place spray, at least without consent, on private lands to the detriment of the owner's private rights.[83]

It is interesting that, in response to the Court's findings of liability in these cases, the New Brunswick legislature in 1978 amended the *Forest Service Act* specifically to allow aerial spraying of pesticides on private land. In addition, the Act was amended to limit citizens' rights to sue in nuisance and trespass. Specifically, an action will lie *only* where "such nuisance or trespass results in actual injury to persons or actual damage to property."[84]

The final element to be discussed in establishing a private nuisance is causation. Causation refers to the requirement that the plaintiff show on the balance of probabilities that there is a "connection or link between the wrongful act and the damage."[85] The usual test is that the plaintiff must prove that without the act of the defendant he would have no damage.[86]

It is here that the tort system begins to break down for cases involving pesticide injury. While most of the decided cases deal with the immediate effects of pesticides, namely damage to crops and short-term health impacts (for example, nausea,

---

80. *Bridges Brothers*, *supra*, note 69 at 362-63.

81. (1978), 22 N.B.R. (2d) 146 [hereinafter *Friesen*].

82. *Ibid.* at 162-64. The order-in-council also provided (at 164) that the province would indemnify FPL "with respect to claims for damages for injury to the health of any person directly caused by the application of chemical insecticides used for killing spruce budworms in the spray program for 1976."

83. *Ibid.* at 168.

84. *An Act to Amend the Forest Service Act*, N.B.A. 1978, c. 24, s. 3(1.3).

85. *Supra*, note 62 at 89.

86. *Ibid.* at 90.

headaches), it is the long-term health implications of pesticide exposure that are difficult to prove.[87]

This is especially so when one is trying to prove future harm and predict that specific pesticides will have adverse effects on human health or the environment, and thus advocate that the application of the pesticide should be halted or should not occur.[88] For example, in the Supreme Court of Nova Scotia in September 1983, fifteen Cape Breton landowners, in a representative action, were unsuccessful in obtaining a permanent injunction based on private nuisance and related causes of action[89] to prevent Nova Scotia Forest Industries from spraying certain forest areas in Nova Scotia with the herbicides 2,4-D and 2,4,5-T.

In August 1982, the plaintiffs had been successful in obtaining an interim and an interlocutory injunction preventing the spraying of these pesticides.[90] Highly technical evidence was presented in court relating to the effects of these herbicides on human health. The bulk of the evidence focused on the contaminant 2,3,7,8 TCDD (dioxin) found in the herbicide 2,4,5-T, which is thought to be the most potent carcinogenic and teratogenic chemical known to man.[91] The defendant company argued that relief should not be given to the plaintiffs as they had not presented evidence of impending harm and had only indicated a remote and problematic possibility of harm.[92]

Burchell J., in granting the interlocutory injunction, discussed the hurdles set out in *American Cyanamid Co.* v. *Ethicon Ltd.*[93] and other cases[94] that were necessary for the plaintiffs to overcome in order to obtain the injunction. The tests were that: (1) the claim was not frivolous or vexatious; (2) there was a real question to be tried; and (3) the applicant had some "real prospect of succeeding."[95] The Court held that having regard for the subject material and the serious nature of the harm anticipated, the claim could not be characterized as frivolous. Again, because of the public concern and

---

87. In Statistics Canada, *supra*, note 18 at 25, a federal government agency has noted that "the long term and possibly synergistic effects of exposure to chemicals are virtually unknown with the evidence of adverse effects becoming visible only after many years."

88. In seeking a *quia timet* injunction, although the plaintiff does not have to wait until actual damage occurs, he must show a strong case of probability that the apprehended mischief will, in fact, arise. *A.G.* v. *Corporation of Manchester* (1893), [1893] 2 Ch.D. 87 at 92.

89. *Palmer* v. *Nova Scotia Forest Industries* (1983), 60 N.S.R. (2d) 271 (S.C.T.D.), Nunn J. [hereinafter *Palmer*]. The legal causes of action on which relief was claimed were: private nuisance; trespass to land, the rule in *Rylands* v. *Fletcher* (*infra*, note 119); the right of landowners to groundwater free of chemical contamination; and breach of the *Fisheries Act*, R.S.C. 1970, c. F14 [hereinafter *FA*].

90. *Cape Breton Landowners* v. *Stora Kopparbergs Bergslags Aktiebolag* (1982), 11 C.E.L.R. 141 (S.C.N.S.T.D.), Burchell J. [hereinafter *Cape Breton Landowners*].

91. *Ibid.* at 145.

92. *Ibid.* at 148.

93. See *American Cyanamid Co.* v. *Ethicon Ltd.* (1975), [1975] 1 All E.R. 504 [hereinafter *American Cyanamid*].

94. See *Carlton Realty Co.* v. *Maple Leaf Mills Ltd.* (1978), 22 O.R. (2d) 198; *Yule Inc.* v. *Atlantic Pizza Delight Franchise (1968) Ltd.* (1977), 17 O.R. (2d) 505. See the discussion in Brian MacLeod Rogers & George W. Hately, Q.C., "Getting the Pre-Trial Injunction" (March 1982) 60:1 Can. Bar Rev. 1.

95. *Cape Breton Landowners*, *supra*, note 90 at 148.

scientific controversy out of which the case arose, there was clearly a serious question to be tried.

The Court had difficulty, however, with the question of whether the plaintiffs had a real prospect of succeeding. It stated that the weakness of the plaintiffs' case was that it stood upon a possibility (rather than a certainty) of harm extrapolated from laboratory experiments and uncertain epidemiological data. However, the Court held that unless it could be shown that the spraying activity could be conducted without hazards, the plaintiffs should be able to refuse the kind of risk that was to be imposed upon them. Burchell J. went on to find that there were special considerations in this case that called for a relaxation of any strict rule as to *prima facie* or threshold levels of proofs. Finally, if the interlocutory injunction were not granted, the spraying would occur, making it pointless to proceed to trial.[96] In granting this injunction, the Court required the usual undertakings by the plaintiffs to guarantee that they would be responsible for all costs and damages claimed by the defendant company, should the decision go against them.[97]

The *Palmer* trial commenced on May 5, 1983, in the Nova Scotia Supreme Court before Mr. Justice Nunn and concluded at the beginning of June. As anticipated, a key issue at trial was whether a causal link between the application of the two herbicides and adverse health effects could be established by the plaintiffs. The difficulty is that these health implications may not manifest themselves for many decades after the initial exposure to the pesticide.[98] As noted by the judge, over 40,000 articles have been written about dioxin and its effects, many of which were submitted to the Court.[99] The Court had to grapple with the conflicting scientific opinions that were presented by over thirty expert witnesses.

The plaintiffs based their case on evidence that even a small amount of dioxin can cause cancer and other adverse health effects. Witnesses for the plaintiffs testified that even "at the molecular level," phenoxy herbicides can cause reproductive changes.[100] It was also argued that 2,4,5-T has been banned in the United States for forestry and most other uses and is severely restricted or banned in three Canadian provinces.[101]

---

96. *Ibid.* at 149.

97. *Ibid.* at 150. See also Elizabeth May, "The Price of Concern" *Probe Post* (April 1983) 30; "Court Decision to Allow Spraying Called Ruinous for Losers" *The [Toronto] Globe and Mail* (17 September 1983) 13.

98. *Palmer*, *supra*, note 89 at 298. Dr. Susan Daum, on behalf of the plaintiffs, testified that the latency period with regard to the carcinogenicity of dioxin is on the average twenty years and may extend to forty, even fifty, years.

    Generally, it has been observed that the typical latency period for cancer from certain synthetic organic chemicals is fifteen to forty years. See, e.g., United States Council on Environmental Quality, *Carcinogens in the Environment*, reprint from the Sixth Annual Report of the US CEQ (Washington, D.C.: US GPO, December 1975) at 23.

99. *Palmer*, *ibid.* at 350.

100. Dr. David Wulfman, Professor of Chemistry, University of Missouri, *ibid.* at 286.

101. *Ibid.* at 283. The three provinces are Ontario, British Columbia and Saskatchewan.

The defence witnesses testified that the amount of dioxin proposed for use in the Cape Breton forests was too small to have any impact on human health.[102] The defendant's lawyer argued that the law does not exist to protect plaintiffs from unfounded fear.[103]

The issue of where the onus of proof should lie in cases involving toxic chemicals was argued at trial. The plaintiff's position was that where toxic chemicals are involved, "the onus should be on the party intending to use the chemical substance to show that it is not harmful." Further, any doubt or uncertainty about the effect of potentially hazardous chemicals must be resolved in favour of safety.[104]

However, Mr. Justice Nunn held that this was not the rule, and that the burden of proof rested on the plaintiffs to prove on the balance of probabilities all issues asserted by them.[105] The Court stated that the plaintiffs must demonstrate "a strong case of probability," that a serious risk to health would exist.[106] Mr. Justice Nunn found that the plaintiffs did not meet the burden of proof and that the totality of evidence did "not even come close to establishing any probability, let alone a strong probability, of risk to health to warrant the granting of *quia timet* injunctive relief."[107]

Yet a number of conclusions made by the Court appear to run counter to principles that have been widely supported in the scientific community, expert committees and international agencies. The findings of fact made by Mr. Justice Nunn included: safe levels of exposure to carcinogens can be determined;[108] and tests showing positive findings of cancer in animals are not predictive of cancer in human beings because of the high dosages administered to the test animals.[109] However, in contrast, eighteen United States federal agencies in a 1980 report to the President concluded that: (1) methods do not now exist for determining a "safe" threshold level of exposure to carcinogens; and (2) established test protocols, which include administration of high test doses to animals, sometimes by a route different than the expected human exposure route, are appropriate and scientifically valid test methods for identifying human carcinogens.[110] These deficiencies in Mr. Justice Nunn's decision cast doubt on the ultimate judgement rendered.

---

102. *Ibid.* at 322, 326-27.

103. Douglas Martin, "Canadian Judge Weighs Key Dioxin Case" *The New York Times* (28 June 1983).

104. *Cape Breton Landowners*, *supra*, note 90 at 143.

105. *Palmer*, *supra*, note 89 at 347.

106. *Ibid.*

107. *Ibid.* at 351.

108. *Ibid.* at 353-A.

109. *Ibid.* at 351-52.

110. See Toxic Substances Strategy Committee, *Toxic Chemicals and Public Protection*, Report to the President (Washington, D.C.: US GPO, May 1980) at 125-33.

In dismissing the plaintiffs' action, the judge took the further step of awarding costs and allowing the defendant to prove its damages, if any, at a later hearing.[111]

This case clearly demonstrates the inadequacies of the common law in dealing with cases involving long-term health impacts from past or future exposure to toxic chemicals where there is a long latency period from the time of release, subsequent exposure and the onset of damages to health. The traditional burden of proof, as stated above, has been on the plaintiff to prove on the balance of probabilities that the defendant's activities caused or will cause the resultant injury. Commentators have argued that in toxic chemical cases, after the plaintiff establishes a *prima facie* case, the burden of proof ought to shift to the defendant to show that the harm did not, or will not, result from his activities.[112]

II. Public Nuisance

Public nuisance is an interference with the right, convenience or welfare of the community at large. One of the key differences between a private and a public nuisance is that a public nuisance has no obvious connection to interference with land interests, but instead involves actual or potential interference with public convenience generally.[113]

If it is determined that the nuisance is "public," the common law precludes any person from suing unless the injury or damage he has suffered is much different from, or greater than, that suffered by any other member of the public.[114] Only the Attorney General may commence an action for public nuisance, or authorize a relator to do so. However, if an individual has suffered special damage, it is possible for that person to bring a civil action for a public nuisance.[115] Some nuisances can cause damage having both public and private aspects. Despite the "public" aspect, individuals can sue for damage to property, or interference with the enjoyment of it, even if this is not

---

111. *Palmer*, *supra*, note 89 at 353-54. The judge ordered costs even though he repeatedly stated that the public interest was involved (for example, see *ibid.* at 348). See also Martin, *supra*, note 103. Subsequently, Stora Kopparbergs agreed to accept a much smaller amount for costs, if the plaintiffs did not appeal the costs award. The final payment was made by the plaintiffs on 8 March 1984. "Herbicide Settlement Concluded" *Antigonish Casket* (14 March 1984).

112. See, e.g., John Swaigen, "Environmental Law 1975-1980" (1980) 12 Ottawa L. Rev. 439 at 464-65; Michael F. Sheehan, "Importance of the Burden of Proof in Environmental Legislation" (1982) 4 The Environmental Professional 75.

113. C.A. Wright and A.M. Linden, *Canadian Tort Law: Cases, Notes and Materials*, 7th ed. (Toronto: Butterworths, 1980) at 17-1.

114. Linden, *supra*, note 62, at 533. See, e.g., *Hickey* v. *Electric Reduction Co. of Canada* (1970), 21 D.L.R. (3d) 368 (Nfld. S.C.); *Fillion* v. *New Brunswick International Paper Co.* (1934), [1934] 3 D.L.R. 22 (N.B.S.C.A.D.) where standing to sue in nuisance was denied to fishermen whose livelihood was damaged by poisonous wastes discharged into bodies of water. The Courts held the fishermen had suffered differently from the rest of the public only in degree. There was no particular or special injury to the plaintiff.

115. Linden, *ibid.* See also Wilfred Estey, "Public Nuisance and Standing to Sue" (1972) 10 Osgoode Hall L.J. 563.

substantially different from the damage done to other people's property. The suit would be in private nuisance. On the other hand, if the claimant does not have a property interest, he cannot sue for relief from a nuisance which affects the community unless he can prove damage special to him.[116] His suit would lie in public nuisance.

While there do not appear to be any cases in public nuisance regarding pesticide use, it is clear that fact situations could arise where the public as a whole would be affected. For example, in August 1983, in the course of a spray operation by the Manitoba government for mosquito control, spray drifted onto a race track in Winnipeg where over 4,000 people were gathered.[117] Arguably, unless someone suffered "special damage" over and above the general inconvenience to the public, only the Attorney General could sue in this situation. The barrier to standing in public nuisance suits has long been recognized as a problem requiring law reform.[118]

III. Strict Liability

There have been several cases in Canada in which damages for pesticide spray drift have been awarded on the basis of strict liability, that is, the rule in *Rylands* v. *Fletcher*.[119] This cause of action is valuable because it is available in cases of personal injury alone, those not necessarily covered by the law of nuisance.[120] This theory of liability arises from the act of a person bringing onto his land something which is "not naturally" there, and which is likely to cause harm if it escapes. If it does escape, the person may be required to compensate another for injury or damages even though the loss was neither intentionally nor negligently inflicted.[121] The two key elements which traditionally must be shown are (1) a non-natural use of land, and (2) an escape.[122]

The first case where the rule in *Rylands* v. *Fletcher* was considered in regard to pesticide drift was *Mihalchuk* v. *Ratke*; *Kwasnuik*, v. *Ratke*.[123] In that case, the plaintiffs claimed damage for injury to their rape crops caused by the drifting of 2,4-D onto their land. The Court held that: 2,4-D was a substance that could readily do mischief or cause damage if it was not handled with care; it was brought on or to their

---

116. *Supra*, note 113 at 17-2.

117. Brian Gory, "Chemical Spray Hits Race Track" *The [Toronto] Globe and Mail* (15 August 1983).

118. For example, the Law Reform Commission of British Columbia, *Report on Civil Litigation in the Public Interest* (Vancouver: B.C. LRC, 1980) at 72, has recommended that "... any member of the public should have the status to bring proceedings in respect of an actual or apprehended violation of a public right, ... We do not believe that the right to bring such proceedings should remain within the Attorney General's exclusive jurisdiction."

119. (1868), L.R. 3 H.L. 330; aff'g (1866) L.R. 1 Ex. 265 (H.L.) [hereinafter *Rylands* v. *Fletcher*].

120. Linden, *supra*, note 62 at 518.

121. *Rylands* v. *Fletcher*, *supra*, note 119.

122. Linden, *supra*, note 62 at 511-16.

123. (1966), 57 D.L.R. (2d) 269, 55 W.W.R. 555 (Sask. Q.B.) [hereinafter *Mihalchuk*, cited to D.L.R.]

land by the defendants; and some of it escaped onto the lands of the plaintiffs.[124] Even though there were no eyewitnesses to the drift, because of the evidence of herbicide damage to the rape, the defendants were found liable. The Court also dealt with the issue of whether the aerial spraying was a "natural" or "non-natural" use of the defendants' land. The defence had argued that its spray activity was to kill weeds which was a valid agricultural purpose and therefore a natural one. The Court rejected this argument, stating that it was the method, not the purpose that was key and that aerial spraying was an unusual operation.[125] Therefore, the rule in *Rylands* v. *Fletcher* applied.

In *Cruise* v. *Niessen*,[126] the plaintiff farmers sued the adjoining farmers and the spray company on the basis of *Rylands* v. *Fletcher* for damages caused by the spray drift of a herbicide, MPCA. The Manitoba Queen's Bench found both defendants jointly liable. Here, the defendants argued that in the ten years since the *Mihalchuk* decision, aerial spraying of herbicides had become accepted as a standard procedure which could no longer be considered a non-natural use. While the Court agreed that aerial spraying could no longer be regarded as an unusual operation, it held that the person spraying was still not relieved from the responsibility for damages to his neighbours' crops if the herbicide were permitted to escape. The Court went further and stated that it did not matter whether the herbicide was applied by ground or by aerial spraying; it was the action of allowing the herbicide, a dangerous substance, to escape beyond the boundaries of the defendant's own property that made the use liable.[127] As a result of this case, it seems that spray drift will be actionable in most circumstances under the rule in *Rylands* v. *Fletcher*, and that the often tortured definitions of the term "non-natural use" will not provide a defence.

Again in *Bartel* v. *Ector*,[128] plaintiff farmers brought an action for damages to trees caused by the spraying of 2,4-D by adjoining landowners, and the resultant drift. The Court adopted the reasoning of the trial judge in the *Cruise* case and found the defendants liable. In *Schunicht* v. *Tiede*,[129] a 1979 case, again involving spray drift and resulting damage, the Court found that the rule in *Rylands* v. *Fletcher* applied to the aerial spraying of the herbicide, and that it was not a natural use of land.

One case in which the rule in *Rylands* v. *Fletcher* was found not to apply was *Bridges Brothers*, discussed above.[130] In that case, there was no evidence as to the ownership of the lands adjoining the plaintiffs', where the defendant company was carrying out its spraying operations. The Court in *Bridges Brothers* found that while the rule in *Rylands* v. *Fletcher* had been held to apply to persons who have no tenancy or independent occupation of the land, but use it only by permission, no authority for

---

124. *Ibid.* at 272.

125. *Ibid.* at 273.

126. (1977), 76 D.L.R. (3d) 343, [1977] 2 W.W.R. 481; rev'd on other grounds (1977), 82 D.L.R. (3d) 190, [1978] 1 W.W.R. 688 (Man. C.A.) [hereinafter *Cruise*].

127. *Ibid.* (1977), [1977] 2 W.W.R. 481 at 483.

128. (1978), 90 D.L.R. (3d) 89 (Sask. Q.B.).

129. (1979), 20 A.R. 606 (Q.B.).

130. *Supra*, note 69 at 361.

applying the rule exists where there was no evidence that the defendant had any right to be on or fly over the land being sprayed. The Court commented on the difference between nuisance and the rule in *Rylands* v. *Fletcher*, noting that the former is a wrong *to* occupation, whereas the latter is a wrong arising *from* occupation of lands. However, the Court found that the plaintiff could be successful on the grounds of nuisance but not the rule in *Rylands* v. *Fletcher*.

Defences to strict liability include: (1) consent;[131] (2) default of the plaintiff;[132] (3) an Act of God;[133] (4) a deliberate act of a third person;[134] and (5) statutory authority. The defence of statutory authority is often invoked and is also used in relation to nuisance actions.[135]

An emerging alternative theory of strict liability, based not on the historic requirements of non-natural use and escape, but on the basis of liability for ultra-hazardous activities,[136] postulates that there is a limited number of activities so fraught with abnormal risk that the negligence standard is felt to provide insufficient protection. These "ultra-hazardous" activities should be governed by a stricter form of liability that grants compensation for all losses generated, even when the activity is conducted with reasonable care.[137] While Canadian courts on the whole keep the traditional tests of non-natural use and escape, there is some movement in the other direction.[138] The use of toxic chemicals, including pesticides, may prove to be a testing ground for these theories in the future.

IV. Riparian Rights

Riparian rights refer to rights to the use and enjoyment of water in a stream, river or lake arising from possession of land bordering on the water.[139] An interest in the land gives a person the right to the continued flow of the water in its natural quantity

131. Consent can be expressly or implicitly given. The latter is more difficult to determine. See Linden, *supra*, note 62 at 524.

132. Default of the plaintiff, recognized as a defence in *Rylands* v. *Fletcher*, (*supra*, note 119) is akin to the defence of contributory negligence. However, some courts have been reluctant to use contributory negligence as a defence in strict liability cases. Linden, *ibid.*

133. An Act of God was also recognized as a defence in *Rylands* v. *Fletcher*, (*supra*, note 119) but has rarely been applied. It only refers to the extraordinary phenomena of nature which cannot be foreseen. Linden, *ibid.* at 525.

134. Only if the defendant can prove that the escape was caused by a third person's "conscious act of volition" will he be exempted from strict liability. Linden, *supra*, note 62 at 526.

135. See *supra* at 19.

136. Linden, *supra*, note 62 at 519. This theory applying liability in cases involving ultra-hazardous activities is used in American jurisprudence (*Restatement, Torts, Second*, s. 520).

137. Linden, *ibid.* at 522.

138. See discussion and cases cited in Linden, *ibid.* at 521-22.

139. McLaren, *supra*, note 75 at 537-39.

and quality — undiminished and unpolluted. Actual damage need not be shown, just a deterioration in the quality of water flowing past the riparian's land.[140] While there are no reported decisions in regard to pesticide use on the basis of riparian rights, the remedy may be available where, for example, pesticide run-off has affected the water quality of a riparian. The defence of statutory authority also arises in the riparian context.

V. Trespass

Every direct unauthorized invasion of private property, no matter how minor, is a trespass. Liability does not depend on actual damage being shown.[141]

In the *Bridges Brothers* case discussed above, trespass was alleged along with negligence, nuisance and the rule in *Rylands* v. *Fletcher*.[142] The Court held that while it was a trespass to cause a noxious substance to cross the boundary of the plaintiff's land, the injury must be direct rather than consequential. Furthermore, as the injury was the pollination of the bees, it was consequential and therefore the plaintiff's claim in trespass failed.[143]

However, trespass was pleaded successfully in the *Friesen* case. There, the plaintiffs were sprayed either directly by the defendant's plane flying overhead or by way of spray drift from the spraying of the adjoining forest. The Court held that:

> To throw a foreign substance on the property of another, and particularly in doing so to disturb his enjoyment of his property, is an unlawful act. The spray deposited here must be considered such a foreign substance, and its deposit unquestionably amounted to a disturbance, however slight it may have been, of the owners' enjoyment of their property.[144]

The deposit of the spray was therefore found to be a trespass. It was unnecessary to decide whether the deposit of spray on the adult plaintiffs and the probable exposure of the infant plaintiff to drifted spray amounted also to a trespass to their persons.

It is interesting that the *Bridges Brothers* case was not discussed in *Friesen*, though the fact situations were very similar. However, the Court in *Bridges Brothers* in making the distinction between direct and consequential injury appears to be talking about the specific type of damages that arose, not the spraying event itself. The *Bridges Brothers* approach appears to be inconsistent with the line of trespass cases which

---

140. *Ibid.* at 539.

141. See, e.g., *Entick* v. *Carrington* (1765), 19 State Trials 1029 (C.P.) in Wright and Linden, *supra*, note 113 at 2-50 to 2-57.

142. See the discussion in *Bridges Brothers*, *supra*, note 69. The defendant was successful in nuisance and negligence and was unsuccessful on the grounds of trespass and the rule in *Rylands* v. *Fletcher* (*supra*, note 119).

143. *Bridges Brothers*, *ibid.* at 361.

144. *Friesen*, *supra*, note 81 at 162.

focus on whether the invasion was direct or consequential, rather than on the type of damage that may result.[145]

It would therefore seem that pesticide drift can amount to a trespass and that damages are recoverable for this invasion of property.

VI. Assault and Battery

While assault and/or battery have been alleged in pesticide spraying cases,[146] there do not appear to have been any cases where courts have made findings as to their applicability to pesticide use situations.

"A person who intentionally causes a harmful or offensive contact with another person is liable for battery. This ... tort protects an interest in bodily security from deliberate interference by others."[147] Both direct and indirect "invasions of bodily security give rise to liability ...."[148]

"Assault is the intentional creation of the apprehension of imminent harmful or offensive contact." The interest protected is that of mental security. Usually "assault and battery are committed in rapid succession."[149] It is arguable that while a pesticide applicator would not actually desire a plaintiff to be sprayed, the consequences of the spraying activity (for example, drift) and the closeness of the plaintiff to the sprayed area are known with substantial certainty to follow.

VII. Negligence

In general terms, negligence is a breach of a standard of care owed to a person who is harmed by that breach. The elements to be proved by the plaintiff are: that the defendant owed him a duty of care; that the defendant's conduct fell below the standard

---

145. *Salmond*, *supra*, note 77 at 160-61, deals with the distinction between direct and consequential injuries. For example, he says that "[t]o throw stones upon one's neighbour's premises is the wrong of trespass; to allow stones from a ruinous chimney to fall upon these premises is the wrong of nuisance." See also, *Ellis* v. *Loftus Iron Company* (1874), L.R. 10 C.P. 10; *Clifton* v. *Viscount Bury* (1887), 4 T.L.R. 8, *Kelsen* v. *Imperial Tobacco Co.* (1957), [1957] 2 All E.R. 343. Further, as already stated, damage need not be shown to establish liability for trespass. Therefore, the discussion in *Bridges Brothers*, *supra*, note 69, on the type of damage which occurred appears irrelevant.

146. See, e.g., Statement of Claim in *Kent* v. *Canadian National Railway Co. and Reichhold Chemicals Ltd.* (10 June 1980), Toronto (S.C.O.), a case involving the spraying of 2,4-D and 2,4DP on railway tracks. The case was recently settled.

147. Linden, *supra*, note 62 at 38.

148. *Ibid.* at 39.

149. *Ibid.* at 41.

required of a reasonable person engaged in the particular activity; and that damage resulted from the breach of duty. To establish the defendant's liability in negligence, the plaintiff must also prove a causal link between the breach and the harm, showing that the harm was foreseeable.[150]

Negligence is more difficult to prove than nuisance, strict liability or the intentional torts, but is often claimed in connection with these other causes of action.

In *Fingas* v. *Summerfeld Colony of Hutterian Brethren*,[151] the defendant was found liable in negligence for spraying the herbicide MCPA 80 amine in circumstances that caused damage to an adjoining landowner's sunflower crop. The defendant had not taken any precautions against spray damage and sprayed in windy conditions conducive to drift. The defendant appealed unsuccessfully on the basis that there was no causal connection between the damage to the neighbour's crop and the defendant's spraying.[152]

In *Schunicht* v. *Tiede*,[153] the defendant, an experienced applicator, was held liable for the spray drift of a phenoxy herbicide onto the plaintiff's land and for resultant damage to his alfalfa crop. The Court found that even if the rule in *Rylands* v. *Fletcher* was not applicable, the defendant was negligent in that he was an experienced aerial operator who flew close to the plaintiff's land knowing that there would be herbicide drift.[154]

In *R.* v. *Forest Protection Ltd.*[155] the Crown was successful in recovering damages from the defendant for negligently spraying the Miramichi hatchery with DDT which resulted in the poisoning of a number of small trout and salmon. The defences of consent and estoppel were not accepted.[156] The Court found that to carry out heavy or concentrated spraying on a stream near such a vulnerable object as a hatchery was negligent. Because the lost fish had no commercial value, only nominal damages were given.[157]

In the *Bridges Brothers* case, a number of negligence allegations were made. One issue raised was whether the defendant failed to use reasonable care in the selection and use of fenitrothion. The Court found that the defendant's choice of that particular insecticide was based on the best scientific information available to it. However, since it was known that fenitrothion was highly toxic to honey-bees, the defendant was found liable in negligence in flying over and close to the plaintiff's fields and in failing to use reasonable care to prevent the pesticide from drifting onto the fields.[158]

---

150. *Ibid.* at 89-91 for discussion of causation.

151. (1979), 5 M.R. (2d) 373 (Co. Ct.), Ferg C.C.J.

152. *Fingas* v. *Summerfeld Colony of Hutterian Brethren* (1980), 5 M.R. (2d) 361 (C.A.).

153. *Supra*, note 129.

154. *Ibid.* at 609.

155. (1961), [1961] Ex. C.R. 263.

156. *Ibid.* at 269-70.

157. *Ibid.* at 273-74.

158. *Bridges Brothers*, *supra*, note 69 at 358.

Obstacles to recovery in a negligence suit include proving causation and establishing foreseeability of the type of damage sustained.[159] Again, the link between the alleged negligent use of a pesticide and the resulting damage may be difficult to prove. As noted above, in the nuisance section, this would be particularly so in situations involving long-term health impacts.

VIII. Products Liability

A. Tort Theory

Since the 1920s, Canadian courts have allowed injured consumers to sue the manufacturers of defective goods without the necessity of establishing the existence of a contract.[160] Negligence principles are applied in these cases to determine liability. Thus, the plaintiff must prove on the balance of probabilities that the defendant manufacturer was negligent and that the negligence caused the harm complained of.[161] Again, the damages caused must meet the test of foreseeability.

The courts have extended the duty owed by the manufacturers in cases involving products dangerous in themselves, that is, chemicals, including pesticides. In these cases, even though the product may not be defective, the manufacturer has a duty to warn the consumer of dangers likely to be encountered in the ordinary use of the product.[162] The required explicitness of the warning will vary, depending on the dangers likely to be encountered.[163]

There have been a number of cases in which manufacturers of pesticides have been found liable in negligence for not providing warnings of dangers associated with the use of their pesticide products.

In *Fillmore's Valley Nurseries Ltd.* v. *North American Cyanamid Ltd.*[164] the plaintiff nursery, in 1956, obtained a supply of amino triazole, a weed-killer, on the advice of the defendant's senior agriculturalist, and relied on his representations regarding the time within which harmful residues were to disappear. Residues still

159. The burden of proof is on the plaintiff to prove on the balance of probabilities that the defendant's actions were the cause of the damage suffered. "Foreseeability of damages" refers to the extent of liability. See Linden, *supra*, note 62 at 339-40.

160. *Ibid.* at 575-76. For early Canadian cases preceding *Donoghue* v. *Stevenson* (1932), [1932] A.C. 562, see *Ross* v. *Dunstall* (1921), 62 S.C.R. 393, 63 D.L.R. 63, and *Buckley* v. *Mott* (1920), 50 D.L.R. 408 (N.S.).

161. Linden, *supra*, note 62 at 602.

162. See, e.g., *Lambert* v. *Lastoplex Chemicals Co.* (1971), [1972] S.C.R. 569, 25 D.L.R. (3d) 121 [cited to S.C.R.].

163. *Ibid.* at 575.

164. (1958), 14 D.L.R. (2d) 297 (N.S.S.C.) [hereinafter *Fillmore's Nurseries*].

present when the plaintiff's plants were put in resulted in the destruction of 175,000 pansy plants. The plaintiff recovered damages for the negligence of the defendant company. The agriculturalist's representations in themselves were not taken to constitute a warranty. However, the act of supplying a dangerous substance, coupled with the failure to warn of the danger that a harmful residue might be left under certain conditions, resulted in a case of actionable negligence being made out.[165] Significantly, Chief Justice Elsey did not distinguish between dangers which stem from the nature of the product itself and those that are attendant upon intended use of the product.

This case was approved of in *Ruegger* v. *Shell Oil Co.*[166] There, the defendant company was also found liable in negligence for failure to give adequate warning of the fact that its pesticide product, 2,4-D, could produce an invisible drift that could damage sensitive vegetables. The plaintiff's tomato crop was damaged when his adjoining corn crops were sprayed. It was held that the Shell Oil Company could not escape liability by pleading ignorance of the specific characteristics of the particular 2,4-D formulation. The Court stated that the manufacturer must be treated as an expert in the field who ought to have known of the invisible spray drift against which an adequate warning should have been given.[167]

More recently, in *Labrecque* v. *Saskatchewan Wheat Pool*,[168] the manufacturer, Eli Lilly and Company (Canada) Limited, was found liable for failure to warn specifically that its herbicide, Treflan, can only be used safely if the seeds are sown at a very shallow depth. The plaintiff suffered damage to his flax crop from the use of this herbicide. While the plaintiff was successful at trial, the Court on appeal found that the plaintiff, an experienced farmer, who ought to have known the dangers of deep planting, was therefore contributorily negligent.[169]

Harris v. *Daco Laboratories Ltd.*,[170] one case in which the plaintiff did not recover damages, involved an insecticide which, the plaintiff alleged, caused his sows to abort after treatment with the product. There was conflicting evidence by two veterinarians regarding the cause of the abortions. The Court held that the plaintiff had not established a causal connection between the insecticide and the abortions, it being the onus of the plaintiff to establish on the balance of probabilities that this was the case. This finding again demonstrates the difficulties for plaintiffs who must first prove that a substance is dangerous rather than the burden of proof being on the manufacturer to prove its safety.

One interesting case in Prince Edward Island involved a lawsuit against the manufacturer, Diamond Shamrock, and the seller of the herbicide Dachtal W-75, for damages to the plaintiff's turnip crop. In *Willis* v. *F.M.C. Machinery & Chemicals*

---

165. *Ibid.* at 315.

166. (1963), [1964] 1 O.R. 88, 41 D.L.R. (2d) 183 [hereinafter *Ruegger*, cited to D.L.R.].

167. *Ibid.* at 195-96.

168. (1977), 78 D.L.R. (3d) 289, [1977] 6 W.W.R. 122 (Sask. Q.B.).

169. *Labrecque* v. *Saskatchewan Wheat Pool* (1980), 110 D.L.R. (3d) 686 at 691. The plaintiff recovered only half of the damages originally granted at trial.

170. (21 November 1980), Toronto (Ont. H.C.J.), Walsh J. summarized in 7 A.C.W.S. (2d) 99.

Ltd.,[171] the Court examined the procedure for registration and approval of pesticides in Canada. Dachtal W-75 was registered in 1965 for use on a wide variety of crops, which did not include turnips. In 1968-69, a "temporary registration" label was granted. Temporary registration means that the product is accepted on an experimental usage basis, allowing the federal authorities and the manufacturer to gather information with a view to obtaining full registration.[172] An application for field use on turnips (that is, full registration) of Dachtal W-75 was granted in May 1970. The plaintiff then used the herbicide in conjunction with an insecticide, thus leading to the damage to the plaintiff's crops. It was common knowledge that Dachtal W-75 would be used with insecticides, such as the one the plaintiff used.

The Court found Diamond Shamrock liable because of its negligence in introducing the product into the market without first taking all reasonable and possible care to ensure that the product was safe and reasonably fit for the purposes of controlling weeds in growing turnips. Perhaps even more significant was the finding that, notwithstanding the product's registration, the manufacturer could still be found liable in negligence.[173]

Furthermore, the Court in an *obiter* statement, noted that the federal authority may also have been negligent in granting registration before sufficient trial experiments had been conducted. It is therefore arguable that federal registration is neither a sufficient defence for a manufacturer to avoid liability nor indeed a defence for the federal government which issued the approval.

Where a pesticide turns out to be unsafe and causes damage, an issue arises as to whether the federal government should be held liable for licensing it for public use on the basis that it did not verify the data submitted by the manufacturer.[174] Commentators have noted that while the general rule is that it is not unreasonable for the government to rely on the scientific data it receives from the manufacturer, there are circumstances where the government may be liable for not requiring tests which would reveal the dangerous nature of the product.[175] It has been suggested that the federal government could be held liable if improperly tested pesticides remain on the market (for example, IBT-tested products) and damages result to persons exposed to these chemicals while their safety is still in doubt.[176]

Perhaps the largest products liability action involving pesticides was the litigation recently settled taken by thousands of United States Vietnam veterans and their families against a number of chemical companies which produced Agent Orange (a mixture of

---

171. (1976), 68 D.L.R. (3d) 127 (P.E.I.S.C.) [hereinafter *Willis*].

172. *Ibid.* at 137.

173. *Ibid.* at 157.

174. See discussion in Jack Morrison, "Pesticide Poisoning: Issues in Personal Injury Liability" (1982), 47 Sask. L.R. 97 at 104-6.

175. *Ibid.* at 106. Morrison suggests (also at 106) "that the federal government may be held liable where it discovered that certain pesticides licensed for use in Canada were approved on the basis of faulty testing, and where it failed to take them off the market until properly tested and this resulted in injury to persons exposed to them" [that is, the IBT situation].

176. *Ibid.* at 107.

two herbicides, 2,4-D and 2,4,5-T), widely used as a defoliant in Vietnam.[177] The veterans sued for a number of ailments they claim to be caused by exposure to dioxin, a contaminant found in 2,4,5-T. Thousands of these cases were consolidated into one action in Uniondale, New York. The approximately 20,000 plaintiffs had asked that the manufacturers of Agent Orange be required to set up an adequate trust fund to pay damages, including those arising to future generations.[178]

A number of complex legal issues had been before the Court since 1979, when the first complaint was filed.[179] In 1983, the Court ruled that the suit should go to trial, as there was enough evidence to show that the five chemical companies[180] might have withheld crucial information from the government on the dangers of Agent Orange.[181] The judge stated that in order for the veterans to establish a legitimate claim, they had to demonstrate that the chemical companies knew more about the dangers of Agent Orange than did the federal government. The companies argued that the government was aware of the dangers of the herbicide for at least twenty years and that they were simply manufacturing the product to government specifications. However, the judge said that the companies might have withheld information, making it impossible to draw up reasonable safety specifications.

Demonstrating causation would have been the biggest hurdle to overcome in the suit. Many of the reported symptoms did not appear until years after the exposure to Agent Orange. As well, other toxic chemicals were used in Vietnam including chlordane and arsenic. The additive or synergistic effects of all the chemicals encountered in Vietnam were at best unpredictable.[182] The manufacturers would have attempted to create doubt that Agent Orange was responsible for the veterans' illnesses. However, in May 1984, just prior to trial, a $180 million settlement was reached. The money was paid into a trust fund to be distributed to Agent Orange veterans and their families.[183]

The Nova Scotia injunction case, although arguably even more difficult to prove because it was for anticipatory relief, where damages had not occurred and where dioxin levels were much lower, was being followed with great interest in the United States.[184]

---

177. See, e.g., David A. Thomson, "Agent Orange Litigation" (December 1980) Trial 17.

178. *Ibid.* See also Joseph R. Tybor, "Agent Orange: A Red Alert" (13 October 1980) 3:5 National L.J. 33.

179. See Lindsey How-Downing, "The Agent Orange Litigation: Should Federal Common Law Have Been Applied?" (1983) 10 Ecology L.Q. 611.

180. The five companies are Dow Chemical, Thompson Hayward Company, Uniroyal Inc., Diamond Shamrock Corporation and the Monsanto Company.

181. See Jock Ferguson, "Trial Documents Indicate Firms Did Not Reveal Dioxin Concerns" *The [Toronto] Globe and Mail* (7 May 1984) 1.

182. *Ibid.* at 17.

183. Joan Beck, "Winners, Losers in Agent Orange Settlement Not Easy to Spot" *The [Ottawa] Citizen* (12 May 1984) 35.

184. *Supra*, notes 89 and 90. Martin, *supra*, note 103.

Finally, the law of products liability has taken a different course in the United States than in Canada. The American consumer need no longer prove negligence; all he has to show is that the product is defective. This move to "no fault" liability has been justified on several grounds.[185] The main rationale for having the manufacturers bear the costs injury to consumers is that the manufacturers create the risk, are better able to spread the costs and derive the benefits of the activity.

In Canada, despite the similarity in products and the frequency of American ownership of manufacturing plants, the general rule is still that the plaintiff must meet the onerous burden of proving fault. This may cause an anomalous result in the pesticides field, where the same pesticides may cause the same damage in both Canada and the United States, but the legal results may be different as far as recovery of damages. Commentators have argued for many years for reform of Canadian products liability law through either the courts or legislation.[186]

B. Contract Theory

There have been a number of cases involving pesticides where defendant companies have been found liable for breach of warranty for selling defective goods. Plaintiffs generally have brought suits for both negligence and breach of warranty together and have been successful on both grounds. For example, in *Fillmore's Nurseries*, discussed above, the Court found that the fact situation came under section 16 of the Nova Scotia *Sale of Goods Act*,[187] which provides for an implied warranty of reasonable fitness where the buyer relies on the seller's skill or judgement with respect to goods ordered for a particular purpose which it is in the latter's course of business to supply.[188] In that case, printed disclaimers were held to be insufficient and the plaintiff was succesful in both tort and contract claims. The plaintiff recovered damages on the tort scale, as they were higher.[189]

Again in *Willis*, the seller was found liable for breach of the condition of reasonable fitness under subsection 16(1) of the Prince Edward Island *Sale of Goods Act*.[190] Even though the herbicide was fit for controlling weed infestation on the growing of turnips, the Court found that because the herbicide was unsafe for use with

---

185. The social welfare goals of tort law (i.e., compensating injured consumers); ensuring that manufacturers stand behind their products; and deterrence (i.e., encouraging safety measures) are among the justifications for imposing strict liability: Linden, *supra*, note 62 at 600-1.

186. *Ibid.* Linden advocates changes to existing Canadian products liability law to relieve injured consumers from the onerous burden of proving fault and to require manufacturers to stand behind their defective products, whether negligently produced or not.

187. R.S.N.S. 1954, c. 256.

188. *Fillmore's Nurseries*, *supra*, note 164 at 318.

189. *Ibid.* at 322.

190. R.S.P.E.I. 1951, c. 144 [now R.S.P.E.I. 1974, c. S-1].

certain insecticides and carried no warning to that effect, there was a breach of the condition of fitness as set out in subsection 16(1).[191]

It seems clear that sellers can be successfully sued for breach of warranty when damages occur from the use of pesticides. It appears that in these cases, the manufacturer is usually joined as a defendant and may also be found liable in tort. Commentators have noted that protection to consumers for breach of warranty is limited, especially by disclaimer clauses and the requirement that privity of contract be shown.[192]

IX. Breach of Contract

Custom sprayers and applicators have sometimes been held liable in contract for damages caused by pesticide use. For example, in *Ruegger*,[193] the Court held the custom sprayer liable for damages to the plaintiff's fields, even though the contractor did not know 2,4-D should not be used within a quarter mile of a susceptible crop. The Court found that the contractor had held himself out as a person skilled and qualified to do the job for which he was hired without causing damage. Further, the plaintiff had relied on him to procure the right compound and apply it properly.[194] This ignorance of the invisible spray drift did not help the defendant escape liability. Other cases have found applicators under contract to be liable for damage caused in the course of their activities.[195]

X. Statute of Limitations

Damage from pesticides may take years to manifest itself after exposure from a spray incident. As a result, a potential barrier which may arise to the recovery of damages in a tort action is the limitation period within which an action may be brought. For example, in Ontario and most other provinces, negligence and other tort actions must be commenced "within six years after the cause of action arose."[196] Until recently, the case-law indicated that a cause of action in tort arises at the time the damage occurs, not when the plaintiff could have reasonably been expected to be aware

---

191. *Willis*, *supra*, note 171 at 149.

192. Linden, *supra*, note 62 at 571-74.

193. *Supra*, note 166.

194. *Ibid.* at 188, 195.

195. See, e.g., *McConnell* v. *Jarolim* (8 June 1982), (N.B.Q.B.), Creaghan J., summarized in 15 A.C.W.S. (2d) 160-61.

196. *Limitations Act*, R.S.O. 1980, c. 240, s. 45(1)(g).

that he had suffered damage.[197] However, more recently the Supreme Court of Canada has held that a cause of action in negligence arises at the date of discovery or reasonable discoverability of the damage.[198] Future problems may continue with the limitation period issue as courts attempt to struggle with the meaning and interpretation of the Supreme Court of Canada's discoverability rule in the context of personal injury actions, including those arising from latent exposure to pesticides.

XI. Summary

The review of cases concerning pesticide-related injury shows that the evolving common law can provide a remedy in cases involving short-term damage. Causation, the limitations of a public nuisance action, defences such as statutory authority and the difficulty of obtaining compensation for certain economic and psychic losses are all barriers which must be overcome. It is, however, in the cases where damage has not manifested itself for many years after exposure to pesticides, or in cases where remedies are sought before the pesticides are used that the common law shows itself to be most inadequate.

Various reforms have been proposed over the years to deal with these obstacles. Reverse onus clauses, relaxation of causation requirements, as well as the abolition of certain defences and plaintiff court cost burdens, have been proposed in a number of private member's Bills across the country.[199]

---

197. See, e.g., *Pirelli General Cable Works Ltd.* v. *Oscar Faber & Partners* (1982), [1983] 1 All E.R. 65 (H.L.); *Cartledge* v. *E. Jopling & Sons* (1963), [1963] A.C. 758, [1963] 1 All E.R. 341 (H.L.); and *Archer* v. *Catton & Co.* (1954), [1954] 1 All E.R. 896.

198. *Kamloops* v. *Nielsen* (1984), [1984] 2 S.C.R. 2; *Central Trust Co.* v. *Rafuse* (1986), [1986] 2 S.C.R. 147. See also Ontario Ministry of the Attorney General, *Discussion Paper on Proposed Limitations Act* (Toronto: Government of Ontario, 1977) for a recommendation that the limitation period in personal injury actions should not run until the plaintiff has discovered or ought to have discovered the damage.

199. The five private member's Bills introduced to date are: Bill 223, *The Environment Bill of Rights*, 1st Sess., 19th Leg. Alta., 1979; Bill 185, *The Ontario Environmental Rights Act*, 3d Sess., 31st Leg. Ont., 1979; Bill 91, *The Environmental Magna Carta Act, 1980*, 4th Sess., 31st Leg. Ont., 1980; Bill 96, *The Environmental Magna Carta Act, 1981*, 4th Sess., 19th Leg. Sask., 1981; and Bill 96, *The Ontario Environmental Rights Act*, 2d Sess., 32d Leg. Ont., 1982.

CHAPTER THREE

The Existing Pesticide Regulatory Control Regime and Its Adequacy

Given pesticides' inherent toxicity and deliberately poisonous nature, the need for a more systematically preventive regime for their control than the principally reactive common law system provides made it inevitable that governments would intervene statutorily to control such products. The need to prevent fraud as to the efficacy of such products was also a factor in the development of regulatory controls. The administrative mechanisms that have evolved both federally and provincially, particularly since the advent of the synthetic organic pesticides in the 1940s, thus reflect attempts to regulate the availability, use and ultimate disposition of pesticides in the home, agriculture, forestry and related areas. Notwithstanding that the regulation of pesticides constitutes one of this country's earliest attempts at intervention in the market-place to control a particular class of toxic substances, key problems exist in this control system even today, which will be outlined below. A brief examination of the constitutional basis for federal and provincial legislation in this area will be undertaken first.

I. Constitutional Basis for Regulation of Pesticides

Though not explicitly addressing pesticides *per se*, the *Constitution Act, 1867* distributes the basis for legislative control over the availability, use and disposal of pesticides between the federal and provincial levels of government. The *Constitution Act, 1867* provides for concurrent federal and provincial jurisdiction to legislate in relation to agriculture, though federal legislation prevails in the event of conflict.[200] Additional powers assigned to Parliament that may have application to the control of pesticides include the criminal law power in subsection 91(27), the power "to make Laws for the Peace, Order, and good Government of Canada," in the preamble to

200. *Constitution Act, 1867* (U.K.), 30 & 31 Vict., c. 3, s. 95 [hereinafter *Constitution Act, 1867*]. A commentator, Dale Gibson, in "Constitutional Jurisdiction over Environmental Management in Canada" (1973) 23 U.T.L.J. 54 at 80, has noted that: "Parliament's jurisdiction over agriculture could justify legislation relating ... to pollution by agricultural operators [such as] use of weed killers and pesticides that damage adjoining property or kill wild life ...."

section 91, and the power to regulate trade and commerce contained in subsection 91(2). Other federal heads of power provide a more limited basis for federal control of pesticides.[201]

The constitutional basis for provincial jurisdiction over pesticides includes the concurrent agricultural jurisdiction noted above,[202] the authority to legislate with respect to the management of the public lands belonging to the province (*Constitution Act, 1867*, subsection 92(5)), property and civil rights in the province (subsection 92(13)), matters of a merely local or private nature in the province (subsection 92(16)), local works and undertakings other than the classes of works and undertakings assigned to the federal government (subsection 92(10)), municipal institutions in the province (subsection 92(8)), and the imposition of punishment by fine, penalty or imprisonment for enforcing any provincial law (subsection 92(15)).

In general, it may be said that the jurisdiction over pesticides divides between federal registration, the classification and labelling of such products (that is, their availability for certain uses)[203] and provincial control over their actual use through licences, permits and related regulatory techniques.[204]

Judicial decisions regarding the constitutionality of pesticides legislation have been rare. One of the few reported cases where the constitutionality of the federal *PCPA* was even raised, was *Re Forest Protection Limited and Guerin*.[205] There the applicant, FPL, was seeking to overturn charges laid under the federal statute.[206] However, counsel for the applicant eventually conceded that the Act was *intra vires* the Parliament of Canada, without the Court having to rule on the matter.[207]

The "high degree of uncertainty" that has frequently been observed to accompany any discussion of the constitutional authority for government intervention with respect

---

201. See, e.g., *Constitution Act, 1867*, s. 91(12), "Sea Coast and Inland Fisheries"; s. 92(10)(*a*), "[interprovincial] ... Works and Undertakings ..."; and s. 92(10)(*c*), "Such Works ... declared by the Parliament of Canada to be for the general Advantage of Canada ...."

202. *Supra*, note 200.

203. See, e.g., the *PCPA*.

204. See, e.g., *Pesticides Act*, R.S.O. 1980, c. 376. To the extent that there is overlap between federal and provincial legislation, for example with respect to control of use, a long line of decided cases indicates that as long as compliance with provincial law does not result in violation of federal law, both may stand. Therefore, the provinces will usually be able to set more stringent requirements within their legislative competence.

205. (1978), 7 C.E.L.R. 93 (N.B.S.C.Q.B.).

206. *Ibid.* at 96: FPL sought both *certiorari* and *prohibition* of thirty informations laid under two federal statutes by private citizens in New Brunswick. In its application FPL contended that subsection 3(1) of the *PCPA* was *ultra vires* of Parliament insofar as it authorized the federal Cabinet to make regulations relating to the regulation or prohibition of the use of a control product in the management of public lands, timber and wood and other property in New Brunswick.

207. *Ibid.* at 106: On appeal to the New Brunswick Court of Appeal, FPL obtained relief from prosecution under the *PCPA* on the basis that the Act did not bind the Crown in right of the province. The Act has since been amended to bind both the federal and provincial Crown in *An Act to amend the Pest Control Products Act*, S.C. 1980-81-82-83, c. 88, s. 1.

to environmental matters in Canada,[208] is not generally so when the subject-matter is the control of pesticides. Yet, the constitutional complexities that have plagued possible legislative interventions, particularly by the federal government, for such matters as control of toxic chemicals disposal or hazardous wastes disposal, do apply as well to pesticide disposal, a well-documented source of environmental contamination.[209] However, as pesticides are meant to be directly and deliberately applied to the environment at first instance, pesticide availability and use thus become the key issues of concern which more easily resolve themselves into federal and provincial jurisdictional responsibilities.

II. The Role of the Federal Government

The role of the federal government in the control of pesticides is both substantial and complex. Key federal legislation such as the *PCPA*, the *Food and Drugs Act* (*FDA*),[210] and to a lesser degree the *Environmental Contaminants Act* (*ECA*)[211] and the *FA*[212] all have application to pesticides and are administered by four different federal departments.[213] The diversity, if not fragmentation of authority, may have both positive and negative aspects with respect to pesticide control strategies such as registration, re-evaluation, tolerance setting, monitoring and enforcement. The advisory role of several federal departments, particularly in the pesticide registration and re-evaluation processes, for example, is an area that has raised the question of the strengths and weaknesses of the current divided scheme of authority within the federal government. Review of federal law will commence where the process itself begins for any company seeking pesticide registration in Canada, that is, the process under the *PCPA*. A brief overview of the origins of such legislation is undertaken below.

---

208. Gibson, *supra*, note 200 at 87. Constitutional authority for federal legislative control of the disposal of toxic chemicals and hazardous wastes has been the subject of heated debate in Canada. The arguments for and against this authority have been set out in: J.F. Castrilli, "Control of Toxic Chemicals in Canada: An Analysis of Law and Policy" (1982) 20 Osgoode Hall L.J. 322 at 357-59; *Hazardous Waste Management in Canada: The Legal and Regulatory Response* (Toronto: CELRF, 1982) at 86-93.

209. *Supra* at 12-13. A 1981 survey of pesticide use practices in a small agricultural watershed in New Brunswick concluded that while the "*Pest Control Act* requires individual applicators such as farmers to follow proper disposal practices through instructions on the container label ... from the few containers visible at public waste disposal sites, and the many at private locations, it was obvious that this procedure was not being followed. Improper container disposal can be a risk to ground or surface water systems ... Most of the [pesticide] mixing sites ... had carelessly discarded containers present." Environment New Brunswick, *A Survey of Pesticide Use Practices in a Small Agricultural Watershed of New Brunswick* (Fredericton, N.B.: ENB, February 1982) at 7.

210. R.S.C. 1970, c. F-27.

211. S.C. 1974-75-76, c. 72.

212. R.S.C. 1970, c. F-14, as amended.

213. The four federal departments are Agriculture Canada (*PCPA*); Health and Welfare Canada (*FDA*); Environment Canada (*ECA* and the anti-pollution provisions of the *FA*); and Fisheries and Oceans Canada (*FA*).

A. Origins of Modern Federal Pesticide Legislation

Federal intervention in the market-place to control pesticides dates from the 1920s and 1930s when the principal public concern centred on appropriate labelling requirements under which pesticides could be imported, manufactured or sold.[214] The purpose of such legislation was to ensure product efficacy and to avoid fraud in product representation.[215] It was not until several decades after the advent of synthetic organic chemicals in the 1940s, that the *Pest Control Products Act* of 1939[216] was viewed by federal officials as needing amendment to increase government authority over pesticides substantially beyond the originally limited purposes of controlling product efficacy and preventing misrepresentation.[217]

Amendments to the *Pest Control Products Act* of 1939, proposed in 1969 by the federal government, sought to expand legislative authority to control handling and use of such products[218] and inert ingredients,[219] and sought as well to strengthen federal authority to protect the public from deception in pesticide merchandizing.

The amendments were predicated in part on the "dual personality of pesticides." The Honourable H.A. Olson, then federal Minister of Agriculture, noted during parliamentary debate on the Bill that:

> [Pesticides] bring us untold benefits, but they can also get us into trouble if they are not handled properly. Careless use of pesticides can lead to food contamination, damage to crops, as well as human and animal injury .... Government control of the manufacture and use of these potentially dangerous substances is necessary if we are to protect people from the misuse of pesticides .... The increased use of pesticides and associated products, and a greater concern over their potential for harm as well as good necessitate a broader authority for regulation than in the past.[220]

Other comments during House of Commons debate suggest that Members of Parliament were well aware of the problems that pesticides were capable of posing to

---

214. *Agricultural Economic Poisons Act*, S.C. 1927, c. 5. This Act was superseded by the *Pest Control Products Act* of 1939, *infra*, note 216.

215. See Thomas Curren, Science and Technology Division, Research Branch, Library of Parliament, *Evaluation and Regulation of Pesticides in Canada* (Ottawa: Library of Parliament, September 1980) at 5.

216. S.C. 1939, c. 21.

217. See Canada, *H.C. Debates* (14 January 1969) at 4275: the Honourable H.A. Olson, then federal Minister of Agriculture, during second reading debate on Bill C-157 to regulate products used for the control of pests and the organic functions of plants and animals. The 1939 Act was seen by him to be limited to regulating the product itself as to composition, packaging and labelling.

218. *Ibid.*

219. *Ibid.*: "Inert ingredients" were seen to include "emulsifiers, stickers and stabilizers for use with pesticides ...."

220. *Ibid.*

farmers' health and safety,[221] the environment,[222] and general public health.[223] In addition, strong support was shown for adequate pre-registration testing of such products before their availability for use,[224] as well as for research into non-chemical alternatives to the use of pesticides.[225]

At the Standing Committee on Agriculture, when the Bill was being considered, chemical industry representations were made respecting the lack of a right of appeal under the Act, should a pesticide registration be refused by the Agriculture Department.[226] These concerns eventually resulted in amendments to the Act allowing the government to establish the procedures for appeals on registration refusals, suspensions or cancellations.[227] Senate consideration of the Bill reiterated many of the above matters. Concerns were also raised that some pesticides, such as DDT, were impossible to use safely,[228] a theme which had not been sounded in the House, where misuse was viewed as the principal area in which problems could arise.[229]

The Bill was passed in 1969, after other relatively minor amendments were made.[230] It eventually came into force in 1972 when regulations under the Act were promulgated.[231]

B. The *Pest Control Products Act*

The principal statute controlling pesticides in Canada is the *PCPA*, binding on both the federal and provincial Crown (see subsection 2(2)), and administered by Agriculture Canada. The Act prohibits any person from manufacturing, storing, displaying, distributing or using a control product "under unsafe conditions" (subsection 3(1)). The prohibitions extend to importing or selling such products in

---

221. A.P. Gleave, M.P.(Saskatoon-Biggar), *ibid.* at 4278.

222. P.V. Noble, M.P.(Grey-Simcoe), *ibid.* at 4276.

223. G.W. Baldwin, M.P. (Peace River), *ibid.* at 4280-81.

224. See proposal by Grace MacInnis, M.P. (Vancouver-Kingsway), *ibid.* at 4282. See also Canada, H.C., Standing Committee on Agriculture, *Minutes of Proceedings and Evidence*, No. 14 (28 January 1969) at 439-40: testimony of C.H. Jefferson, Director of Plant Products Division, Department of Agriculture.

225. Canada, *H.C. Debates*, *supra*, note 217 at 4282.

226. Canada, H.C., Standing Committee on Agriculture, *Minutes of Proceedings and Evidence*, No. 16 (4 February 1969) at 505: testimony of J. Chevalier, Executive Secretary, Canadian Agricultural Chemicals Association.

227. Canada, *H.C. Debates* (14 May 1969) at 8705: Florian Côté, Parliamentary Secretary to the Minister of Agriculture. See the present *PCPA*, s. 5(*d*).

228. Canada, *Senate Debates* (13 March 1969) at 1199: the Honourable Hazen Argue.

229. *Supra*, note 217 at 4275.

230. See *ibid.* at 4275-76. Bill C-157 received Royal Assent on 27 June 1969. Other amendments dealt with authority to regulate manufacturing establishments with respect to control products intended for export or interprovincial movement and related matters.

231. See now *PCP Regulations*.

Canada unless they have been registered, packaged and labelled according to prescribed conditions (paragraphs 4(1)(*a*), (*b*) and (*c*)).

Several important regulatory requirements supplement the Act's basic prohibitions. First, the Minister must register all control products imported, sold or used in Canada and can specify the scientific information to be submitted in support of a registration application.[232] Second, in conjunction with labelling requirements, the Minister can prohibit the use of pesticides in a manner inconsistent with such labelling.[233] Third, the Minister may authorize record-keeping,[234] inspections (sections 7 and 8) and may undertake a variety of enforcement actions, both administrative (section 9 — seizures and detentions) and quasi-criminal (section 10 — prosecutions). Key provisions are examined below.

(1) The Registration Process: Testing Requirements and the Basis for Decision Making on New Pesticides

With some exceptions,[235] pesticides must be registered before being sold in Canada under *PCPA* subsection 4(1). Any pesticide not covered by an exemption may only be registered if the Minister of Agriculture is of the opinion "that the control product has merit or value for the purposes claimed when ... used in accordance with its label directions; ..." (*PCP Regulations*, paragraph 18(*c*)). In addition, the pesticide's use must not "lead to an unacceptable risk of harm to (i) things on or in relation to which the control product is intended to be used, or (ii) public health, plants, animals or the environment; ..." (subparagraphs 18(*d*)(i) and (ii)). A registration application must provide sufficient information "as will allow the Minister to determine the safety, merit and value of the control product" (subsection 9(1)). For these purposes the applicant for a control product registration must provide the Minister with scientific test studies and results regarding the following: control product effectiveness; occupational safety and exposure; effects on host plant, animal, article or non-target organisms; control product and residue persistence, retention and movement; analysis methods for detecting the control product and its residues in food, feed and the environment; detoxification or neutralization methods with respect to the control product in soil, water, air or articles; disposal methods for the control product and its empty packages; and information respecting the storage, display, stability and compatibility of the control product with other products (subparagraphs 9(2)(*b*)(i) to (xi)). Where the control product is intended for human consumption, the applicant must also provide test results

---

232. *PCPA*, s. 4(1) and *PCP Regulations*, s. 6 and 9. On December 9, 1983, section 6 was amended to read: "Subject to section 5, every control product imported into, or sold or used in Canada or used or contained in another control product in Canada shall be registered in accordance with these Regulations." The effect of this amendment is that the prohibitions now appear to extend to using products in Canada as well as importing or selling them. However, as section 4 of the Act has not been concurrently amended, one may query whether section 6 of the regulations is *ultra vires* to the extent of the amendment.

233. *PCP Regulations*, s. 45(1).

234. *PCP Regulations*, s. 26.

235. Exemptions of certain types of control products are authorized by the regulations. See *PCP Regulations*, s. 3, 4 and 5.

respecting the effects of the control product or its residues on test animals in order to assess human or animal risks associated with the product and related concerns (subparagraphs 9(2)(*b*)(i) and (ii)).

Under the Act, the suitability of new pest control products is the responsibility of Agriculture Canada.[236] Product acceptability is determined from data submitted to the Department by the particular company seeking the registration.[237] To help applicants meet the requirements of the Act and regulations, Department guidelines[238] and trade memoranda[239] provide guidance for organizing the technical data to be submitted in support of registration applications under the Act. For the registration of a control product containing a new active ingredient, the type of data the Department requires includes: draft label;[240] product chemistry;[241] toxicology;[242] metabolism studies;[243] food, feed and tobacco residue studies;[244] and information on environmental chemistry,[245] environmental toxicology[246] and efficacy.[247]

---

236. See Agriculture Canada, Food Production and Inspection Branch, Pesticides Division, "The Organization of the Pesticides Division," *Trade Memorandum* T-1-201 (26 November 1985) at 1. The Pesticides Directorate of Agriculture Canada administers the *PCPA*. Its Evaluation Section reviews data submitted in support of applications for registration of new products and new uses for previously registered products. It obtains the comments of expert advisers, and establishes the status of products under the Act.

237. See, e.g., H.W. Major, President, CACA, "The Contribution of Industry to the Information Required for Registration" (Address at the CCREM Workshop on Pesticides Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 48-54.

238. Agriculture Canada, Pesticides Division, *Registration Guidelines: Guidelines for Registering Pesticides and Other Control Products under the* Pest Control Products Act *in Canada* (Ottawa: Agriculture Canada, 31 March 1981).

239. Agriculture Canada, Pesticides Division, "Data-Handling Procedures," *Trade Memorandum* T-1-212 (8 September 1980).

240. *Ibid.* at 1. Labelling requirements under the regulations classify control products into three categories: domestic, commercial and restricted. See the *PCP Regulations*, s. 27(2)(*b*).

241. This includes information on active ingredient specifications, product identity, analytical methods, and physical and chemical properties. See *supra*, note 239 at 1 (Attachment 1).

242. *Ibid.* at 2-3 (Attachment 1). This includes data on: acute oral, dermal, inhalation, skin and eye irritation tests on both technical materials and formulated products; short-term oral, dermal and inhalation tests on technical material; long-term or chronic toxicity feeding studies on rodents and possible non-rodents; and special studies including reproduction, teratology, mutagenicity, carcinogenicity, neurotoxicity and exposure studies.

243. *Ibid.* at 3 (Attachment 1).

244. *Ibid.* This includes residue data on food crops including analytical methodology and animal metabolism studies.

245. *Ibid.* This includes physical-chemical degradation, metabolism, field dissipation, accumulation, storage, disposal and decontamination information.

246. *Ibid.* at 4 (Attachment 1). This includes information on toxicological effects on birds, mammals, aquatic organisms and non-target species such as predators, parasites and bees.

247. *Ibid.*

Owing to various factors, including industry pressure,[248] in 1980 Agriculture Canada began to shift to registration procedures that are more product-specific, than generic in nature. This programme, known as product specific registration (PSR), focuses more directly on the active ingredient as well as on the final formulated control product.[249] According to Agriculture Canada officials:

> PSR ties each individual registered product to a specific basic producer of the active ingredient and to a data package that relates specifically to the pesticide to be registered .... PSR allows [Agriculture Canada] to 'track' individual products back to a basic supplier's technical or active ingredient and manufacturing process and to the ... data package that related directly to it.[250]

Agriculture Canada's concern in developing PSR, in part, is that before the programme's inception a generic approach was used which assumed that all sources of a chemical were equivalent regardless of who manufactured it. However, it became increasingly apparent that different manufacturing processes could result in different product quality, even products containing micro-contaminants such as dioxins. As a result, in 1982 Agriculture Canada decided in certain instances to register individual active ingredients as produced by certain manufacturers using a specific process at a designated plant.[251]

The value to industry of the PSR programme arises from the fact that "[i]n Canada, exclusive property rights to registration data [are] not provided by the Pest Control Products Act or the Food and Drugs Act."[252] Under the generic system, according to federal officials, individual chemical manufacturers were reluctant to spend money on developing further safety studies because this was, in effect, research on a general product. Under such a system competing firms could obtain registration for similar products based on research data produced by other companies, that is, "me too" registration.[253] Now, federal officials argue, companies have more incentive to supply safety studies on their products because such data is relevant to their particular product and is for their exclusive use, as competitors will not be able to register similar products without doing their own research.

However, a number of weaknesses have arisen in the PSR programme. For example, PSR policy effectively blocks newcomers and protects all existing active ingredients no matter how inadequate the data base. At the same time, industry regards

248. Agriculture Canada indicates that the product-specific registration policy was introduced in September 1980 owing to: (1) pressure from industry to recognize data ownership; and (2) concern about micro-contaminants in active ingredients (e.g., dioxins, nitrosamines). See Agriculture Canada, Food Production and Inspection Branch, Pesticides Division, "Re: Product Specific Registration Policy — Pesticides," *Memorandum to Registrants* R-1-219 (1 February 1984) at 1.

249. S.W. Ormrod, Director, Pesticides Division, Food Production and Inspection Branch, Agriculture Canada, "Perspectives on Pesticides Evaluation" (Address at the CCREM Workshop on Pesticides Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 71. See also Agriculture Canada, Pesticides Division, "Product Specific Registration (PSR) Policy: Pesticides," *Trade Memorandum* T-1-232 (8 September 1980) at 1.

250. Ormrod, *ibid.* at 71-72.

251. *Ibid.* at 72.

252. *Canada Gazette, Supplement: Regulatory Agendas* (28 May 1983) at 69.

253. Ormrod, *supra*, note 249 at 72-73.

data requirements for new sources of old active ingredients as so onerous that no new sources have been accepted since the inception of the PSR programme in 1980.[254]

The PSR policy has not been without other problems as well. First, the policy has clear implications for proprietary data ownership and protection which are not addressed by the Act or by the policy itself. As a result, current "deficiencies" in the policy with regard to this matter are now being evaluated.[255] A second related concern is that to the extent that PSR duplicates work already done on a chemical, it is an exercise that wastes both industry's and government evaluators' time. Compensation for the use of similar data might be both a more effective and a more equitable device to address the problem.[256] However, Agriculture Canada is not actively considering this approach.[257]

Finally, Agriculture Canada may be moving to register active ingredients in their technical state, that is, before formulation. Currently, pesticides are regulated as formulated or "finished" products. This limits the ability of the Department to deal directly with primary producers of the active chemical who hold key information essential to an assessment of safety, such as the presence of contaminants or impurities (for example, dioxins) in the technical material.[258] In future, therefore, registration of active ingredients in their technical state could occur at the time they are imported into Canada.[259] Because there are very few pesticide manufacturers in Canada,[260] obtaining chemical specifications on imported technical products is considered important in strengthening direct regulatory control of the registration process.[261]

In the registration process itself, the federal government indicates that other government departments receive copies of the supporting scientific data submitted by the applicant and are requested by Agriculture Canada to review and comment on the material.[262] These departments include Health and Welfare Canada,[263] Environment

---

254. Agriculture Canada, *supra*, note 248 at 2-3.

255. *Supra*, note 252.

256. See, for example, the United States *Federal Insecticide, Fungicide and Rodenticide Act*, 7 U.S.C., ss. 136 (1978), s. 3(c)(1)(d) [hereinafter US *FIFRA*]. These provisions have generally been upheld in the courts. See *Ruckelshaus* v. *Monsanto Co.* (1984), 14 E.L.R. 20539 (U.S.S.C.) [hereinafter *Ruckelshaus*].

257. Ormrod, *supra*, note 59.

258. *Supra*, note 252 at 65.

259. Interview with Dr. Frank Cedar, Agriculture Canada, by Clare M. McLellan, Research Officer, Law Reform Commission of Canada, Ottawa (21 April 1983).

260. *Ibid.*

261. *Supra*, note 252 at 65.

262. Agriculture Canada, Environment Canada, Fisheries and Oceans Canada, Health and Welfare Canada, *Pesticide Use and Control in Canada*, revised for the CCREM Meeting of 29, 30 September and 1 October 1981 (Ottawa: Government of Canada, September 1981) at 5.

263. Health and Welfare Canada interests include assessment of potential health hazards from occupational and bystander exposure and from residues in food resulting from proposed new uses and existing uses of pesticides. See *ibid.* at 22.

Canada[264] and Fisheries and Oceans Canada.[265] However, there is no legal requirement for other government agencies to receive copies of scientific data for review. While these departments provide advice on matters of expertise not otherwise possessed by Agriculture Canada, the final decision on whether to register a product rests with the Minister of Agriculture.[266]

The relationship between Agriculture Canada and Health and Welfare Canada respecting pesticide review under the Act has been formalized by an interdepartmental memorandum of understanding,[267] though not by formal recognition under the Act itself.[268] Other proposed interdepartmental memoranda of understanding may soon also acknowledge the role and responsibilities of the other federal agencies in the process, but are unlikely to change the statutory authority for final decision making under the Act.[269] Indeed, federal and provincial agencies have recently adopted the position that the registration process should remain with Agriculture Canada but the role of the other federal departments in the process should be increased.[270] This position statement comes at a time when Agriculture Canada has been faced with calls for the removal of the Act from its sole authority, by a coroner's jury,[271] federal advisory consultants,[272]

---

264. Areas of concern for Environment Canada in the pesticide review process include: aquatic ecosystems; wildlife, especially birds; other non-target biota; the efficacy of the pesticide in reducing the damage caused by economically important forest insects and diseases or in managing undesirable vegetation; the potential of the pesticide for contamination of the environment; and the adequacy of disposal instructions provided on the labels. See *ibid.* at 21.

265. Fisheries and Oceans Canada interests include the effects of pesticide on fish and other non-target aquatic organism and fish habitats. *Ibid.*

266. See, e.g., *PCP Regulations*, s. 18.

267. Agriculture Canada and Health and Welfare Canada, "Memorandum of Understanding between the Department of Agriculture and the Department of National Health and Welfare concerning the Regulatory Control of Agricultural Chemicals" (December 1982) at 1. The memorandum notes that Health and Welfare Canada has "broad responsibility for protection of the health of Canadians, and specific responsibility to act as the principal health adviser to other federal departments and agencies on all occupational and public health matters," and Agriculture Canada has "broad responsibilities concerning the promotion of a dependable food supply and an economically healthy agricultural industry."

268. Formal recognition of Health and Welfare Canada in the Act was proposed in 1980 but never acted upon. See, correspondence from Pamela A. McDougall, Deputy Minister, Health and Welfare Canada, to Gaetan Lussier, Deputy Minister, Agriculture Canada (16 July 1980).

269. See, e.g., Agriculture Canada and Environment Canada, "Memorandum of Understanding concerning the Regulation of Agricultural Chemicals" (December 1982) (Draft).

270. CCREM, *Position on Registration and Use of Pesticides*, adopted by the Council at its Annual Meeting on 29 September 1982 (Toronto: CCREM, November 1982) at 1.

271. See British Columbia Coroner's Office, *supra*, note 29, Verdict at 3. As part of an inquest finding of preventable homicide in the pesticide poisoning of a British Columbia farm worker, a coroner's jury recommended that responsibility for registering pesticides should be transferred to Health and Welfare Canada and Environment Canada.

272. See Hall, *supra*, note 8 at 39.

public health groups[273] and environmental groups[274] as a result of the Department's perceived conflict of interest as both a promoter of food production and protector of the public from unsafe pesticides and practices. The situation parallels the experience in the United States in the late 1960s when federal pesticides law was still administered by the United States Department of Agriculture.[275]

Apart from this concern, a number of other issues arise with respect to the registration process, including: the adequacy of testing requirements; the meaning of the regulatory standard of "unacceptable risk"; temporary and research registration exemptions; and the role of the public in the process.

(a) *Adequacy of Testing Requirements and Practices*

Two areas of pesticide testing required by the federal government under the Act and regulations deserve special consideration: animal toxicological testing, and environmental toxicological testing.

With respect to animal toxicological testing, the federal government requires extensive data in order to evaluate a new pesticide proposed for registration under the Act.[276] Animal tests used to determine the safety of a pesticide for human health include studies on acute toxicity,[277] as well as short-term,[278] long-term,[279] and special effects.[280] Both the active ingredient and the formulated control product are tested in order to determine whether the inert ingredients have an effect on the toxicity of the

273. A unit of the City of Toronto's Public Health Department recommended in 1982 that "responsibility for pesticide registration be transferred to Environment Canada, with the Departments of Health and Welfare and Agriculture as consulting agencies." See *Submission on Captan to the Consultative Committee on IBT Pesticides* (Toronto: DPH, February 1982) at 20, 23.

274. See West Coast Environmental Law Association (WCELA), *A Critique of the Pest Control Product Registration Procedure*, submission to the Consultative Committee on IBT Pesticides (Vancouver: WCELA, March 1982) at 3.

275. See U.S., Dept. of Health, Education and Welfare, *Secretary's Commission on Pesticides and Their Relationship to Environmental Health Report*, Parts I and II (Washington, D.C.: HEW, 1969) at 7. See also, William H. Rodgers, Jr., "The Persistent Problem of the Persistent Pesticides: A Lesson in Environmental Law" (1970) 70 Columbia L. Rev. 567 at 569-70. Authority for pesticide registration and control in the United States was transferred to the US EPA in 1972.

276. Agriculture Canada, Pesticides Division, "Guidelines for Pesticide Toxicology Data Requirements," *Registrants' Memorandum* R-1-211 (30 October 1981) at 1.

277. *Ibid.* at 2: Acute toxicity studies define the dosage and range of a single or multiple administration of the pesticide within a 24-hour period or less which is lethal. These include dermal and eye irritation studies and, where appropriate, no-effect levels (NOELs).

278. *Ibid.* at 2-3: Short-term studies delineate the toxic potential of the pesticide through repeated administration for less than one-sixth of the life span of the test species. The data obtained is useful in elucidating problems such as possible cumulative action and variation to species sensitivity, and in identifying specific dosages for chronic studies.

279. *Ibid.* at 3: Long-term studies provide information on the maximum dosage level which produced no discernable injury to animals when administered over the major portion of the test animals' life span. They reveal effects which are not predictable from short-term toxicity studies.

280. Studies on special effects include tests for mutagenicity, teratogenicity, reproductive and exposure effects and related matters.

active ingredient.[281] The position of Health and Welfare Canada is that the onus is on the applicant to prove the safety of any pesticide proposed for use or sale in Canada.[282] Indeed, much of the safety data is generated either by pesticide manufacturers or private laboratories in other countries.[283] However, the reliability of such safety testing data was questioned by provincial advisory bodies in the late 1970s. The Saskatchewan Environmental Advisory Council stated in 1978 that there are "major deficiencies in the present research and regulatory process" regarding pesticides. The Council found that:

> At the federal level, the main regulatory bodies (Agriculture and Health) do not conduct sufficient independent research. Both Departments are forced to rely in part on laboratory tests by chemical manufacturers. It is not competence, but rather objectivity and credibility which are absent in this arrangement.[284]

Moreover, as noted above, in 1976-77 many toxicological tests performed under contract from the pesticide industry by IBT in the United States were determined to be invalid.[285] Many of these invalid tests were originally used to support, in whole or in part, the registration of pesticides in Canada, the United States and other countries.[286] From this experience, it has been argued that the United States did not have effective control or monitoring capacity over IBT, a large contract testing firm.[287] It is also clear, however, that Canada lacked a system of independent testing checks, since well over one hundred pesticides tested by IBT were able to gain registration in this country. Industry has been required to spend millions of dollars in additional funds to revalidate such tests.[288]

The experience has served to underscore the need for ensuring good laboratory practices in firms doing testing for pesticide industry registrants. In 1979, Health and

---

281. C.A. Franklin, Chief, Pesticides Division, Environmental Health Directorate, Health and Welfare Canada, "Outline of the Process of Data Evaluation for Registering a Pesticide" (Address at the CCREM Workshop on Pesticides Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 78.

282. *Supra*, note 276 at 1.

283. Curren, *supra*, note 215 at 21-24.

284. Saskatchewan Environmental Advisory Council, *Annual Report 1977-78* (Regina: SEAC, 1978) at 15. A similar problem was observed in the United States as early as 1974. See United States, General Accounting Office (US GAO), *Pesticides: Actions Needed to Protect the Consumer from Defective Products*, Report to Congress by the Comptroller General of the United States, B-133192 (Washington, D.C.: US GAO, May 1974) at 2, 25 and 26.

285. *Supra* at 13-14.

286. See, for example, the studies performed on the pesticide leptophos by IBT in 1969: IBT, *Report — Demyelination Study — Chickens*, IBT No. J7162, to the Velsicol Chemical Corporation (Oakbrook, Illinois: IBT, 29 July 1969). These studies were reported in United States Senate, *The Environmental Protection Agency and the Regulation of Pesticides*, Staff Report to the Subcommittee on Administrative Practice and Procedure of the Committee on the Judiciary, 94th Cong., 2d Sess. (December 1976) at 36-37. While leptophos was used only experimentally in the United States, and is no longer in production there, it was exported to as many as fifty countries, including Canada, between 1971 and 1976: United States Senate, *ibid.* at 42.

287. Curren, *supra*, note 215 at 22.

288. Crop Protection Institute of Canada, *Pesticides: Position Statement Update; After IBT: The Role and Reliability of Contract Testing* (Ottawa: CPIC, April 1982) at 1.

Welfare Canada entered into an inter-agency agreement with the US FDA regarding good laboratory practices, the need to establish standards or guidelines for non-clinical laboratories and the need to develop inspection programmes for such facilities.[289] Health and Welfare Canada now has its own guidelines on the subject.[290] However, these are without legal effect. Indeed, no federal legislation or regulations exist which could effectively regulate such laboratories, especially if they are outside Canada. Federal legislation, however, is now under consideration.[291]

With regard to environmental toxicology testing, it has been suggested that estimates of exposure to non-target organisms and the toxic responses of biota are not easy to make, being hampered by a lack of test protocols to estimate such exposure levels.[292] The scarcity of standard test protocols for both laboratory and field studies has been regarded as a serious impediment to the evaluation of the environmental hazards of new pesticides.[293] Federal advisory consultants argue that Environment Canada: (1) has an inadequate pesticide monitoring system; and (2) is not privy to all information in Agriculture Canada files.[294]

Indeed Environment Canada notes with respect to the latter concern that:

> Chemical companies do environmental research in order to satisfy the information requirements of Agriculture Canada for new product registration or re-registration. Much of the information supplied to Agriculture Canada is privileged and is, therefore, not generally available to research and regulatory personnel of [Environment Canada].[295]

With respect to the former concern, Environment Canada notes that it

> ... frequently directs resources to the evaluation of the fate, persistence and environmental effects of pesticides registered by Agriculture Canada to try to more thoroughly evaluate the environmental acceptability of certain pesticides where registration information has been judged by [Environment Canada] advisors to be insufficient, or when it is judged appropriate to independently verify data provided in support of the registration of a pesticide. But [Environment Canada] research resources must frequently be allocated and expended in reaction to the registration of pesticides by Agriculture Canada rather than in an integrated and planned fashion during registration review and prior to registration approval.[296]

In contrast, the pesticide industry argues that, in fact, field testing under rigidly controlled conditions is undertaken in Canada and the data produced in the tests are integrated with those developed in other tests and submitted as part of the registration

---

289. Health and Welfare Canada and US FDA, *Memorandum of Understanding on Good Laboratory Practices* (Ottawa and Washington, D.C.: HWC/US FDA, May 1979).

290. Health and Welfare Canada, *Standard For Good Laboratory Practice in Non-Clinical Laboratory Studies* (Ottawa: HWC, undated) [draft].

291. Interview with Jean Riou, Health Protection Branch, Health and Welfare Canada, Ottawa (11 July 1983).

292. Agriculture Canada *et al.*, *supra*, note 262 at 21-22.

293. Blagdon, *supra*, note 11.

294. Hall, *supra*, note 8 at vi, 20-21.

295. H.A. Hall, *The Current Involvement of Environment Canada in Pesticide Related Matters*, prepared for the Toxic Chemicals Management Centre (Ottawa: Environment Canada, March 1981) at 36.

296. *Ibid.* at 37-38.

application.[297] However, past damage to the Canadian environment has been documented and attributed to the lack of proper field testing under Canadian conditions prior to full registration.[298] Moreover, the CCREM recently urged governments to provide appropriate support for the testing of pesticides under Canadian conditions and more environmental input to the registration process, including more data for Canadian conditions.[299]

Overall, both animal and environmental toxicological testing for purposes of registration have been shown to contain gaps. The IBT affair underscores the unreliability of many human safety tests and of Canadian regulatory testing checks in the past. Whether good laboratory practice legislation, now under consideration, will fill the gaps remains to be seen. A combination of independent Canadian toxicological centres, government testing capability and reciprocal international testing protocols may also be necessary. Environmental toxicology testing controls appear to contain gaps as well, with environmental agencies arguing that insufficient consideration has been given to certain ecological parameters in the registration process, at least in some instances.[300] Resolution of these concerns may only be met if guidelines are supplemented with protocols or regulations.

---

297. CACA, "Commentary on Dr. Ross H. Hall's 'A New Approach to Pest Control in Canada'" (Ottawa: CACA, May 1982) at 6-7.

298. *Supra* at 9. Similar problems have been experienced in other jurisdictions. For example, in early 1980 in the United States, high residues of aldicarb (Temik), a pesticide used to control potato beetles, were found in domestic water wells on Long Island, New York. As a result, at least 1,000 home owners had their wells closed or contaminated to the extent that they were advised not to drink from them. It has been argued in light of this, and related examples, that consideration of groundwater contamination potential be given when pesticides are being proposed for registration for particular crop uses. Currently, section 3 of the US *FIFRA* is silent on groundwater contamination potential. See Testimony of Jacqueline M. Warren, *Ground Water Quality and Quantity Issues*, Hearing before the Subcommittee on Department Operations, Research and Foreign Agriculture of the House of Representatives Committee on Agriculture, 97th Cong., 1st Sess. (Washington, D.C.: 23 July 1981) at 23-24.

In Canada approximately 25 per cent of groundwater samples in Prince Edward Island showed residues of Temik. This province relies 100 per cent on ground water supplies as a source of drinking water. See Environment Canada, National Hydrology Research Institute Inland Waters Directorate, *Contaminant Hydrogeology of Toxic Organic Chemicals at a Disposal Site, Gloucester, Ontario* (NHRI Paper No. 23) by R.E. Jackson *et al.* (Ottawa: Supply and Services Canada, 1985).

299. CCREM, *supra*, note 270 at 5.

300. *Supra* at 51 and note 298. Recent commentary on pesticide assessment guidelines under United States federal pesticide regulations notes that: "The provisions of Part 158 [US *FIFRA Regulations*] express the new emphasis at [US] EPA ... to concentrate on the effects of pesticides on human health, assuming that if these toxins are safe for us, they will then be safe for the rest of our environment. This is a complete about-face from the original stated purpose of [US] EPA, to protect the whole environment both for its own sake and because we cannot survive safely or productively in a poisoned world." Shirley A. Briggs, Executive Director, Rachel Carson Council, Inc., *Comments on [US EPA] Document OPP-30063: Pesticide Assessment Guidelines* (Chevy Chase, Md.: RCC, 13 May 1983) at 1 and 17.

RECOMMENDATIONS

The *PCPA* or the *PCP Regulations* should be amended to require consideration of groundwater contamination potential when pesticides are proposed for registration or re-evaluation.

Health and Welfare Canada should introduce good laboratory practice legislation compatible with international principles. In conjunction with this, the federal government should establish by law an independent testing facility financed in substantial part by a tax on annual quantities of chemicals and pesticides imported, manufactured, formulated or used in Canada. Such facility should be a principal source of testing data on new pesticides and uses. Further, it should develop environmental testing data under Canadian conditions.

(b) *Unacceptable Risk of Harm*

The key criterion under which the Minister of Agriculture may refuse to register a pest control product is where he is of the "opinion" that the use of the pesticide "would lead to an unacceptable risk of harm to ... public health, plants, animals or the environment; ...."[301] It is submitted that the burden of proof arising from this section is on the applicant; he must prove the safety of any pesticide proposed for use or sale in Canada. Health and Welfare Canada, for example, takes this position with respect to who has responsibility for proving pesticide safety.[302] However, given the great scientific uncertainty that frequently accompanies determinations regarding the environmental health effects of chemicals,[303] absolute safety is not what must be shown, or indeed is being shown by applicants. Because the statutory test is so vague (the Minister must be of the "opinion"), it is arguable that there is considerable latitude for ministerial discretion in any particular case as to how "unacceptable risk" will be viewed.

---

301. *PCP Regulations*, s. 18(*d*)(ii).

302. *Supra* at 50. Certainly, a considerable evidentiary burden is placed on the applicant to produce various required studies to support a registration application. See, e.g., *PCP Regulations*, s. 9(2)(*a*)(i) to (xi). Moreover, the Minister is authorized to determine, among other things, the "safety ... of the control product" (s. 9(1)) from the information required to be submitted by the registration applicant.

303. It is often impossible to prove scientifically a causal link between specific chemicals and subsequent harm to health or the environment. The impact of the chemical may occur decades later or tens of miles away from the original release. It is even more difficult to prove future harm. See, for example, Science Council of Canada, *Canadian Law and the Control of Exposure to Hazards*, (Background Study No. 39) by Robert T. Franson *et al.* (Ottawa: Supply and Services Canada, 1977) at 55-56.

Health and Welfare Canada, in *The Testing of Chemicals for Carcinogenicity, Mutagenicity and Teratogenicity* (Ottawa: HWC, March 1983) at 2, has observed that: "The development of cancer in man usually follows a period of prolonged exposure and may, in fact, be manifested long after exposure stops. The long latent period in conjunction with the difficulty of establishing the carcinogenicity of a chemical in man, could result in a potential carcinogen being in use for many years before its activity was recognized, if it was at all."

Agriculture Canada officials, for example, state that the Department's evaluation process is partly founded on the risk-benefit principle "in its broadest sense."[304]

The standard of "unacceptable risk of harm" is not defined in the Act or regulations. Indeed, this standard only appears in the regulations.[305] As a result, there is no record of Standing Committee discussion of the possible meaning of this standard and how it is to be applied, as Parliament never had an opportunity to consider such a standard during the 1969 deliberations concerning the Pest Control Products Bill.

In contrast, under the US *FIFRA*, the threshold finding that the US EPA must make prior to exercising its regulatory authority to register a pesticide, is whether the pesticide causes "unreasonable adverse effects on the environment" (section 3(c)(5)). This is further defined by the statute to mean that the US EPA may not refuse to register a pesticide for a given use unless the risks of that use outweigh its benefits.[306] Thus, while it is clear that the US *FIFRA* requires the weighing of risk-benefit or cost-benefit considerations[307] as to whether a particular pesticide should be registered, the *PCPA* is silent on the weighing of benefits. Indeed, if one compares the standard set in this Act with the one contained in the *ECA* where the Ministers of Health and Welfare and the Environment must be "satisfied" that a substance does "or will constitute a significant danger ... to human health or the environment" before they may recommend regulation of the substance,[308] it is clear that, unlike the US *FIFRA*, neither the *PCPA* nor the *ECA* explicitly authorize cost-benefit or risk-benefit considerations in their

---

304. Ormrod, *supra*, note 249 at 74. Mr. Ormrod argues (at 74-75) that:

> "Best-balanced decisions" ... includes consideration of all the divergent interests associated with each pesticide .... [W]e must balance the pesticide's value in the control of the target pest against possible damage to beneficial insects .... We also have to consider the proper balance between human health and environmental safety in the complete range of use situations .... In a home and garden or urban setting ... health considerations are paramount ....

305. *PCP Regulations*, s. 18(*d*).

306. US *FIFRA*, s. 2(bb). The Act defines "unreasonable adverse effects on the environment" to mean "any unreasonable risk to man or the environment, taking into account the economic, social and environmental costs and benefits of the use of any pesticide."

See also U.S., House of Representatives, Committee on Agriculture, *Extension of Federal Insecticide, Fungicide, and Rodenticide Act*, Hearings on H.R. 7018, before the Subcommittee on Department Investigations, Oversight, and Research, 96th Cong., 2d Sess. (Washington, D.C.: 15 April and 1 May 1980) Testimony of Steven D. Jellinek, Assistant Administrator for Pesticides and Toxic Substances, at 173.

307. "Cost-benefit" analysis of a proposed government action, according to Treasury Board Canada, is a "systematic attempt to identify and measure *in monetary terms* all relevant social costs and benefits" of the action. [Emphasis added] Its "most obvious limitation" is the "difficulty of measuring ... social benefits." Treasury Board Canada, *Administrative Policy Manual: Evaluation Methodologies*, c. 490, App. E (Ottawa: TBC, December 1979) at 4-6.

The Manual goes on to say (at 10-12) that "risk-benefit" analysis compares the risks to life, limb or property of an activity being considered for regulation and balances them against the activity's general economic benefit.

308. *ECA*, s. 5(1).

respective regulatory decisions.[309] Agriculture Canada recognizes this with respect to the *PCPA*. For example, senior officials within the Department have testified at administrative proceedings that: "There is no obligation to balance risks against benefits, nor is there a requirement to use formal risk-benefit analysis. The emphasis of section 3 of the *PCPA* is placed on demonstrating safety."[310]

In practice, however, cost-benefit or risk-benefit approaches are finding increasing favour in the views of both industry and federal regulatory officials in Canada, notwithstanding statutory silence on the subject. The CACA regards adequate assessment of the "benefit" component of the "risk-benefit" relationship in the use of agricultural chemicals for food production, as being of "demonstrated value" and of "particular importance" to the industry.[311] The balancing of decisions based on risk-benefit, according to the CACA, includes

> [o]n the risk side ... the financial cost of chemical pesticides; any effects on non-target organisms and possible environmental or health problems that could be caused by improper use of toxic compounds. The benefit side includes the enhancement of both the quality and the quantity of food and fiber; the abundance of good food at relatively low cost and the ability of 5 per cent of the population to do this and meet [the] requirements of a large and growing export market ....[312]

Indeed, the Canadian Chemical Producers' Association (CCPA), which contains many, if not all, of the country's agricultural chemical companies, has also taken the view that regulatory controls should not be adopted on particular chemicals if the regulation's benefits do not exceed its costs; that is, there should be no regulation unless it results in a "net benefit to society."[313]

Agriculture Canada officials have stated that they would like to see "risk-benefit analysis procedures made a comprehensive, tangible, visible and routine part of the regulatory process."[314] Since 1980, Agriculture Canada has engaged in research, the objective of which is to assess the feasibility of applying the principles of risk-benefit analysis to the regulation of the use of pesticides.[315] Department officials see risk-benefit analysis as a means of "organizing and analyzing data" to provide responses to

---

309. Both statutes are silent regarding consideration of economic factors generally. The Ministers under both Acts are authorized to act on the basis of risks to human beings or the environment alone without a comparison with benefits. See *Ethyl Corp.* v. *E.P.A.*, 541 F 2d 1 (D.C. Cir. 1976) where the Court held that the test of "will endanger" in the *Clean Air Act* did not include consideration of benefits.

    See also *supra*, note 36, a recent report on Toronto's drinking water which generally recommended that drinking water regulations be based on considerations of the known public health risks alone. The report proposed (at 14) that "the primary determinants of ... standards should be the public's health ...."

310. *Alachlor Review Board Hearings* (Toronto: November 1986), Exhibit 155 at 6, witness statement of Wayne Ormrod, Director, Pesticides Division, Agriculture Canada.

311. CPIC, *supra*, note 288 at 4.

312. *Supra*, note 297 at 7.

313. Canada, H.C., Special Committee on Regulatory Reform, *Proceedings* (14 October 1980) at 18: Testimony of W.A. Neff, Assistant Technical Director, CCPA. See also CCPA, *Position Paper: Cost-Benefit Considerations in the Development of Environmental Regulations* (Ottawa: CCPA, 1980) at 4.

314. Ormrod, *supra*, note 249 at 75-76.

315. "Foreward" (1983) 18:1 Canadian Farm Economics 1.

questions surrounding both environmental health and safety effects as well as economic matters. These include such questions as:

> How many Canadians are currently exposed to the chemical and in what way? How much of the chemical under investigation are Canadians currently exposed to? How many people, if any, may be expected to develop health problems as a consequence of being exposed to the chemical? What would the economic losses be from regulatory action aimed at reducing exposure? What method of reducing exposure to acceptable level is least costly to the economy?[316]

The advantages of the risk-benefit approach, according to Agriculture Canada officials, include: (1) providing information about the likely effect of different regulatory options for dealing with a pesticide problem; (2) providing a detailed discussion of the problem and a comparison of alternate solutions; and (3) highlighting gaps in data or knowledge that limit information on which to base particular decisions.[317] The CCREM has also supported the use of risk-benefit assessments.[318] It has stated that: "[R]isk-benefit models on long-range assessments [should] be developed for Canadian conditions and the appropriate benefit and risk components [should] be defined and used in decision-making for registration and re-evaluations."[319]

Aside from the fact that the *PCPA* does not explicitly authorize risk-benefit or cost-benefit strategies, there may be strong policy concerns surrounding the question of whether the Act should be amended to allow their use, particularly in the absence of any systematic opening up of the pesticide decision-making process to the public. Some scientists have noted that while zero risk may not be attainable,

> [o]n the other hand, there are those who would attempt to marry toxicology to risk-benefit analysis in an attempt to quantify the risk posed by particular substances in the context of societal norms and the law. At the moment, the uncertainty of such calculations and the difficulty of quantifying benefits casts doubts on the validity of these techniques.[320]

---

316. Ed Dunnett, "Regulation of Pesticides and Risk-Benefit Analysis: Can It Help?" (1983) 18:1 Canadian Farm Economics 3.

317. *Ibid.* at 3. See also Agriculture Canada, *Risk-Benefit Analysis in the Management of Toxic Chemicals* (Ottawa: Agriculture Canada, August 1984).

318. *Supra*, note 270 at 1.

319. *Ibid.* at 6.

320. B.L. Smith, Food Directorate, Health Protection Branch, Health and Welfare Canada, "Global Overview of Legislation Aimed at Control of Contaminants and Pesticide Residues in Fats and Oils" (1982) 59 Journal of American Oil Chemists Society 901A at 902A. With respect to the difficulties in quantifying benefits of pesticide use see National Research Council of Canada, *Evaluation of the Biological and Economic Benefits of Pesticide Use — Strengths and Limitations for Risk/Cost/Benefit Analyses* (Ottawa: NRCC, 1985); see also Agriculture Canada *The Productivity of Agricultural Pesticides in B.C. and Eastern Canada* (Ottawa: Agriculture Canada, September 1985) at 59-61.

In the United States, the National Cancer Institute reported in 1979 to the US FDA that: "Although an attractive idea, quantitative risk assessment involving extrapolations from animal data is not yet sufficiently developed to be used as a primary basis for regulating human exposure to carcinogens. Although we are correct in concluding qualitatively that animal carcinogens are potential human carcinogens, quantitative extrapolations involve potentially large errors, some of which could underestimate the actual human risk from exposure. Scientific knowledge is currently insufficient to lend precision to this process." See "NCI Draft Memorandum to FDA on Use of Animal Data in Cancer Risk Assessment" (1979) 8 Chemical Regulation Reporter 274 at 275.

Moreover, risk-benefit or cost-benefit approaches may have other problems associated with their use as decision-making tools besides difficulties in estimating or quantifying risks. These problems are: the delayed effects of many toxic chemicals, including pesticides, which cannot be taken into account; the lack of epidemiological data; the need to measure small effects on large populations; the equity problem, namely, that risks and benefits are not evenly distributed among members of society; the difficulties in quantitatively extrapolating animal testing data to human beings; and the introduction of value-laden assumptions which nonetheless appear to be neutral.[321] One observer has commented that:

> It would be relatively easy to redesign the process for making decisions about pesticides to incorporate more detailed, systematic and quantitative assessments of risks and benefits. Efforts to improve the information base, or to devise more sophisticated flow charts to govern interactions among government officials, would no doubt make the decisions which emerged appear more "rational." However, the basic question of the legitimacy of the processes by which pesticide decisions are made would remain unaddressed. Present decision-making frameworks allow those outside the charmed government–industry circle to become involved in the value-laden enterprise of weighing risks and benefits, if such involvement is possible at all, only at extreme cost. It is the fundamentally closed nature of that decision-making process which must be addressed in the course of improving risk decisions.[322]

Agriculture Canada decisions also extend to considering such factors as mutagenicity and carcinogenicity of pesticides.[323] Yet, the views of Agriculture Canada may well vary from those of, for example, Health and Welfare Canada. As federal health officials note:

> Because they serve different clienteles, and have necessarily different perspectives, all government departments may not look at a risk in the same way. For example, perceptions about the risk from pesticides may be different if considered by an official in a Health Department than if considered by someone whose primary concern is the need to produce more food. Yet, both viewpoints may be valid.[324]

However, only Agriculture Canada makes the registration decision under the *PCPA*. Thus, even though the CCREM has requested that Health and Welfare Canada

---

321. U.S. Senate and House of Representatives, *Risk-Benefit Analysis in the Legislative Process: Summary of a Congress-Science Joint Forum*, prepared by the Congressional Research Service, Library of Congress for the House Subcommittee on Science, Research and Technology of the Committee on Science and Technology and the Senate Subcommittee on Science, Technology, and Space of the Committee on Commerce, Science and Transportation, 96th Cong., 2d Sess. (March 1980) at 3-6.

    Similar problems have been identified with respect to cost-benefit analysis. U.S., House of Representatives, *Cost-Benefit Analysis: Wonder Tool or Mirage*, Report together with Minority View by the Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce, 96th Cong., 2d Sess. (December 1980) at 1-36.

322. Schrecker, *supra*, note 33 at 31.

323. See, e.g., Hall, *supra*, note 295 at 35.

324. I.C. Munro, A.B. Morrison and L. Bradshaw, Health Protection Branch, Health and Welfare Canada, "Risk and the Government Process," in *Risk: A Symposium on the Assessment and Perception of Risk to Human Health in Canada: Proceedings* (Toronto: Royal Society of Canada/Science Council of Canada, October 1982) at 187.

set down its policy on ways to limit environmental exposure to proven carcinogens,[325] it may well be more important to know what is Agriculture Canada's cancer policy with respect to pesticides.

The establishment of a cancer policy has occurred in other jurisdictions. In the United States, key federal public health regulatory agencies have articulated methods for identifying carcinogens and assessing the dangers they pose to human beings. The policy statement confirms the use of data on animals fed the test substance at a dose rate exceeding expected human exposure as a valid indicator of the substance's cancer potential.[326] The policy statement also concludes that it is "currently unreliable to predict a threshold below which human population exposure to a carcinogen has no effect on cancer risk."[327] The policy statement further sets out the priorities for regulating carcinogens[328] and the bases for considering regulatory action under various federal statutes.[329]

Recently, however, United States Congressional investigating committees have argued that the US EPA, under the US *FIFRA*'s risk-benefit requirements, has changed the scientific principles underlying its risk assessment of carcinogenic pesticides, resulting in an approach that permits greater exposure to cancer-causing agents. The committee notes that:

> When balancing risks and benefits, [US] EPA has decided to accept as tolerable a level of risk 10 to 100 times higher than routinely accepted in the past. More significant, however, is that the Agency's use of [certain] approaches to decision-making appears systematically slanted towards less stringent regulation of suspected carcinogens.[330]

The committee further notes that the key changes the US EPA has introduced include: a new approach to "weight of evidence" decision making in which a number of negative studies finding that a pesticide does not cause cancer may be interpreted as offsetting a positive study finding of carcinogenesis; greater emphasis on mutagenicity

---

325. CCREM, *supra*, note 270 at 12.

326. U.S., Regulatory Council, *Regulation of Chemical Carcinogens*, (Washington, D.C.: US GPO, 28 September 1979) at 6.

    See also Consumer Product Safety Commission, US EPA, US FDA and United States Department of Agriculture (US DA) Food Safety and Quality Service, "Scientific Bases for Identification of Potential Carcinogens and Estimation of Risks" (6 July 1979) 44 Federal Register 39858 at 39862-69.

    In 1980, an eighteen-agency committee in the United States that included the above agencies concluded that "established (animal) test protocols, which include administration of high test doses, sometimes by a route different than the expected human exposure route, are appropriate and scientifically valid test methods for identifying carcinogens." U.S., Toxic Substances Strategy Committee, *Toxic Chemicals and Public Protection*, Report to the President (Washington, D.C.: US GPO, May 1980) at 131.

327. Consumer Product Safety Commission *et al.*, *ibid.* at 39876. The U.S. Regulatory Council, *ibid.* at 10, noted that: "Because there is no currently recognized method for determining a no-effect level for a carcinogen in an exposed population, substances identified as carcinogens will be considered capable of causing or contributing to the development of cancer even at the lowest doses of exposure."

328. U.S., Regulatory Council, *supra*, note 326 at 11-12.

329. *Ibid.* at 13-16.

330. U.S., House of Representatives, Committee on Agriculture, *EPA Pesticide Regulatory Program Study*, Hearing before the Subcommittee on Department Operations, Research, and Foreign Agriculture, 97th Cong., 2d Sess. (17 December 1982) at 87.

data in order to classify oncogens (tumours) as epigenetic (not acting on genes) or genotoxic (acting on genes); higher levels of tolerable risks; and less concern over benign tumours.[331]

Apart from case-by-case decision making with Agriculture Canada making the "final compromises and trade-offs,"[332] it is unclear what Canada's cancer policy is, as expressed through either Agriculture Canada or Health and Welfare Canada with respect to pesticides. Health and Welfare Canada, in discussing chemical carcinogens generally, states that:

> Experience with laboratory animals has revealed that nearly all compounds that are carcinogenic in man are carcinogenic in one or several animal species even though the tumour type may not be the same in man .... However, the demonstration of carcinogenic activity in experimental animals does not necessarily mean that the chemical is carcinogenic to man under conditions of human exposure .... The regulatory approach taken to the control of these chemicals must consider not only the results of animal tests, but must incorporate a rational assessment of the benefit/cost ratios that exposure to particular chemicals entail in man.[333]

However, Health and Welfare Canada officials from the Health Protection Branch have stated that the Branch's policy is "to eliminate or reduce to a minimum human exposure to potential carcinogens ...."[334] Yet Health and Welfare Canada officials have also stated that:

> It is clear that we should be more concerned with the more potent compounds that demonstrate classical carcinogenic activity than with those that appear to act by overwhelming biochemical and physiological mechanisms and produce tumours only at near-toxic doses.[335]

It is open to question whether this statement is consistent with the "predominant view of the scientific and regulatory communities ... that proven animal oncogens (tumours) must be viewed presumptively as a cancer risk to man."[336]

In Canada, an assessment of what constitutes "unacceptable risk" is difficult, if not impossible to make, given the dearth of information on what constitutes federal cancer policy on pesticides and how such a policy should be applied in the registration process. A rationale for pesticide decision making should include the development of

---

331. *Ibid.* at 87, 88, 238.

332. Hall, *supra*, note 295 at 35.

333. Health and Welfare Canada, *supra*, note 303 at 2-3.

334. Correspondence from P.R. Bennett, Health Protection Branch, Health and Welfare Canada, to Keith MacMillan, Monsanto Canada Inc., Ottawa (12 November 1982).

335. I.C. Munro and D.R. Krewski, "Risk Assessment and Regulatory Decision Making" (1981) 19 Food and Cosmetics Toxicology Journal 549 at 557. Health and Welfare Canada officials in Franklin, *supra*, note 281 at 79, have also noted that: "... there is generally insufficient scientific evidence at the moment to support the concept of a NOEL for a carcinogen. There are exceptions to this, specifically the epigenetic carcinogens."

336. *Supra*, note 330 at 248.

such a policy. It is submitted that the components of a Canadian carcinogens policy should include:

— a definition of carcinogenic chemicals (for example, those chemicals which have been shown to cause cancer in two well-controlled animal experiments using different rodent species, or in human beings);

— a discussion of how standards for carcinogenic chemicals should be set; and

— a role for the public in the decision-making process.[337]

In conclusion, notwithstanding the great uncertainty that appears to circumscribe attempts to quantify the risks and benefits of the use of pesticides, the federal government appears committed to such an approach in the *PCPA* decision-making process. Whether risk-benefit analysis will be implemented through amendments to the Act and regulations is unclear; whether authority to proceed exists in the absence of amendments is also unclear. A key to whether this or a related approach will meet with broad national acceptability may turn on the inclusion or omission of statutory procedures for systematically involving the public. The better view, given the uncertainty in such an approach, appears to be that, if used, risk-benefit analysis should not be a final decision-making tool from which no redress is possible.

RECOMMENDATION

The federal government should outline in detail and publish a cancer decision-making policy that is consistent with federal statutory mandates under the *PCPA*, the *FDA* and the *ECA*. This policy should deal with mutagenic and teratogenic effects of regulated substances as well. The components of a Canadian carcinogens policy should include:

(a) a definition of carcinogenic chemicals (for example, those chemicals which have been shown to cause cancer in two well-controlled animal experiments using different rodent species, or in human beings);

(b) a discussion of how standards for carcinogenic chemicals should be set; and

(c) a role for the public in the decision-making process.

---

337. In a report on Toronto's drinking water, *supra*, note 36 at 14, the City of Toronto's Department of Public Health recommended that there should be a policy for carcinogens in drinking water consisting of the following: that the use of "no observed effects" levels for setting standards be confined to non-carcinogenic chemicals in drinking water; that there be a zero level of exposure to carcinogenic chemicals, where possible. Where this is not possible, exposure levels should be set using risk assessment.

(c) *Departures from Full Registration Requirements: Research Exemptions and Temporary Registrations*

Under the *PCPA* there are a number of ways in which pesticides may be sold or used in Canada without having to meet the full registration requirements of the Act. These include, but are not limited to:[338] (1) exemptions for control products used for research purposes on approved premises;[339] and (2) temporarily registered pesticides where the applicant agrees to produce additional scientific or technical information on the product or where it "is to be sold only for emergency control of infestations that are seriously detrimental to public health, domestic animals, natural resources or other things."[340] These departures from the Act's full registration requirements, in terms of registration exemptions and less-than-complete data and testing, are meant to meet legitimate objectives such as the development and assessment of new pest control products[341] or the controlling of emergency pest situations. However, the possibilities exist for abuse under these categories in which the usual registration requirements intended by Parliament for pest control products may be circumvented.

Under the *PCP Regulations*, a control product is exempt from registration if "it is [intended] for use by a person for research purposes (i) on premises owned or operated by that person, or (ii) on any other premises not owned or operated by that person, if such use has been approved by the Director [of the Plant Products Division of Agriculture Canada]; ...."[342] The federal government indicates that as a result of this provision, research stations and laboratories of government departments or private companies doing work on the employing agency's research premises "are not encumbered by permit requirements" under the Act.[343] Where work is conducted off the agency's research premises, these unregistered pesticides "have already been subjected to considerable study," according to the government, "but additional information is needed on their use under practical conditions."[344] This field testing takes place under conditions that ensure that if food crops are sprayed they will be destroyed or otherwise prevented from entering food market channels. Research is only allowed to occur in forestry areas "when sufficient data indicates that no undue risk to human health or environmental quality will occur."[345]

Federal officials estimate that approximately 500 research permits were approved by Agriculture Canada in 1982, averaging 900 kilograms (1,984 pounds) of formulated product per approval.[346] The size of a treated area varies from one acre for some

338. For other exemptions see *PCP Regulations*, s. 5(*a*) and (*c*).

339. *PCP Regulations*, s. 5(*b*).

340. *PCP Regulations*, s. 17.

341. Agriculture Canada, Food Production and Inspection Branch, Pesticides Section, "Re: Control Product Research Programs," *Registrants' Memorandum* R-1-214 (7 January 1983) at 1.

342. *PCP Regulations*, s. 5(*b*).

343. Agriculture Canada *et al.*, *supra*, note 262 at 6.

344. *Ibid.*

345. *Ibid.*

346. Ormrod, *supra*, note 59.

agricultural experiments, to 500 to 5,000 acres for the largest areas, usually involving forestry uses. Because the data base for a pesticide under a research permit is smaller than for a pesticide with a full registration,[347] and also because there is some indication that the numbers of research permits are increasing, federal officials admit that there is reason for concern about research permits becoming, in effect, operational permits.[348] Moreover, Agriculture Canada may not have the resources to enforce the terms and conditions for all research permits across the country.[349]

As a result of these and related concerns, Agriculture Canada proposed changes in the *PCP Regulations* with respect to control products used for research purposes. The regulations, which were to have gone into effect by January 1984[350] covered such matters as new definitions,[351] permit exemptions,[352] research permit applications,[353] refusals,[354] cancellations,[355] records and data reporting,[356] labelling,[357] sales and distribution,[358] and advertising.[359] Under this scheme different data requirements are proposed for each of three categories of research permit applications:[360] (1) new uses (that is, new rates, directions, hosts) for registered products; (2) new formulations containing previously registered active ingredients; and (3) new active ingredients or new sources never before marketed in Canada. Also of interest are proposed controls

---

347. Franklin, *supra*, note 281.

348. Ormrod, *supra*, note 59.

349. This was a concern voiced by some pesticide officials at a 1979 meeting in New Brunswick in Canadian Association of Pesticide Control Officials (CAPCO), *Report of the Thirteenth Meeting* (Fredericton, N.B.: CAPCO, 15-16 November 1979) at 9.

350. Agriculture Canada, Food Production and Inspection Branch, Pesticides Section, "Re: Control Product Research Programs," *Trade Memorandum* T-1-216 (1 January 1984) at 11.

351. *Supra*, note 341 at 1.

352. Paragraph 5(*b*) of the current *PCP Regulations* was proposed to be repealed. A new section will exempt a control product from registration requirements if the Minister has issued a research permit and the control product is to be used only by a qualified researcher for research purposes: *supra*, note 341 at 1-2, proposed s. 5.1(*a*), A-D.

353. Research permit applications can be for not more than three years and must include such information as will allow the Minister to determine the safety, merit and value of the research proposal: *ibid.* at 2-3, proposed s. 5.1(*b*).

354. There were six different bases proposed for refusing a research permit: *ibid.* at 3, proposed s. 5.1(*c*).

355. The Minister is authorized to cancel a research permit if he has reason to believe that any permit condition, provision of the Act or of the regulations is not being complied with or that based on information available to him, the safety, merit or value of the control product for the intended research is no longer acceptable to him: *ibid.* at 3, proposed s. 5.1(*d*).

356. *Ibid.* at 4, proposed s. 5.1(*e*).

357. Research permit control products require labelling as directed by Agriculture Canada: *ibid.* at 4, proposed s. 5.1(*f*).

358. *Ibid.* at 4, proposed s. 5.1(*g*).

359. *Ibid.* at 5, proposed s. 5.1(*h*).

360. *Supra*, note 350 at 2-7.

over the total land areas that may be treated under any one permit[361] and the authorization for multiple year research permits.[362]

The proposed regulations, when read in their entirety, constitute a substantial increase in potential regulatory control over research permit use over what has hitherto existed under federal law.[363] However, as of April 1985 these regulations had not been promulgated.[364] Whether the proposal will give federal officials a desirable level of regulatory control or whether problems will persist, remains to be seen.

Current regulations under the *PCPA* also authorize the granting of temporary registrations for one year, provided the applicant agrees to supply additional scientific or technical information as requested, or where the need exists for emergency control of pest infestations.[365] Where a temporary registration is refused, it now appears that an applicant can trigger a hearing before a review board established under the regulations.[366] Federal officials indicate that approximately 150 temporary registrations are issued a year.[367] Although pesticides covered by a temporary registration are supported by more data than those covered by a research permit, certain data are still lacking.

Since 1980, federal government policy has been that temporary registrations will not be advanced to full registration status in certain situations, including those where such pesticides are supported by IBT data, unless Health and Welfare Canada provides written agreement to such extension.[368]

This does not mean, however, that pesticides with temporary registrations supported, in whole or in part, by IBT data will not continue to be able to receive temporary registration approval. For example, in 1981 a CCREM Task Force was established to look into ways and means of improving and speeding up the registration process of pesticides in forest management.[369] In targetting a number of pesticides as having high priority for early registration, the Task Force prepared a resolution for the consideration of forestry ministers requesting that they seek approval of these pesticides from the federal government by early 1983. In responding to these requests, the then

---

361. *Ibid.* at 4.

362. As outlined *ibid.* at 4, permits for up to three years may be granted. However, they may be cancelled at any time if new information becomes available. Also annual reports regarding the previous year's results must be sent to the Department, failure to report being a ground for permit cancellation.

363. In *ibid.* at 4, the Department notes, for example, that "[a]ny attempt to use the research permit privilege for test marketing or for large-scale operational programs with an unregistered product to circumvent registration delays ... may be considered a violation of the ... Act and will not be tolerated."

364. Correspondence from Wayne Ormrod, Director, Pesticides Division, Agriculture Canada to Toby Vigod, Ottawa (22 April 1985).

365. *PCP Regulations*, s. 17. Terms and conditions may also be required under this section.

366. *Monsanto Canada Inc.* v. *Minister of Agriculture* (23 January 1986), Toronto T-669-86 (F.C.T.D.), Cullen J. [unreported].

367. Ormrod, *supra*, note 59.

368. Agriculture Canada, *supra*, note 249 at 2.

369. CCREM, *Minutes of Annual Meeting* (Toronto: CCREM, September 1982).

federal Minister of Agriculture, the Honourable Eugene F. Whelan, noted that one of the pesticides involved, Orthene, "has had a temporary registration for forestry use for several years, including 1982."[370] Federal Minister of Health and Welfare at the time, the Honourable Monique Bégin, in her response to these same requests, stated with respect to Orthene that "this chemical is supported by pivotal (major) invalid IBT data including a three generation reproduction study" and that replacement studies would not be in until late 1982 or early 1983.[371] Thus, while temporary registrations for pesticides relying on invalid IBT data may not be expanded to full registration, the example suggests that such pesticides may retain their temporary registration status. If temporary registrations are renewed for several years in a row it is arguable that this constitutes a back door to full registration for less than completely evaluated products.[372] Moreover, pesticides that have at one time been temporarily registered have been the subject of negligence actions for inadequate testing.[373]

The use of similar departures from full registration requirements is not unique to Canada. Other jurisdictions, such as the United States, also authorize a number of routes to the sale and use of pesticides that have not gone through a full registration procedure.[374] Only the full registration provision under US *FIFRA* provides that the complete range of health and safety test requirements will be met.[375] A 1982 staff report of a United States House Agriculture subcommittee, however, documents the extent to which the full US *FIFRA* registration system has been avoided through the use of "emergency" exemption authority and related techniques. From 1978 to 1982, for example, annual emergency exemptions grew 430 per cent (165 to 727).[376] The staff report characterized this as a "marked upward trend" in the use of approaches that were not intended to substitute for full registration.[377] Earlier Congressional investigations suggested that these approaches were being used as vehicles for circumventing the safety evaluation requirements of full registration.[378]

The use of less-than-full registration approaches for pesticides has a number of arguments in its favour, including the development of new products and uses, as well

---

370. Correspondence from the Honourable Eugene F. Whelan, then federal Minister of Agriculture to the Honourable J.E. Miller, Alberta Minister of Energy and Natural Resources, Ottawa (1 November 1982).

371. Correspondence from the Honourable Monique Bégin, then federal Minister of National Health and Welfare to the Honourable Neil Hardy, Chairman, CCREM, Ottawa (26 October 1982).

372. This concern has been voiced in the United States as well where a Congressional investigating body concluded that: "[U.S.] EPA should discontinue the practice of [repeatedly] granting [registration] exemptions for non-emergency uses." US GAO, *Special Pesticide Registration by the Environmental Protection Agency Should Be Improved*, Report to Congress by the Comptroller General of the United States, CED-78-9 (Washington, D.C.: US GAO, January 1978) at 34. This problem was found to be continuing three years later: US GAO, *supra*, note 3 at 31.

373. *Willis*, *supra*, at 33.

374. US *FIFRA*, s. 3(c)(7) (conditional registration); s. 5 (experimental use permit); s. 18 (emergency registration); s. 24(c) (special local needs registration).

375. US *FIFRA*, s. 3(c)(5).

376. U.S., House of Representatives, *supra*, note 330 at 115.

377. *Ibid.* at 83.

378. US GAO (1978), *supra*, note 372 at 36-37; US GAO (1981), *supra*, note 3 at 31-32, 34.

as the control of emergency outbreaks of damaging pests. However, the possibility exists for misuse of such procedures in attempts to avoid registration delays and provision of full environmental health and safety tests.[379]

RECOMMENDATION

The *PCPA* or the *PCP Regulations* should be amended to specify the criteria the Minister must use in granting temporary registrations, including the information that must be submitted in support of such an application and the number of renewals permitted. Opportunity for notice and public comment should also be required, including public availability of health and safety data in support of such applications as well as applications respecting research permits.

(d) *The Role of the Public in the Registration Process*

The *PCPA* is silent on the role of the public in the registration process for new pesticides. The effect of this statutory silence is to lock out the public from Agriculture Canada's registration decision making. Public notice of a registration application for a new product or use is not required under the Act, nor is public access authorized to safety tests relied on to support the registration application. While a pesticide company is statutorily guaranteed an administrative appeal if a pesticide registration application is denied,[380] no such right is provided to the public when a registration application is granted. This anomalous, if not unfair, situation has parallels in other jurisdictions.[381]

Environmental groups have sought to redress this imbalance by recommending that the federal government amend the Act to permit citizen involvement in the registration

---

379. A March 1984 report to the federal Minister of Agriculture noted that: "a system of temporary or emergency registration is easily misused to circumvent the full assessment now done before registration." L. Salter and W. Leiss, *Consultation in the Assessment and Registration of Pesticides: Final Report and Recommendations to the Minister of Agriculture*. (Ottawa: 31 March 1984) at 10.

380. *PCP Regulations*, s. 23-25.

381. The US *FIFRA*, for example, requires a notice to the public of any application for a pesticide registration involving a new active ingredient or use. The notice provides for a thirty-day comment period. See US *FIFRA*, s. 3(c)(4). The US EPA, however, is not required to disclose the data that support the registration application until thirty days after the decision to register has been made: US *FIFRA*, s. 3(c)(12). Under the US *FIFRA*, only an applicant denied a registration has the right of appeal: US *FIFRA*, s. 3(c)(6), s. 6.

Environmental groups in the United States have pointed out the inconsistencies in the statute's treatment of applicants as opposed to the general public. They have proposed amendments to the Act. See: Testimony of Albert H. Meyerhoff and Jacqueline M. Warren, Natural Resources Defence Council, *Reauthorization of the Federal Insecticide, Fungicide and Rodenticide Act*, Hearing before the Subcommittee on Agricultural Research and General Legislation of the Senate Committee on Agriculture, Nutrition and Forestry, 98th Cong., 1st Sess. (Washington, D.C.: 24 May 1983) at 12-13.

process.[382] The rationale for greater public involvement in the pesticide registration process arises from the fact that members of the public are exposed to many pesticides through spraying procedures, possible contamination of water supplies, residues on grains, fruits, vegetables and other foodstuffs, and therefore also to potential risks to their health. Many of these risks are involuntary, for example, pesticides in drinking water. Because the public is exposed to risks from pesticide exposure, they have a right to be involved in the decision-making process respecting whether, and on what terms, these products may be registered. Some groups have argued that this is particularly necessary to restore public confidence in the registration procedure in light of events such as the IBT scandal.[383]

In addition, in order for the public to participate meaningfully in such proceedings intervenor funding would be necessary.[384] However, government representatives considered public involvement at the 1982 CCREM meetings and gave little or no support to allowing the public a stronger role in the registration process for new pesticide products.[385]

RECOMMENDATION

The *PCPA* or *PCP Regulations* should be amended to provide for public notice of registration applications for a new product or for significant new use and re-evaluation of older chemicals. The *PCPA* or *PCP Regulations* should be further amended to provide for: public access to health and safety tests relied on in support of a registration application or a re-evaluation of an older chemical; a sixty- to ninety-day comment period; and a right to request a hearing before a board of review prior to a pesticide registration application's being granted. Appropriate safeguards to prevent frivolous hearing applications should be included.

(2) The Re-evaluation Process: The Problem of Ensuring the Safety of Existing Pesticides

Once a pesticide is registered under the *PCPA*, it retains its registration for a five-year period that may be renewed upon application to the Minister.[386] At any time during this period a registered pesticide may be subject to re-evaluation. According to

---

382. Daniel Green, La Société pour vaincre la pollution, on behalf of Canadian Environmental Non-Governmental Organizations (ENGOs), "Reflections and Recommendations on Pesticide Management in Canada," in Canadian Environmental Advisory Council, *Report of a Meeting between the Public Interest Groups and the Canadian Environmental Advisory Council* (Report No. 9) held 26-27 May 1980 (Ottawa: CEAC, April 1981) at 71.

383. WCELA, *supra*, note 274 at 5.

384. The Alachlor Review Board established in November 1985 has made funding available for intervenors in that matter. See Alachlor Review Board, *Guide to Parties* (Toronto: December 1985)

385. CCREM, *supra*, note 270 at 5.

386. *PCP Regulations*, s. 14.

Agriculture Canada officials re-evaluation is "a re-review of the registered uses of a pesticide chemical and the data supporting those uses."[387] The authority for re-evaluation is found in the regulations which direct that:

> During the period of registration of a control product, the registrant shall, when requested to do so by the Minister, satisfy the Minister that the availability of the control product will not lead to an unacceptable risk of harm to
>
> (*a*) things on or in relation to which the control product is intended to be used; or
>
> (*b*) public health, plants, animals or the environment.[388]

Re-evaluation may correspond with the five-year expiry of a registration or it may be carried out for a group of pesticides used for the same pest problem.[389] Unlike the review and registration of new products, re-evaluation involves pesticides that "have generally been on the market for some time, perhaps 20 years or more."[390] Federal officials suggest that two factors generally trigger the re-evaluation process for existing registered pesticides: (1) a new study showing potential problems not previously recognized; or (2) the need to bring the data base up to date for a long-registered pesticide.[391] The Department notes that: "Inevitably the data available on these chemicals do not meet current standards. In fact, requirements have changed so drastically in recent years that even products registered five years ago would probably not make it through the current review-process."[392]

Many of the same issues that attach to the registration process also apply to re-evaluation: the adequacy of data and testing on a product;[393] decision making with respect to determining acceptable risk;[394] and the role of the public.[395] Special problems, however, also affect the re-evaluation process. These include: (1) the slow rate at which the federal government is tackling the re-evaluation of pesticides as exemplified by the

---

387. J. Taylor, Associate Director, Evaluation Section, Food Production and Inspection Branch, Agriculture Canada, "Re-evaluation Process of Registered Compounds" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 121.

388. *PCP Regulations*, s. 19.

389. Blagdon, *supra*, note 11.

390. Taylor, *supra*, note 387.

391. Ormrod, *supra*, note 59.

392. Taylor, *supra*, note 387.

393. Blagdon, *supra*, note 11.

394. As noted above (*supra* at 55), Agriculture Canada has, since 1980, been assessing the feasibility of applying risk-benefit analysis principles to pesticide regulation. See, for example, Ronald Krystynak, "An Economic Assessment of 2,4-D in Canada: The Case of Grain" (1983) 18:1 Canadian Farm Economics 7 at 25 (Draft).

    It is interesting to note, however, that in other jurisdictions investigators have found that estimates of benefits in studies of this type may mislead agency decision-makers and the public. See US GAO, *Delays and Unresolved Issues Plague New Pesticide Protection Programs*, Report to Congress by the Comptroller General of the United States, CED-80-32 (Washington, D.C.: US GAO, February 1980) at 44-49.

395. Where proposals have been made for the public to be provided the opportunity for a stronger role in the re-registration process for pesticides already on the market, government agencies have given only a low level of support to such recommendations. See CCREM, *supra*, note 270 at 5.

small number of such products subject to the process to date; (2) difficulties in establishing a procedure for prioritizing or determining which pesticides to review first; and (3) problems in the federal government's regulatory programme occasioned by the IBT falsification of safety data on many already registered pesticides.

(a) *Slowness of the Re-evaluation Process*

The general procedure Agriculture Canada follows is to announce to registrants its intent to re-evaluate a pesticide, request old or new data on the chemical from the industry, review the data with other federal departments and determine what data gaps exist, develop regulatory action proposals for the chemical, seek provincial input on these proposals, as well as industry response, and develop an eventual timetable for implementation of the regulatory changes.[396] However, as of mid-1982, only 45 of the approximately 600 existing active ingredients in pesticides had been re-evaluated or were undergoing re-evaluation.[397] These include the phenoxy herbicides,[398] chlorophenols[399] and fumigants.[400] Re-evaluations in the 1960s and early 1970s included reviews of the organochlorine pesticides, and pesticides which contained arsenic or mercury.[401]

According to federal officials, the federal government is capable of taking on only ten to fifteen chemicals a year in the re-evaluation process.[402] Even assuming that re-evaluations for each chemical can be completed within one year, and that no new chemicals are registered, it would appear that it will take approximately 37 to 55.5 years for the federal government to complete the re-evaluations of just the remainder of the currently registered active ingredients.

Concern over the slowness with which the re-evaluation process is proceeding has been expressed by many federal officials. Some Health and Welfare Canada officials have suggested that: "A more vigorous cyclical re-evaluation of all registered pesticide products should be pursued ...."[403] They have suggested a five- or seven-year cycle so that industry would keep its testing and data base more current.[404] Other federal officials have noted that:

---

396. Taylor, *supra*, note 387 at 121-22.

397. *Ibid.* at 125.

398. See, e.g., Agriculture Canada, Pesticides Division, "Re-evaluation of Products Containing 2,4-D, 2,4,5-T and Fenoprop," *Registrants' Memorandum* R-1-201 (29 August 1980) and *Trade Memorandum* T-1-236 (30 April 1982).

399. See Agriculture Canada, Pesticides Division, "Changes in the Regulatory Status of the Chlorophenols," *Trade Memorandum* T-1-229 (28 November 1980) at 1-2.

400. See, Taylor, *supra*, note 387 at 123. See also Agriculture Canada, Pesticides Division, "Re-evaluation of Fumigants," *Registrants' Memorandum* R-1-204 (27 October 1980).

401. Taylor, *ibid.*

402. Ormrod, *supra*, note 59.

403. Franklin, *supra*, note 281 at 81.

404. Interview with C.A. Franklin, Chief, Pesticides Division, Environmental Health Directorate, Health and Welfare Canada, Ottawa (28 June 1983).

> The basic philosophy of Canadian registration procedures is that registration is granted when the scientific evidence warrants this step, and that the status is continued unless scientific evidence warrants a change. A valid criticism of the procedure may be that re-evaluation of the registered products is not carried out sufficiently frequently, having regard to the greatly improved toxicological information that is generated by modern testing procedures compared with the information that was considered adequate at the time of registration of some of the longest-registered products ....[405]

In fact, in 1979 Agriculture Canada officials admitted that: "Progress on re-evaluation has been slow due to priority being given to the evaluation of new actives and uses" as well as related matters.[406]

(b) *Difficulties in Prioritizing Pesticides for Review*

A further concern of federal officials is how priorities are set for which pesticides should be re-evaluated first. Agriculture Canada notes that:

> We do not now have a scheme for setting priorities. The first pesticides were chosen on the basis of our own perception of the problems and that of our advisors .... The choices now are not so obvious. In addition, without an explainable, visible scheme for setting priorities we have become vulnerable to pressures from press, environmental groups and others to jump in and re-evaluate whatever they perceive as the problem of the moment. There is no doubt that all the chemicals looked at in this crisis atmosphere were due for it but whether they were the most critical is seriously open to question.[407]

In this regard, Agriculture Canada officials have expressed strong interest in a US EPA ranking scheme, begun in the late 1970s and early 1980s, which is intended to ensure that old pesticides meet current United States standards for registration under section 3 of the US *FIFRA*.[408] The programme, known as "registration standards," involves making broad regulatory decisions at one time for a group of pesticide products containing the same active ingredient, rather than on a product-by-product basis. Thus, an estimated 600 standards will eventually be developed, representing most of the 35,000 currently registered pesticide products under American federal law.[409] To establish the sequence of processing the approximately 600 active ingredients through registration standards review, active ingredients that have similar uses have been clustered into 48 groups. Currently, the groups are being processed in a sequence

---

405. Dr. J.E. Brydon, Director, Contaminants Control Branch, Environmental Protection Service, Environment Canada, "Registration-Notification of Chemicals" (Address at the Canadian Environmental Law Association/Canadian Environmental Law Research Foundation Roundtable Discussions on Toxic Chemicals Law and Policy in Canada, *Proceedings*) (Toronto: CELA/CELRF, June 1981) at Appendix F3. Delays have also plagued the US EPA's efforts since the early 1970s to re-evaluate the safety of 35,000 federally registered pesticide products in the United States. See, for example, US GAO, *Federal Pesticide Registration Program: Is It Protecting the Public and the Environment Adequately from Pesticide Hazards*?, Report to Congress by the Comptroller General of the United States, RED-76-42 (Washington, D.C.: US GAO, December 1975).

406. John Scott, Agriculture Canada at meeting of CAPCO, *supra*, note 349 at 7.

407. Taylor, *supra*, note 387 at 125.

408. *Ibid.* at 125-26.

409. US EPA, Office of Pesticides Programs, *Registration Standards Program* (Washington, D.C.: US EPA, 1983) at 1.

resulting from their ranking in an equation based on production volume, human exposure and ecological exposure factors. Each cluster contains chemicals with similar uses which are alternatives for each other. The US EPA sees advantages in the cluster approach as including: (1) equity to the registrant; (2) advantages to the user; and (3) expedition of the re-registration programme under the US *FIFRA*, including the Rebuttable Presumption against Registration Program (RPAR),[410] discussed below. From 1980 to April 1983, 49 registration standards had been completed.[411]

Congressional investigators, however, have noted numerous problems with the registration standards programme. These include: determining the order in which to review pesticides; developing an overall management framework; and integrating the development of standards into the US *FIFRA* re-registration programme generally, including the RPAR programme.[412] Another investigation in 1980 concluded that the US EPA had not resolved how the registration standards programme was to be implemented. This report noted the need for the US EPA to: prioritize pesticides; finalize registration guidelines; call in safety- and health-related data; obtain public comment; and establish a pesticide tracking system.[413] Generally, the programme has been found to take far longer than originally planned and has been delayed by the failure of many registrants to submit required studies promptly.[414]

At the same time, the manner in which the US EPA has been administering the registration standards programme was challenged by a coalition of environmental and labour groups in a lawsuit filed in May 1983. The suit alleged the use by the US EPA of private industry-government meetings to develop "industry-assisted pesticide registration standards" which set out the principal health and safety criteria for the registration of a particular pesticide. The suit further alleged that these closed-door "decision conferences" have been used: (1) to assess the validity of industry-submitted scientific data and (2) to draft the specific standards themselves.[415] A settlement agreement has since been entered into addressing these problems.[416]

As well, there may be other problems as Agriculture Canada officials have indicated that the United States "scheme does not place very much emphasis on known toxicological properties of chemicals or on completeness of data packages."[417] However,

---

410. US EPA, "Pesticide Chemical Active Ingredients: Proposed Registration Standards Ranking Scheme" (14 November 1980) 45 Federal Register 75488 at 75488-89.

411. US EPA, *supra*, note 409.

412. U.S., House of Representatives, *supra*, note 330 at 146.

413. US GAO, *supra*, note 394 at 11-18.

414. U.S., House of Representatives, *supra*, note 330, at 146.

415. *Natural Resources Defense Council and American Federation of Labour-Congress of Industrial Organizations* v. *United States Environmental Protection Agency and William D. Ruckelshaus, Administrator US EPA* (26 May 1983), Washington, D.C., Civ. Action No. 83-1509, Complaint for Injunctive and Declaratory Relief filed in United States District Court, District of Columbia (26 May 1983), Washington, D.C., [hereinafter *NRDC* v. *EPA*] at 9-13 [unreported].

416. *NRDC* v. *EPA*, Settlement Agreement (undated) at 1-13.

417. Taylor, *supra*, note 387 at 126.

the programme is viewed by Canadian officials as one way for Canada to solve a "dilemma" in current re-evaluation efforts here.[418]

Another regulatory approach in the United States favoured by some federal officials in Canada and applicable to the problem of pesticide prioritization, is the US *FIFRA* RPAR programme. This programme shifts the responsibility to industry to "show cause" why an existing registered pesticide should not be further restricted. Environment Canada officials regard the RPAR approach as one that would probably make Canadian re-registration and re-evaluation efforts more efficient.[419]

The RPAR (or now "Special Review", *infra* at 72) programme, introduced in 1975 by regulation under the US *FIFRA*,[420] was originally designed to screen registered pesticides to identify those whose registrations were based on obsolete or incomplete safety data standards and for which new evidence suggested they posed "an unreasonable risk to man or the environment."[421] The RPAR process commences when the US EPA determines that experimental evidence or practical experience trips a trigger calling for further assessment of whether a pesticide may cause some form of "unreasonable risk." A series of risk standards or criteria are used as "triggers."[422] If the US EPA determines that a pesticide meets at least one of the risk standards or criteria, then it publishes a notice in the *Federal Register* (the equivalent of the *Canada Gazette*) or by certified mail, announcing that those registrants who wish to maintain registration of an existing pesticide may submit evidence rebutting the presumption.[423] Rebuttals may be based on proof that the actual exposure to the pesticide does not cause the expected effects, or that the Agency's determinations that the pesticide meets or exceeds any of the risk criteria are in error.[424]

If the presumption is rebutted, the US EPA will terminate the process and will not initiate regulatory action against the pesticide. On the other hand, if the presumption is not rebutted the US EPA will undertake a risk-benefit analysis on the pesticide to use in developing different regulatory control options,[425] which can be adopted as final decisions, subject to administrative and court appeal.[426] From 1975 to 1980 the

---

418. *Ibid.*

419. Brydon, *supra*, note 405 at Appendix F3.

420. US *FIFRA Regulations*, 40 CFR, Part 162, Subpart A (registration, reregistration and classification procedures), section 162.11 (criteria for determinations of unreasonable adverse effects) [hereinafter 40 CFR 162.11].

421. US EPA, "Pesticide Programs: Registration, Reregistration and Classification Procedures" (3 July 1975) 40 Federal Register 28242 at 28253-67.

422. The risk criteria categories include: acute toxicity; chronic toxicity (oncogenic, mutagenic); other chronic effects (e.g., reproductive, birth defects, neurotoxicity, etc.); significant reductions in non-target organisms or endangered species; or lack of emergency treatments or antidotes. 40 CFR 162.11(a)(3).

423. 40 CFR 162.11(a)(1).

424. 40 CFR 162.11(a)(4).

425. 40 CFR 162.11(a)(5).

426. 40 CFR 162.11(b).

programme resulted in the cancellation of some or all uses of approximately twenty "dangerous pesticides."[427]

The programme, however, is not without its problems. Key deficiencies in RPAR appear to be that the US EPA: (1) does not quickly and thoroughly review pesticides referred to the RPAR programme; (2) does not determine which pesticides undergoing RPAR review are the most hazardous and should be reviewed first; (3) does not always have enough accurate test and monitoring data on an important component of RPAR risk assessments and exposure analysis; and (4) relies on benefits estimates that may mislead the Agency and the public because such estimates are not as precise as they appear to be.[428]

In addition, the manner in which the US EPA has been administering the RPAR programme was also challenged in the May 1983 lawsuit referred to above. The contention was that unannounced, closed-door, industry-government meetings had been used to determine whether certain already registered pesticides — suspected of causing cancer, birth defects, nerve damage and other effects — should be subject to intensive scientific review under the RPAR programme.[429] The suit further alleged that these closed-door "decision conferences" with the regulated industry have frequently been used to reach the threshold determination of whether RPAR review was necessary as well as to determine whether the particular pesticide should be restricted or banned.[430] In addition, the suit alleged that following meetings with industry representatives, several pesticides were removed from a pre-RPAR list of candidate pesticides.[431] Finally, the lawsuit alleged that the US EPA had unilaterally and without public comment adopted major changes in the criteria for assessing risk of cancer from exposure to pesticides. These changes include: tolerating a higher incidence of cancer in the human population; altering previous reliance on animal tests of carcinogenicity; and creating new categorical distinctions for carcinogens used in reaching regulatory decisions. These revised cancer criteria have been used to reach RPAR decisions, according to the lawsuit.[432]

Interestingly, recent US EPA regulatory reform proposals would merge the RPAR programme with the registration standards programme (and would rename the former "Special Review"). More importantly, key changes to the RPAR programme would involve: (1) modifying the triggers used to judge whether to issue an RPAR;[433] and (2) expanding the role of, and reliance on, negotiations with industry registrants involved in RPAR actions in order to come to quicker settlements on particular pesticides.[434] The US EPA justification for reducing the future role of RPAR is based on the view that

---

427. US GAO, *supra*, note 394 at ii.

428. *Ibid.* at 28.

429. *NRDC* v. *EPA*, *supra*, note 415 at 8-9, 13-16.

430. *Ibid.* at 13.

431. *Ibid.* at 14.

432. *Ibid.* at 16-17.

433. U.S., House of Representatives, note 330 at 280-81.

434. *Ibid.* at 280-82.

RPAR reviews have already been initiated on virtually all the older suspect pesticides, and that few "bad actors" remain. Moreover, the RPAR process is viewed as costly and time-consuming to industry registrants and the Agency. In future, the Agency expects to undertake risk-benefit reviews that were formerly done under RPAR, as part of the registration standards process itself.[435]

The principle behind the RPAR programme appears to be a sound one: where a critical standard is exceeded by an already registered pesticide, the burden shifts to the industry to show that the pesticide should not be further restricted.[436] However, the changes that are occurring or are proposed for RPAR raise unanswered questions about whether the programme, in revised form, would be valuable for federal regulators in Canada to adopt as a means of prioritizing pesticide review. To the extent that Canada is at an earlier stage in dealing with existing "bad actor" pesticides, the original RPAR principles, if not processes, appear more likely to address the prioritization problem than current US EPA actions.

RECOMMENDATIONS

The *PCPA* or *PCP Regulations* should be amended by adding a schedule that would incorporate specific timetables for cyclical re-evaluation of all registered pesticides. There should be the authority to suspend or cancel a pesticide registration if the registrant fails to comply with the timetable where the pesticide lacks scientifically valid studies respecting cancer, birth defects, mutations, neurotoxic or reproductive effects.

The *PCPA* or *PCP Regulations* should be amended to authorize the establishment of a system of prioritization for pesticide re-evaluation reviews and to screen registered pesticides to identify those registrations which are based on old or incomplete safety data and for which new evidence suggests they may endanger human health or the environment. Where a pesticide meets or exceeds a critical risk standard (for example, as a potential cause of cancer), the federal government should be required to publish a notice announcing to the relevant registrants that they must submit evidence rebutting the presumption of "unacceptable risk" or the government will proceed to apply appropriate restrictions, including suspension or cancellation.

---

435. *Ibid.* at 144-45. More recently an industry-public coalition has proposed amendments to the US *FIFRA* with respect to reregistration. "FIFRA Needs Fresh Air, Pesticide Industry Agrees" (September 1985) Multinational Monitor 7.

436. In US GAO, *supra*, note 394 at 28, the US GAO, in 1980, characterized RPAR as a "good concept" which can be made more effective.

(c) *Existing Pesticides and the Special Problems of Falsified Safety Data: The IBT Situation*

As noted above,[437] IBT, an Illinois-based commercial testing laboratory, improperly conducted many of the safety studies it had undertaken on behalf of pesticides manufacturers in Canada and the United States. The studies were conducted to support pesticide registrations as well as to establish tolerances for pesticide residues on foods in Canada and world-wide. Since 1976-77, when the fraud was uncovered in the United States, 113 pesticides have been audited by the Canadian government and new replacement studies for the invalid IBT work have been or are being prepared by manufacturers; these are in the process of being evaluated by federal officials.[438] Pesticides involved include most of the major insecticides, fungicides and weed killers used in Canada and in the production of virtually all imported foods.[439] It is estimated that the replacement studies for the fraudulent IBT testing will cost the Canadian chemical industry $1 million per chemical, or approximately $100 million.[440] In October 1983, three former IBT officials were convicted in the United States of falsifying chemical safety tests submitted to the United States government.[441]

The IBT issue raises legal and policy concerns in regard to control of existing or already registered pesticides: (1) federal decisions to allow IBT pesticides, the safety of which were suspect, to remain on the market for years while retesting proceeded; (2) the departures of Agriculture Canada from the recommendations of its fellow departments to ban or restrict the use of certain IBT pesticides whose safety remained in doubt, in some cases even after replacement studies had been performed and evaluated; (3) the doubt that remains over whether the IBT scandal constituted an aberration or whether the work of other laboratories is of concern and doubts concerning the capability of Canadian regulatory agencies to guard against similar laboratory testing breakdowns in future; and (4) the question of whether pesticide manufacturers themselves knew about the problems at IBT and the implications of this for future regulatory reliance on industry-testing results.

---

437. *Supra* at 13-14.

438. Health and Welfare Canada, "Update on IBT Pesticides," *News Release* 1983-100 (14 October 1983) at 1.

439. Canada, H.C., *Minutes of Proceedings and Evidence of the Standing Committee on Agriculture*, No. 13 (13 April 1978) at A1, Dr. T. Anstey, Senior Adviser, International Research and Development, Research Branch, Agriculture Canada.

440. Canada, H.C., *Minutes of Proceedings and Evidence of the Standing Committee on Health, Welfare and Social Affairs*, No. 4 (2 July 1980) at 28, Dr. A.B. Morrison, Assistant Deputy Minister, Health Protection Branch, Health and Welfare Canada.

441. "U.S. Lab Officials Convicted of Falsifying Chemical Tests" *The [Toronto] Globe and Mail* (26 October 1983) 3.

(i) *The Federal Decision to Allow Suspect IBT Pesticides to Remain on the Market while Retesting Proceeded*

The federal government's decision to allow pesticides which were supported in whole or in part by faulty IBT test data, to remain on the market while retesting proceeded, has been controversial.[442] In effect, it means that during the period of retesting which has taken years to do and is still proceeding, the public and the environment could be exposed to some potentially dangerous pesticides the safety of which the federal government could not assure. The federal government's rationale for this approach hinged on the concern that unless conclusive evidence of hazards existed "[p]recipitous decisions ... would lead to significant effects on the availability and cost of food as well as sharply disrupting the agricultural sector of our economy."[443]

Thus, removal from the market of some or all IBT-tested pesticides pending retesting was not adopted as a matter of policy, regardless of the type of safety data that may have been falsified or invalid.[444] Indeed, while it is arguable that Agriculture Canada's authority under the *PCP Regulations* to cancel or suspend a pesticide on the basis that "the safety of the control product or its merit or value for its intended purposes is no longer acceptable to him [the Minister],"[445] would include a situation where the data provided for registration was false, it is not entirely clear that false data alone could be a sufficient basis for cancellation or suspension. The US *FIFRA* only allows the US EPA to cancel or suspend a pesticide's use if the Agency determines that it poses an "imminent hazard" or causes "unreasonable adverse effects on the environment."[446] A 1980 US GAO investigation determined that the US EPA "does not have statutory authority to suspend or cancel registered pesticides when inspections show that the safety tests supporting the registration are not valid."[447]

The US GAO noted that the United States *Federal Food, Drug and Cosmetic Act* (US *FFDCA*)[448] does allow the US FDA to withdraw approval of a drug when it is determined that the original drug approval application "contains any untrue statement of a material fact."[449] The US GAO recommended amendments to the US *FIFRA* that

---

442. Keating, *supra*, note 52 at 1; Cox, *supra*, note 54 at 1. See also, exchange between Simon de Jong, M.P., NDP Science Critic and Dr. A.B. Morrison, Health and Welfare Canada, *supra*, note 440 at 11-12.

443. Health and Welfare Canada, "Pesticide Safety ...," *supra*, note 49 at 3.

444. For the percentage of IBT studies that were invalid with respect to cancer, birth defects, mutations and reproductive effects, see, *supra* at 13-14.

445. *PCP Regulations*, s. 20.

446. US *FIFRA*, s. 6.

447. US GAO, *supra*, note 394 at 54. The US GAO noted that:

> FIFRA does not allow EPA to withdraw a pesticide from the market solely because fraudulent or poor quality data was used to support its initial registration .... EPA can require that registrants repeat a test but, in the interim, cannot take other regulatory action, such as suspending use. Some tests take up to 3 years to complete. During this time, the public and the environment can be exposed to potentially dangerous pesticides not supported by valid safety data.

448. 21 U.S.C., ss. 301 to 392 (1976) [hereinafter US *FFDCA*].

449. US *FFDCA*, s. 505.

would authorize the US EPA to take appropriate regulatory action, including suspension, of pesticides which it later determined were not supported by valid safety tests when registered.[450] No such amendments to the *PCPA* have been proposed to date by the Canadian government.

It should be noted that the United States *Toxic Substances Control Act* requires manufacturers, processors or distributors to notify the government immediately if one of their substances or mixtures may cause or contribute to a danger to human health or the environment.[451]

It has not been lack of statutory authority to act, however, which has resulted in the Canadian government's decision to allow suspect pesticides to remain on the market while retesting proceeds. Rather, the impact on food supply and the agricultural sector of the economy have been prominent if not decisive reasons for the federal government's stance. The policy, thus adopted, suggests that over the last twenty to thirty years, Canadian agriculture has become so dependent on chemical pesticides to produce food that once some chemicals are registered and used for a period of time, they develop a virtual immunity to remedial regulatory action, in the absence of alternatives. This appears to be the case even in the face of evidence casting doubt on the validity of a significant portion of pesticide safety tests. Whether this was the result intended by Parliament in its 1969 series of amendments to the *PCPA* is seriously open to question.

RECOMMENDATIONS

Registrants should be statutorily required to notify the government immediately of studies or other evidence within their knowledge that indicate that one of their registered pesticides may cause or contribute to the endangerment of human health or the environment.

The *PCPA* should be amended to provide that the Minister shall suspend or cancel any pesticide when it is shown that material safety tests supporting the application are invalid. Such suspension or cancellation should continue until new valid tests are submitted demonstrating the product's safety.

(ii) *Departures by Agriculture Canada from Health and Welfare Canada Recommendations to Ban or Restrict Certain IBT-Tested Pesticides*

As Health and Welfare Canada has, over the past six years, audited and validated studies performed by IBT and has reviewed manufacturers' replacement studies, it has issued status reports and advisory opinions to Agriculture Canada on what regulatory action it believes is warranted under the *PCPA* for each pesticide. These

450. US GAO, *supra*, note 394 at 57. The US EPA, however, has not so amended the US *FIFRA* to date. Indeed, in US EPA, "EPA Releases Report ...," *supra*, note 50 at 2, as late as July 1983, the Agency continued to argue that the option of removing IBT-tested pesticides from the market pending retesting was "not available under the current law which requires valid evidence of risk as opposed to a lack of information before removing a product from use."

451. United States *Toxic Substances Control Act*, 15 U.S.C., s. 2607(e) [hereinafter US *TSCA*].

recommendations have included registration cancellation, use of special warning labels, retention of current registration status and related regulatory actions.[452] In turn, Agriculture Canada has advised pesticide registrants of its decisions with respect to any revisions in the regulatory status of IBT-tested pesticides.[453]

While Health and Welfare Canada recommendations have been adopted by Agriculture Canada in many instances, several key recommendations have not. These examples illustrate that health and safety are not necessarily determinative of all pesticide decisions in Canada. In the case of the herbicide Randox (allidochlor), for example, the manufacturer, Monsanto Incorporated, refused to repeat five invalid IBT tests, including pivotal (essential) rat studies on reproduction and chronic feeding.[454] As a result, Health and Welfare Canada concluded that the data on allidochlor's safety were insufficient to support its continued registration and that therefore the registration should be cancelled.[455] Agriculture Canada, however, following pressure from onion growers, concluded that the use of allidochlor was essential for onion production because there was no alternative to the pesticide. It therefore decided to continue allidochlor's registration in British Columbia, Québec and Ontario under a restricted classification system whereby growers could use the product if they obtained a special permit from provincial regulatory agencies.[456] At the time of the decision, the Honourable Eugene Whelan, then federal Agriculture Minister, stated:

> I fully appreciate the expert advice provided by Health and Welfare Canada. Health and safety of Canadians is a fundamental responsibility. But my responsibilities are broader than that. The practical realities of [this chemical's] use in Canada cannot be ignored. In the interests of arriving at a best-balanced decision, I have decided to place [it] in a restricted class. I feel it would be most unfair to deprive Canada's onion ... producers of a chemical that their competitors in the United States can continue to use.[457]

In another case in 1981, involving the fungicide captan, Health and Welfare Canada recommended, among other things, that commercial applications of captan be such that no residue remain on food at the retail level.[458] All thirteen of the original IBT studies on captan had been determined by Health and Welfare Canada, to be

---

452. See, e.g., Health and Welfare Canada, *supra*, note 438. Health and Welfare Canada has issued five updates on the IBT situation between June 1980 and October 1983. The October 1983 release (at 1-2) indicates that for 65 pesticides of the 113 under review, satisfactory alternate or replacement studies have been submitted for all invalid IBT studies. Thus, these chemicals "return to the normal evaluation procedures followed with all pesticides. New uses or extensions of use will be considered for these chemicals only when evaluation of all available safety data has been completed." To October 1983, six IBT-tested pesticides had been recommended for cancellation.

453. Correspondence from the Honourable Eugene Whelan, then federal Minister of Agriculture, to Pesticide Registrants regarding regulatory status of IBT-tested pesticides, Ottawa (4 November 1982; 12 May 1982; 9 October 1981).

454. Cox, *supra*, note 54 at 9.

455. Health and Welfare Canada, "Current Recommendations on IBT Pesticides," *News Release* 1981-119 (19 October 1981) at 1.

456. Agriculture Canada, "Pesticide Announcement," *Press Release* G-1 (5 January 1982) at 1-2.

457. *Ibid.* at 2.

458. Agriculture Canada, Consultative Committee on Industrial Bio-Test Pesticides, *Captan Report* (Ottawa: Agriculture Canada, April 1982) at ix.

invalid,[459] but valid replacement studies still indicated concern over possible effects from captan including cancer, mutations and birth defects.[460] Agriculture Canada was aware of the fact that one of the replacement studies done by captan's manufacturer indicated that the fungicide caused cancer at high feeding levels.[461] Instead of following the Health and Welfare Canada recommendations, however, Agriculture Canada established a consultative committee on IBT which was to consider "all recommendations on IBT pesticides made to Agriculture Canada."[462] The then Agriculture Minister, the Honourable Eugene Whelan, stated at the time that "[t]he economic implications of removing some of these pesticides from the market are so serious that we want the benefit of the advice of independent experts."[463] The committee's first duty, according to the Minister, was to study Health and Welfare Canada's captan recommendations "[b]ecause of scientific controversy and uncertainty involved in interpretation of test-animal cancer studies, and the importance of captan to food production ...."[464]

After three days of public hearings,[465] the committee subsequently issued a report in which it concluded that although captan caused tumours in mice, there was no evidence that it caused cancer in human beings.[466] Therefore, according to the committee, captan did not pose an unreasonable risk to human health. The committee, however, did admit that it felt "uncomfortable ... with the use of material that caused tumours in mice and mutations in bacteria and whose mode of action may be genotoxic."[467] As a result the committee recommended that captan residues, although at lower levels than previously allowed, should continue to be permitted on certain crops.[468] The federal government accepted the essential committee recommendation that residues continue to be allowed.[469]

---

459. US EPA, *supra*, note 48 at Exhibit B.

460. Health and Welfare Canada, *supra*, note 53 at 2.

461. Agriculture Canada, Consultative Committee on IBT Pesticides, *Facts on Captan* (Ottawa: Agriculture Canada, January 1982) at 2.

462. Agriculture Canada, "Consultative Committee Formed," *News Release* F-35 (20 May 1981) at 1.

463. *Ibid.* Apart from the Committee's *Captan Report*, *supra*, note 458, however, the committee approach was not retained to review any other Health and Welfare Canada recommendations. See, e.g., correspondence from the Honourable Eugene Whelan, former Minister of Agriculture to the CELA (3 August 1982), Ottawa.

464. *Supra*, note 462 at 2.

465. Consultative Committee on Industrial Bio-Test Pesticides, *Proceedings* (Toronto: 10 March 1982). Because of the time constraints on the committee, all those groups who might have wished to make oral submissions were unable to do so at the three days of scheduled hearings. Instead, the committee selected a representative number of respondents to make oral representations from each perspective on the captan issue. While this approach is understandable, it may have also resulted in key gaps in the record of the public hearing on major issues.

466. *Ibid.* at 9.

467. *Ibid.* at 14.

468. *Ibid.* at 17.

469. Agriculture Canada, "Captan Recommendations," *Press Release* G-27 (31 May 1982) at 1-2; correspondence from the Honourable Eugene Whelan, then Minister of Agriculture to captan registrants, Ottawa (14 October, 20 September and 21 July 1982).

Again, as in the allidochlor situation, economics played a key role in the decision-making process with respect to captan. A report prepared for, and relied on, by the committee on the economic benefits of the fungicide concluded that: (1) if captan were discontinued and not replaced by another fungicide, annual losses could equal $100 to $150 million per year; and (2) disruption of international trade could be significant if fruits and related crops had to be residue free as originally recommended by Health and Welfare Canada. The report also stated, however, that the significance of the disruption would obviously depend upon the precise action chosen to keep the food supply free of residues, and that the severity of the trade disruption could be "quite negligible."[470]

A distinction may be made between the ways the federal government treated the allidochlor and captan situations. While economics was a key factor in Agriculture Canada's decision with respect to both pesticides, in the captan situation the government appeared to take a new approach to risk in the distinction between tumours in animals and cancers in human beings. Agriculture Canada's use of the consultative committee perhaps highlighted this approach to risk. Health and Welfare Canada, moreover, also appears to support such an approach, as it eventually agreed to reduce, but not eliminate, captan residue levels on certain fruits.[471]

(iii) *Faulty Laboratory Safety Testing and IBT: Aberration or Tip of the Iceberg?*

Both the federal government and the agricultural chemical industry have argued that the IBT situation was an aberration and not a common occurrence in the laboratory testing of pesticides for safety. Dr. A.B. Morrison, Assistant Deputy Minister, Health Protection Branch, Health and Welfare Canada has been quoted as stating that: "It is not a common practice, I can assure you, for companies to submit falsified data .... This situation appears to have been related to problems at IBT ... something which went wrong in a particular company."[472] The agricultural chemical industry has argued that it was not "ever correct to charge that IBT was just the tip of the iceberg."[473] The industry states that:

> This rumour still persists despite the fact that, since 1979, the Food and Drug Administration in the U.S. has concluded good laboratory practice audits to ensure that standards it set in that year are met by all contract laboratories. The rumour persists in the face of the fact [that] the Director of bio-research monitoring for FDA formally stated, in June 1981, that "the laboratories in the United States and in other parts of the world that we have inspected comply with our regulations to an acceptable degree and give us confidence in the quality of their studies."[474]

---

470. E. Dunnett, Marketing and Economics Branch, Agriculture Canada, "An Economic Assessment of the Benefits of Captan Use in Canada" (1983) 18:1 Canadian Farm Economics 31-37.

471. The former Minister of Agriculture, the Honourable Eugene Whelan, noted in his correspondence to captan registrants that the regulatory changes proposed for captan were in conjunction with "tolerance reductions proposed by Health and Welfare Canada." These revised tolerances indicate that as much as 5 ppm would be allowed on as many as eleven fruits and vegetables. See *supra*, note 469.

472. In Linda R. Pim, *The Invisible Additives: Environmental Contaminants in Our Food* (Toronto: Doubleday, 1981) at 39.

473. CPIC, *supra*, note 288 at 2.

474. *Ibid.*

It would appear, however, that concern about the adequacy of testing done by other laboratories cannot be so easily dismissed. A 1979 US EPA/US FDA report revealed that deficiencies existed in the work of many laboratories reviewed.[475] A 1982 Congressional staff investigation, moreover, raised a number of concerns with both US EPA and US FDA laboratory auditing programmes. US EPA officials admitted that the Agency's audit programme is less than adequate, with only one full-time professional assigned to the programme.[476]

The Congressional investigation reported that 4 of 83 audits conducted since 1977 have produced referrals to the Justice Department for possible criminal action.[477] While the US EPA regarded this as a vote of confidence in pesticide-testing standards, the Congressional investigation concluded that more review was needed before concurring in the Agency's assertion. Except for the IBT case, the subcommittee noted that there was "no solid indication ... that any decisive regulatory or enforcement actions have been taken as a result of the laboratory audit program."[478] Subcommittee staff were advised by some US EPA officials that the Agency had been lax in carrying out follow-up enforcement actions where problems were identified, including situations where "questionable or possibly fraudulent acts by certain laboratories or companies submitting pesticide safety and health data" to the US EPA were involved.[479]

The investigation also noted that in its review of the US EPA's audit summaries it found "several serious questions about the practices followed by some laboratories."[480] These included questions about experimental practices that biased test results. Moreover, with the exception of 1978 and 1979, the Congressional investigation found that the US EPA's laboratory audit programme has not been treated as a high priority within the Agency's pesticide programme. Reliance has instead been placed on the US FDA's programme that audits a laboratory's compliance with good laboratory practices. According to the subcommittee, however, "EPA ... lacks information on how effective a deterrent the FDA audit program is against poor science in pesticide experiments."[481]

Under these circumstances, it is difficult to have complete confidence in the view that the IBT matter was solely an isolated event. United States agencies apparently cannot answer this question to anyone's satisfaction because they appear to have some serious problems in their laboratory audit programmes. Therefore, Canadian regulatory agencies, substantially dependent on United States officials to scrutinize laboratory work in the United States where most testing is done, are not likely to be in a better position to ensure that these laboratories are producing quality work. Good laboratory practice legislation is, however, under consideration in Canada.[482]

---

475. US EPA & US FDA, *Health Effects Data Quality Status Report* (Washington, D.C.: US EPA/US FDA, 19 October 1979).

476. U.S., House of Representatives, *supra*, note 330 at 202.

477. *Ibid.* at 203.

478. *Ibid.* at 204.

479. *Ibid.*

480. *Ibid.* at 209.

481. *Ibid.*

482. *Supra* at 50-51.

As a result, some groups in Canada have suggested the need for an independent testing facility, such as a Crown corporation, financed from a tax on pesticide registrants or the general chemical industry. This might also ensure greater environmental effects testing under Canadian conditions.[483]

(iv) *Industry Knowledge of IBT Practices and Future Regulatory Reliance on Industry Testing Results*

It has been the federal government's view that pesticide manufacturers did not know of the falsified nature of the data which IBT had submitted on their behalf. Dr. A.B. Morrison, Assistant Deputy Minister, Health Protection Branch, Health and Welfare Canada has been quoted as stating that: "the pesticide manufacturers involved we don't believe knew about the data being falsified or fiddled with, or distorted. They were as chagrined by this as any of us were ...."[484] Indeed, the IBT trial in the United States did not involve the prosecution of any pesticide manufacturers, only former IBT executives.

Documents entered into evidence during the IBT trial, however, suggest that some pesticide manufacturers may have known of some of IBT's activities. A 1978 audit by US EPA/US FDA officials of one of IBT's testing laboratories revealed evidence of the falsification of test results and of the client pesticide manufacturers' apparent knowledge before the results were submitted to the United States government for federal registration. The federal report stated that there was evidence, for example, that Monsanto Company of St. Louis, Missouri, was aware that extra mice were added to a cancer study done on a herbicide (Machete) in the mid-1970s. As the federal report noted:

> In some of the studies where final reports made claims for observations that weren't made, the clients were believed to have been well aware of the situation prior to their submitting the final reports to the U.S. Government. In at least one instance, the client [Monsanto] is believed to have been knowledgeable about the usage of unreported extra animals [in the study on Machete] prior to the submission of the final report to the Environmental Protection Agency.[485]

There are also recent examples of systematic industry behaviour falling short of possible fraud, that nonetheless is cause for concern. A 1982 American Congressional investigation focusing on the adequacy of industry pesticide health and safety data submitted to the United States government concluded, for example, that:

> pesticide safety and health studies submitted to the EPA, and subsequent Agency-Industry exchanges on the studies, sometimes contain highly questionable scientific arguments and

---

483. CELA and Pollution Probe, *Captan: The Legacy of the IBT Affair*, Submissions on Pesticide Law and Policy to the Consultative Committee on IBT Pesticides (Toronto: CELA/Probe, February 1982) at 15.

484. In Pim, *supra*, note 472 at 39.

485. US EPA and US FDA, *Memorandum Report on Inspection of IBT, Decatur, Ill.* (Chicago, Ill.: US EPA/US FDA, 1978) at 22. See also Kevin Cox, "Rats Ran Wild, Laboratory Report Says; Safety Tests on Chemicals Falsified" *The [Toronto] Globe and Mail* (17 November 1983) 5; and Bill Richards, "Papers from Trial of Former IBT Officers Raise Many Questions on Product Safety" *The Wall Street Journal* (13 May 1983) 31.

> inappropriate statistical procedures that are employed in order to challenge the significance and/or severity of adverse health effects observed in toxicological experiments.[486]

Interestingly, because of the IBT affair, the Congressional subcommittee noted that:

> [S]everal major pesticide manufacturers have built their own toxicology laboratories with a desire to gain complete control over the quality of experiments done on their products. Many of these laboratories have not been audited, nor has the US EPA adopted any new procedures or methods to assure compliance with good laboratory practices in registrants' testing facilities. Uneven quality and quality assurance programs persist in the toxicology testing industry. As currently administered, the EPA's laboratory audit program cannot be expected to detect deficient studies, or to produce standards.[487]

In light of these concerns, proposals for an independent Canadian testing capability with appropriate safeguards as noted above,[488] should be on the agenda for any discussion of *PCPA* reforms.

(3) Suspension and Cancellation of Pesticide Registrations: The Role of the Review Board

The registration of a pest control product may be suspended or cancelled by the Minister of Agriculture when "the safety of the control product or its merit or value for its intended purposes is no longer acceptable to him," based on currently available information.[489] Federal guidelines suggest that in practice this determination can be made whenever "the product is found to present an unacceptable risk of harm to treated crops or domestic animals, to the public health or wildlife forms or to the environment."[490]

A balancing of risk versus benefit is not authorized by section 20 of the *PCP Regulations*. Even if "benefits" are encompassed by "merit or value," these terms are excluded by section 20 from applying where a decision is made on "safety" alone. It is clear that the Minister may cancel on the basis that safety *or* merit *or* value is no longer acceptable to him. The disjunctive, "or," is controlling, since only one of those factors need be lacking for the Minister to cancel a pest control product. Therefore, while value or merit can include consideration of whether, for example, a product is herbicidally effective as a weed-killer, it is submitted that when the Minister cancels on the basis of safety, the benefits of the product are irrelevant. That is, the Minister may cancel the registration when the product appears to be unsafe, regardless of its merit or value.

Suspension of a registration is the less extreme of the two regulatory options; it affects the registrant, not the retailer or user. If the control product is only suspended, the registrant cannot distribute any further shipments of the suspended product. Material

---

486. U.S., House of Representatives, *supra*, note 330 at 193 and 199.

487. *Ibid.* at 209.

488. *Supra* at 81.

489. *PCP Regulations*, s. 20.

490. Agriculture Canada, Pesticides Division, *supra*, note 238 at 30. These essentially are the criteria found in the *PCP Regulations*, s. 18-19.

that is already at retail outlets prior to the suspension, however, may be legally sold.[491] On the other hand, cancellation of a registration, the more extreme regulatory action, affects all sources of the pest control product, from registrant to the ultimate user.[492]

Under the *PCP Regulations*, suspension or cancellation may be appealed by the registrant and a hearing requested within thirty days of a Minister's notice of intention to take one of the two regulatory actions (sections 21, 23). The Minister must appoint a Review Board to hold the hearing (section 24) and the Board must give the registrant "and all other persons who may be affected by the subject matter of the hearing an opportunity to make representations to the Board ..." (subsection 25(1)). The Board must prepare a report, recommendations and its reasons as soon as possible after the hearing and file them with the Minister and the registrant (paragraph 25(2)(*a*)), as well as send all the documents from the hearing to the Minister (paragraph 25(2)(*b*)). The Minister can, after considering the Board's report, take any action he deems advisable and notify the registrant of his decision (subsection 25(3)).

Federal officials indicate that there have been very few control product suspensions or cancellations under the *PCPA*. Most regulatory actions have been against particular uses.[493] Indeed, there have been only three instances since the 1972 *PCP Regulations* were promulgated, in which Review Boards have been empanelled to hear a matter.[494] The first occurred in 1977 when the Velsicol Corporation of Canada sought permission to use up its remaining inventory of the organophosphorus insecticide, leptophos (Phosvel),[495] in the face of federal government intent to cancel the pesticide's registration.[496] The most recent Review Board was empanelled in November 1985 to deal with an appeal by Monsanto Canada Ltd. from the decision of Agriculture Canada to cancel the herbicide alachlor.[497]

With respect to leptophos, its neurotoxicity noted above[498] dominated Health and Welfare Canada concern about its continued registration,[499] while economic concerns and the lack of appropriate alternatives to the pesticide dominated registrant, trade

---

491. *PCP Regulations*, s. 22; Agriculture Canada, Pesticides Division, *supra*, note 238 at 31.

492. *Ibid.*

493. On a product basis very few are suspended or cancelled (only 50 to 60). Most actions are against uses (600 to 700). Ormrod, *supra*, note 59.

494. The three pesticides involved were leptophos, phosphamidon and alachlor.

495. Leptophos Review Board, *Report* to the Honourable Eugene Whelan, then Minister of Agriculture (Ottawa: LRB, 2 May 1977) at 1.

496. *Ibid.* at Appendix I. Correspondence from Dr. A.B. Morrison, Assistant Deputy Minister, Health Protection Branch, Health and Welfare Canada to Dr. B.B. Migicovsky, Board Chairman and Assistant Deputy Minister, Agriculture Canada, Ottawa (27 April 1977).

497. See: correspondence from the Honourable John Wise, Minister of Agriculture to Mr. Keith MacMillan, Government Relations Manager, Monsanto Canada Ltd., Ottawa (7 February 1985); and correspondence from Mr. H. Aboutboul, President, Monsanto Canada Ltd. to the Honourable John Wise, Mississauga (4 March 1985).

498. *Supra* at 50.

499. Morrison, *supra*, note 496.

association and Ontario agricultural and environmental agency views.[500] The Review Board itself approached its mandate from the viewpoint of a "risk-benefit evaluation."[501] It weighed the benefits to be obtained from the use of the leptophos stocks that were available against the potential health hazard to farmers exposed during spraying operations, concluded that the risks outweighed the benefits and therefore recommended that the company's request should be denied.[502] The Board's recommendation was adopted by Agriculture Canada which lifted the insecticide's registration.[503]

In coming to its conclusions the Board considered a number of non-toxicological matters: it noted that the non-use of leptophos would not seriously jeopardize tobacco production; an alternative pesticide was available; and it doubted that serious economic impacts would result.[504] The Board also considered Ontario Ministry of Environment contentions that field use of leptophos constituted the safest means of disposal and that intensive education could be mounted to ensure that farmer-applicators would be aware of potential health hazards.[505] The Board doubted, however, that these efforts would be sufficient, and noted that "policing" of farmer application would be impractical.[506]

In considering toxicological matters surrounding possible use of leptophos the Board noted that: it was not possible to determine a "no effect" level for repeated exposures to leptophos; the pesticide was a known inducer of delayed neurotoxic effects in experimental animals; accidental exposures to the compound appeared to leave human beings at least as sensitive, if not more so, to delayed neurotoxicity as evidenced by central nervous system problems among employees during manufacture of leptophos; misdiagnosis of delayed neurotoxicity as multiple sclerosis had been documented; delayed neurotoxicity would make cause-effect correlation difficult under field condition usage of leptophos; and the product was extremely persistent and likely to have more severe effects on those exposed to it more than once.[507]

As a result of the above, the Board concluded that: leptophos might constitute an occupational hazard to farmer-applicators; zero exposure could not be ensured; monitoring for delayed neurotoxic symptoms would be impossible; there is no antidote for delayed neurotoxicity; and notwithstanding that there were no reports of adverse effects of leptophos on formulators or applicators in Canada, the above findings rendered the absence of such reports of dubious value.[508]

A number of concerns arise with respect to suspension, cancellation and the role of the review. First, the regulations make a distinction between suspension and cancellation in the sense that the former only legally affects the registrant, not the

500. Leptophos Review Board, *supra*, note 495 at 2-3 and Appendix II.

501. *Ibid.* at 1.

502. *Ibid.* at 6.

503. Ormrod, *supra*, note 59.

504. Leptophos Review Board, *supra*, note 495 at 2.

505. *Ibid.* at 3 and Appendix II.

506. *Ibid.* at 3.

507. *Ibid.* at 3-5.

508. *Ibid.* at 5-6.

retailer and user. Given the potential damage a pesticide such as leptophos may cause, the distinction makes no sense from an environmental health perspective.[509] When Health and Welfare Canada officials thought that only suspension was proposed for leptophos, they made their concerns known to the Review Board that cancellation was necessary.[510] Had their views not prevailed, retailers and users would have been legally free to use up their remaining stocks of the pesticide. Indeed, despite the 1977 cancellation of the leptophos registration, a committee of the International Joint Commission reported in 1980 that leptophos was one of thirty-three chemicals found in the Great Lakes system that is known to cause chronic adverse effects in man.[511] Moreover, an Ontario government survey of pesticide use reported that in 1978, 160 kilograms of leptophos were used on tobacco in several Ontario watersheds[512] one year after the pesticide's cancellation. The example suggests regulatory difficulty in ensuring that cancelled pesticides are recalled or otherwise prevented from being used.

A second concern with the procedures relates to who may trigger Review Board consideration of a pesticide. The regulations limit review to either pesticide applicants or registrants. Members of the public are not granted such rights. The inequity of this approach, and possible reforms, have been outlined earlier in this paper.[513]

RECOMMENDATION

Under the *PCPA*, any member of the public should be allowed:

(a) to petition the Minister to initiate investigations or restrictions on a registered pesticide about which new data have come to light regarding adverse health or environmental effects; and

(b) to cause a board of review hearing to be held as to whether a pesticide should be suspended, cancelled or its registration continued.

In regard to either (a) or (b), the Minister shall initiate investigations or cause a board of review hearing to be held unless in his opinion such request is not made in good faith or is frivolous or vexatious.

(4) Record Keeping, Inspections and Enforcement

Three interrelated components of the *PCPA* programme include: (1) record keeping, (2) inspections, and (3) administrative as well as quasi-criminal enforcement

509. Agriculture Canada officials have claimed that the problem of disposing of cancelled pesticides still available in large stocks can pose greater health risks than their continued use. See Dr. Frank Cedar, Agriculture Canada, *The Registration and Regulation of Pesticides in Canada* (Ottawa: Agriculture Canada, undated). But that view was rejected by the Leptophos Review Board, *supra*, note 495 at 3.

510. *Supra*, note 496.

511. International Joint Commission, Committee on the Assessment of Human Health Effects of Great Lakes Water Quality, *Annual Report* (Windsor, Ont.: IJC, November 1980) at 14.

512. OMAF 1979, *supra*, note 2 at 12, 15, 23.

513. *Supra* at 65-66.

actions for violations of labelling or other use prohibitions. These activities constitute a remedial approach to control of pesticide usage in the field, short of suspension or cancellation actions, or changes in registered uses.

All registrants are required to make a record of all quantities of a control product they store, manufacture or sell, and to maintain the record for five years and to make it available to Agriculture Canada upon request.[514]

According to the *PCPA*, inspectors may be designated (section 6), and are given broad powers to enter premises (paragraph 7(1)(*a*)), examine materials (paragraph 7(1)(*b*)) and require production of documents (paragraph 7(1)(*c*)) for effecting the Act's purposes. Inspectors may also seize and detain control products where they have reasonable grounds for believing the Act or Regulations are being violated (subsections 9(1) and (2)). Forfeiture and disposal of seized control products are also authorized (subsections 9(3) and(4)).

The Act prohibits any person from manufacturing, storing, displaying, distributing or using a control product "under unsafe conditions" (subsection 3(1)). The prohibitions extend to importing or selling such products in Canada unless they have been registered, packaged and labelled according to prescribed conditions (subsection 4(1)).[515] In conjunction with labelling requirements,[516] the Minister may prohibit the use of pesticides in a manner which would be inconsistent with such labelling.[517]

Also stipulated in the *PCPA*, every person who violates the Act or regulations is, upon conviction, liable to two years imprisonment if indicted (paragraph 10(1)(*a*)), or to punishment on summary conviction (paragraph 10(1)(*b*)).[518] An accused may be convicted of the offence if it was performed by an agent or employee unless he establishes that "the offence was committed without his knowledge or consent and that he exercised all due diligence to prevent its commission" (subsection 10(2)). The statute of limitations for the institution of proceedings by way of summary conviction under the Act is one year (subsection 10(3)).

Information on pesticide usage is essential if any agency is to undertake key regulatory, monitoring, research and enforcement activities. In the United States, the US GAO concluded in 1980 that:

> US EPA needs information about where pesticides are used and in what quantities to administer all its pesticides programs .... EPA's pesticide program enforcement strategy is to ensure (1) industry compliance with product registration requirements and (2) user compliance with label directions. To attain these goals, EPA engages in producer

514. *PCP Regulations*, s. 26(*a*) and (*b*).

515. Section 6 of the regulations may extend this prohibition to use. See *supra*, note 232.

516. *Supra* at 45.

517. *PCP Regulations*, s. 45.

518. No amount of fine is listed in the *PCPA*. Therefore, section 722 of the *Criminal Code* (R.S.C. 1970, c. C-34) [hereinafter *Criminal Code*] applies: that is, a maximum $2000 fine or 6 months imprisonment, or both. The amount of this maximum fine is substantially smaller than the $50,000 to $100,000 maximum fines authorized under the *FA* and the *ECA*.

establishment inspections, pesticide sampling, pesticide analysis, use surveillance, and legal action against violators. Pesticide usage data is needed for use surveillance.[519]

It is frequently the case, however, that agencies lack such data. Agriculture Canada officials admit, for example, that they do not have any statistical studies on the quantities and types of control products used in Canada, particularly since Statistics Canada's annual pesticide sales surveys were discontinued in 1977.[520] They point instead to use surveys conducted by provinces such as Ontario or New Brunswick, or Manitoba's development of herbicide statistics in Western Canada.[521] While of value, the limitations in a number of these provincial surveys have been noted earlier in this paper.[522]

Since 1982, Agriculture Canada has engaged in a number of surveys done jointly with Environment Canada. The purpose of these surveys of pesticide registrants, authorized by section 26 of the *PCP Regulations* and subsection 3(1) of the *ECA*, is to assemble data on usage by province, of selected pesticide active ingredients.[523] Registrants are required to file information with both Departments listing the quantity of each active ingredient sold in the years chosen, by province.[524] According to Agriculture Canada, the results of the surveys will help Environment Canada determine the amounts of each active ingredient reaching the environment in various regions of the country as well as being of assistance in the designing of environmental sampling and monitoring programmes. These programmes will aid in the identification and assessment of any environmental effects arising from the use of these compounds, which in turn will assist future evaluations conducted by Agriculture Canada.

While these surveys appear to be a step forward in the co-operation between the two Departments as well as in the gathering of needed data, there appear to be a number of concerns with the exercise. First, it is unclear whether these surveys are to be done on an ongoing basis. Even assuming that they are ongoing, they are hardly a substitute for a programme that systematically and regularly obtains information on where these pesticides are used and in what quantities. Second, while the surveys are characterized in the *Canada Gazette* as pertaining to usage, in fact the only question registrants are asked to respond to is the quantity of active ingredients sold in each province. Indeed, section 26 of the *PCP Regulations* limits record-keeping and reporting requirements to information respecting storage, manufacture and sales information, not usage. Section 7 of the US *FIFRA* requires American pesticide

---

519. US GAO, *Need for Comprehensive Pesticide Use Data*, Report to Congress by the Comptroller General of the United States, B-199618 (Washington, D.C.: US GAO, September 1980) at 3, 5.

520. Ormrod, *supra*, note 59. A federal researcher has noted that data on pesticides sales and use is limited at the national level, and the cancellation by Statistics Canada of the survey of pesticide sales in Canada has left a gap in this area for the years since 1977. See Krystynak, *supra*, note 394 at 24.

521. Ormrod, *ibid.*

522. *Supra* at 8.

523. "Department of the Environment, Environmental Contaminants Act: Survey of Pesticide Registrants," *Canada Gazette*, No. 50 (11 December 1982) at 9253, (24 active ingredients surveyed). Additional surveys in 1984 and 1985 were also conducted on 89 and 120 active ingredients respectively.

524. Correspondence from Lynda Austen, Pesticides Division, Agriculture Canada to Pesticide Registrants, Ottawa (1982 Pesticides Survey letter).

producers to submit annually to the US EPA, information concerning production and sales of active ingredients. While the US EPA does not require pesticide producers to estimate the usage of each pesticide, the US GAO was of the opinion that the US EPA has the authority to do so.[525] For greater certainty, however, the US GAO recommended that reporting systematically include the submission of pesticide usage data by producers.[526] If the Canadian surveys are to be of value, we suggest that similar estimates of usage, as well as location of usage, be required, if necessary by amendments to the regulations.

The lack of timely, comprehensive information on pesticide usage can adversely affect enforcement activities. In the United States, for example, the US GAO reported in 1980 that: "[US] EPA does not have comprehensive information on where pesticides are used and in what quantities although such information is essential to its regulatory and other pesticide program activitites."[527] The problem continues to exist, according to an American Congressional subcommittee, as late as May 1983.[528] It is also doubtful that Canada's enforcement and related programmes can be effective in the absence of such data.

To some extent the paucity of federal prosecutions under the *PCPA* over the past fourteen years may in fact be a reflection of the lack of adequate, comprehensive and timely pesticide usage data. Agriculture Canada officials indicate that no more than seven prosecutions were undertaken by the Department under the *PCPA* between January 1, 1970 and June 30, 1983.[529] Three convictions were obtained, with small fines assessed in each case.[530] In several cases, procedural difficulties such as the citing of wrong sections of the Act or the exceeding of statute of limitations periods, have resulted in charges being withdrawn and not relaid.[531] To improve inspection and prosecution procedures, Agriculture Canada compliance officials have been working with officials of the RCMP. A *Manual of Procedures for Prosecution* has also been developed.[532] Some use of the *Customs Act* on importation matters has been made, particularly because of the higher fines available under that Act.[533] In addition, when the New Brunswick Supreme Court held that a private prosecution using the *PCPA* could not succeed against an industry-government consortium responsible for forest

525. *Supra*, note 519 at 10.

526. *Ibid.* at 11.

527. *Ibid.* at 10.

528. U.S., House of Representatives, Committee on Agriculture, *Extension of Federal Insecticide, Fungicide and Rodenticide Act*, Report, 98th Cong., 2d Sess. (11 May 1983) at 6.

529. Interview with Jim Reid, Compliance Section, Pesticides Division, Agriculture Canada, Ottawa (30 June 1983).

530. *Ibid.* See, e.g., *R.* v. *Richfield Farms and Victor* (1 March 1977), (B.C. Prov. Ct.), Reid J. [unreported] where prosecution was under *PCPA*, s. 3(1), and the fine was $400; and *R.* v. *Jay Norris Corp. of Canada* (21 November 1977), Montréal 27-8777-775 (C.S.P.), Trudel J. [unreported] where prosecution was under *PCPA*, s. 4(1).

531. Reid, *supra*, note 529.

532. Agriculture Canada, Food Production and Inspection Branch, Compliance Division, *Manual of Procedures for Prosecution* (Ottawa: Agriculture Canada, June 1983).

533. Reid, *supra*, note 529.

spraying operations in New Brunswick because the Act does not bind Crown agencies, Agriculture Canada amended the *PCPA* to bind the federal and provincial Crown.[534]

There is an additional factor which may account for the limited number of prosecutions under the Act. The Pesticides Division of Agriculture Canada has few staff members devoted to the enforcement of the Act and Regulations.[535]

What may also account for the few government prosecutions under the *PCPA* is the small fines authorized under the summary convictions provisions of the Act. As well, Agriculture Canada may prefer seizure, detention and related actions, which, because they are handled administratively, are thought by the Department to be more effective enforcement tools.[536] However, it is not clear why Agriculture Canada could not substantially improve fines under the *PCPA*, as has been done in recent years under the *FA* and the *ECA*.[537] The maximum fines are small under the *PCPA*, because Agriculture Canada has not moved to change them. With respect to the effectiveness of seizures and detentions as enforcement instruments, the Department estimates that approximately fifty such actions are undertaken a year.[538] Assuming these figures are accurate, it is still difficult to evaluate this administrative approach as a substitute for quasi-criminal enforcement or related techniques.

Limited criminal enforcement of federal pesticide laws is not restricted to Canada. In the United States, although the US EPA can pursue criminal sanctions in every case where the evidence warrants it, "historically, criminal sanctions have played only a minor role in the Agency's overall enforcement program."[539]

The US EPA does note, however, what offences under the US *FIFRA* would trigger, at least in theory, priority criminal enforcement investigations. These offences include: failure to report information on the unreasonable adverse effects of a registered pesticide; falsification of US *FIFRA* records; violation of suspension or cancellation orders; violation of stop-sale orders; unlawful uses of pesticides; and illegal distribution of unregistered pesticides.[540] In practice, however, enforcement of US *FIFRA* for pesticide misuse, for example, has been rare. During Congressional testimony regarding the US *FIFRA* in 1981, one lawyer who frequently acts for migrant workers and has monitored the US *FIFRA* enforcement activities, indicated that: "Within the past four

---

534. S.C. 1980-81-82-83, c. 88, s. 1. See also: Agriculture Canada, *Discussion Paper on Amendments to the* Pest Control Products Act (Ottawa: Agriculture Canada, 12 June 1980); and *supra* at 40.

535. Correspondence from Ron W. Kobylynk, Director, Pesticides Control Branch, British Columbia Ministry of the Environment, to Edward W. Keyserlingk, Project Co-ordinator, Protection of Life Project, Law Reform Commission of Canada, Victoria (30 May 1983).

536. Reid, *supra*, note 529.

537. *Supra*, note 518.

538. Reid, *supra*, note 529.

539. "General Operating Procedures for the Criminal Enforcement Program," *Memorandum* from Robert M. Perry, General Counsel, to US EPA administrators, Washington, D.C. (29 October 1982) at 3; see also "Criminal Enforcement Priorities for the Environmental Protection Agency," *Memorandum* from Robert M. Perry, General Counsel, to US EPA regional counsels, Washington, D.C. (12 October 1982) at 1.

540. "Criminal Enforcement Priorities ...," *ibid.* at 10-11.

years we are aware of only two, perhaps three, *FIFRA* pesticide misuse prosecutions [brought by US EPA]."[541]

To a great extent the US *FIFRA* enforcement picture is complicated by two factors. First, the American states have been granted "primary enforcement responsibility" by the US EPA. This means that each state is responsible for enforcing the US *FIFRA* at the local level and, in the event of pesticide misuse, is responsible for taking the first enforcement action (section 26). Second, the US *FIFRA* provides for a variety of enforcement techniques besides criminal actions. These include: civil-administrative penalties (section 14(a))[542]; warning notices (section 14(a)(2)); stop-sale actions or injunctive relief (section 13(a)); stock seizures (section 13(b)); and certification actions.[543] Most of the enforcement actions, however, are civil-administrative penalties.[544]

With respect to state enforcement, the US EPA provides states that enter into "cooperative enforcement agreements" with up to fifty per cent of the funds they need for their pesticide enforcement programmes (US *FIFRA*, section 23). The US EPA has the power to rescind a state's "primary enforcement responsibility" if it finds that the state has not corrected deficiencies in its programme within a specified time (section 27(b)).[545] It may also intervene if it determines that there is an emergency (section 27(c)), or that a state has not taken appropriate enforcement action in the event of pesticide misuse, although a state has at least thirty days to act (section 27(a)). Critics have argued, however, that this thirty-day period is too long as evidence of misuse disappears rapidly.[546] Moreover, the US EPA's apparent principal means of monitoring state enforcement is to rely on quarterly and annual reports submitted by the states themselves, that summarize state enforcement initiatives.[547]

Most state laws do not provide the state agency with authority to seek civil-administrative penalties in the event of pesticide misuse.[548] Often, state statutes, like provincial laws, authorize the state to prosecute or to seek licence or permit

---

541. U.S., House of Representatives, Committee on Agriculture, *Federal Insecticide, Fungicide and Rodenticide Act*, Hearings before the Subcommittee on Department Operations, Research and Foreign Agriculture, 97th Cong., 1st Sess. (Washington, D.C.: 18 June 1981), Testimony of Charles Horwitz, Staff Attorney, Migrant Legal Action Program at 52.

542. Civil penalties are administrative fines assessed by the agency without involving the court system. In determining the amount of the penalty, the US EPA must consider the gravity of the violation, the size of the violator's business and the effect the penalty will have on the violator's ability to continue in business. See US *FIFRA*, s. 14(a)(4).

543. US *FIFRA Regulations*, 40 CFR, Part 171.11.

544. Interview with Barbara Paul, Policy Director, Compliance Monitoring Unit, Office of Pesticides and Toxic Substances, US EPA, Washington, D.C. (12 May 1983).

545. See also US EPA, "FIFRA; State Primary Enforcement Responsibilities," found in 40 CFR, Part 17 and also in (5 January 1983) 40 Federal Register 404.

546. "The Law Weighs Pesticide 'Benefits and Risks' and Gives States Major Enforcement Role" (March 1980) Rural America 7.

547. US GAO, *supra*, note 3 at 24.

548. Paul, *supra*, note 544; US GAO, *supra*, note 3 at 15.

suspension.[549] However, an observer of instances of involuntary pesticide poisoning among farm workers, small farmers and rural residents who live near farms, noted that in 1980 over one hundred such victims, testifying before a federal-state pesticide forum, indicated that "none of their complaints to EPA or state pesticide authorities resulted in a criminal or civil penalty. Not a single warning notice was issued. Not one applicator's licence to spray was suspended or revoked."[550] Indeed, even the amount of civil-administrative penalties assessed under the US *FIFRA* has noticeably declined since 1980. In that year approximately $202,000 in penalties were assessed. In 1981 and 1982, approximately $138,000 and $112,000 in penalties were assessed respectively. For the first four months of 1983, approximately $24,000 in penalties had been assessed.[551] Notwithstanding the problems that exist with implementation of the civil-administrative penalty mechanism, in principle it would appear to be a valid instrument for Canada to consider for supplementing enforcement of the *PCPA*.

Some critics have contended in addition that governmental enforcement under the US *FIFRA* also requires supplementation through the authorization of citizen suits. Testimony during the 1981 Congressional hearings on the US *FIFRA* noted the perceived benefits to such an approach:

> There are a number of advantages to [a private right to sue under the US *FIFRA*]. First, it provides a responsive instrument of control. If one is injured by careless applications of pesticides or exposed to toxic substances as a result of defective labelling and registration, one need not wait for an overextended state or [US] EPA to respond. One can seek redress swiftly.
>
> Second, such an enforcement system directly strikes the individual perpetrator for his or her conduct .... Those who fail to abide by federal standards should pay for their carelessness; those who properly handle toxic pesticides will avoid such actions.
>
> A third advantage of such a private enforcement scheme is that it holds out the promise of more effective enforcement of *FIFRA* without additional [US] EPA funding.[552]

Enforcement problems in Canada may also warrant similar citizen supplementation of the regulatory process through private prosecutions, citizen suits and judicial review applications. While the first of these instruments is not precluded by federal law, the other instruments would require statutory authorization. A number of recent enforcement difficulties in Canada suggest the need for placing such tools in the hands of the citizen. First, while labelling of use is a key element of pesticide control, it has been suggested that vague labelling of pesticides can undermine the *PCPA*'s effectiveness.[553] A comparison of the Canadian and American label for the same pesticide, fenitrothion, revealed that allowable application rates in Canada were thirty-three to fifty per cent

---

549. Paul, *ibid.*

550. Horwitz, *supra*, note 541 at 59. The US GAO, in a 1981 investigation of US EPA and state pesticide laws also concluded that "EPA and state pesticide enforcement programs do not fully protect the public and the environment." The US GAO noted that the US EPA and the states do not always properly investigate cases and sometimes take questionable enforcement actions. See US GAO, *supra*, note 3 at 8-18.

551. US EPA, "Administrative-Civil Actions under *FIFRA* for Fiscal Years 1980-Present," mimeographed.

552. Horwitz, *supra*, note 541 at 61-62.

553. Richards and May, "Spruce Budworm Spraying and Pesticide Registration" (Address at the Environment Canada and Canadian ENGOs Workshop on Toxics) (Ottawa: ENGOs, May 1982) at 10.

higher than those allowed in the United States. Moreover, the environmental hazard warning about the product and appropriate use conditions, which appeared on the American label, were absent from the Canadian label.[554] Second, concerns have also been raised in Parliament about whether Agriculture Canada's policy is, in fact, to keep labelling vague in order to avoid enforcement actions.[555] Minutes of a 1979 federal-provincial meeting of pest control officers indicate a concern that "[t]oo detailed labelling [for forestry uses] could lead to increased violations of the law or to increased charges from environmental groups."[556] Third, even assuming labelling instructions were adequate, widespread violation of labelling requirements, such as those respecting applicator disposal practices for pesticide containers, has been reported.[557] Fourth, despite the fail-safe system that the *PCPA* is meant to provide, the fungicide Du-ter, whose registration Agriculture Canada lifted in 1981 after its manufacturer, Ciba-Geigy Limited, decided not to keep it on the market, was used in some Ontario potato fields in 1982 and 1983. According to an investigation undertaken by television journalists in 1983:

> [Du-ter] was originally approved using the questionable data of the IBT labs. It was sprayed recently, by accident, on the wrong field, and at a time when its sale was officially prohibited .... The chemical continued to be sold for a year and half after its registration had lapsed, continued to appear in provincial government directories [including those recommending it for use on Ontario potatoes] and continued to be sprayed by at least one big farm operator, Hostess Foods.[558]

To date, despite calls for enforcement action by some members of Parliament,[559] no charges have been laid by Agriculture Canada under the *PCPA*.

Overall, the enforcement process under the *PCPA* is a complex one involving record-keeping and reporting requirements, inspections and a variety of administrative and quasi-criminal authorities. However, the lack of comprehensive, timely data on pesticide use may undermine key elements of this process. Moreover, government use of the quasi-criminal sanction, for a variety of reasons, has essentially fallen into disuse, a trend that is occurring in other federal jurisdictions as well. The adequacy of the administrative remedies preferred by Agriculture Canada, is difficult to evaluate. The use of civil-administrative penalties, as authorized under United States federal law, might provide a valuable supplement to Canadian federal pesticides law. The need, however, also appears to exist for citizen supplementation of governmental enforcement

---

554. *Ibid.* at 9-10.

555. See Canada, H.C., *Minutes of Proceedings and Evidence of the Standing Committee on Agriculture*, No. 16 (26 November 1980) at 7-8: exchange between Simon de Jong, M.P., NDP Science Critic and Wayne Ormrod, Director, Pesticides Division, Agriculture Canada.

556. CAPCO, *supra*, note 349 at 8.

557. Environment New Brunswick, *supra*, note 209.

558. CTV program, "W-5," *Transcript*, Edition 551 (Toronto: 23 October 1983) at 37. See also correspondence from James B. Reid, Associate Director, Compliance Section, Pesticides Division, Agriculture Canada, to Janis Tufford of "W-5", Ottawa (20 October 1983).

559. Correspondence from Vic Althouse, M.P., to the Honourable Eugene Whelan, Minister of Agriculture, Ottawa (24 October 1983).

efforts through private prosecutions, citizen suits and judicial review applications, particularly in light of some surprising breakdowns in the regulatory process.

RECOMMENDATIONS

Fines under the *PCPA* should be increased substantially, at least up to the levels in the *FA* or the *ECA*.

The *PCPA* should be amended to authorize the use of civil penalties as an inducement to compliance, without any diminution in the right publicly or privately to prosecute for violations of the Act's provisions.

The *PCPA* should be amended to provide ministerial authority and citizen standing to seek a restraining order to prevent violations of the Act. Citizens should also be granted standing under the *PCPA* to bring an application for judicial review to enforce any duty under the Act or regulations.

The *PCPA* or *PCP Regulations* should be amended to require the annual reporting to Parliament of the following information:

(a) the number of registration applications received by relevant category of application (for example, new product, new use of existing product, and so forth);

(b) the number of such registrations granted including the type of approval (that is, domestic, commercial, restricted);

(c) the number of applications denied or withdrawn and why;

(d) the time for handling applications;

(e) the number of research and temporary registration applications, including

(i) the number of applications by type of exemption sought (for example, emergency) and the disposition of these applications,

(ii) the total kilograms of each active ingredient and the area authorized for application, by province, and

(iii) the actual amount used and area to which applied;

(f) the status of re-evaluation reviews for each active ingredient;

(g) a complete and updated list and summary of suspended, cancelled or otherwise restricted pesticides and other enforcement actions taken; and

(h) a list of notices transmitted to officials of foreign governments with respect to exports of banned or restricted products (proposed below).

The *PCPA* should be amended to require registrants to submit to the government annually information concerning the production and sales of active ingredients, and to estimate the usage of each such pesticide by province. The Act

should be further amended to require the government to publish this information annually in aggregate form by province.

The *PCPA* should be amended to require the listing of inert as well as active ingredients on the product label, and at least the same information concerning environmental hazard and appropriate use as appears on the labels of the product in its country of origin.

(5) Confidentiality of Industry Information:
The *PCPA* and New Federal Access to Information Law

The *PCPA* is silent on the release of information gathered under its auspices. It has, therefore, been suggested that because no provision under the Act prohibits disclosure, information release is guided by common law principles, government policy discretion and prospectively new federal access to information legislation.[560] The *PCPA* may also be characterized as containing no affirmative duties requiring the federal government to release environmental health and safety data to the provinces or the public.

The position of industry has been that information submitted to the federal government pursuant to the *PCPA* should remain confidential. The key elements of this argument were outlined at a special pesticides forum in 1982. This forum occurred at a time when provincial agencies had been experiencing difficulty in obtaining information from the federal government with respect to the IBT matter.[561] An industry spokesman noted that:

> [D]ata are submitted to federal government regulatory authorities in confidence to enable them to discharge their responsibilities for the protection of man and the environment. While always ready to provide this information to government, the chemical industry views government as the trustee of the information and not the owner.[562]

This view has been set out in more detail in industry position statements on the IBT matter generally:

> While the data on the compromised [IBT] products were being redeveloped there was, naturally, a high level of anxiety about the continued presence of these products on the market. Provincial authorities, in particular, did not feel justified in accepting federal assurances that the compromised products could continue to be used while the supporting data on them were revalidated. They felt it was their responsibility to make their own judgments about that and, accordingly, requested the federal authority to give them access to the data on these products.

---

560. W.P. Bryson, Counsel, Legal Services Branch, Agriculture Canada, "Release of Information Gathered under the *Pest Control Products Act*" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 115-16.

561. See, for example, David Penman, M.D., Senior Consultant on Environmental Health, Saskatchewan Environment (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 110.

562. J.H. Elliot, Vice-President, Rohm and Haas Canada, Inc., and Secretary Treasurer, CACA "Status of IBT Compounds" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 154.

> However, these data had been submitted to the Canadian regulatory agencies in confidence by the organizations that owned the data. This property represented many millions of dollars invested by each developing company and there was great concern that if it were made available to other authorities, competitors would get the information. The concern was not that provincial authorities would disseminate the information but that it would be simpler for Canadian media to get the information and that the more hostile critics of the industry among them would spread the information, claiming it was in the public interest for them to do so.
>
> ...
>
> The fact is we have very little [high technology] that is our own. Most of it is transferred here by foreign companies for use by their Canadian affiliates. This transfer makes possible a great deal of Canadian production and also a great deal of high quality employment in Canada. It also provides the base upon which Canadians may develop their own high technology resources.
>
> Meanwhile, if Canadian industry were to lose the use of this or any new technology, the consequences for the whole economy would be serious. In the case of agricultural chemicals it would severely impair Canada's position as a basic food producer and exporter. If it were demonstrated that confidential data could not be protected in Canada then we would no longer have access to it.
>
> It was for this reason that the Canadian industry resisted the pressure to allow the release of confidential data on the IBT chemicals ....[563]

Government officials have also suggested that with respect to the IBT situation "there were constraints on the release of information which pertained to proprietary data."[564]

The issue of access to information has been a recurring problem throughout the IBT affair. As early as December 1977, Canadian journalists argued that the federal government was refusing to release the list of IBT-tested pesticides that were in controversy; they had to go to the United States to obtain the list.[565] Indeed, one Canadian environmental group received the results of the joint United States/Canada audit of the IBT captan studies done by Health and Welfare Canada, from a legal group in California, not from Canadian authorities.[566] The California group had obtained the documents, all Health and Welfare Canada memoranda written in Ottawa, through an American *Freedom of Information Act* request filed in Washington, D.C. Ironically, while these audits are still unavailable from Canadian authorities, all of them have since been reproduced in their entirety in the public record of a United States Congressional subcommittee report.[567] The Canadian audits of the IBT captan studies revealed that all twelve studies reviewed by Canada to January 1980, were invalid.

---

563. CPIC, *supra*, note 288 at 2-3.

564. S.W. Gunner, Chief, Chemical Evaluation Division, Health Protection Branch, Health and Welfare Canada, "IBT Update" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 158.

565. CTV journalist Jack McGaw, in the CTV report, "Inquiry: The Failing Strategy," *Transcript* (Toronto: December 1977) at 21, stated during the programme that: "The Canadian Government wouldn't release this Canadian list, either to us or to at least one concerned toxicologist. So we went to Washington ...."

566. CELA/Probe, *supra*, note 483 at 17.

567. U.S., House of Representatives, Committee on Agriculture, *Federal Insecticide, Fungicide, Rodenticide Act*, Hearings before the Subcommittee on Department Operations, Research, and Foreign Agriculture, 97th Cong., 1st Sess. (Washington, D.C.: 16 July 1981) at 386-413.

Many of the studies were invalid owing to fabrication of the data, discrepancies between available raw data and final reports, lack of supporting data and related problems.[568]

Health and Welfare Canada had refused to release any of this data on the basis of a Department of Justice opinion that the information supplied to the Crown, including any IBT studies, pursuant to the *PCPA* is confidential and subject to the common law protecting trade secrets. Furthermore, if the studies or information derived from them were released, the Crown would be open to legal action from manufacturers and laboratories claiming that their reputations had been damaged.[569]

In unofficial representations to the Vancouver-based WCELA, however, it appears that the Department of Justice had advised Health and Welfare Canada not to release the IBT audits because it would open the floodgates to information requests, not because the audits involved trade secrets.[570] Moreover, it would appear questionable whether "false information" could be protected as a trade secret.[571] Ironically, the entire argument of the federal government, at least with respect to captan, becomes especially dubious because Chevron, the main American manufacturer of captan for whom IBT performed its studies, waived its claim of confidentiality to the information in the Canadian audits derived from information which Chevron originally submitted to the US EPA.[572]

The prospective situation under the new *Access to Information Act*[573] is unclear. Paragraph 20(1)(*a*), for example, requires the head of a government institution to refuse to disclose any record requested under the Act that contains the "trade secrets of a third party; ...." However, there is no definition of "trade secret" under the Act. This is extremely important because trade secrets are treated differently than "financial,

---

568. *Ibid.* For example, in one IBT study performed to determine if captan caused birth defects in hamsters, five pups in the raw data were described as having "no eyes" but in the final IBT report this is characterized as "lack of eye pigmentation." *Ibid.* at 396 [Memorandum from Dr. J. Ruddick to Mr. D. Clegg, Health and Welfare Canada, regarding IBT study P5938 on teratology/hamsters, Ottawa (21 September 1978)].

569. Telex from W.P. McKinley, Senior Policy Adviser, Task Force for Reassessment of Chemical Safety, Health Protection Branch, Health and Welfare Canada, to the WCELA, Ottawa (12 March 1981). Dr. McKinley noted in part:

> [T]his Department has had a long-standing policy that information supplied by a registrant of a pesticide is the property of the registrant and cannot be shared with a third party without permission of the owner. Recently, members of our Justice Department have provided the following legal advice: "The submissions together with the IBT studies submitted to the Crown, under the *Pest Control Products Act* and its regulations, are confidential and are subject to the common law protecting trade secrets. Therefore, information derived from these submissions and studies should be considered confidential. Moreover, should the conclusions of interim reports prove incorrect, the Crown could open itself to legal action from manufacturers and laboratories who may prove that their reputations have improperly been affected."

570. Correspondence from the WCELA to the CELA, Vancouver (15 April 1981).

571. Heather Mitchell, Barrister and Solicitor (Comments at the CELA-CELRF Roundtable Discussions on Toxic Chemicals Law and Policy in Canada, *Proceedings*), (Toronto: CELA/CELRF, June 1981) at 64.

572. Correspondence from David O'Bickart, Deputy General Counsel, US EPA, to Martin H. Flam, Attorney, California Rural Legal Assistance, Washington (18 November 1980) at 5.

573. S.C. 1980-81-82-83, c. 111 [hereinafter *AIA*].

commercial, scientific or technical information ..." and other types of information supplied by third parties to the government as outlined in paragraphs 20(1)(*b*), (*c*) and (*d*). There is a general exemption from disclosure for all the heads of subsection 20(1), but in the case of third-party information supplied under paragraphs 20(1)(*b*), (*c*) and (*d*) there is discretion available for the head of a government institution to disclose this information under the balancing test set out in subsection 20(6).[574] Thus, whether the courts will apply a broad or narrow definition of "trade secret" is crucial. Canadian courts have tended to accept American definitions of trade secrets,[575] including the very broad definition adopted in the *Restatement of the Law of Torts* which states that:

> A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers.[576]

Under this broad definition, agencies and courts in the United States[577] and Canada,[578] have treated health and safety tests as "trade secrets." It can be argued that this broad common law definition, developed in the private law context of protecting business from breaches of contract and confidence on the part of departing employees, should not be applied in the context of the public interest in disclosure of health and safety data. How the courts will respond to such arguments under the *AIA* remains to be seen.

According to American Congressional researchers, scientists and public health professionals studying the properties of pesticides require access to complete studies containing the raw data from toxicological and other experiments. Plaintiffs in product liability cases, contending that a pesticide caused injury or property damage, also require access to complete studies.[579] As a result, American federal pesticides law over time has been amended largely to override the trade secrets problem by providing for the release of health and safety data. Compensation schemes or exclusive use provisions are used to protect the initial submitter of data.[580] These provisions have recently been upheld by the United States Supreme Court.[581]

---

574. *AIA*, s. 20(6) states: "The head of a government institution may disclose any record requested under this Act, or any part thereof, that contains information described in paragraph (1)(*b*), (*c*) or (*d*) if such disclosure would be in the public interest as it relates to public health, public safety or protection of the environment and, if such public interest in disclosure clearly outweighs in importance any financial loss or gain to, prejudice to the competitive position of or interference with contractual or other negotiations of a third party."

575. See, e.g., *R.I. Crain Ltd.* v. *Ashton* (1949), [1949] 2 D.L.R. 481 at 485-86.

576. American Law Institute, *Restatement of the Law of Torts*, 1st ed. (St. Paul: ALI, 1931) at art. 757, comment b.

577. T.O. McGarity and S.A. Shapiro, "The Trade Secret Status of Health and Safety Testing Information: Reforming Agency Disclosure Policies" (1980) 93 Harvard L.R. 837.

578. McKinley, *supra* at 96.

579. *Supra*, note 330 at 266.

580. US *FIFRA*, ss. 10(d) and 3(c)(1)(d). See also *supra*, note 256.

581. *Ruckelshaus*, *supra*, note 256.

Steven D. Jellinek, former US EPA Assistant Administrator for Pesticides and Toxic Substances during the Carter Administration, testified before a Congressional Oversight Committee in 1980 regarding the Agency's position at the time regarding the competing interests of industry and the public on the disclosure of health and safety data. He indicated that there are two basic issues: (1) what data may be used by any producer to support product registration; and (2) what data should be accessible to the public. According to Jellinek, the US EPA's long-held position, which the United States Congress affirmed in the 1978 amendments to the US *FIFRA* is that information about pesticide health effects should be available to the public. He maintains that only a narrowly limited class of information, primarily manufacturing, quality control data and confidential formulae, should be withheld from public scrutiny. According to Jellinek, the US *FIFRA* substitutes one system for protection of data (compensation or exclusive use) for that which the industry has always preferred (secrecy).[582] He notes that the US *FIFRA*'s "carefully balanced data scheme takes into account societal goals other than protection of proprietary interests."[583] Jellinek further notes that eighteen months after the 1978 US *FIFRA* amendments, the US EPA had seen no evidence that the pesticide-producing industry was suffering from unscrupulous competition arising from the new definition of trade secrets.[584]

More recently, however, United States environmental groups have testified before Congressional committees regarding pesticide data-access problems. These arise from a possible industry-suggested "moratorium" on US EPA disclosure pending regulation making to implement provisions of the Act which prohibit disclosure of data to foreign pesticide producers.[585]

In Canada, environmental groups have recommended amendments to the *PCPA* to authorize public access to pesticide health and safety data, in order to circumvent expected trade secret problems with the new *AIA*.[586] Federal and provincial environment agencies, however, while supporting release of pesticide health and safety data to the public "when deemed in the public interest," do not support making available to the public "raw data" from the registration process "because of the confidentiality requirement and because it could only be used by a trained researcher."[587]

---

582. U.S., House of Representatives, Committee on Agriculture, *Extension of Federal Insecticide, Fungicide and Rodenticide Act*, Hearings before the Subcommittee on Department Investigations, Oversight and Research of the Committee on Agriculture, 96th Cong., 2d Sess. (15 April and 1 May 1980), Testimony of Steven D. Jellinek, Assistant Administrator, Pesticides and Toxic Substances, US EPA at 148-49.

583. *Ibid.* at 149.

584. *Ibid.* at 149-50.

585. U.S., House of Representatives, Committee on Agriculture, *EPA Pesticide Regulatory Program Report*, Hearing before the Subcommittee on Department Operations, Research, and Foreign Agriculture, 98th Cong., 2d Sess. (23 February 1983), Testimony of Jacqueline M. Warren, Attorney, Natural Resources Defence Council at 166.

586. Toby Vigod, Counsel, CELA, "Toxic Chemicals Testing: The Aftermath of IBT" (Report for a Toxics Seminar with Environment Canada, *Proceedings*) (Ottawa: Environment Canada, May 1982) at 9.

587. CCREM, *supra*, note 270 at 8.

RECOMMENDATION

The *PCPA* should be amended generally:

(a) to mandate public access to, and government and agency sharing of, pesticide health and safety data (concerning both active and inert ingredients); and

b) to authorize compensation or a period of exclusive use to protect the initial data submittor from competitors seeking access to information, including trade secrets.

(6) Imports, Exports and "Dumping" of Pesticides

Many countries, including Canada, are net importers of pesticides.[588] In 1976, for example, Canada imported 116,986,798 pounds of pesticides from the United States.[589] This was almost as much as that imported from the United States by twenty Latin American republics[590] or Western Europe.[591] Sometimes these chemicals have been banned or restricted from sale or use in the United States.[592] The export or "dumping" of such products by a manufacturer from a country with stringent controls to one with less stringent requirements, has provoked international concern. One European environmental official stated in 1982 that:

> [W]e have a duty to break the so-called circle of poison. When pesticides, not allowed any more in industrialized countries, are exported to developing countries, the use on crops there not only causes contamination of soil and water, but also results in contaminated crops that may be imported into the same countries where the use of the exported chemicals is forbidden or restricted.[593]

---

588. The CACA, *supra*, note 61 at 6, indicates that Canada "has to rely almost totally on foreign suppliers for its chemical pesticides. The Canadian industry formulates pesticides for use here, but the active ingredients it needs are 96% imported."

589. US GAO, *Better Regulation of Pesticide Exports and Pesticide Residues in Imported Food Is Essential*, Report to Congress by the Comptroller General of the United States, CED-79-43 (Washington, D.C.: US GAO, June 1979) at 87.

590. According to the US GAO, *ibid.*, twenty Latin American countries imported 154,627,138 pounds of pesticides from the U.S. in 1976.

591. In *ibid.*, for Western Europe in the same year the quantity was 133,379,347 pounds.

592. The US GAO reported in 1979 (*ibid.* at frontispiece) that:

> Pesticides suspended, cancelled, or never registered for use in the United States because of hazards associated with their use are exported routinely. Serious injuries have occurred from the use of these pesticides in other countries. The Environmental Protection Agency in many cases has neither informed other governments of pesticide suspensions, cancellations, and restrictions in the United States nor revoked tolerances for residues of these pesticides on imported food.

593. J.J. Lambers, State Secretary, Health and Environmental Protection, The Netherlands, Opening Speech at the Fourteenth Session of the Codex Committee on Pesticide Residues, *Report*, The Hague, 14-21 June 1982, ALINORM 38124A (Rome: Codex Alimentarius Commission, 1983) at 59.

One example of an insecticide, leptophos, never allowed to be used commercially in the United States, but imported by fifty countries, including Canada, for over five years has been noted above.[594]

The international response to this problem has come from several sources. The General Assembly of the United Nations, in December 1981, passed a resolution on the exchange of information on banned hazardous chemicals and unsafe pharmaceutical products. The resolution urged

> ... member states and other interested parties, including transnational corporations, to cooperate more fully in providing data on banned or severely restricted substances [to U.N. organizations] with responsibility for information exchange in regard to such substances.[595]

As part of United Nations efforts, the UNEP's legal data profiles on selected chemicals provide countries with information on legal and administrative limitations, bans and regulations placed on potentially toxic chemicals in the producing countries. The list is currently limited in scope but is in the process of being substantially updated and expanded.

The Organization for Economic Co-operation and Development (OECD) has investigated various international proposals and efforts relating to the exchange of information on the export of hazardous chemicals.[596] It has also developed its own draft principles on the subject. They would require that:

> Where an exporting country has taken control action to ban or severely restrict the use or handling of chemicals in order to protect health or the environment domestically, such exporting country should make certain information available to importing countries. For purposes of these Guiding Principles, a control action to ban or severely restrict the use or handling of chemicals would include the refusal of a proposed first-time use based on a decision in the exporting country that such use would endanger human health or the environment.[597]

The OECD proposal also sets out: the minimum information that would be needed to alert the importing country to the pending export;[598] additional information that may be required; and, actions the importing country should undertake to handle and follow up such information.[599]

Some OECD members have also proposed a code of conduct for industries engaging in such export trade based on the principle that "manufacturers of chemicals ... should act in such a manner that they do not endanger man or the

---

594. *Supra* at 50 and 83-85.

595. "Data Profiles: The Legal File" (September 1983) 6:1 UNEP: International Register of Potentially Toxic Chemicals Bulletin 3.

596. OECD, Environment Directorate, Chemicals Group and Management Committee, *Information Exchange Related to Export of Hazardous Chemicals: Report on Current International Exchange Schemes*, ENV/CHEM/CM/83.7. (Paris: OECD, April 1983).

597. *Ibid.* at 39.

598. *Ibid.* at 40.

599. *Ibid.* at 41.

environment with their chemicals, preparations or products."[600] Components of such a code of conduct would include: comparable quality and standards for domestically used as well as exported products; an information package on the uses and hazards of such products including ways and means of mitigating adverse effects; immediate recall if a product is found to represent a danger to human health and the environment "even when used appropriately"; good-faith product advertising; and appropriate record keeping on exported products including the nature, quantity and destination of chemicals which are restricted on the home market and exported to other countries.[601]

Some national pesticide laws, such as the US *FIFRA*, currently require the American government to notify importing countries of pesticides that have been cancelled or suspended domestically,[602] though deficiencies in the American notice procedure have been documented by Congressional investigations.[603] Amendments were proposed in 1980 to require export control on all products whose manufacture, sale, use or disposal is prohibited or severely restricted in the United States,[604] but these and related proposals were never enacted.[605] However, in the fall of 1985 representatives of industry and a coalition of environmental, consumer and labour organizations agreed on proposed amendments to the US *FIFRA* that would only allow export of certain restricted pesticides once the importing country confirmed receipt of a notice from the exporter.[606] Both the *PCPA* and the *ECA* are silent on any such export notice or control requirement.

Canada's status as a net importer of pesticides does not mean that it never exports such products. In 1980, for example, it shipped fifteen tonnes of a domestically produced pesticide to India and Nepal amid protestations in Parliament questioning the product's safety, that were disputed by the federal government.[607]

---

600. OECD, Environment Directorate, Chemicals Group and Management Committee, *German Proposal for a Code of Conduct concerning the Export of Hazardous Chemicals*, ENV/CHEM/CM/83.9. (Paris: OECD, April 1983) at 5-6.

601. *Ibid.* at 7.

602. US *FIFRA*, s. 17(6).

603. US GAO, *supra*, note 589; see also, correspondence from Henry Eschwege, Director, Community and Economic Development Division, US GAO, to the Honourable Douglas M. Costle, Administrator, US EPA, Washington (20 April 1978).

604. US CEQ, *Environmental Quality: Eleventh Annual Report* (Washington, D.C.: US CEQ, December 1980) at 241.

605. David Weir and Mark Schapiro, *Circle of Poison: Pesticides and People in a Hungry World* (San Francisco, Calif.: Institute for Food and Development Policy, 1981) at 63-64 [Update].

606. "*FIFRA* Needs Fresh Air ...," *supra*, note 435.

607. See Canada, *H.C. Debates* (26 November 1980) at 5091: exchange between Simon de Jong, M.P., and the Honourable Monique Bégin, then Minister of National Health and Welfare. See also "Pesticide Shipments a Potential Time Bomb" *The [Regina] Leader Post* (26 November 1980) and "Bégin Challenges Pesticide Claim" *The Winnipeg Free Press* (27 November 1980).

In addition to the international notice requirements being investigated by the OECD, other organizations such as the United Nations have, by resolution, called for the control of exports unless certain information is provided to the importing country.[608]

RECOMMENDATION

The *PCPA* and the *ECA* should be amended to require, at a minimum, that any exporter give notice to foreign governments of the restrictions that exist domestically on pesticides exported to their countries. Exports should not take place until the exporter submits written evidence to the appropriate Canadian authority that the importing country has received the notice.

C. The *Food and Drugs Act*

(1) The Setting of Maximum Residue Limits for Pesticides

The general prohibition of the sale of adulterated food is found in section 4 of the *FDA*,[609] administered by Health and Welfare Canada. Specifically, section 4 prohibits the sale of any "article of food that (*a*) has in or upon it any poisonous or harmful substance; (*b*) is unfit for human consumption; ... [or] (*d*) is adulterated; ...." While this general section would appear to prohibit pesticide residues on food as pesticides are, by definition, poisonous substances, Division 15 of the *Food and Drug Regulations* establishes maximum residue limits for agricultural chemicals which are, in effect, exemptions to the section 4 prohibition.[610] "Agricultural chemical" is defined in the *FD Regulations* as including both substances that have been registered under the *PCPA* as well as other pesticides, not registered in Canada, which may result in residues on food.[611]

Maximum residue limits (MRLs), expressed in parts per million (ppm), have been established for approximately ninety agricultural chemicals. Any chemical found exceeding the limit set out in *FD Regulations*, Division 15, Table II, will be considered

608. United Nations General Assembly Resolution, UNGA 34/173 (1979) [information exchange and discourage certain exports]; and UNGA 37/137 (1982) [provide full information to safeguard health and environment in importing country and control certain exports].

609. The authority to restrict the sale of a food containing a harmful substance has been in existence in Canada since 1860 when "an Act for the prevention of Adulteration of articles of Food and Drug" was passed. In 1884 this became known as the *Adulteration of Food Act* (S.C. 1884, c. 34); in 1920 the name of the legislation became the *Food and Drugs Act* (c. 27). See P.R. Bennett, "Establishment of Residue Tolerances under Food and Drug Acts" in *APS Report* (Ottawa: Agricultural Institute of Canada, 1974) at 14.

610. *Food and Drug Regulations*, C.R.C. 1978, c. 870, Part B, Division 15, Table II [hereinafter *FD Regulations*]. The regulation-making power is found in section 25 of the *FDA*. Paragraph 25(1)(*a*) provides that the Governor-in-Council may make regulations "declaring that any food and drug or class of food or drugs is adulterated if any prescribed substance or class of substances is present therein or has been added thereto or extracted or omitted therefrom; ...."

611. *FD Regulations*, Part B, Foods, Division 1, B.01.001.

adulterated and in breach of paragraph 4(*d*) of the Act.[612] Pesticide residue limits are set at levels which will cover residues likely to remain in food at point of wholesale marketing, that is, at harvest of a crop, slaughter of an animal, removal from a warehouse in the case of treatment of stored foods, or point of entry into the country in the case of imported foods.[613] The *FD Regulations* were amended in 1978 to provide that a food is adulterated if it contains more than 0.1 ppm of any agricultural chemical not specifically listed in Division 15.[614] The policy basis for this regulation, as enunciated by Health and Welfare Canada is as follows:

> (1) relatively simple legal action can be taken against pesticide residues exceeding 0.1 ppm, without the need to prove hazard or to take action under section 4 of the Act;
>
> (2) many pesticides originally thought to leave no residues on foods (that is, below the sensitivity of the analytical method) have been subsequently found to leave very low residues which may be toxicologically negligible; and
>
> (3) residue levels below 0.1 ppm which are considered to be toxicologically significant may still be listed in Table II, Division 15 (for example, endrin at .02 ppm in fat portion of dairy products).[615]

However, while this regulation makes enforcement easier, there does not seem to be a scientific justification for the general 0.1 ppm MRL. For example, 0.1 ppm may be too high with regard to certain agricultural chemicals that may cause cancer. It is arguable that there should be no detectable residues allowed for carcinogens.[616]

While there are no administrative procedural manuals or documents used by Health and Welfare Canada which outline the types of scientific information required to support the establishment of pesticide residue limits in food, the Department does

---

612. *FD Regulations*, Part B, Division 15, B.15.002(1).

613. Bennett, *supra*, note 609 at 15. Apparently many of the older tolerances were set at levels requested by the manufacturer, provided that they were safe, without residue data to support the need for such levels: *ibid.*

614. *FD Regulations*, Part B, Division 15, B.15.002(1). In addition, there are some specific exemptions to paragraph 4(*d*) of the Act for agricultural chemicals such as sulphur, bacillus thuringienosis and inert ingredients. Regulations B.01.046(1)(o) and (p) declare food to be adulterated if it contains any amount of ethylenethiourea (ETU) or chlorinated dibenzo-p-dioxins, with the exception of 20 parts per trillion or less of 2,3,7,8-TCDD in fish (B.01.047(f)).

615. Health and Welfare Canada, *Answers to Questions Raised by the Law Reform Commission concerning the* Food and Drug Act *in Relation to Agriculture Chemicals* (Ottawa: HWC, July 1983) at 4-5.

616. This principle is encompassed by the Delaney clause to the US *FFDCA* which prohibits the use of any food additive that has been shown to cause cancer in human beings or animals (ss. 409(c), 348(c)(3)(A)). For a discussion of the various anomalies of the US *FFDCA* see Richard A. Merrill, "Regulating Carcinogens in Food: A Legislator's Guide to the Food Safety Provision of the Federal Food, Drug and Cosmetic Act" (1978) 77 Michigan L. Rev. 171.

Health and Welfare Canada officials have testified that "although we don't have a Delaney [clause] in Canada, we do have a Delaney philosophy [with respect to] direct food additives." See the *Alachlor Review Board Hearings*, *supra*, note 310, Transcript Volume 26 at 3838, testimony of Dr. Daniel Krewski.

consider that the applicant is responsible for proving the chemical nature, level and safety of any pesticide residues in food.[617]

Detailed information is required from the applicant in several areas. These include: the amount to be applied; frequency and times of application; satisfactory methods of analysis for determining residues in food; plant and animal metabolism studies; data on the quantity and chemical nature of residues remaining on foods at harvest, slaughter or point of sale; toxicity studies designed to evaluate the hazards of residues to experimental animals; and proposed residue limits in food.[618]

Once the applicant submits the data, Health and Welfare Canada makes a determination of the acceptable daily intake (ADI) of the particular pesticide. The ADI is the amount of chemical which toxicologists consider to be safe for human beings to ingest each day for an entire lifetime. Calculations are made of the lowest no-effect dose from toxicity studies of the pesticide on each animal species tested. The lowest NOEL is then divided by a safety factor such as 100 to establish the ADI.[619]

A second assessment is then made to determine the allowable MRLs. The residue studies submitted are examined, but MRLs are only accepted providing that the total consumption of residues from all food uses will not exceed the ADI estimated for the particular pesticide from the toxicity studies. Canadian eating habits are examined in order to help calculate acceptable residue levels. From 1969 to 1973 and again from 1976 to 1978 Health and Welfare Canada conducted total diet studies to look at the pesticide load borne by the average adult Canadian.[620] In these studies, foods comprising a typical Canadian diet are prepared for eating and then analysed for pesticide residues. These studies have now been discontinued.[621] Nutrition surveys and, to a lesser extent, surveys of households have been used to determine eating habits. The statistics gathered are used to determine consumption of various types of food. However, if a person eats more than the average amount of a certain food, he may be exposed to residues above the acceptable limits. The methods by which MRLs are set have been criticized both in Canada[622] and the United States.

In the United States, market basket surveys conducted by the US FDA have come under attack by the US GAO, an investigative arm of the American Congress. The US GAO criticized the market basket analyses for insufficient sample size and the practice of lumping similar foods together into composites, thereby obscuring the kinds and

---

617. Correspondence from Dr. Ian Munro, Director General, Food Directorate, Health and Welfare Canada, to Mr. Joe Castrilli, CELA, Ottawa (9 December 1980). See also Health and Welfare Canada, "Control of Pesticide Residues in Food" (Fall 1980) Bulletin No. 51.

618. Munro correspondence, *ibid.*

619. P.R. Bennett, "Outline of Pesticide Data Evaluation by the Food Directorate, Health and Welfare Canada" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 92.

620. Pim, *supra*, note 472 at 62.

621. *Ibid.* at 64. See Hamj A. McLeod *et al.*, "Pesticide Residues in the Total Diet in Canada, v: 1976 to 1978" (1980) Journal of Food Safety 2 at 141-64 for last total diet survey.

622. Pim, *ibid.* at 64.

amounts of residues that specific foods contribute.[623] For example, it was found that while a person would have to eat two pounds of raisins a day to exceed the acceptable daily intake of captan, a medium-sized apple a day could easily provide a person with more than the acceptable level of the chemical.[624] Commentators have noted that the captan example and many others indicate there is no correlation between the ADI and the tolerance levels.[625]

The US EPA which establishes tolerance levels has been criticized for using statistical averages that grossly underestimate the consumers' pesticide exposure. To set tolerance levels, the US EPA first calculates how much of each variety of fruit and vegetable the typical American consumes annually. To arrive at this figure the US EPA takes the total American production of the fruit or vegetable in question and divides it by the total population of the United States. The result is an average annual consumption. For example, the annual consumption level for artichokes and avocados is calculated to be 7.5 ounces a year. Therefore, anyone who eats more than this amount may be exposed to pesticide residues in excess of those calculated by the US EPA to be acceptable.[626] This procedure of setting tolerances also ignores the fact that many people, including chemical workers, farmers, agricultural labourers, and people who live near farms are exposed to pesticides on the job or at home as well as in goods.[627]

The setting of tolerance levels and ADIs for individual pesticides in foods has also been criticized for not taking into account a number of problems relating to pesticide exposure. These problems have been identified as follows: (1) the diets of certain individuals may consist of very high amounts of certain limited food items, rather than a balanced diet; (2) people are not equal in their ability to detoxify and eliminate pesticides (for example, children and elderly people have limited detoxification capacities); and (3) tolerance levels and ADIs are set for individual pesticides rather than for the effects of pesticides acting together (additive, cumulative and synergistic effects).[628]

The tolerance system has also been the subject of a number of reports from Congressional committees, the US GAO and the US EPA.[629] In February 1978, the House Committee on Interstate and Foreign Commerce, Subcommittee on Investigations

---

623. *Ibid.* at 65. See also Peter von Stackelberg, "Those Juicy Fruits May Be Juicier Than You Think" *The [Regina] Leader Post* (10 September 1980).

624. Scott R. McKercher and Frederick W. Plapp, Jr., "Pesticide Regulation: Measuring the Residue" (September 1980) 22:7 Environment 8.

625. *Ibid.*

626. See "Pesticidal Produce," Editorial, *San Jose Mercury* (12 February 1980). The editorial comments that the method of setting tolerance levels "makes as much sense as taking the average length of all American feet and then marketing only one shoe." See also discussion in U.S., House of Representatives, *supra*, note 330, at 159-61, 168-73.

627. "Pesticidal Produce," *ibid.*

628. *Supra*, note 624 at 7.

629. *Supra*, note 330 at 161. The staff report refers to the report by the House Committee on Government Operations (1969), a US GAO report dated 4 December 1975 and a report to the Senate Committee on Administrative Practice and Procedures (Kennedy Report).

and Oversight held hearings on chemical contamination of food. The subsequent report issued by the Subcommittee concluded that "... American consumers cannot be sure that the meat, poultry, fruits and vegetables they buy are not tainted with potentially dangerous pesticide residues."[630] The report noted specific deficiencies in the regulation of carcinogenic pesticide ingredients and in the food consumption statistics used to set tolerances.

Among the Subcommittee's recommendations were: (1) that Congress forbid the use of carginogenic, mutagenic and teratogenic pesticides unless it could be established that they left no residues on food; and (2) that the US EPA (a) cancel tolerances for pesticides which leave carcinogenic, mutagenic, or teratogenic residues on food, (b) require all manufacturers to supply missing safety and residue data within a specific period of time, (c) change the method of computing the "food factor" to account for groups that consume higher-than-average amounts of particular foods, and (d) cancel tolerances for pesticides that do not degrade within a specified time or which degrade into dangerous metabolites.

These recommendations were not adopted, and instead were reviewed by the US EPA's Science Advisory Board, which issued a report of its own in 1979 suggesting more moderate reforms to the tolerance setting process.[631] The recent study on the US EPA's pesticide regulatory programme prepared by the staff of the House Subcommittee on Department Operations, Research, and Foreign Agriculture of the Committee on Agriculture found that the US EPA was slow in implementing even the moderate suggestions made to it for reform. The staff report concluded that major changes in the tolerance system are needed and inevitable.[632]

Health and Welfare Canada officials have noted a number of possible reforms in the area of data requirements for pesticide residue setting and evaluation. They have suggested that either the *FD Regulations* could be amended or guidelines could be developed with Agriculture Canada to incorporate the following initiatives:

(1) to prepare guidelines concerning normal data required under the *FD Regulations*;

(2) to provide for the submission of all available data on any one chemical, including adverse reports;

(3) to provide for an automatic expiry date or update of residue limits, that is, to force manufacturers to bring Health and Welfare Canada up to date and provide data according to current standards on each chemical;

(4) to require manufacturers to hold all raw data on all scientific studies while the chemical is still registered and being used; and

---

630. *Ibid.* at 163.

631. See *ibid.* at 171. Among the Science Advisory Board recommendations accepted by the US EPA were that: (1) it would not be appropriate to set lower limits on the level of analytical sensitivity in residue testing for tolerance setting; (2) it would not be appropriate to allow applicants for tolerances to estimate residues based on data from similar chemicals; and (3) data on removal of residues from raw commodities by processing should not be considered in setting tolerances.

632. *Ibid.* at 173.

(5) to list negligible residue limits on foods for each pesticide, rather than use a general regulation to cover such chemicals.[633]

Environmental groups have recommended that the *FDA* be amended to provide that no detectable residue levels be allowed for pesticides found to be carcinogenic, mutagenic or teratogenic to human beings or animals.[634]

In the United States, the tolerance system has been challenged in the California courts on exactly this point. In 1980, a coalition of twenty-one plaintiffs launched a lawsuit against the California Department of Food and Agriculture, stating that the Department had failed to keep food in the state free from pesticides that cause cancer, birth defects, sterility, and mutations.[635] The plaintiffs demanded that the State eliminate 37 of the most harmful pesticides from food supplies and tighten its regulations on 244 other pesticides. They wanted California to adopt the principle that no residue of any pesticide proved to be carcinogenic, mutagenic, or teratogenic should be tolerated on produce.[636] As noted above, Canada currently allows specific MRLs to be established, or the general 0.1 ppm MRL to be applied for all pesticides, including carcinogens. If one accepts that there are no safe levels for carcinogens, then it would seem prudent to adopt a no-detectable limit for residues of proven chemical carcinogens, mutagens or teratogens.[637]

However, this is not the position of Health and Welfare Canada either in regard to carcinogens or to pesticides registered with insufficient or invalid data. Even after the discovery in 1977 that over one hundred chemicals registered in Canada were dependent on fraudulent IBT tests, Health and Welfare Canada did not revoke the residues for these chemicals. In 1977, thirty-two of the IBT-tested pesticides had residue limits set under the *FDA*.[638] As of March 1983, a number of changes in the MRLs had been made to ten of these chemicals. Only two pesticides had their MRLs deleted for food crops, while the other eight generally had additions of MRLs for various foods not listed before.[639] As of October 1983, eight chemicals remaining on the list of pesticides waiting for replacement data for invalid pivotal IBT studies still have MRLs established under the *FDA* above 0.1 ppm.[640]

---

633. *Supra*, note 619 at 92-93.

634. CELA/Probe, *supra*, note 483 at 32.

635. See complaint for injunctive and declaratory relief filed on February 5, 1980 by the California Rural Legal Assistance on behalf of twenty-one plaintiffs, including environmental groups, unions, farmworkers, doctors and two state assemblymen.

636. *Ibid.* See also Peter von Stackelberg, "Examining the Data on Pesticides Difficult" *The [Regina] Leader Post* (10 September 1980).

637. This is similar to the Delaney clause to the US *FFDCA* which prohibits the use of any food additive that has been shown to cause cancer in human beings or animals. See discussion, *supra*, note 616.

638. Health and Welfare Canada, *IBT Pesticides — 1977 List of Residue Limits* (Ottawa: HWC, undated) at 1-6.

639. Health and Welfare Canada, *IBT Pesticides — Residue Changes Made Since 1977 List of Residue Limits* (Ottawa: HWC, undated) at 1-6.

640. See Health and Welfare Canada, "Update on IBT Pesticides," *News Release* (14 October 1983). The eight pesticides are ethion, captafol, endosulfan, folpet, formetanate hydrochloride, naled, methamidophos, disulfoton.

(2) Captan: A Case-Study in Residue Setting

One pesticide that has received a considerable amount of attention in recent years is the fungicide captan. Captan, an IBT-tested pesticide and suspected carcinogen was the focus of the Consultative Committee on IBT Pesticides established by the Minister of Agriculture in September 1981. In 1977, at the time the IBT scandal surfaced, captan had residue limits of 40 ppm, 25 ppm and 2 ppm on various groups of fruits and vegetables.[641] The joint American–Canadian audit on captan revealed that all the studies done by IBT on captan, including carcinogenicity and teratogenicity studies, were invalid.[642] A new study submitted by a registrant showing that captan caused tumours in mice, confirming an earlier 1978 study, led Health and Welfare Canada to recommend to Agriculture Canada in March 1981 that there be no allowable residues of captan on food.[643] Health and Welfare Canada noted that according to the International Agency for Research on Cancer, the test results in mice indicated that captan should be regarded for practical purposes as if it were carcinogenic to human beings. Further, neither of the mouse cancer studies demonstrated a NOEL; therefore Health and Welfare Canada concluded that an ADI could no longer be estimated for captan.[644] As discussed earlier, the Consultative Committee on IBT Pesticides did not accept Health and Welfare Canada's recommendations.[645] Yet it is clear that Health and Welfare Canada has the authority under the *FDA* to reduce the residue levels on captan without Agriculture Canada's agreement,[646] but it failed to do so. Instead, it allowed the residue issue to be placed before the IBT Consultative Committee on IBT Pesticides. This would appear to be a questionable delegation by Health and Welfare Canada of its statutory authority under the *FDA*.

The Consultative Committee's recommendations in regard to the residue issue included the following actions: (1) negotiate residue tolerances with Health and Welfare Canada for a two-year trial period on the order of 0.1 ppm for most foods, 1.0 ppm for apples and pears, and 5.0 ppm for berries, grapes and stone fruits all measured at the retail level; (2) increase pre-harvest intervals for all crops; and (3) develop an intensified co-operative residue-monitoring programme with Health and Welfare Canada and interested provinces.[647]

However, Health and Welfare Canada decided not to follow these recommendations and instead on June 26, 1982, it placed a notice of a proposed amendment to the captan residue limits in the *Canada Gazette*. The proposed amendment called for a

---

641. *FD Regulations*, Part B, Division 15, Table II.

642. US EPA, *supra*, note 48, at Exhibit B. See also, *supra* at 77-78.

643. Health and Welfare Canada, Health Protection Branch, *Rationale for the Recommendations of March 31, 1981 on the Status of Captan* (Ottawa: HWC, 3 June 1981) at 2-5.

644. *Ibid.* at 3.

645. Agriculture Canada, *supra*, note 458.

646. Dr. Freeman McEwan, member of the Consultative Committee on Industrial Bio-Test Pesticides, *supra*, note 465 at 217, commented that "Health and Welfare has the say on tolerances, and if Health and Welfare decided tomorrow that captan should not be in Canadian food supplies, they have the power to effect that by cancelling their tolerances."

647. *Supra*, note 458 at 16-20.

reduction of the MRLs to 5 ppm in certain fruits and vegetables with all other foods to be covered by the general regulation allowing a maximum of 0.1 ppm captan.[648] Six of the ten responses to the proposed MRL changes for captan were from companies, politicians and government agencies in the United States. Both Stauffer Chemical Company and Chevron Company argued that there was no real reason to reduce the residue levels in that the Consultative Committee on IBT Pesticides did not find captan to be a carcinogen, mutagen or teratogen. The companies also argued that the difference between the proposed Canadian residue limits and those of the United States could interfere with the importation of food into Canada.[649]

Various fruit growers' associations and the US DA argued that the economic impact of lowering residue units would outweigh the risk of continuing with the residue levels then in place. It was estimated that about $60 million worth of tree fruit exported from California is treated annually with captan and that this could be a direct economic loss if the reductions in residue limits were implemented. The Foreign Agricultural Service, US DA, noted that during 1976-78 the US FDA monitored 4,720 food samples to determine levels and distribution of captan residues. Approximately 5 per cent of the samples contained detectable residues. Yet US DA states that the view of the American fresh produce industry is that a reduction of the MRL to 5 ppm would make compliance prohibitive or impossible. This seemed to contradict the earlier statement that only 5 per cent of the samples contained detectable residues.[650] It is interesting to note that in February 1982, the National Food Administration in Sweden proposed that the maximum permissible limit of captan in vegetables and fruits should be lowered from 15 to 3 ppm.[651]

Despite the negative comments, on October 7, 1982, Health and Welfare Canada notified those people who had made submissions that "in view of our overriding concern with the health of Canadian consumers of captan treated foods" the proposed amendments would be made without changes. Health and Welfare Canada stated that captan has been "clearly demonstrated to induce intestinal malignant tumours in two separate studies in mice" and that it is "the policy of the Health Protection Branch to eliminate or reduce to a minimum human exposure to potential carcinogens."[652] While manufacturers were given an additional opportunity for comment, the proposed amendments to the *FD Regulations* were officially published without change in the *Canada Gazette*.[653]

The end result after a period of two years, from Health and Welfare Canada's initial position that there should be no allowable residues of captan, was that twelve food crops would be allowed to have an MRL of 5 ppm with all other foods being

---

648. "Schedule No. 557," *Canada Gazette Part I* (26 June 1982) at 4688.

649. Health and Welfare Canada, *Responses to Canada Gazette, Part I, Notification of June 26, 1982, Proposal to Reduce MRLs for Captan* (Ottawa: HWC, undated).

650. *Ibid.* at 4.

651. Correspondence from Bo Wahlstrom, Head of Pesticide Section, Products Control Board to Consultative Committee on IBT Pesticides, Stockholm, Sweden (5 February 1982).

652. Correspondence from Dr. D.E. Coffin, A/Director-General, Food Directorate, Health and Welfare Canada, to the authors, Ottawa (7 October 1982) at 1.

653. *Canada Gazette Part II*, SOR 83-266.

allowed a maximum of 0.1 ppm captan. It is interesting that in regard to apples and pears, Health and Welfare Canada's final position of 5 ppm was above the IBT Consultative Committee's suggested limit of 1 ppm. Health and Welfare Canada's officials have indicated that their concerns with regard to captan "have been alleviated" and that while captan may be carcinogenic in rodents, it may not be in other species.[654] As discussed earlier, this seems to be a new and problematic approach to regulating carcinogens.[655]

It also appears that Canadians are still being exposed to levels of captan above 5 ppm. According to Health and Welfare Canada's enforcement programme (1981-82), four of eighteen samples of imported strawberries contained residues of captan which exceeded 5 ppm.[656] What is interesting is that Health and Welfare Canada found that none of the captan residues in domestic strawberries exceeded 5 ppm. Yet the OMAF in July 1982 in their submissions regarding the proposed reduction of MRLs for captan noted that thirty-one samples of strawberries from Georgian Bay and Norfolk County had captan residues above 5 ppm.[657]

Another interesting aspect of the reduction of captan residues was the fact that Health and Welfare Canada published the proposed amendments in the *Canada Gazette* for public comment. While a number of environmental statutes passed in the 1970s[658] provide for notice and comment periods on proposed regulations, the *FDA* does not contain such provisions and there is no statutory opportunity for public input into the regulation-making process. The notice and comment period for captan appears to be the first proposed regulation regarding agricultural chemicals published for comment in the *Canada Gazette*. Environmental groups have recommended that the *FDA* should be amended to provide for: (1) public participation in the regulation-making process including publication of draft regulations in the *Canada Gazette* with an appropriate time frame established for public submissions; and (2) a mechanism to allow any person to bring to the attention of the Minister of Health and Welfare, new information about adverse health or environmental impacts of any registered pesticide with an established tolerance and to require that the tolerance be re-examined.[659]

RECOMMENDATIONS

The *FDA* should be amended to require that no detectable residue levels be allowed where a pesticide has been found to be carcinogenic, mutagenic, teratogenic or to produce adverse neurotoxic or reproductive effects in human beings or animals.

---

654. Interview with A.B. Morrison, Assistant Deputy Minister, Health and Welfare Canada, Ottawa (11 July 1983).

655. *Supra* at 79.

656. Health and Welfare Canada, *Evaluation-Project FBAO 1981/82* (Ottawa: HWC, undated) at 40.

657. *Supra*, note 649 at 1.

658. See, for example, *Clean Air Act*, S.C. 1970-71-72, c. 47, s. 7(2), 13(2).

659. CELA/Probe, *supra*, note 483 at 32.

The *FDA* should be amended to establish a review board to hear appeals of tolerance-setting decisions. Any member of the public should be allowed:

(a) to petition the Minister to initiate investigations or restrictions on a registered pesticide about which new data have come to light regarding adverse health or environmental effects; and

(b) to cause a review board hearing to be held as to whether a pesticide tolerance should be established or re-examined.

In regard to either (a) or (b) the Minister shall initiate investigations or cause a board of review hearing to be held unless in his opinion such request is not made in good faith or is frivolous or vexatious.

The *FDA* should be amended to require public notice and opportunity for comment on revisions to the agricultural chemical MRLs under the regulations.

(3) Monitoring and Enforcement

The federal departments of Agriculture, Fisheries and Oceans, and Health and Welfare as well as a number of provincial ministries carry out pesticide residue analyses.[660] The major evaluation is the agricultural chemical residues compliance programme carried out by the Health Protection Branch, Health and Welfare Canada.

Approximately 1,600 to 1,700 food samples are analysed each year.[661] If the residues are found to be greater than the permitted MRLs, a prosecution can be brought for breach of *FDA* section 4 which prohibits the sale of adulterated food. Section 26 sets out the penalties available for breaches of the Act or regulations. A first offender on summary conviction may face only a fine up to $500 or up to three months imprisonment, or both. Fines increase for subsequent offences, and proceedings by way of indictment are also available. Subsection 22(1) sets out the powers of inspectors which include the power to examine books, to enter premises, and to seize and detain articles, including food which may contain residues in breach of the Act or regulations. Section 23 provides that any food may be forfeited to the Crown and destroyed with the consent of the owner, or forfeited upon conviction for a violation of the Act or regulations.

Since January 1, 1970, there have been no prosecutions for breach of the Act regarding agricultural chemical residues.[662] The usual enforcement procedure is to send a warning letter when food samples are found to contain excessive residues. Another enforcement tool is the refusal of entry of foods into Canada. Seizure and possible destruction of products may also occur when excessive residues are found. However, as Health and Welfare Canada officials note, this course of action is limited if the product

---

660. See Donald L. Grant, "Pesticide Residue Trends from Surveys" (Address at the CCREM Workshop on Pesticide Use in Canada, *Proceedings*) (Toronto: CCREM, March 1982) at 133.

661. *Ibid.* at 134.

662. *Supra*, note 615 at 1.

has been sold and consumed before analytical results are available.[663] From mid-1975 to May 1983 there have been thirty-six instances where produce had been refused entry, one seizure and twenty instances of voluntary disposals.[664]

The Health and Welfare Canada compliance programme attempts to achieve a one-to-one ratio of imported to domestic foods to be sampled and analysed each year.[665] According to Health and Welfare Canada, historically each year around three per cent of the samples have residues greater than the permitted MRLs.[666] However, an examination of the statistics frequently shows that samples significantly exceeded a three per cent level.

For example, since at least 1979 the fungicide ethylenebisdithiocarbamate (EBDC), and its breakdown product ETU have been identified for special consideration in the compliance programme. In 1979-80, fifty imported food samples were analysed for EBDC. Eleven samples or twenty-two per cent contained residues above the permitted MRLs. None of the ninety-four domestic samples examined exceeded allowable EBDC residues.[667]

In the case of ETU, according to regulation B01.046(0) of the *FD Regulations*, a food is adulterated if it contains *any* amount of that breakdown product. However, Health and Welfare Canada considers specimens to be unsatisfactory if the level of ETU is greater than 0.05 ppm.[668] Using this policy approach, while ten of forty imported products contained residues, only three were deemed unsatisfactory. Thirty-three of sixty-two domestic products contained residues of ETU, yet only five were considered unsatisfactory. The only compliance action taken stronger than a warning letter was the prevention, in one instance, of the sale of canned spinach containing ETU.[669] The effect of Health and Welfare Canada's policy departure from the regulations is to allow residues of ETU that *prima facie* violate the law to be ignored. This is of particular concern because ETU has been known to cause cancer in rats. Agriculture Canada has had EBDCs under review for some time because of this cancer threat and has reduced domestic class use patterns and increased pre-harvest intervals.

The evaluation done by Health and Welfare Canada of the 1979-80 compliance programme generally concluded that the onus must be left to the regions to select domestic food specimens that are suspected of containing excessive pesticide residues. Health and Welfare Canada stressed that these decisions can only be made after the carrying out of intensive investigations into the current use of pesticides within each

---

663. *Ibid.* at 2.

664. Health and Welfare Canada, *Compliance Activities Taken by the Health Protection Branch Relative to Pesticide Residues in Foods* (Ottawa: HWC, July 1983).

665. *Ibid.* at 3.

666. *Ibid.* at 1.

667. Health and Welfare Canada, *Project FBAO-"Agricultural Chemical Residues" 1979/80* (Ottawa: HWC, 21 July 1980) at 8.

668. *Ibid.* at 9.

669. *Ibid.* at 10.

region.[670] Unfortunately, as discussed above, the record-keeping provisions of the *PCPA* are inadequate and do not provide for a mandatory system to monitor pesticide usage across Canada.[671]

In 1980-81, a total of 1,653 specimens were analysed, of which 4.4 per cent were unsatisfactory. Again, imported vegetables accounted for the greatest number of unsatisfactory specimens. A wide variety of pesticides accounted for the unsatisfactory status of specimens including: organochlorines such as DDT, lindane and toxaphene; organophosphates; carbamates; pyrethrins; as well as certain fungicides and herbicides. A number of unsatisfactory residues were IBT-tested chemicals, whose safety status remained uncertain.

The 1981-82 evaluation also tended to point out problems with the compliance programme. Since imported fruit made up 85 per cent of the fruit consumed in Canada, it was recommended that the ratio of imported to domestic fruit should be increased.[672] In regard to vegetables, Health and Welfare Canada admitted that it does not have sufficient resources to carry out a monitoring programme which would measure the overall degree of compliance.[673] Of the 870 vegetable specimens sampled in 1981-82, 5 per cent of Canadian produce, 8 per cent of United States produce, 25 per cent of Mexican produce and 5 per cent of the vegetables from other countries were found to have unsatisfactory residues.[674]

These figures raise serious concerns about the effectiveness of Health and Welfare Canada's policy of only using certain administrative enforcement tools and of not proceeding with quasi-criminal prosecutions available to them. It is also of concern that the Canadian public may be subjected to unacceptable residues. It would seem that Health and Welfare Canada should re-evaluate its enforcement strategy, including its reluctance to prosecute for breach of the *FDA*. In addition, civil administrative penalties currently not available to Health and Welfare Canada under the *FDA*, but used extensively in the United States,[675] may be an enforcement tool worth investigating. Amendments to the *FDA* would be necessary to implement such penalties.

RECOMMENDATION

The *FDA* should be amended to authorize the use of civil penalties as an inducement to compliance without any diminution in the right to prosecute publicly or privately for violations of the Act's provisions.

---

670. *Ibid.* at 11.

671. *Supra* at 8 and 87.

672. *Supra*, note 656.

673. *Ibid.* at 44.

674. *Ibid.* at 48.

675. *Supra* at 90-91.

D. The *Environmental Contaminants Act*

The purpose of the *ECA* is "to protect human health and the environment from substances that contaminate the environment."[676] Under the Act, the Ministers of Environment Canada and Health and Welfare Canada are given the authority to ban or restrict the import, manufacture, processing, sale, commercial use or release of a substance, or class of substances, that the Ministers are satisfied does or will constitute "a significant danger ... to human health or the environment ..." (subsection 5(1)).[677] The Act, however, is residual in nature. Before acting, the Ministers must be satisfied that the problem will not be eliminated by the use of other federal or provincial laws after consulting or offering to consult with the provinces and other federal departments (subsection 5(2)).

The Act also authorizes the Ministers to publish notices in order to gather information on, and to require the testing of, certain chemicals from industry (sections 3 and 4). Mandatory industry reporting is also required within three months of the first-time manufacture or import of a chemical compound in excess of 500 kilograms (subsection 4(6)). A further information-gathering device under the Act is the authority to establish advisory committees to review and assess data collected under other sections of the Act. The advisory committee must: advise the Ministers on possible substance control measures; receive representations from "interested parties or concerned members of the public"; and publish reports and recommendations (subsections 3(4) and (5)).

While on its face, the Act would appear to have wide applicability to pesticides, because the Act is of a residual nature, it has had only a marginal impact on pesticide problems. Environment Canada officials noted as early as 1975 that:

> The Environmental Contaminants Act will not be concerned with pesticides. However, it will be concerned with those chemical substances which are used as pesticides as well as for other industrial or commercial purposes.[678]

There are essentially four initiatives under the Act that have been related to pesticide matters. These include: (1) the ban of one particular substance that has been used as a pesticide in other jurisdictions but not in Canada; (2) the development of priority and candidate chemicals' lists for information gathering on substances that have been used as pesticides as well as for other purposes; (3) the establishment of an advisory committee to investigate a contaminant found in pesticides as well as in other products; and (4) the issuance of a notice surveying *PCPA* pesticide registrants with regard to the sales of twenty-four active ingredients in Canada.

The first pesticide-related initiative under the Act was with respect to mirex. Mirex is the only substance that has had some use as a pesticide — though not in Canada — for which all commercial, manufacturing and processing uses were banned in 1978

---

676. S.C. 1974-75-76, c. 72 (long title).

677. See generally preamble and sections 5, 6, 7, 8 and 18.

678. Dr. J.E. Brydon, Environment Canada, "The Role of the *Environmental Contaminants Act* in the Management of Pesticides" in *APS Report* (Ottawa: Government of Canada, 1975) at 24.

under the Act.[679] Because mirex had never been used in Canada as a pesticide, it was never registered under the *PCPA*.[680] In Canada, it had been used as a flame retardant in plastics.[681] In the United States, mirex had been used as an insecticide in the southern states. However, it was produced in the Great Lakes region and became a contaminant, particularly of Lake Ontario, owing to improper disposal practices in the Niagara River area.[682]

The second ongoing pesticide-related initiative under the Act is with respect to a number of substances that are under investigation and are categorized in the *Canada Gazette* as priority or candidate chemicals.[683] Priority chemicals are divided into three categories: (1) those substances which are in the schedule to the Act and for which further regulations or specific control strategies are being developed; (2) those substances which are being investigated to determine the nature and extent of the danger they pose to human health and environment, and methods needed to control them; and (3) those substances which may pose a significant danger to human health or the environment and about which more information is needed.[684] Candidate chemicals are those that may be potential problems but for which insufficient concern exists to place them on a priority list.[685] The criteria for placement of a chemical on the lists include: (1) toxic effects; (2) persistence; and (3) quantity and use. The *Canada Gazette* notes that chemicals that are used solely as pesticides are excluded from consideration on these lists because they are already "scrutinized or controlled under other federal legislation."[686]

Chemicals that have had use as pesticides as well as other uses appear under several of the Act's priority and candidate chemicals lists. Chlorophenols, for example, appear under Category II of the priority chemicals list.

Some chlorophenols are classed as pesticides and their industrial and agricultural uses (for example, wood preservation, pesticide and herbicide use) are regulated by Agriculture Canada under the *PCPA*.[687] They have been identified in samples of water,

---

679. *Mirex Regulations*, SOR/78-891; and *Schedule to the Act, Amendment*, SOR/78-892.

680. Dr. J.E. Brydon, Director, Commercial Chemicals Branch, Environmental Protection Service, Environment Canada, *Responses to Questions Posed by the Law Reform Commission of Canada on Environment Canada's Regulatory and Enforcement Role with Respect to Pesticides* (Ottawa, 13 July 1983).

681. *Ibid.* See also, Fisheries, Environment Canada and Health and Welfare Canada, *Mirex in Canada*, Report of the Task Force on Mirex to the Joint Department of Environment and National Health and Welfare Committee on Environmental Contaminants (Ottawa: Government of Canada, April 1977) at 20.

682. Fisheries *et al.*, *ibid.* at xi.

683. "Departments of the Environment and National Health and Welfare, *Environmental Contaminants Act*: Priority and Candidate Chemicals," *Canada Gazette, Part I* (16 January 1982) at 431.

684. *Ibid.* at 432-33.

685. *Ibid.* at 435.

686. *Ibid.* at 431.

687. Environment Canada, Environmental Protection Service, *Chlorophenols and Their Impurities in the Canadian Environment*, EPS 3-EC-81-82 (Ottawa: Supply and Services Canada, March 1981) at i and 41.

snow melt, sediment, aquatic biota, agricultural produce and human beings. New restrictions on certain uses of chlorophenols were recently imposed under the *PCPA*.[688]

Aromatic amines appear under the candidate chemicals list. Many are produced in large quantities and are used for various purposes such as precursors for the manufacture of herbicides and fungicides. Environment Canada indicates that some of these chemicals are carcinogenic or otherwise toxic and have been detected in the Great Lakes.[689]

The third pesticide-related initiative under the Act relates to dioxins, some of which are suspected of causing cancer.[690] In 1981, the Ministers established, under section 3 of the Act, an expert advisory committee on dioxins to provide advice on: the sources of dioxins; the pathways by which they enter the environment; the potential and actual exposures of human and non-human populations to dioxins; and their toxicity and associated risks.[691] The committee concluded in 1983 that to protect human health and the environment, all inputs of dioxins must be reduced to the lowest possible level.[692] The committee listed environmental sources of dioxins as including some pesticides and herbicides (for example, chlorophenols, 2,4-D and 2,4,5pT).[693] A companion federal report outlines the federal approach to dioxins' control, which is based on the view that "to reduce or eliminate the major sources of dioxins into the Canadian environment is pragmatically and economically more effective than continued rigorous assessment of the risks of dioxins."[694]

The fourth initiative under the Act is the only one specifically directed to information gathering on substances predominantly used as pesticides in Canada and registered under the *PCPA* as such. As discussed above,[695] since 1983 both Environment Canada and Agriculture Canada under the *ECA* and the *PCPA*, respectively, have been conducting an annual survey of pesticide registrants concerning sales in each province of various active ingredients. The impetus for Environment Canada's use of the *ECA* to gather information on pesticides devices derives from the following: (1) the Department's advisory role with respect to registration and re-evaluation of pesticides can be improved with such data; (2) pesticides are applied directly to the environment, have a high potential for environmental impact and the Department is responsible for detection and assessment of such effects; and (3) pesticides are the problem of highest

---

688. *Supra* at 68 and 82-83.

689. "Departments of the Environment ...," *supra*, note 683 at 435.

690. Health and Welfare Canada and Environment Canada, *Report of the Ministers' Expert Advisory Committee on Dioxins* (Ottawa: Government of Canada, November 1983). The report notes, for example (at 16), that the isomer 2,3,7,8-TCDD is "carcinogenic in rats and mice."

691. Health and Welfare Canada, Health Protection Branch, "Expert Advisory Committee on Dioxins," *Information Letter* No. 620 (21 April 1982) at 1.

692. *Supra*, note 690 at 2 and 4.

693. *Ibid.* at 23-24.

694. Government of Canada, Interdepartmental Committee on Toxic Chemicals, *Dioxins in Canada: The Federal Approach* (Ottawa: Government of Canada, December 1983) at ii.

695. *Supra* at 87-88.

priority experienced by some Department regional offices around the country.[696] In conjunction with the *ECA* survey, a second survey of farmer use of pesticides was done as part of the annual Statistics Canada National Farm Survey in 1983 and again in 1984. Its intent was to generate information at the user level regarding a number of registered products which, it was hoped, would enable the Department to estimate quantities of pesticides entering the environment in certain river drainage basins.[697] According to Environment Canada, results of these farmer surveys were never made public owing to the poor quality of the data. The main problem appears to have been sample size: what was sufficient for the gathering of most information required by Statistics Canada was too small for a useful pesticide survey. While information to the previously mentioned survey of pesticide registrants is accessible to various provincial and federal agencies, public access is restricted pursuant to the confidentiality provision of the *ECA*. Other problems with the registrants survey have been outlined above.[698]

In general, the *ECA* has had a limited impact on pesticide problems in Canada. Restrictions of pesticide-related substances have been limited to mirex, a substance used as a pesticide in the United States, but not in Canada. The Act's predominant involvement with pesticides has been through its information-gathering provisions. This limited involvement with pesticides stems from the residual nature of the statute, notwithstanding that Environment Canada officials report pesticides to be the toxic chemical problem with the highest priority in some regions of the country. It appears that the question of when a registered pesticide product under the *PCPA* becomes a contaminant under the *ECA* remains a matter that has not been resolved under federal law, except that the *ECA* is residual to other federal Acts.[699]

E. Other Federal Laws

There are a number of other federal laws with limited application to certain aspects of pesticide management that are administered by several federal departments.[700] In addition, several provisions of the *Criminal Code*, at least in theory, are applicable to pesticide-related injury.[701]

---

696. T.D. Leah, Contaminants Control Branch, Environment Canada, "A Canadian Pesticides Inventory" (Address at the Environmental Protection Service, Western and Northern Region, *Workshops on Pesticides*) (Edmonton, Alberta: Environment Canada, 11 May 1982) at 1.

697. Correspondence from Dr. J.E. Brydon, Director, Commercial Chemicals Branch, Environment Canada, to Clare M. MacLellan, Research Officer, Law Reform Commission of Canada (17 May 1983), Ottawa.

698. *Supra* at 87-88.

699. See *ECA*, s. 5(2).

700. See, for example, *Pesticide Residue Compensation Act*, R.S.C. 1970, c. P-11; *FA*; *Ocean Dumping Control Act*, S.C. 1974-75-76, c. 55; and *Transportation of Dangerous Goods Act*, S.C. 1980-81-82-83, c. 36.

701. These include *Criminal Code*, sections 202 (criminal negligence), 176 (common nuisance) and 387 (mischief).

F. Non-Regulatory Programmes

Programmes not specifically authorized by statute may often have an important influence on legislated requirements. Moreover, they can also suggest areas of future regulatory activity or alternatives that could reduce dependence on pesticide use and resulting enforcement needs. Federal programmes examined here include pest management schemes that may reduce reliance on pesticides, and *ad hoc* public consultation efforts.

(1) Integrated Pest Management Programmes

Alternatives to pesticides can not only reduce reliance on these chemicals but can also reduce enforcement needs with respect to controlling pesticide misuse. The principal approach to reducing reliance on chemical pest control is known as integrated pest management (IPM). Agriculture Canada defines IPM as the "combined use of chemical, biological, cultural and genetic methods for effective and economical pest control with a minimum effect on non-target organisms and the environment."[702]

The Department indicates that: "The principle is to apply, wherever possible, biological, biochemical and cultural controls and to greatly reduce the exclusive dependence on chemical pesticides."[703] However, while it is not clear how much federal money goes into non-chemical as opposed to chemical research, Agriculture Canada describes alternatives to chemical control as "still very much in the developmental stage."[704] Moreover, the Department acknowledges that there is a "reluctance on the part of growers to accept integrated pest management as an alternative" to pesticides.[705] Not only are the latter regarded as tried and proven techniques, but also it is frequently more expensive to use IPM per hectare than to use conventional pesticides.[706] The Department also admits that many of the IPM programmes are themselves still heavily dependent on chemical pesticides, though gains have been made in reducing pesticide use within the IPM programmes for certain crops.[707]

The impetus for Agriculture Canada IPM efforts has been "concern over the widespread use and reliance on chemicals for insect control,"[708] and a recognition that

---

702. Agriculture Canada, Research Branch, *Integrated Pest Management in Agricultural Crops in Canada* (Ottawa: Agriculture Canada, May 1980).

703. Agriculture Canada, Research Branch, *Progress in Research: 1981* (Ottawa: Supply and Services Canada, 1982) at 42.

704. *Supra*, note 702 at 8.

705. *Ibid.* at 29.

706. In *ibid* at 7, Agriculture Canada notes, for example, that in the protection of apple and pear orchards from codling moths, the use of sterile moth controls costs approximately $250 per hectare while chemical sprays cost $100 per hectare.

707. *Ibid.* at i.

708. *Ibid.* at 3.

it would be "unwise ... to place all our trust in present-day chemical controls."[709] The Department notes, however, that "pesticides will continue to play an important role" even in IPM programmes.[710]

RECOMMENDATION

The *PCPA* should be amended to require that a substantial percentage of Agriculture Canada's pest control research budget, including outside contracts, be spent on research into non-chemical alternatives to pest control, such as further research into integrated pest management strategies that place less reliance on chemical pesticides.

(2) *Ad Hoc* Consultative Committees

As noted above, Agriculture Canada established an *ad hoc* consultative committee to study the implications of controlling more strictly captan, a fungicide.[711]

In December 1983, the Minister of Agriculture indicated that a consultative process would be included in the assessment and registration of pesticides generally. A study was conducted on how to implement this proposal and a report and final recommendations were made in March 1984 by Dr. Liora Salter, Department of Communications, Simon Fraser University. The key recommendations included: the establishment of an information secretariat to collect and disseminate pesticide information; the production and dissemination of background information on pesticides being registered or re-evaluated; preparation and dissemination of more detailed information to accompany the publication of decisions made by Agriculture Canada on the registration or re-evaluation of chemicals or changes in their labels; the establishment of a pesticide "hot line" to receive requests for information or complaints; the establishment of a pesticide management advisory board to hold public meetings and make recommendations to the Minister on broad policy questions of public concern as well as to ensure that some issues receive a special assessment; establishment of a number of *ad hoc* consultative committees selected by and reporting through the advisory board to the Minister on special issues of concern; the immediate establishment of a special consultative committee to consider those pesticides generally regarded as safe to determine the adequacy of the information used in their registration and the need, if any, for re-evaluation; and the development of closer federal-provincial relations and co-operation on pesticide issues.[712]

---

709. *Ibid.* at 9.

710. *Ibid.* Critics have suggested that IPM will never have more than a marginal impact in reducing pesticide use unless government policies favouring chemicals over alternatives are systematically revised. See Hall, *supra*, note 8 at 22-32.

711. *Supra* at 78.

712. Salter and Leiss, *supra*, note 379 at 1.

The federal government to date has taken some initial steps to establish the Pesticide Management Advisory Board, though it is unclear what the Board's terms of reference will actually be. Indeed, while these recommendations are a step in the right direction as far as Agriculture Canada's internal administrative procedures are concerned, most of the proposals constitute housekeeping improvements and cannot be seen as a substitute for comprehensive law reform in the areas of registration, re-evaluation and related concerns.

III. The Role of Provincial Governments

Substantial constitutional authority exists for provincial legislation controlling pesticides.[713] Unlike federal law, provincial legislation frequently authorizes the issuance of permits and licences to certain types of pesticide users.[714] These are authorized in conjunction with provincial pesticide classification schemes,[715] which supplement federal control of use. Key problems exist, however, with respect to which pesticides are assigned to particular use classifications, especially where less hazardous alternative products may not be available. This problem has been exacerbated by the IBT affair. Moreover, permit and licence exemptions for certain major users of pesticides, such as farmers, may leave fundamental gaps in provincial control schemes. In addition, as of February 1985 two provinces still lack any comprehensive pesticide legislation addressing sale, use or related matters.[716] The most frequent components of provincial pesticide law include control of transportation, storage, disposal and spills. It also includes a variety of administrative and quasi-criminal enforcement techniques such as: record keeping and reporting; provincial inspection authority; administrative orders of various types; the use of advisory committees and appeal boards to deal with specific pesticide problems; and quasi-criminal prosecutions. The public can also play an important part in supplementing provincial control of pesticides. The federal focus of this report precludes a review of provincial pesticide law.

IV. The Role of Municipal Governments

Municipalities have become involved in pesticide issues through their dual roles as both regulators and users of pesticides. These two roles may give an ambivalent character to the municipal approach to pesticide management. There has also been

---

713. *Supra* at 39 and 40.

714. See, e.g., the *Pesticides Act*, R.S.O. 1980, c. 376, s. 5, 6, 7.

715. See, e.g., R.R.O. 1980, regulation 751, s. 20-21 and sch. 1-6.

716. The two provinces are Québec and Nova Scotia. They rely in part on general environmental legislation to address pesticide matters.

increased municipal interest in recent years in "right to know" by-laws. Given the federal focus of this Study Paper, we have not included a review of the roles and activities of municipal governments in relation to pesticides.

CHAPTER FOUR

Summary of Recommendations for Legal and Regulatory Pesticide Reforms in Canada

In the almost fifteen years since major amendments to Canada's principal pesticide law, the *PCPA*, were last enacted, problems surrounding pesticides have not abated. They have merely shifted from an older generation of persistent pesticides, such as DDT, to a newer generation of products whose health and environmental effects may be more subtle, but no less critical. Pesticide laws, particularly at the federal level, have not kept pace with the challenges posed by the number, diversity and impacts of pesticides that are used in agricultural production, forestry and the home.

Protection of the food- and fiber-producing sectors of the economy is an important societal goal, but it is doubtful that Parliament's intention in the 1969 amendments to the *PCPA* was to achieve this aim at the expense of health and the environment. Events over the last decade and a half have frequently shown, however, that health and the environment have been vulnerable to potential and actual damage arising from pesticides. Despite attention to the problem at all levels of government, the need for law reform, especially federal law reform, has become evident, if not acute. The focus of such law reform should be twofold: (1) increasing governmental authority to act; and (2) providing, as a matter of law, opportunity to individuals for participation in governmental decision making and, where necessary, redress to the courts. The summary of recommendations that follows is proposed with these dual objectives in mind. These recommendations have, in many instances, been part of pesticide regulatory programmes in other jurisdictions for years, without causing undue financial strain on regulatory resources. In addition, because many of these recommendations are reflected in international requirements, they will not result in substantial duplication in regulatory or registrants' costs attributable to any *PCPA* amendments alone.

I. The *Pest Control Products Act*

1. The *PCPA* or the *PCP Regulations* should be amended to require consideration of groundwater contamination potential when pesticides are proposed for registration or re-evaluation. [See discussion *supra* at 52.]

2. **The *PCPA* or the *PCP Regulations* should be amended to specify the criteria the Minister must use in granting temporary registrations, including the information that must be submitted in support of such an application and the number of renewals permitted. Opportunity for notice and public comment should also be required, including public availability of health and safety data in support of such applications as well as applications respecting research permits.** [See discussion *supra* at 61-65.]

3. **The *PCPA* or *PCP Regulations* should be amended to provide for public notice of registration applications for a new product or for significant new use and re-evaluation of older chemicals. The *PCPA* or *PCP Regulations* should be further amended to provide for: public access to health and safety tests relied on in support of a registration application or a re-evaluation of an older chemical; a sixty- to ninety-day comment period; and a right to request a hearing before a board of review prior to a pesticide registration application's being granted. Appropriate safeguards to prevent frivolous hearing applications should be included.** [See discussion *supra* at 65-66.]

4. **The *PCPA* or *PCP Regulations* should be amended by adding a schedule that would incorporate specific timetables for cyclical re-evaluation of all registered pesticides. There should be the authority to suspend or cancel a pesticide registration if the registrant fails to comply with the timetable where the pesticide lacks scientifically valid studies respecting cancer, birth defects, mutations, neurotoxic or reproductive effects.** [See discussion *supra* at 66-73.]

5. **The *PCPA* or *PCP Regulations* should be amended to authorize the establishment of a system of prioritization for pesticide re-evaluation reviews and to screen registered pesticides to identify those registrations which are based on old or incomplete safety data and for which new evidence suggests they may endanger human health or the environment. Where a pesticide meets or exceeds a critical risk standard (for example, as a potential cause of cancer), the federal government should be required to publish a notice announcing to the relevant registrants that they must submit evidence rebutting the presumption of "unacceptable risk" or the government will proceed to apply appropriate restrictions, including suspension or cancellation.** [See discussion *supra* at 66-73.]

6. **Registrants should be statutorily required to notify the government immediately of studies or other evidence within their knowledge that indicate that one of their registered pesticides may cause or contribute to the endangerment of human health or the environment.** [See discussion *supra* at 76.]

7. **The *PCPA* should be amended to provide that the Minister shall suspend or cancel any pesticide when it is shown that material safety tests supporting the application are invalid. Such suspension or cancellation should continue until new**

valid tests are submitted demonstrating the product's safety.[717] [See discussion *supra* at 75-76.]

8. Under the *PCPA*, any member of the public should be allowed:

(a) to petition the Minister to initiate investigations or restrictions on a registered pesticide about which new data have come to light regarding adverse health or environmental effects; and

(b) to cause a board of review hearing to be held as to whether a pesticide should be suspended, cancelled or its registration continued.[718]

In regard to either (a) or (b), the Minister shall initiate investigations or cause a board of review hearing to be held unless in his opinion such request is not made in good faith or is frivolous or vexatious. [See discussion *supra* at 65-66 and 85.]

9. Fines under the *PCPA* should be increased substantially, at least up to the levels in the *FA* or the *ECA*. [See discussion *supra* at 89.]

10. The *PCPA* should be amended to authorize the use of civil penalties as an inducement to compliance, without any diminution in the right publicly or privately to prosecute for violations of the Act's provisions. [See discussion *supra* at 90-91.]

11. The *PCPA* should be amended to provide ministerial authority and citizen standing to seek a restraining order to prevent violations of the Act. Citizens should also be granted standing under the *PCPA* to bring an application for judicial review to enforce any duty under the Act or regulations. [See discussion *supra* at 91-93.]

12. The *PCPA* or *PCP Regulations* should be amended to require the annual reporting to Parliament of the following information:

---

717. This proposed amendment would ensure that in a situation where it has been found that a registration has taken place on the basis of false data and invalid tests, the Minister shall suspend or cancel the use of the pesticide until new valid tests are in place demonstrating the product's safety. Presently, the statute is unclear as to whether false data also could be a sufficient basis for suspension or cancellation.

    This issue arose in the United States where it was determined that the US EPA did not have the authority to suspend or cancel registered pesticides where the safety tests supporting the registration were invalid. The US GAO recommended amendments to the US *FIFRA* that would authorize the US EPA to take regulatory action, including suspension where it was determined that the registration of a pesticide was not supported by valid safety tests at the time of registration. Presently, the US *FFDCS* does allow the US FDA to withdraw approval of a drug when it is determined that the original drug application "contains any untrue statement of a material fact."

718. See also the *Combines Investigation Act*, R.S.C. 1970, c. C-23, s. 7(1) which authorizes any six persons resident in Canada to apply to the Director of Investigation for an inquiry where they are of the opinion that a person has contravened or failed to comply with orders under the Act. Paragraph 8(*a*) requires the Director to cause an inquiry to be made upon the filing of the subsection 7(1) application.

(a) the number of registration applications received by relevant category of application (for example, new product, new use of existing product, and so forth);

(b) the number of such registrations granted including the type of approval (that is, domestic, commercial, restricted);

(c) the number of applications denied or withdrawn and why;

(d) the time for handling applications;

(e) the number of research and temporary registration applications, including

(i) the number of applications by type of exemption sought (for example, emergency) and the disposition of these applications;

(ii) the total kilograms of each active ingredient and the area authorized for application, by province, and

(iii) the actual amount used and area to which applied;

(f) the status of re-evaluation reviews for each active ingredient;

(g) a complete and updated list and summary of suspended, cancelled or otherwise restricted pesticides and other enforcement actions taken; and

(h) a list of notices transmitted to officials of foreign governments with respect to exports of banned or restricted products (proposed below).[719] [See discussion *supra* at 8 and 86-88.]

13. The *PCPA* should be amended to require registrants to submit to the government annually information concerning the production and sales of active ingredients, and to estimate the usage of each such pesticide by province. The Act should be further amended to require the government to publish this information annually in aggregate form by province. [See discussion *supra* at 8 and 86-88.]

14. The *PCPA* should be amended to require the listing of inert as well as active ingredients on the product label,[720] **and at least the same information concerning environmental hazard and appropriate use as appears on the labels of the product in its country of origin.** [See discussion *supra* at 91-92.]

---

719. This type of reform has specifically been proposed by an American Congressional subcommittee, *supra*, note 528 at 7-8.

720. Saskatchewan officials, in *supra*, note 702 at 22, have noted that: "Existing labelling of pesticides in Canada under the [*PCPA*] requires that only 'active ingredients' be listed. This means that many ingredients of formulated pesticides need not be listed on the label since legally they are not defined as an 'active ingredient.'" Inerts may be biologically active. See *ibid.* at 23.

15. The *PCPA* should be amended generally:

(a) to mandate public access to, and government and agency sharing of, pesticide health and safety data (concerning both active and inert ingredients); and

(b) to authorize compensation or a period of exclusive use to protect the initial data submittor from competitors seeking access to information, including trade secrets. [See discussion *supra* at 47 and 94-98.]

16. The *PCPA* and the *ECA* should be amended to require, at a minimum, that any exporter give notice to foreign governments of the restrictions that exist domestically on pesticides exported to their countries. Exports should not take place until the exporter submits written evidence to the appropriate Canadian authority that the importing country has received the notice. [See discussion *supra* at 99-102.]

17. The *PCPA* should be amended to require that a substantial percentage of Agriculture Canada's pest control research budget, including outside contracts, be spent on research into non-chemical alternatives to pest control, such as further research into integrated pest management strategies that place less reliance on chemical pesticides. [See discussion *supra* at 118-19.]

II. The *Food and Drugs Act*

18. The *FDA* should be amended to require that no detectable residue levels be allowed where a pesticide has been found to be carcinogenic, mutagenic, teratogenic or to produce adverse neurotoxic or reproductive effects in human beings or animals.[721] [See discussion *supra* at 103-110.]

19. The *FDA* should be amended to establish a review board to hear appeals of tolerance-setting decisions. Any member of the public should be allowed:

(a) to petition the Minister to initiate investigations or restrictions on a registered pesticide about which new data have come to light regarding adverse health or environmental effects; and

(b) to cause a review board hearing to be held as to whether a pesticide tolerance should be established or re-examined.

In regard to either (a) or (b) the Minister shall initiate investigations or cause a board of review hearing to be held unless in his opinion such request is not made in good faith or is frivolous or vexatious. [See discussion *supra* at 110.]

---

721. This recommendation reflects the policy that one should err on the side of caution and limit exposure to carcinogens and other irreversible health effects as much as possible.

20. The *FDA* should be amended to require public notice and opportunity for comment on revisions to the agricultural chemical MRLs under the regulations. [See discussion *supra* at 110.]

21. The *FDA* should be amended to authorize the use of civil penalties as an inducement to compliance without any diminution in the right to prosecute publicly or privately for violations of the Act's provisions. [See discussion *supra* at 111-113.]

III. Other Recommendations for Federal Law and Policy

22. Health and Welfare Canada should introduce good laboratory practice legislation compatible with international principles. In conjunction with this, the federal government should establish by law an independent testing facility financed in substantial part by a tax on annual quantities of chemicals and pesticides imported, manufactured, formulated or used in Canada. Such facility should be a principal source of testing data on new pesticides and uses. Further, it should develop environmental testing data under Canadian conditions. [See discussion *supra* at 50-52 and 80-82.]

23. The federal government should outline in detail and publish a cancer decision-making policy that is consistent with federal statutory mandates under the *PCPA*, the *FDA* and the *ECA*. This policy should deal with mutagenic and teratogenic effects of regulated substances as well. The components of a Canadian carcinogens policy should include:

(a) a definition of carcinogenic chemicals (for example, those chemicals which have been shown to cause cancer in two well-controlled animal experiments using different rodent species, or in human beings);

(b) a discussion of how standards for carcinogenic chemicals should be set; and

(c) a role for the public in the decision-making process. [See discussion *supra* at 53-60.]

Conclusions

The increasing use of pesticides for agricultural food production and other purposes in recent years, has occurred concomitantly with a rise in environmental and public health concerns surrounding these chemicals. Evidence is clearly available of past as well as present pesticide-related damage, including: fish and wildlife kills; farmworker deaths, poisonings and other adverse effects from pesticide exposure; human health concerns in the general population; and environmental contamination. In addition, scientifically invalid as well as falsified pesticide testing has raised questions regarding the safety of many pest control products now on the market in Canada. Moreover, these problems are occurring at every stage of the regulatory process including registration, use and disposal.

The use of the common law for pesticide problems, including actions in private nuisance, strict liability and negligence, may provide adequate redress for short-term health impacts and property damage. However, the analysis in this paper suggests that there are considerable obstacles to obtaining compensation for long-term health effects from pesticide exposure. Moreover, injunctive relief to prevent future harm appears even more difficult to obtain because of the greater speculative nature of the issues. Burden-of-proof and standard-of-proof rules, establishing causation and prohibitive court costs may also limit the availability of this approach for the average citizen.

The need for a more systematically preventive regime for pesticide control than is provided by the principally reactive common law system has resulted in statutory efforts to control such products. Emphasis in this paper has been on federal law, particularly the *PCPA*, because it is the principal federal law establishing what pesticides may be registered in Canada, what uses are allowed, and what enforcement techniques may be employed to ensure compliance. The Act's registration and re-evaluation requirements for new and existing pesticides respectively, which constitute the heart of the federal programme, are nonetheless burdened with serious deficiencies. These include: inadequate testing requirements and practices; dubious assumptions with respect to acceptable risk of such products; and the virtual lock-out of the public from participation in the decision-making process respecting registration or re-evaluation. The registration programme also may allow some pesticides to reach the market and the environment despite lack of adequate health and safety data. These authorized departures from full registration requirements threaten the integrity of the federal government's programme, yet adequate safeguards do not appear to be in place to prevent abuses.

The re-evaluation programme for already registered pesticides also faces problems of slowness in the rate and number of pesticides subject to the process, with some estimates predicting that it will take thirty-five to fifty-five years before all currently registered pesticides will be reviewed. Problems with prioritizing existing pesticides for review as well as the shadow that has been cast over the entire regulatory process by

the massive IBT falsification of pesticide safety data, raise serious questions about the adequacy of the current *PCPA* to perform the job intended for it by Parliament. Public confidence in the Act has also been undermined during the course of the IBT problem because of a lack of access to information about pesticide safety. Prospectively, the new federal access-to-information law may not restore public confidence in the process. This appears to be the case because of continued protection of trade secrets, notwithstanding that this is frequently used as a shield which prevents release of health and safety data.

The quasi-criminal and administrative enforcement procedures under the Act, including suspension, cancellation, seizure, detention and prosecution are also instruments which the federal government has used in varying degrees to ensure public safety from pesticides. The federal government has shown, however, a preference for administrative tools over quasi-criminal instruments, with the latter falling into virtual disuse. Evaluation of the effectiveness of the former techniques, however, is difficult, if not impossible, because of scattered statistical information on the viability of these techniques. Key data on pesticide usage which is important for virtually all facets of *PCPA* enforcement and related programmes, is not systematically required to be produced nationally under the Act.

The federal government's efforts with respect to pesticides under other federal laws have concentrated on the setting and enforcing of MRLs and information gathering. In the former area, whether residue limits for carcinogens can be set has been a matter of considerable controversy. In the latter area, the need for, and availability of, systematic information on types, quantities and location of pesticide usage nationally has been at issue, and remains unresolved.

Some non-regulatory federal programmes such as the socio-economic impact analysis policy, the safe drinking water programme and integrated pest management efforts point to possible areas of greater federal legislative initiatives in future.

Provincial efforts to complement federal regulatory and enforcement control have centred on: pesticide classification; issuance of permits and licences with respect to use; and control of transportation, storage and disposal. Key problems with these areas relate to methods of control and opportunities for public involvement in major aerial and water-spraying activities. In addition, exemptions for farmers from all or most permit and licensing requirements, despite the fact that agriculture is the predominant area of pesticide use in Canada, have also been of concern. Some provincial governments have evidenced a greater willingness to use the quasi-criminal sanction in pesticide enforcement, but at the same time they profess a preference for administrative enforcement and management techniques to address pesticide misuse.

Municipal governments have both regulatory and self-management responsibility with respect to pesticides, though generally municipal authority to control pesticides is limited by provincial legislative enabling authority. Some municipal governments have expressed interest in obtaining legislative authority that would allow them to know the types, quantities and locations of pesticides used in their jurisdiction, though such initiatives are still in their infancy.

International initiatives, which may influence national law include: attempts to harmonize national registration requirements; the setting of pesticide residue limits;

control of pesticide dumping; establishing good laboratory practices; the exploration of victim compensation schemes; and the protection of major natural resources such as the Great Lakes from pesticide contamination. Some of these international efforts reveal the slowness in improvement through national and local control laws. In addition, some of these efforts may sometimes not provide a model for the best health protection approach to pesticide control, as concern for international trade protection is also frequently at issue.

The agricultural chemical industry, the subject of much of the preventive and remedial attention of Canadian pesticide laws, has resisted increased testing or related regulatory controls, citing the need for the government to be more conscious of the economic benefits of pest control products for the food and fibre sectors of the economy. The industry has also resisted greater requirements for access to information on health and safety testing of pesticides, fearing loss of trade secrets to competitors.

In turn, environmental and public health groups have cited the need for Canadian law: to authorize public access to all pesticide health and safety data; to require public participation in registration, re-evaluation and regulation making as well as to require court access to the public; and to authorize automatic suspension or cancellation of registered pesticides where the safety tests supporting registration are shown to be invalid.

Reforms to improve government authority to act as well as to allow greater public access to the regulatory and judicial processes with respect to pesticides, are outlined in this paper. Considering the potential damage to human health and the environment from improperly registered, used or disposed-of pesticides, it is clear that legislative improvements to both the governmental authority to act and the role of the public in the process are past due.