

**SHAPING PUBLIC PERCEPTION:
THE QUESTION OF BIOTECHNOLOGY**

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CANADIAN INSTITUTE FOR ENVIRONMENTAL LAW & POLICY

Shaping Public Perception: The Question of Biotechnology

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INTRODUCTION

Over the past two years, Industry Canada, under the auspices of the review of the National Biotechnology Strategy (NBS), has undertaken several studies in order to attempt to understand consumer attitudes toward biotechnology. As part of this process, a series of papers were commissioned by the Office of Consumer Affairs from social scientific and humanist researchers across the country for a project entitled *Biotechnology, the Consumer, and Canadian Marketplace*. These papers are to be the focus of a symposium hosted by Industry Canada in September 1997.

In the early summer of 1997, the Canadian Institute for Environmental Law & Policy (CIELAP), the Consumer's Association of Canada, the Environmentally Sound Packaging Coalition of Canada and the Fédération Nationale des Consommateurs du Québec (FNACQ) were invited to act as reviewers for these papers. CIELAP was also requested to contribute a paper outlining concerns surrounding this process and to make recommendations for further actions.

CIELAP has been involved with environmental law and policy issues related to biotechnology for more than a decade. The Institute hosted the first conference in Canada on the subject in 1984. Over the years, it has participated in many consultations with Environment Canada, Health Canada, Agriculture and Agri-Food Canada, and the government of Ontario regarding biotechnology and the environment.

The Institute has also produced a number of major publications regarding biotechnology and its environmental and social implications for Canadian society. These include a major overview study of the environmental social, economic and ethical issues raised by biotechnology, completed for the Ontario Ministry of Economic Development and Trade in 1995. The Institute has also recently published a small book titled *The Citizen's Guide to Biotechnology*. It has been well received by a wide range of audiences.

The Institute has taken no stance, either negative or positive, regarding biotechnology and genetic engineering per se. However, the focus of its work regarding biotechnology has evolved over the years. CIELAP's initial emphasis was on the immediate environmental and human health impacts of the release of genetically modified organisms into the environment.

More recently, as specific applications of the technology have emerged, the Institute has expressed growing concern regarding the long-term ecological implications of their commercialization. Perhaps even more significantly, CIELAP has also begun to articulate doubts about the value and purpose of many of the emerging applications of the technology. This has been particularly true with respect to products related to agriculture and food. The Institute has also become increasingly concerned by the failure of Canadian governments to address the ethical and social implications of many of the emerging products in their policies regarding biotechnology.

In the course of this work, CIELAP has developed extensive contacts with other non-governmental organizations who are concerned by the environmental, social and ethical implications of biotechnology, particularly through the Biotechnology Caucus of the Canadian Environmental Network. This has included organizations in such diverse areas as consumer protection, labour, sustainable agriculture, animal welfare, social justice, faith communities, status of women, academia, international development and public health. Over the years, the Institute has noted the increasing diversity of social interests who are concerned by emergence and commercialization of modern biotechnology.

CIELAP has established formal partnerships with environmental law centres in United States, Mexico, Costa Rica and Peru. All of these organizations have expressed a high level of interest in matters relating to the regulation of biotechnology, its implications for biodiversity conservation, and the ongoing development of a Protocol on Biosafety under the United Nations Convention on the Conservation of Biological Diversity.

This paper outlines a number of concerns regarding the process, content and direction of the Industry Canada Biotechnology, the Consumer and the Canadian Marketplace project to date. It also seeks to identify potential paths forward for a process of engagement between Canadians and their government regarding public policy towards biotechnology.

THE INDUSTRY CANADA PROJECT

Since 1994, Industry Canada has, in conjunction with other federal departments, made a substantial investment of public moneys in an attempt to identify Canadians' attitudes toward biotechnology products and processes. A 1996 report made to Industry Canada details the surveys, focus groups and additional data analysis that have been commissioned by the government up to that date³.

This paper has served as the common "reference point" for the research papers produced through the Biotechnology, the Consumer and the Canadian Marketplace project. The process is intended to contribute to the government's broader review of the

National Biotechnology Strategy (NBS). The NBS is the federal government's principle vehicle for the development and promotion of the biotechnology industry in Canada.

CIELAP welcomes the government's effort to begin a serious exploration of the social and ethical implications of biotechnology for Canadian society. However, the Institute has a number of concerns regarding the approach taken to this research, which has involved the expenditure of over \$150,000 public funds, the means by which the researchers who have conducted it were selected, and the ultimate purpose for which it is being undertaken.

Approach

Much of the research completed to date, including the Optima Report⁴ undertaken for Industry Canada has focused on the issue of consumption: that is, Canadians are conceptualized as "consumers" and it has largely been their acceptance or reluctance to purchase products from biotechnological processes that has been explored⁵.

This approach is problematic from a number of perspectives. Principally, it reduces the many roles that Canadians play in society which may be affected by biotechnology to a single dimension – consumption. Their other roles as citizens, and members of communities, who may hold values beyond those related to the consumption of economic goods, are ignored. This is of particular concern, given that the current project is the government's most significant effort to date to explore and understand the social and ethical implications of biotechnology for Canadian society. A more widely based approach is needed to bring about a more complete understanding of these issues.

The Qualifications and Selection of Researchers

CIELAP also has serious concerns regarding both the qualifications of the researchers contracted as part of this project, and the means by which they were selected. It is clear from the Institute's review of the research papers that an overwhelming majority of the authors had limited expertise regarding biotechnology and the implications of its application relevant to their disciplines.

This situation is of particular concern when the fact that all of the research contracts were given on a "sole source" basis⁶. That is, there were no requests for proposals issued, and competing proposals received and reviewed. This implies a conscious decision on the part of the project sponsors to overlook individuals in the relevant disciplines who are recognized as having expertise regarding biotechnology and its implications, and have substantial records of refereed publications with respect to it.

An RFP process might also have permitted the consideration of a wider range of viewpoints in the development of the research papers. For example, the office of the Information and Privacy Commissioner in Ontario has raised very serious concerns

around the issues of genetic screening in the workplace, individuals rights of access to information concerning genetic information held by the government and genetic testing of inherited illnesses⁷. However, these issues were only addressed in an additional paper prepared as a result of interventions by the Consumers Association of Canada.

The Purpose of the Undertaking

The overall purpose of the *Biotechnology, Consumers and the Canadian Marketplace* project remains unclear, even to the reviewers. The function of the exercise, its relationship to the National Biotechnology Strategy Review, and the general intent and direction of the research provided to Industry Canada has not been clearly defined. It would seem, though, from the content and tone of much of the materials presented that the underlying goal (if not explicitly stated) is to identify the sources of consumer concerns regarding biotechnology for the purpose of developing messages and materials through which Canadian consumers can be persuaded to accept genetically engineered foods and other products of biotechnology. This view appears to be confirmed by the contents of the "Integration Document" prepared for the September 1997 project symposium⁸.

This approach is a source of serious concern for a number of reasons. It is clear from the Optima and other research studies completed as part of the project that there is no consensus within Canadian society regarding biotechnology, the desirability of the products which it is producing, or indeed, with respect to the government of Canada's role in the promotion and support of the technology⁹.

Public concerns regarding biotechnology arise from many sources. At the most fundamental level, many individuals are disturbed by the notion of manipulation of genetic material, and more particularly the movement of genetic material between species. They regard genetic engineering as being a qualitatively different technology from traditional plant breeding or animal husbandry techniques.

Many people hold the species barrier to be a law of god or of nature, that species have an inherent integrity, and that the violation of this integrity is an act of hubris on the part of human beings. Others question, in light of past experiences with eugenics programs and other efforts to "improve" humanity, whether human beings have the wisdom to make appropriate decisions with respect to a technology of this scope and power¹⁰. Questions of this nature were recently highlighted in the debates which occurred in the aftermath of the announcement of the successful cloning of a sheep named "Dolly" in the spring of 1997¹¹.

Furthermore, there is a growing body of scientific evidence which appears to confirm the validity of concerns regarding the ecological impacts of the introduction of genetically engineered organisms into the environment, which had been theorized earlier. Finally, very serious questions have been raised about the value and purpose of many of the applications of the technology which are emerging. This is particularly true in the area

of agriculture and food, where it is argued that the products which are being introduced are of little or no value added to the consumer, largely irrelevant to issues of global food security, and likely to further entrench ecologically unsustainable agricultural practices. A paper presented by CIELAP to the June 1997 meeting of the National Agricultural Biotechnology Committee outlining these issues is attached to this paper.

Given the evidence of a lack of social consensus within Canadian society it seems profoundly inappropriate that the government of Canada focus its efforts on the development of means to facilitate the acceptance of biotechnology products by Canadian consumers. This is especially true in the context of the review of the National Biotechnology Strategy, which is one of the government's primary vehicles through which public funds are committed to support the biotechnology industry.

The government has stated that the marketplace should determine the social value and acceptability of biotechnology products¹². However, the government has intervened in the marketplace in a number of ways to promote this technology. The most obvious of these steps has been the heavy direct and indirect subsidization of the industry by the federal government. CIELAP has estimated current federal government expenditures related to biotechnology to be in the range of \$250 million/year, and to exceed \$1.5 billion over the past decade¹³. The NBS itself is only a single mechanism among many including the National Research Council, and Departments of Western Economic Diversification and of Agriculture and Agri-Food, through which the distribution of public funding to the biotechnology industry occurs.

In addition, a number of federal government agencies are already producing a range of information products intended to promote public acceptance of biotechnology products. Financial support is also provided to several industry non-governmental organizations for this purpose. The federal government has commissioned studies from a variety of agencies, including industry and non-governmental organizations, that are positively oriented towards biotechnology as well¹⁴.

The government's policies with respect to the labeling of foods derived through genetic engineering also constitutes a significant intervention into the marketplace, by denying consumers consistent access to the one piece of information that is essential to their ability to express their preferences regarding genetically engineered foods. One cannot logically insist that, on the one hand, the marketplace determine the acceptability of these kinds of products while, on the other, refusing to inform consumers of what, precisely, is being purchased

With the exception of the labeling issue, on which the clearly expressed views of a wide range of consumer, environment, public health and other public interest organizations¹⁵ have been ignored, none of these policies has been the subject of public consultation and debate. Indeed, the initiation of the NBS in the early 1980's was marked by a conscious policy decision not to engage the public in a discussion regarding the strategy¹⁶.

Such an approach has remained a cornerstone of the government of Canada's policies towards the promotion and subsidization of the biotechnology industry. Consideration of the social, ethical and long-term ecological impacts of biotechnology products has also been explicitly ruled out of the regulatory process¹⁷. A similar stance has been taken regarding any form of public participation in regulatory decision-making regarding biotechnology products. Recommendations endorsed by large numbers of non-governmental organizations, including CIELAP, for the establishment of basic public notice and comment procedures prior to the approval of products¹⁸, for example, have consistently been turned down with little or no apparent rationale¹⁹.

A WAY FORWARD

In a democratic society, decisions regarding the role of government with respect to a technology with such profound social, environmental, economic and ethical implications as biotechnology need to be the product of meaningful public discussion and debate, and not imposed on society by government.

This need is especially acute in the context of the NBS review, and the current work of the Office of Consumer Affairs. The *Biotechnology, the Consumer and Canadian Marketplace* exercise appears to be the only element of the review of the NBS to date in which non-industry and non-governmental stakeholders have been involved, and in which there has been any effort to explore the wider social implications of biotechnology.

Unfortunately, the project has been principally focused on the identification of means of facilitating the acceptance of biotechnology products by Canadian consumers, rather than mechanisms through which a meaningful public discussion and debate of the implications of biotechnology and the appropriate role of government towards it might occur.

The failure of the government of Canada to deal with the ethical and social issues raised by biotechnology in an open and public manner is in sharp contrast to the approach taken by a number of Western European governments. Several countries, including Denmark, the Netherlands, Norway, Germany, and the United Kingdom have taken steps to facilitate societal debates around these issues, and demonstrated a willingness to act on the results of such discussions²⁰. Many other countries, including Norway, Australia, the European Union, New Zealand and India, have stated their support for public participation in decisions around biotechnology, including regulatory decisions regarding the approval of specific products. A number have already made legislative provisions for such participation²¹.

To its credit, the government of Canada has formally acknowledged the significance of the ethical and social issues raised by biotechnology. This occurred in the

government's April 1997 response to the November 1996 report of the House of Commons Standing Committee on the Environment and Sustainable Development on the Regulation of Biotechnology in Canada²². In its response, the federal government stated that:

"The government therefore agrees with the Standing Committee on the need for a more broadly-based body to provide advice to a group of ministers on the ethical, social and regulatory aspects, as well as the economic, scientific, environmental and health aspects related to biotechnology consistent with the principles of sustainable development. As part of the government's review of the National Biotechnology Strategy, it will consider options with respect to the chair, terms of reference, membership and reporting structure of this body. The government believes that such a body will provide the government with a more balanced perspective that reflects the interest of the public in the context of gains in the Canadian quality of life."

Having acknowledged the significance of the wider social, ethical and environmental issues being raised by modern biotechnology, the government needs to take steps to address them before it renews the NBS. The government must follow through on the commitment which it has made in its response to the Standing Committee's report. Steps need to be taken to establish a body with appropriate multi-disciplinary membership, with a strong emphasis on expertise in social and ethical issues. The body needs to be provided with adequate resources to conduct substantial research on the implications of biotechnology for Canadian society, and structured in a manner which permits it to receive input from members of the public.

There are a number of ways in which such a body might solicit the opinions and views of members of the public on biotechnology. In Western Europe, there are number of recent examples of efforts to introduce new approaches to public debate and decision-making. Among the leading aspects of such efforts has been the concept of "consensus conferences". This approach was first adopted in the late 1980's by the Danish Board of Technology (DBT) to engage the general public in debates and discussion of technology assessments. The DBT has organized a series of these consensus conferences, timed to coincide with relevant legislation coming before Parliament²³, on a variety of issues including biotechnology. Following the success of these conferences, the Dutch held a consensus conference on animal biotechnology in 1993 and the British on plant biotechnology in 1994.

This process is unique in a number of ways. While the government makes provisions for the conference, including a facilitator, an administrative assistant, co-ordination and meeting space, it does not attempt to guide the process in any way. In Britain, where the Danish model was followed, the Science Museum appointed a Steering Committee to oversee the details of the conference, including advertisements in newspapers calling for volunteers, and the selection of members for the conference. The participants themselves, however, chose the experts who were to be consulted, identified

key areas to be addressed, and provided the final report of their findings to the government through the British Biotechnology and Biological Sciences Research Council.

A consensus conference²⁴ is essentially a public forum in which a group of lay people is given the opportunity to question a series of experts about controversial scientific or technological subjects. As it has developed in Europe, a typical conference will involve two weekend sessions prior to the meeting with the experts. This provides the panel with the opportunity to read and discuss background material, choose appropriate experts to consult with, and to formulate their questions. It also allows the panel to form a working relationship that has been compared to the way juries function when considering complex legal issues²⁵.

After the panel has had the opportunity to speak with the expert “witnesses” in an open forum where the general public, media, and elected officials are invited to attend, they prepare a written report containing their findings. These can be quite complex and thoughtful: in Britain the final report regarding plant biotechnology was more than 20 pages in length and covered issues of environmental safety, nutrition and food safety, social and economic effects, ethical and moral issues, and national and international regulatory issues²⁶. In Denmark, the experts were given the opportunity to review the paper in order to correct any factual errors: the conclusions the participants reached and the recommendations they made, however, remained untouched.

There are several positive outcomes to this process as it has been practiced thus far:

- A 1991 study undertaken by the European Commission found that Danish citizens were better informed about biotechnology than those in other European countries where consensus conferences had not taken place;
- Danish citizens also reported a higher degree of satisfaction with their government policies regarding biotechnology;
- While none of the recommendations reached by the members of a consensus conference are intended to be binding on the government in any way, elected officials have found conference reports to be extremely helpful when formulating policy and regulations. In fact, as a result of a Danish conference held in the late 1980's, Parliament passed legislation limiting the use of genetic screening in hiring and insurance decisions, excluded animals from government's research and development program and prohibited food irradiation for all foods except dry spices;
- Industry has also benefited from early public involvement. Rather than attempting to overcome public resistance after ten or more years of research and development, fulfilling regulatory requirements and launching a new product, some corporations

have been able to incorporate public opinion earlier in the product development process. In one case, a corporation actually changed the direction of their work from agricultural biotechnology to pharmaceuticals derived from genetic engineering²⁷.

By bringing in members of the general public who are acting as interested citizens rather than members of special interest or advocacy groups, industry or others with a vested interest in the outcome, the consensus conference format has contributed to the formulation of public policy, provided detailed information to the general public and guided industry in product development.

CONCLUSIONS

As public awareness of biotechnology, and particularly genetic engineering, increases, it will be increasingly difficult for the government to hold to the view that social and ethical issues are peripheral to discussions and debates surrounding this new technology. North American governments are only beginning to acknowledge the significance of these issues, but have thus far failed to include them in any meaningful way in discussions and debates surrounding the formulation of policy and regulations. This is in spite of the fact that large amounts of public funds are being invested in the research and development of biotechnology products and the subsidization of the biotechnology industry.

No study to date has demonstrated a clear consensus among Canadians regarding the acceptability of the products of modern biotechnology, or the role of government in their development and promotion. Indeed, the level of public discomfort seems likely to increase as more and more products – especially food products – enter the marketplace. Canadians look to their government to ensure the safety of these products from environmental and human health perspectives, and provide reliable and easily understandable information about them.

In this context, it is important that the Canadian government not place itself in the position of being an agent for seeking to overcome “consumer resistance.” The role which government plays in a democratic society needs to reflect the will of that society. There is evidence of a strong public consensus around the role of government in the protection of public goods, such as environmental quality and public health and safety. The nature of the consensus around the promotion of biotechnology is much more doubtful. In fact, it has never been explored in any significant depth with Canadians.

In the interim, Canadians must be given the opportunity to make choices regarding biotechnology products through the mechanism of clear labeling. The marketplace cannot act impartially if products of biotechnology are being essentially hidden from the consumer.

However, the question of the acceptability of biotechnology to Canadians cannot be considered solely as a purchasing issue. European experiences with consensus conferences have demonstrated that the general public has a high interest in biotechnology and is, further, willing to volunteer time and effort towards serious consideration of diverse aspects of this technology. These conferences have proven to be valuable to the general public beyond the conference participants, and to elected officials and the biotechnology industry itself.

The National Biotechnology Strategy review provides an opportunity to involve the public in a meaningful debate about the implications of biotechnology for Canadian society. Following the European example, the government could provide a forum for people from all regions of the country to consider the issue of what role, if any, the government ought to play in supporting the development, commercialization and marketing of biotechnology. To date, the government has failed to do this. The report from the Standing Committee on Environment and Sustainable Development, together with the Government Response, provides a potential vehicle for a more constructive, inclusive and democratic response. Western European governments have begun to engage their publics in meaningful dialogues on the implications of biotechnology for their societies, and appear to be prepared to act on the results. It is time for the government of Canada to do the same.

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- ⁵ One paper dealt with the regulation of biotechnology; one dealt with the media; one with international issues. The remaining seven considered the problem, in one form or another, from the point of view of consumer reluctance/resistance.
- ⁶ CIELAP's involvement in this project has also been on a sole source basis. However, the Institute has made efforts to direct Industry Canada to the Biotechnology Caucus of the Canadian Environmental Network as an appropriate vehicle to facilitate environmental non-governmental organization involvement in its future work on biotechnology.
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- ⁹ "Integration Document," pg.33.
- ¹⁰ See, for example, H. Jonas, "Biological Engineering – A Preview," in H. Jonas, **Philosophical Essays: From Ancient Creed to Technological Man**. Chicago: University of Chicago Press, 1974.
- ¹¹ See, for example, S. Strauss, "Hello Dolly, it's so scary to see you." *The Globe and Mail*, March 1, 1997.
- ¹² See Government Response to the Report of the House of Commons Standing Committee on Agriculture and Agri-Food, rbST in Canada, August 1994, Recommendation 7.
- ¹³ This figure has been derived from government documents including Federal Budget Estimates, reports from the National Research Council (including funding for health care,

pharmaceuticals, and environmental and aquaculture applications), Western Economic Diversification, and the National Biotechnology Strategy Fund. This figure, is however, only a rough estimate, since Agriculture and Agri-Food Canada alone spent \$293.8 million in the current fiscal year for Research and Development: funding breakdowns were not available for these expenditures.

¹⁴ See, for example: National Biotechnology Advisory Committee, "National Biotechnology Business Strategy: Capturing Competitive Advantage for Canada." Ottawa: Department of Industry Science and Technology. 1991.

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¹⁸ See, for example, M. Winfield and B. Kneen, "For Whose Future? A Response to the Government of Canada's Reponse on the Reform of the Canadian Environmental Protection Act." Ottawa: Biotechnology Caucus, Canadian Environmental Network, March 1996. The recommendations in this document were endorsed by 89 organizations.

¹⁹ See, for example, Agriculture and Agri-Food Regulatory Impact Analysis Statement accompanying Regulations for Plants with Novel Traits under the Seeds Act, August 17, 1996.

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²¹ *Op cite*, *Earth Negotiations Bulletin*.

²² Government Response to the Third Report of the Standing Committee on Environment and Sustainable Development, "Biotechnology Regulation in Canada: A Matter of Public Confidence," April 1997.

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²⁴ Edna Einsiedel's paper prepared for Industry Canada titled, "The Market for Credible Information" contains a thorough discussion of the concept of the consensus conference in Europe. See pp18ff.

²⁵ *Op cite*, Sclove, "Town Meetings on Technology," pg. 31.

²⁶ *Op cite*, Madden, "Briefing notes from the first UK Consensus Conference on Plant and Microbial Biotechnology," pp. 6 and 7.

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