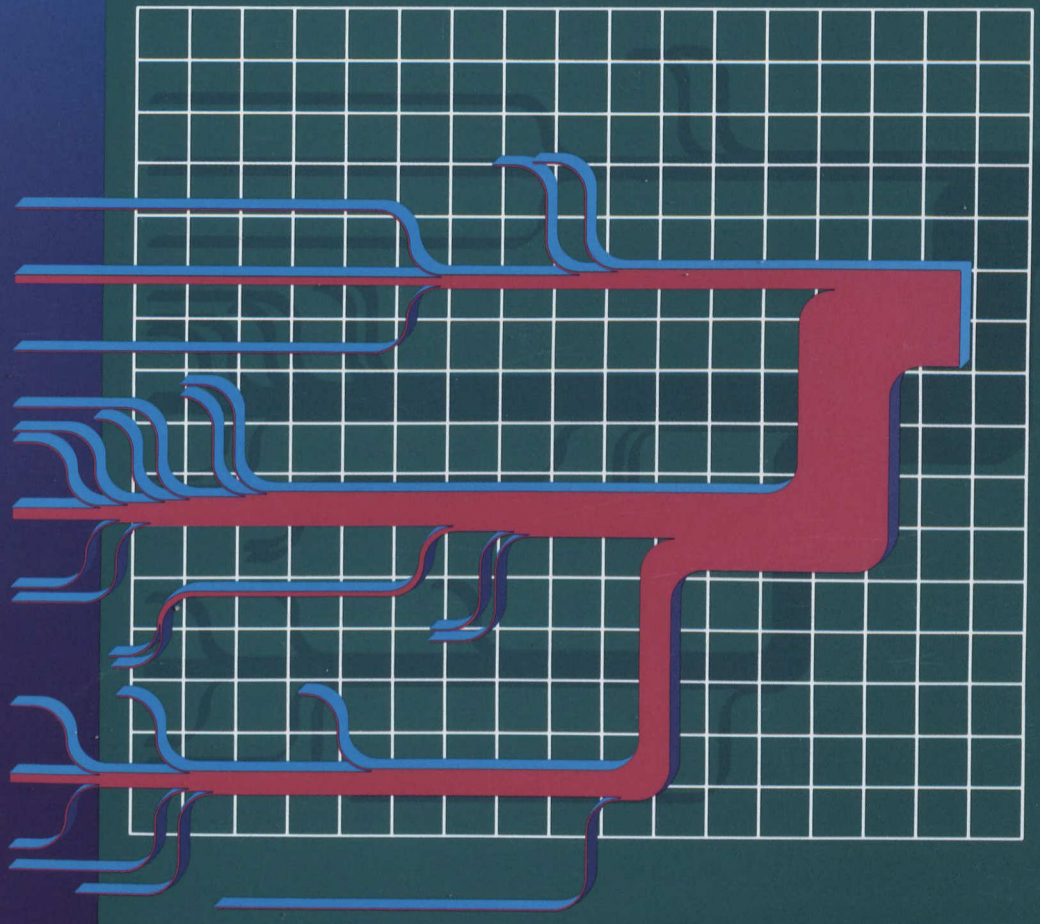
Fourth
Report

1989-1990

National Biotechnology Advisory Committee



Canada

Fourth
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National Biotechnology Advisory Committee

TOWARDS A NATIONAL BIOTECHNOLOGY BUSINESS STRATEGY: THE PROCESS

Industry, Science and Technology Canada

Cat. No. C2-163/1991
ISBN 0-662-58370-1

PU 0186-90-03

Chairman's Transmittal Letter and Statement

The Honourable William C. Winegard
Minister for Science
House of Commons
Ottawa

Sir:

As chairperson of your National Biotechnology Advisory Committee, I am pleased to submit the committee's report for 1989-1990.

This is the first report of the committee since the spring of 1989, when it was restructured and challenged to develop a national strategic business plan for public and private investments in biotechnology. The purpose of this report is to provide you with a summary of the activities of the committee, to date, in response to that challenge.

There have been intense deliberations by the committee over the past 18 months. Six working groups were established and charged with examining those issues crucial to the success of a national business strategy for biotechnology in Canada. The activities of the working groups are summarized in the body of the report.

It is our expectation that we will be in a position to present the final business strategy to you in the summer of 1991, together with a plan for its implementation. The recommendations developed in this business strategy will be crucial to the future success of various industry sectors that are faced with global competition.

The members have appreciated your keen interest in, and sincere commitment to, the activities of the committee and the excellent advice and guidance you have provided during our meetings. We look forward to continuing this collaboration.

William A. Cochrane
Chairperson

May 1991

Table of Contents

Preface

This is the fourth report of the National Biotechnology Advisory Committee since it was established in 1984. Previous reports were released for 1985-1986, 1986-1987, and 1987-1988.

The term of office for the original members, who represented industry, academia and government, expired in 1989. The new committee, appointed in May 1989, has a more diverse membership than its predecessor and has limited government to an ex officio role. In addition to members from the biotechnology and academic communities, the committee includes members from a variety of business sectors, including the financial community. Staff from the Technology Policy Branch, Industry, Science and Technology Canada, serve as the Secretariat and provide analytical and research support.

Terms of Reference
National Biotechnology Advisory Committee

1. The National Biotechnology Advisory Committee is appointed by, and provides advice to, the Minister for Science.
2. The Committee shall consist of a chairperson and not more than twenty-four other members.
3. a) The Chairperson and other members of the Committee shall be appointed by the Minister to hold office for a term of three years, with the possibility of reappointment.

   b) The Chairperson has supervision over, and direction of, the work of the Committee and of the persons appointed for the purpose of carrying out the work of the Committee.
4. The Committee will provide advice to the Minister on matters related to the creation and maintenance of an internationally competitive Canadian position in the development and application of biotechnology, as well as those matters specifically referred to it by the Minister. Key areas for advice will include:

   i) the development of strategic plans for the near and longer term incorporation of biotechnology in industry, which recognize and exploit the underpinning and transformative nature of the technology;

ii) the continued strengthening of the science and technology infrastructure to support the industrial development and application of biotechnology;

iii) approaches to biotechnology being pursued by other nations and the opportunities and appropriate mechanisms for Canada to consider in fostering international collaboration in this field; and

iv) programmes, policies, regulations, and the like, which are, or are capable of, influencing the course of industrial and human resource development in biotechnology in Canada.

5. The Committee may advise the Minister whenever it deems it appropriate to do so, or when specifically requested by the Minister. In addition, a report of the work undertaken by the Committee shall be prepared and submitted shortly after the end of each fiscal year.

6. The Committee, through its Chairperson, shall consult annually with the Minister concerning its plan of work.

7. The Minister shall, subject to the appropriation of the necessary funds, set aside each year the funds required by the Committee to carry out its work.

8. The Committee shall meet as often as necessary to carry out its work, but no less than annually. Sub-committees may be established from its members on an ad hoc basis to carry out specific projects.

9. The Secretariat of the Committee shall be provided by the Technology Policy Branch of Industry, Science and Technology Canada.

Mission Statement

The National Biotechnology Advisory Committee will recommend, to the Minister for Science, policies and focused strategies for the continued economic growth of Canada by enhancing the international competitiveness of Canadian industry through the development, application and commercialization of biotechnology.

National Biotechnology Advisory Committee Members, 1989

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* Resigned in 1990.

Activities of the National Biotechnology Advisory Committee, May 1989 — December 1990

Raison d'être — The Challenge

The National Biotechnology Advisory Committee (NBAC) was restructured in the spring of 1989 and has met twice annually since then, beginning in Ottawa in May. At that time, the Honourable Harvie Andre, Minister of Industry, Science and Technology, challenged the committee to develop a strategic business plan for public and private investment in biotechnology in Canada, as a means of building internationally competitive industries.

NBAC members Julia Levy, William Cochrane and Michael Brown also sit on the National Advisory Board on Science and Technology. The latter is also a member of the British Columbia Biotechnology Committee.

Subsequent to the May 1989 meeting, responsibilities for the NBAC were assumed by the Honourable William Winegard, Minister for Science. Minister Winegard has attended all the meetings of the committee and has worked closely with NBAC members in their deliberations.

Summary of Meetings 1989-1990

Committee Meeting of May 1-2, 1989 (Ottawa)

Action:

In response to the challenge, the committee developed an action plan and identified needs and issues that were deemed to be critical for the success of biotechnology in specific industrial sectors.

In order to examine the issues that would be part of a national business strategy, the committee formed a steering group and working groups on: i) Waste Management; ii) Agri-business and Food; and iii) Intellectual Property and Regulatory Affairs. In June 1990, the Working Group on Human and Animal Biopharmaceuticals and Diagnostics was established, followed by the Ad Hoc Working Group on Forestry in September 1990. At the

November 1990 meeting, it was decided to establish the Working Group on Communications. A summary of the activities of these working groups is found in Section 4.

The essential functions of the working groups are to identify and analyze opportunities that Canada should pursue in biotechnology, as well as other key issues in the various sectors that affect the climate for R&D investments and commercialization of biotechnology in Canada, and to bring these matters to the attention of the full committee.

In the months following the meeting, consultants were engaged to carry out studies to examine the potential for biotechnology in the waste treatment and the agri-business and food sectors.

Guest Speakers:

Robert Friedman Jr., Managing Director, Health Care Group, Prudential-Bache Capital Funding, New York. Mr. Friedman spoke on "Biotechnology Perspectives from Wall Street." He described the recent changes in the structure of the U.S. biotechnology industry and the factors influencing investments in biotechnology.

Dr. Jack Wearing, Manager of Business Development, Monsanto Canada Inc., Mississauga. Dr. Wearing made a presentation on behalf of Dr. Leonard Guarraia, Director, Science and Technology Policy, Monsanto, St. Louis, who was unable to attend due to illness. His remarks outlined the reasoning behind Monsanto's strategic decision to invest heavily in biotechnology in the late 1970s, both within the company and through acquisition. This decision involved both corporate restructuring and the abandonment of certain business areas.

Committee Meeting of December 4-5, 1989 (Montreal)

Action: The purpose of this meeting was to: assess the progress of the activities of the working groups; identify early actions that needed to be taken or recommended by the NBAC; make decisions on specific work to be continued or initiated by each working group; review and discuss the proposed outline of the national business strategy to determine its completeness; and determine a time-frame for completion of the business plan.

Guest Speakers: Mr. Philippe Eloy, Director, Technical Innovation, Quebec Ministry of Industry, Commerce and Technology, Quebec City. Mr. Eloy provided the committee with insights concerning the Government of Quebec's strategy and activities that support industrial biotechnology.

Dr. Arthur May, President, Natural Sciences and Engineering Research Council, Ottawa. Dr. May addressed the committee regarding federal support of biotechnology research in Canadian universities and his agency's strategic plan.

Committee Meeting of June 10-11, 1990 (Calgary)

Action: In addition to the ongoing deliberations of the working groups, a contract was awarded to Peat Marwick Stevenson and Kellogg, management consultants, in April 1990, to assist the NBAC in developing the national business strategy.

The committee met in June 1990 to: i) receive and assess the reports of NBAC working groups concerning the identification and analysis of the opportunities that Canada should pursue in biotechnology, as well as other key issues that affect the climate for R&D investments and commercialization; ii) reach decisions concerning future activities of the working groups and determine if there is a need for additional working groups to deal with such topics as finance, health care, and the mineral and energy industries; and

iii) reach consensus on the set of key issues that should be dealt with in the national business strategy, the remaining tasks and analysis needed to complete it and the time-frame for its completion.

Following the December 1989 meeting, an ad hoc subcommittee of the NBAC reviewed *Canadian Biotech '89: On The Threshold,* a study conducted in 1989 by the Ernst & Young High Technology Group and Winter House Scientific Publications Inc., with the financial assistance of the Chemicals and Bio-industries Directorate of Industry, Science and Technology Canada, and the National Research Council.

During the course of the June 1990 meeting, the subcommittee presented its findings on the document. The consensus was that among other things, the survey documents the difficulties that industry is having in recruiting qualified management and technical personnel. It follows that, if the potential for bioscience enterprise is to be fulfilled, Canada should emphasize education and training of increased numbers of skilled persons.

As well, the survey indicates that while commercial biotechnology activities involve many relatively high-value employees, there is great potential for more. The report implies that the realization of this potential requires infrastructure improvements.

The application of biotechnology to the pharmaceutical, medical, environmental and agricultural sectors has played a role in major improvements to public health. Biotechnology has had and should have a major impact in reducing Canadian health costs.

While many biotechnology-based products are under development, the survey notes that the larger and more successful companies have a concentrated approach. This implies that the small Canadian companies lack focus. The subcommittee expressed concern regarding this

latter finding and suggested that there is a need for strategies to assist companies in making appropriate choices for concentrating their R&D efforts.

Guest Speakers: Dr. Maurice Brossard, Vice-President, Biotechnology, and Director General, Biotechnology Research Institute, National Research Council, Montreal. Dr. Brossard made a presentation concerning the National Research Council's activities and goals in biotechnology as well as recent changes at the council.

Dr. William Scowcroft, Director, The Oilseed Biotechnology Research Centre, Calgary. Dr. Scowcroft spoke on the challenges associated with setting up the research centre in Canada, as well as new biotechnologies applicable to crop development.

Committee Meeting of November 21-22, 1990 (Toronto)

Action: The principal objective of this meeting was to receive the Phase I draft report from Peat Marwick Stevenson and Kellogg on Canadian capabilities, market opportunities and key horizontal issues. In addition, the committee reached a consensus on the highest priority opportunities and issues that should be the subject of the national business strategy, as well as the key objectives that it should address.

Guest Speakers: Mr. Alan Nymark, Executive Vice-President, Investment Canada, Ottawa. Mr. Nymark discussed Investment Canada's strategy to encourage foreign investment in Canadian biotechnology companies. He also briefed the committee on the role played by Investment Canada in the Connaught-Mérieux merger.

Mr. Harry Rogers, Deputy Minister, Industry, Science and Technology Canada. Mr. Rogers addressed the members on the importance that the government places on the national business strategy the NBAC is developing and gave the

department's perspective on how the strategy will fit in with other national policy initiatives.

Mrs. Beverley Brennan, Vice-President, Finance and Administration, Philom Bios Inc., Saskatoon. Mrs. Brennan, who is also a member of the National Advisory Board on Science and Technology, gave a presentation on the results of work undertaken by the board's Committee on Financing Industrial Innovation.

Activities of the National Biotechnology Advisory Committee Working Groups

Working Group On Waste Management

The mandate of this working group is to identify opportunities for the application of biotechnologies in waste management through independent studies and other appropriate methods, including direct discussions with industry and municipal authorities.

In spring 1989, Secor Inc., Montreal, was contracted to conduct a study of North American waste treatment markets to identify opportunities for the development and application of biotechnologies (see Appendix A for summary). The chairperson of the working group also held informal meetings with representatives of a municipality and an industrial association where the findings of the Secor study were discussed. The working group has concluded that there are significant opportunities for innovative biotechnology applications in wastewater treatment and has focused its efforts in this area.

In November 1990, the working group met with the Director of the Wastewater Technology Centre, Burlington, Ontario, to discuss the concept of establishing a centre for full scale demonstration projects for wastewater treatment technology.

Working Group On Agri-Business And Food

This working group examined a range of potential opportunities for biotechnology in the Canadian agri-business and food sector. An essential key to success will be a focused approach to specific goals. It is essential for Canada to remain internationally competitive in agriculture. The government should encourage the establishment of conditions that will enable Canadian agriculture to continue to compete in the higher value commodity crops such as wheat and canola.

The working group is concerned about adverse public perceptions of advanced technology developments in the agri-business and food sector. It is felt that if these perceptions are not addressed, they may cause economic distress to the continued development of an essential Canadian sector. The regulatory framework within which Canadian agriculture operates must be harmonized with those of our major trading partners.

In order to develop their recommendations for the agri-business sector, the working group pursued specific topics that prior research had determined merited further study: field crops, biocontrol agents, animal health and the food industry. Executive summaries of three studies initiated by the working group can be found in Appendix A.

In the area of food, the industry agrees that there is little or no opportunity for Canadian manufacturers of bulk enzymes. There are now, and may be additional, opportunities for Canadian companies to provide specific products to niche markets. It is, however, the view of this working group that because food companies develop their own individual product lines, it would not be cost-effective to develop national initiatives focused on specific product areas. Government policies should be developed to ensure that niche market development can occur effectively at its own pace.

Working Group on Intellectual Property and Regulatory Affairs

This working group addressed horizontal issues that impinge on the advancement of biotechnology, such as: the regulation of biotechnology products under the *Canadian Environmental Protection Act;* the patent protection of genetically engineered life forms; delays in the examination of patent applications and the possibility of setting up an independent agency to serve the needs of the Patent Office; a review of the Government of Ontario's green paper on biotechnology; and the desirability of an electronic data base on national and international regulations for the products of biotechnology.

The working group has met four times since it was established. The chairperson also met with the NBAC Working Group on Biopharmaceuticals and Diagnostics on issues related to regulations and patenting. The working group requested and received information from the Patent Office on the examination and processing of biotechnology patents in Canada. In addition, the chairperson of the working group is also a member of the Life Forms Subgroup of the Intellectual Property Advisory Committee of Consumer and Corporate Affairs Canada.

The working group recommended to the Minister for Science (see next page) specific changes to the *Patent Act* to allow the deposit of microorganisms as part of the description of an invention in a patent application. Canadian ratification of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure was also recommended. These

changes were also recommended in the Report of the Task Force on the Status of Culture Collections in Canada, which was reviewed and endorsed by the working group.

The working group is currently reviewing the draft Proposed Notification Regulations for Biotechnology Products under the *Canadian Environmental Protection Act* and will report to the NBAC at the May 1991 meeting in Ottawa.

The working group also reviewed the Ontario green paper on biotechnology and developed principles for the development of regulations for the production and commercial use of products of biotechnology under federal or provincial jurisdiction. The NBAC endorsed and adopted these principles, which were forwarded to Minister Winegard and subsequently transmitted to the Government of Ontario as part of the federal government's comments on Ontario's green paper on biotechnology.

Principal Recommendations to Date

In July 1990, the Working Group on Intellectual Property and Regulatory Affairs, through the NBAC, recommended to the Minister for Science the adoption of a new subsection to Section 34 of the *Patent Act* as follows:

"34(1.1) Where an invention relates to or utilizes a biological material that is capable of self-replication either directly or indirectly, and where a deposit of such biological material is described in the specification, such deposit shall be deemed to be a part of the description of an invention and shall be taken into consideration in determining whether the specification complies with Subsection 34(1).

34(1.2) Subsection 34(1.1) shall apply to any patent issued or patent application filed before or after its coming into force."

The working group also recommended amending Section 12 of the *Patent Act* to include the following new subsection:

"12(1) (j.1) respecting the deposits referred to in subsection 34(1.1)."

The NBAC also recommended to the Minister that Canada ratify the 1977 Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure.

Working Group on Human and Animal Biopharmaceuticals and Diagnostics

This working group held its inaugural meeting in August 1990 and has since focused its efforts on identifying the opportunities that biotechnology presents to the biopharmaceuticals and medical diagnostics sectors.

To date, the working group has identified that biopharmaceutical companies face problems in obtaining information concerning possible competing patents, delays in both the review of drug applications and patenting, and the absence of Canadian companies large enough to compete internationally in the sector.

Ad Hoc Working Group on Forestry

This working group commissioned two studies. The first was a discussion paper on the opportunities and threats associated with worldwide developments in biotechnology for forest regeneration, and the barriers to the adoption of such technologies in the Canadian forest industry. Forestry Canada prepared a document on this subject, which is summarized in Appendix A. Discussions are ongoing to determine the best mechanisms for taking action on the problems identified.

The second study was carried out by the Pulp and Paper Research Institute of Canada (PAPRICAN) to update *Biotechnology in the Pulp and Paper Industry*, a 1984 study it prepared for the Science Council of Canada. The objective of the second study (see Appendix A for summary) was to:

- determine the extent to which Canadian and foreign pulp and paper companies have adopted biotechnologies since 1984;
- analyze the factors affecting the rate of adoption/introduction of biotechnologies by Canadian companies and their foreign competitors;
- evaluate the opportunities identified in the 1984 report in relation to the present technological status of the pulp and paper industry;
- identify significant advances in biotechnology research since 1984 that are now close to application;

- identify the factors affecting Canadian industrial research efforts in this area and any constraints hindering current research efforts; and
- propose a means to evaluate the respective roles for the private and public sectors in catalyzing action in this sector.

The working group is reviewing the PAPRICAN report and will consult with members of the Canadian forest industry on ways to ensure the global competitiveness of Canada's forest products through biotechnology.

Working Group On Communications

At the November 21-22, 1990 meeting in Toronto, the committee established this working group to consider and develop proposals for the communication of the national business strategy upon its completion.

Additional Sectors of Interest

The committee recognizes that the mineral and energy industries have significant potential for the application of biotechnology. *Industry Profile: Biotechnology Applications and Trends in the Mineral and Energy Industries,* a report prepared by an NBAC member, is summarized in Appendix A.

National Biotechnology Advisory Committee Agenda for 1991

The key challenge facing the committee in 1991 will be to complete the extensive analyses and deliberations on where Canada should focus its human and financial resources in biotechnology, integrate the findings, and prepare an overall national business strategy. It is anticipated that the strategy will identify important market applications, discuss structural inadequacies, and include specific recommendations for action on the part of the private and public sectors, as well as suggested implementation plans to enhance the commercial exploitation of biotechnology.

The committee will be submitting its recommendations to the Minister for Science in the national business strategy report, which will be made public. The NBAC is planning to bring these opportunities and recommendations to the attention of various industries and will provide continuing advice to the Minister, for his consideration, in order to assist in bringing about recommended actions.

Appendix A

Summaries of Completed Studies

Strategic Industry Analysis: Biotechnology in the Waste Treatment Industry. Secor Inc., October 1989.

Secor was asked to identify the most significant opportunities for biotechnology in waste treatment and to assess market size and potential for Canadian industry. The study indicated that the most significant opportunities for biotechnology lie in municipal and industrial wastewater treatment. The interrelated problems of sludge disposal, de-watering and contamination by heavy metals also present opportunities where biotechnology may find extensive application.

The use of bioreactors in municipal and industrial wastewater treatment represents a potential application of biotechnology. Process control is an area where significant improvements in bioreactor performance can be achieved. Additional opportunities appear to exist in the selection and development of improved microbial strains.

Strategic Study of Opportunities for Canadian Biotechnology in Specialty Food Crops. Agri Studies Inc., March 1990.

In this project, the consultant was asked to investigate the potential opportunities for biotechnology in four specialty crop areas — vegetable brassicas, mustard seed, soybeans and winter wheat.

It was determined that of the four target crops, only improved cold hardiness in winter wheat could bring economic benefit of the magnitude needed to justify recommending the use of advanced biotechnology techniques.

Strategic Study for Canadian Biotechnology in Animal Husbandry Products. Deloitte & Touche, March 1990.

In Phase I of a two-phase study, the consultant identified the potential economic and industrial benefits of biotechnology in animal husbandry applications.

The major opportunities were determined to be disease control and resistance, the enhancement of production rates, and characteristics and carcass quality.

In many areas, Canadian technology is at the leading edge of advancement; however, capitalizing on this technology will require a coordinated and multi-disciplinary approach, with a committed industrial component.

A Preliminary Identification of Strategic Opportunities for Development of Bio-Control and Inoculant Products in Canada. Deloitte & Touche, March 1990.

In this preliminary study, the consultants identified strategic opportunity areas for bio-control and inoculant products. Naturally occurring microbial control agents and inoculants offer promise as effective products for use in the agriculture and forestry sectors. The consultants suggest that Canada is in a position to develop the depth of expertise, level of effort, and potential for success. The findings also identified some significant restraints, including high development costs and long development times.

Biotechnology in Forestry. A paper prepared for the NBAC by Forestry Canada, September 1990.

Scientists at Forestry Canada have reported that in the area of forest biotechnology, Canada has one of the most advanced research programs in the world. The two principal techniques that have the potential to afford economic gains, in as little as three to five years, are tissue culture and somatic embryogenesis. Indeed, there are no programs in the world of comparable quality or possible impact on the industry as those developed at Forestry Canada.

Forestry Canada recommended that for the specific purpose of developing a pilot-scale demonstration of somatic embryogenesis, the NBAC should organize meetings with provincial and industrial stakeholders to inform them of the opportunities presented by this technology for forest regeneration. In addition, encouragement should be given to interested parties to develop an action plan to form an alliance, or similar cooperative arrangement, for the purpose of developing a pilot scale test of the commercial scale feasibility of somatic embryogenesis.

Industry Profile: Biotechnology Applications and Trends in the Mineral and Energy Industries. Prepared for the NBAC by Dr. W. Jeff Jeffery, Executive Director, Mining Industry Technology Council of Canada, Ottawa, and member, NBAC, September 1990.

In the mineral and energy industries, biotechnology has been used in a number of special applications for environmental control and remediation in recent years. In comparison with standard physical and chemical processes, the extent of biotechnology uses in mining remains limited. Apart from scattered researchers in the major mining companies, the dominant Canadian body of mineral biotechnology R&D capability is the Canada Centre for Mineral and Energy Technology (CANMET), which is part of Energy, Mines and Resources Canada.

Biotechnology in the Pulp and Paper Industry. Pulp and Paper Research Institute of Canada, December 1990.

The objective of this report was to assess the potential of current and future biotechnology research for application in the pulp and paper industry.

The report highlights current advances, nationally and internationally, including those already applied on an industrial scale, those under development and fundamental research. These advances relate to biological wastewater treatment, activated sludge treatment, and anaerobic treatment of mechanical pulp mill wastes.

Other technologies such as the use of enzymes in bleaching, biological bleaching and de-lignification were also reviewed.

The second part of the report analyzes factors that have contributed to the success or failure of biotechnologies in pulp and paper applications since 1984.

The consultants concluded that in Canada, pure and applied research compares well with that of our major international competitors.

Given that the pulp and paper industry is vital to Canada, the consultants noted that it is imperative to maintain a leading position by encouraging pure and applied research and the transfer of technology to industry. They were unable to determine why promising applications identified in 1984 have not yet been applied in Canada. To address these issues, a number of questions were identified as topics for a suggested workshop.

Appendix B

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Recent National Biotechnology Advisory Committee Reports Available from the Secretariat

- *National Biotechnology Advisory Committee, 1985-1986 Annual Report* (Bilingual). Ministry of State for Science and Technology, 1986.
- *Directory of Canadian Culture Collections, 1986* (English and French). Ministry of State for Science and Technology, 1986.
- *1988 Canadian Biotechnology Industry Sourcebook* (English and French). Ministry of State for Science and Technology, July 1988.
- *National Biotechnology Advisory Committee, 1987-1988 Annual Report* (Bilingual). Industry, Science and Technology Canada, December 1988.
- *Strategic Industry Analysis: Biotechnology in the Waste Treatment Industry.* Secor Inc., October 1989 (Executive Summary available in French).
- *Strategic Study of Opportunities for Canadian Biotechnology in Specialty Food Crops.* Agri Studies Inc., March 1990 (Executive Summary available in French).
- *Strategic Study for Canadian Biotechnology in Animal Husbandry Products.* Deloitte & Touche, March 1990 (Executive Summary available in French).
- *A Preliminary Identification of Strategic Opportunities for Development of Bio-Control and Inoculant Products in Canada.* Deloitte & Touche, March 1990 (Executive Summary available in French).
- *Biotechnology in Forestry.* A paper prepared for the NBAC by Forestry Canada, September 1990 (Bilingual).
- *Update and Extension of 1984 Report on Biotechnology in the Pulp and Paper Industry.* Pulp and Paper Research Institute of Canada, December 1990 (Executive Summary available in French).
- *A Study of Strategic Opportunities for Canadian Biotechnology in Animal Husbandry Products.* Phase II Report, Deloitte & Touche, January 1991 (Summary and Conclusions available in French).