THE NCE
SELECTION COMMITTEE
REPORT
April 2001

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REMARKS FROM THE CHAIR

The Networks of Centres of Excellence 2001 competition that just ended was designed to evaluate four networks who reapplied for a 2nd NCE funding cycle. The NCE Selection Committee was composed of nine members from Canada and abroad who, in total, were able to represent areas covered by the four Networks. Each member of the Selection committee evaluated the extensive materials provided for each of the four Networks, so as to be able to discuss each application and ultimately provide a recommendation to the NCE Steering Committee. Throughout the deliberations, each Network was assessed against the five stringent requirements of Excellence established for the NCE program: excellence of the research program, development of highly qualified personnel, networking and partnerships, knowledge exchange and technology exploitation, and the management of the network.

The Selection Committee recognized the National importance of the research areas represented by the four proposals. It was clear that Networks were, in general, composed of many high quality researchers who developed the proposed innovative research programs for each application. Overall, the Committee was impressed by the large number of researchers and partners from different sectors involved in each Network. It was also impressed by the quality of the training activities and personnel, and efforts made by most networks to retain these highly skilled individuals in Canada.

The Selection Committee had access to an extensive amount of material for each Network. These included the Networks' progress reports and future strategic plans, mid-term reviews, and the reports of international Expert Panels that met each Network. The Chair of each Expert Panel was consulted during deliberations to answer additional questions from the Selection Committee about the Network.

As required, each Network was evaluated against each of the five NCE criteria of the program. As these networks were applying for their last funding cycle, the Committee also examined the network's vision for their 2nd Funding cycle and beyond, their integrated training strategies, and the network's commercialization and implementation strategies. Our recommendations represent the Committee's judgement of the relative merits of each case against the established criteria and the potential value added by additional investments in the Networks.

Following extensive discussions, the Selection Committee recommended that two Networks be funded at the requested levels for up to seven years. It is understood that the amounts recommended in years 5 to 7 are subject to successful reviews in year 4 and will be the subject of a future submission. The two other Networks are not recommended for a 2nd funding cycle.

The NCE Selection Committee is confident that the additional funding cycle for the recommended NCE proposals will increase the National research capacity of the universities and their partners to generate social and economic value within our society. We think that these Networks will enhance the Canadian leadership within the world community in their respective fields.

On behalf of the Selection Committee, we would like to mention that all of the Networks have created new synergies and partnerships activities, and generated new knowledge. The Selection Committee recognized that the two networks not recommended for a 2nd funding cycle are in areas of research of national interest. To capitalize on the first cycle of funding investment and to maintain the networking momentum created during the first 7 years, the Committee encourages all researchers and partners involved in these two networks to continue to seek funding for their research program through the appropriate granting agencies and other sources of funds.

Finally, the recommendations from the Committee reflect the commitment of all members to the principle of Excellence that is trademark of the NCE program. As Chair, I would like to thank all members of the Selection Committee for their dedication, commitment and consideration to ensure that the goals of the NCE program are met through the recommended networks. Finally, we would like to thank all members of the international Expert Panels for their contributions and the NCE Directorate for their support for the entire process.

W.M. (Bill) Cheliak
Chair
NCE Selection Committee 2001
Competition for 2nd NCE funding cycle

BACKGROUND

The Networks of Centres of Excellence (NCE) Program seeks to mobilize Canada's best research talent in the university, private and public sectors and apply it to the task of developing the economy and improving the quality of life of Canadians. Networks are selected on the basis of their excellence in research, their inclusion of the best cross-country talents, the extent of their partnerships with the receptor community and their potential for socio-economic benefits. Industry Canada and the three granting agencies (the Natural Sciences and Engineering Research Council, the Canadian Institutes of Health Research and the Social Sciences and Humanities Research Council) jointly manage the program.

Since its inception in 1989, the NCE Program has been linking Canadian researchers from the university, public and private sectors to work collaboratively on the advancement of research on the development of new technologies. Networks provide opportunities to develop innovative research approaches that cross traditional disciplinary and sectoral boundaries, and promote collaborations among scientists and engineers from several domains. These collaborations have contributed significantly to speeding up the uptake of new knowledge and technologies by the industry and other receptor communities, and have led to important socio-economic benefits.

At present, there are 22 networks conducting leading-edge research in strategic areas. These networks are at different stages of maturity; eleven networks have been created in 1989 and in 1995. Eleven other networks have been created during the last four years (i.e., three in 1998, one in 1999, three in 2000 and, more recently, four in 2001). In accordance with the NCE program framework approved by the government in February 1997, networks can benefit for a maximum of two 7-year of funding cycles. The four networks created in 1995 will have benefited from seven years of support as of March 2002. They were invited to submit an application for renewal NCE support for up to seven more years or compete for Research Management Funding for up to two years. The four networks reapplied for a further 2nd NCE funding cycle of seven years. This is their final competition under the NCE program.

Applications for a 2nd NCE funding cycle were received on January 8, 2001. The peer review process for each network involved a site visit by an Expert Panel. In accordance with the terms of reference of the Expert Panels (Appendix I), meetings were held with representatives of each group of applicants. Each Expert Panel responsible for a network performed an in-depth evaluation of the strengths and weaknesses of the application.

The Expert Panels thoroughly assessed the networks for which they were responsible according to the published selection criteria:

- Excellence of the Research Program
- Development of Highly Qualified Personnel
- Networking and Partnerships
- Knowledge Exchange and Technology Exploitation
- Management of the Network

NCE Criteria are detailed in Appendix II. Considering the level of maturity of these networks, the proposals had to place greater emphasis on the justification of additional funds for a 2nd funding cycle and expected impact, on the development of integrated research training strategies, on the network's commercialization and implementation strategies, and on the planning for the future beyond the 2nd funding cycle.

The individual Expert Panel reports were submitted to the Selection Committee and were used in elaborating the final recommendation to the NCE Steering Committee. Committee mandate, membership and short biographical notes of the committee members can be found in appendices III, IV and V respectively.

The Selection Committee's recommendation is summarized in the next section.

The schedule for this competition will enable successful networks to receive additional funds starting on April 1, 2002.

COMPETITION PROCESS

May 2000	The four Networks up for renewal were advised of the competition process for a 2nd funding cycle
January 8, 2001	Deadline for submission of applications for a 2nd funding cycle
February 2001	International Expert Panel Meetings with each group
April 2, 2001	Meeting of the NCE Selection Committee to review the four applications and make recommendations to the NCE Steering Committee
April 17, 2001	Meeting of the NCE Steering Committee to review funding recommendations of the NCE Selection Committee and make a final decision
May 2001	Public Announcement of awarded Networks
April 1, 2002	Awarded Networks receive funds for a 2nd NCE funding cycle.

NCE SELECTION COMMITTEE RECOMMENDATIONS

The NCE Selection Committee recommended continued support for two Networks as indicated below. These two Networks are renewed for seven years, but the level of funding for years 5 to 7 will be determined following an in depth review in year 4.

Network	Scientific Director	Host Institution	Funding Level recommended
Intelligent Sensing for Innovative Structures Network (ISIS Canada)	Dr. A. Mufti	University of Manitoba	Years 1 to 4 at $ 3.2 million per year
Sustainable Forest Management Network (SFM)	Dr. V. L. Adamowicz	University of Alberta	Years 1 to 4 at $ 4.1 million per year

SUMMARY OF THE NETWORKS RECOMMENDED FOR ADDITIONAL FUNDING

INTELLIGENT SENSING FOR INNOVATIVE STRUCTURES NETWORK (ISIS Canada)

The mandate of the Intelligent Sensing for Innovative Structures Network of Centres of Excellence (ISIS Canada) is to advance civil engineering in Canada to a world leadership position through the development and application of fibre reinforced polymers and integrated intelligent fibre optic sensing technologies, for the benefit of all Canadians, through smart structures and cost-effective infrastructure.

ISIS Canada is a multidisciplinary team of over 160 world-renowned researchers located in 12 universities across Canada, with its headquarters at the University of Manitoba. The challenge consists of the innovative uses of fibre reinforced polymers for civil engineering applications in dealing with the massive problems associated with the deterioration of civil engineering infrastructure, as well as developing structurally integrated fibre optic sensing technologies that will allow engineers to monitor a structure from a remote location. Both fundamental and applied research is being carried out and transferred from laboratories to field demonstration projects for future adoption by the user sector.

This solution-oriented research program covers an area identified as critical to Canada's future – rehabilitating infrastructure. Since its inception in the fall of 1995, ISIS Canada researchers have been working closely with public and private sector organizations that have a vested interest in innovative solutions for designing, constructing, maintaining and repairing bridges, roads, buildings, and other structures. While there are many different applications of ISIS Canada technologies, three basic components prevail:

> **Fibre reinforced polymers (FRPs),** previously referred to as advanced composite materials, that are up to six times stronger than steel, one-fifth the weight, non-corrosive, and non-magnetic;
>
> **Intelligent fibre optic sensors (FOSs)** that are able to gather technical information from within structural components and thereby give "Smartness" to a structure; and
>
> **Remote monitoring and intelligent processing,** whereby data on structural behaviour can be transmitted via computer to anywhere in the world.

ISIS Canada adheres to the overall objectives of supporting excellent research, training highly qualified personnel, managing interdisciplinary and multi-sectorial programs, and accelerating the exchange of knowledge and technology transfer to the user. This is a collaborative effort linking universities with public and private sector organizations, which provide matching contributions to the funding supplied by the NCE.

SUSTAINABLE FOREST MANAGEMENT NETWORK
(SFM)

Canada's forests have economic, environmental, social and cultural significance to Canadians and people around the world and there is increasing pressure to manage these forests effectively and sustainably. The Sustainable Forest Management Network (SFM), a national university-based interdisciplinary research network was created in 1995 to respond to this challenge by developing knowledge and technologies for sustainable forest management.

The strength of the SFM integrated and comprehensive research program results from the involvement of leading researchers and dedicated partner support and participation. The SFM Network links 13 forest companies, four provincial governments, four Aboriginal community partners and one university funding partner with some 150 graduate students at 30 universities, and close to 100 of Canada's leading researchers in forestry, biology, engineering and the social sciences. This collaborative approach ensures that the Network is contributing practical, realistic and holistic sustainable forest management solutions.

The SFM Network's mandate recognizes that forests must be cared for, not only to produce lumber and fiber products, but also maintain the ecological integrity and biological diversity of the forest system and to meet the social and economic needs of communities. The SFM Network is playing a key role in ensuring that environmentally and socially sustainable methods of forest management are employed to enhance income, employment and exports for Canada.

The SFM Network research program consists of integrated interdisciplinary teams focused on the development of alternative forest management strategies, planning and management tools, policies, and institutions and the evaluation of these alternatives in terms of how they enhance forest management and deliver social and economic benefits. Research on how natural processes such as disease or fire help maintain the forest's ecological balance and how human activities alter natural disturbance patterns is central to the research program. This knowledge is essential to developing forest management alternatives and strategies based on ecological principles. The Network's emphasis on integrating policy and social science research with natural science research is unique among forestry research organizations in Canada.

The SFM also develops and assesses criteria and indicators to be used to measure progress toward achieving sustainability, and develops technologies for monitoring sustainability. Establishing a scientific basis for sustainability indicators is essential for the nation's forest industry as such indicators are being used in forest products certification systems. Furthermore, determining the impact of new forest management strategies, technologies, policies and institutional arrangements on ecological, economic, and social sustainability objectives requires a common set of indicators.

SFM Network research results are used to improve forest management practices and contribute to policy changes across Canada. The SFM Network is delivering knowledge that supports Canada's forest industry efforts to become a world leader in the sustainable utilization of forests. SFM Network researchers are developing strategies for cooperative management that will enhance economic opportunities and capacity for Aboriginal communities. Government agencies are incorporating SFM Network research into provincial forest management policies.

Education and training of new researchers in both natural and social sciences is an important goal of the SFM Network. The ability to train and retain outstanding individuals in sustainable forest management research and technologies is critical to Canadian productivity, economic growth, public policy and quality of life. The interdisciplinary training opportunities provided by the SFM Network expose students to ecological, ethical and social issues associated with natural resource management and produce graduates well-versed in the strategies and technologies that are essential for the attainment of sustainably managed forests.

To encourage adoption of sustainable forest management practices, the SFM Network maintains links with related research organizations and communicates key research results to partners and the public through publications, workshops, presentations, and conferences.

APPENDIX I

COMPETITION FOR A 2ND FUNDING CYCLE

TERMS OF REFERENCE OF THE EXPERT PANELS

APPENDIX I TERMS OF REFERENCE OF THE EXPERT PANELS

An Expert Panel will be appointed by the NCE Directorate for each application. The Panel will be comprised of experts in research, research management, knowledge and technology transfer, commercialization and/or public policy. Each Expert Panel will be composed of 6 to 8 members (including the Chair).

To be recommended for a 2nd cycle of funding, a Network must excel in each of the five NCE selection criteria:

- excellence of the research program;
- development of highly qualified personnel;
- networking and partnerships;
- knowledge exchange and technology exploitation; and
- management of the network.

It is also required that an application for a 2nd funding cycle should also place emphasis on:

- Justification for the 2nd funding cycle;
- Network's vision for the 2nd cycle and expected impacts;
- Development of integrated research training strategies that meet the needs of both partners and universities;
- Networks commercialization and implementation strategies (e.g. , social and economic impacts, building and strengthening linkages with participants from all sectors, enhancing technology and knowledge exchange, development of public policies, social innovations and new services);
- Planning for the future of the Network beyond the 2nd NCE funding cycle.

During the review, the Expert Panel will meet with 10-14 representatives of each group of applicants.

The Expert Panel will provide a detailed evaluation of the strengths and weaknesses for each selection criterion.

The Expert Panel report, which will be provided to the applicants once the review process is complete and results are announced, will be considered by the NCE Selection Committee in making its recommendation to the NCE Steering Committee for final decision.

The Chair or a designate from the Expert Panel will be available to respond to questions and provide additional information during deliberations of the NCE Selection Committee.

APPENDIX II

COMPETITION FOR A 2ND FUNDING CYCLE

NCE SELECTION AND EVALUATION CRITERIA

APPENDIX II NCE SELECTION AND EVALUATION CRITERIA

To ensure that the program objectives are met, proposals are assessed against the five criteria outlined below. A threshold of excellence must be exceeded for each criterion. The quality of research is considered first and, unless it is deemed excellent, the network is denied NCE funding. In other words, research excellence is a necessary condition for the initial or continued funding of an NCE. It is not the sufficient condition, because the goals of the program are also reflected in the four additional criteria.

The descriptors of the five criteria are given below for the guidance of applicants. They are not all-inclusive.

Excellence of the Research Program

- The excellence, focus and coherence of the research program;
- The achievements of the researchers and their ability to contribute to the research program;
- The value added by the network approach, in terms of the quality of the research and achievement of the goals that can be pursued;
- The extent to which the program will contribute to Canada's ability to lead in areas of research with high economic and/or social impact;
- The extent to which new and emerging social and ethical issues, where relevant, will be addressed in the research program;
- The relationship of the research program to similar work conducted in Canada and abroad**.**

Development of Highly Qualified Personnel

- The ability to train and retain outstanding researchers in research areas and technologies critical to Canadian productivity, economic growth, public policy and quality of life;
- Training strategies that promote multidisciplinary and multisectorial research approaches and encourage trainees to consider the economic, social and ethical implications of their work.

Networking and Partnerships

- Effective research and technology development links between academic institutions, federal and provincial agencies and private sector participants;
- Multidisciplinary, multisectorial approaches in the research program;
- Evidence that an effort has been made to include all suitably qualified groups;
- Optimization of resources through the sharing of equipment and research facilities, databases and personnel;
- Presence, nature and extent of contributions from the private sector and federal and provincial agencies, and prospects for increasing commitments as the work progresses.

Knowledge Exchange and Technology Exploitation

- Likelihood that new products, processes or services can be commercialized by firms operating in Canada and that they will strengthen the Canadian industrial base, enhance productivity, and contribute to long-term economic growth and social benefits;
- Prospect for social innovation and the implementation of effective public policy through collaboration with the public sector;
- Effective collaboration with the private and public sectors in technology, market development, and public policy development;
- The impact, or potential impact, on the partners' science and technology capabilities;
- Effective management and protection of intellectual property resulting from network-funded research.

Management of the Network

Each network must possess an organizational structure appropriate for the management of the research and business functions of a complex multidisciplinary, multi-institutional program. These elements must include:

- A board and committee structure to ensure that appropriate policy and financial decisions are made and implemented;
- The presence of effective leadership and expertise in the research and the business management functions;
- Effective research planning and budgeting mechanisms;
- Effective internal and external communications strategies.

APPENDIX III

COMPETITION FOR A 2ND FUNDING CYCLE

TERMS OF REFERENCE OF THE NCE SELECTION COMMITTEE

APPENDIX III TERMS OF REFERENCE OF THE NCE SELECTION COMMITTEE

The NCE Selection Committee is responsible for:

- Reviewing applications and Expert Panel reports (January to April 2001);
- Transmitting to the NCE Steering Committee a priority-ranked list of networks recommended for funding, with the recommended level of award for each network (April 2001);
- Drafting confidential evaluation reports for all applications submitted in the competition (April 2001);
- Drafting the “NCE Selection Committee's Public Report”, which provides the rationale for the recommendations along with a summary of each application recommended for funding.

APPENDIX IV

COMPETITION FOR A 2ND FUNDING CYCLE

MEMBERSHIP OF THE NCE SELECTION COMMITTEE

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April 2, 2001

Bill Cheliak (Chair)
V.P. Business Development and Alliance
Supratek Pharma Inc.
Montréal, Qc

Members:

James Bruce
Senior Associate
Global Change Strategies International, Inc
Ottawa, ON

Michel Claes
Professeur
Département de Psychologie
Université de Montréal
Montréal, Qc

Joseph Clark
Chairman and CEO
Videodiscovery Inc.
Seattle, USA

John Grace
Professor
Department of Chemical Engineering
University of British Columbia
Vancouver, BC

Rosemary E. Ommer
Director of the Calgary Institutes for Humanities
University of Calgary
Calgary, AB

David B. Shindler
President and CEO**,**
Milestone Medica Corporation
Toronto, ON

Ian Smith
Professor and Director
Applied Computing and Mechanics Laboratory
Institute for Structural Engineering and Mechanics
Federal Institute of Technology
Lausanne, Switzerland

Jeanne M. Stellman
Professor and Deputy Head
Division of Health Policy and Management
Columbia University
New York, USA

APPENDIX V

COMPETITION FOR A 2ND FUNDING CYCLE

BIOGRAPHICAL NOTES OF THE NCE SELECTION COMMITTEE MEMBERS

APPENDIX V BIOGRAPHICAL NOTES OF THE NCE SELECTION COMMITTEE MEMBERS

W.M. (Bill) Cheliak
Vice President, Business Development and Alliances, Supratek Pharma Inc.
Montréal, QC

Bill Cheliak obtained a PhD in Genetics at the University of Alberta in 1982, and has worked in both the government and private sectors in research and in management. From the mid-1980s to mid-1990s, he worked in the areas of forest biotechnology research and management, and was involved with teams responsible for successfully developing somatic embryogenesis and a transformation system for conifers, as well as a reliable transformation system for the spruce budworm and a viable bio-control system, based on baculoviruses, for the Gypsy Moth. Much of this base technology has been implemented in forest improvement and protection programs around the world. In the mid-1990's, Dr. Cheliak was responsible for establishing DNA vaccines at Cobequid Life Sciences, a publicly traded Canadian biotechnology company specializing in aquaculture and veterinary health care products. He has served as member and chair of numerous grant selection committees for the Natural Sciences and Engineering Research Council (NSERC), the NCE Program, and the Canada Foundation for Innovation (CFI).

James Bruce
Senior Associate of Global Change Strategies International Inc. and Canadian Policy Representative of the Soil and Water Conservation Society.
Ottawa, ON

James Bruce 40-year-plus career has been in the fields of meteorology, climate, water resources, disaster mitigation, and environment in senior executive positions within the Canadian government and UN organizations. From 1986-1989, he was Director of Technical Cooperation and Acting Deputy Secretary-General of the World Meteorological Organization, Geneva. He recently completed terms as co-chair of the Intergovernmental Panel on Climate Change (IPCC) Working Group III on economics, and as chair of the Canadian Climate Program Board. He is now vice-chair of the Board of the International Institute for Sustainable Development. He is an Officer of the Order of Canada, an honorary Doctor of Environmental Science by the University of Waterloo, and a Fellow of the Royal Society of Canada. Recent awards include the IMO Prize of the World Meteorological Organization and the Massey Medal of the Canadian Geographical Society. Dr. Bruce also served on the 2000 NCE Selection Committee.

Michel Claes
Professor, Department of Psychology, Université de Montréal
Montreal, Quebec

Michel Claes is a professor in the Université de Montréal's Department of Psychology. He graduated in 1975 with a doctorate in education from the Université de Louvain (Belgium). His primary teaching responsibilities focus on developmental and adolescent psychology and leading a research seminar in psychology. Dr. Claes heads up a laboratory investigating the social development of adolescents. His main areas of research include the social network of adolescents, as well as the study of links between the relationships with parents and peers, education/motivation in school and psychosocial development during adolescence. He is cofounder of SARAC (Society for the Advancement of Research on Adolescence in Canada) and has often served as a member of SSHRC and *Conseil québécois de la recherche sociale* (CQRS) grants selection committees. Dr. Claes has published numerous works and papers dealing with adolescence, particularly with the development of social relationships during the teen years. Many of these articles have appeared in journals, such as *Developmental Psychology, Journal of Youth and Adolescence, Journal of Adolescence, Journal of Adolescent Research, Enfance, Revue Québécoise de Psychologie,* and the *Canadian Journal of Behavioural Science.*

Joseph Clark
Chairman and CEO, Videodiscovery Inc.
Seattle, USA

Joseph Clark, is Founder, Chairman and CEO of Videodiscovery, Inc., a publisher of high quality interactive multimedia products for education. Videodiscovery Inc. is a leading provider of videodiscs, CD-ROMs, and interactive software that enhance the effectiveness of instruction for the primary schools to college market. Videodiscovery's commitment is to education and to bringing technology-based learning to students of all ages, worldwide. As a result of Dr. Clark's science credentials and classroom experience, Videodiscovery, Inc. has produced and marketed interactive materials that are renowned for their solid scientific and pedagogical content, quality, and range. Dr. Clark has received numerous awards and citations for his pioneering work and, under his leadership, the company has won major grants from national education and health agencies for seminal work in interactive videodisc applications. From 1970 to 1981, he was the Director of the Center for Instructional Development and Research at the University of Washington.

John Grace
Professor, Department of Chemical Engineering, University of British Columbia
Vancouver, BC

John Grace obtained a Ph.D. degree from Cambridge University in 1968. From 1968-79, he was a faculty member at McGill University in Montreal, with a year of leave spent working in industry in 1974-75. In 1979 he moved to the University of British Columbia in Vancouver. There he has served an 8-year term as Head of the Department of Chemical Engineering and a 6-year term as Dean of the UBC's Faculty of Graduate Studies. He has served as a consultant for a number of companies and has been active in professional affairs, serving as President of the Canadian Society for Chemical Engineering, Chair of the Chemical Institute of Canada, member of the Canadian Engineering Accreditation Board, editor of the journal Chemical Engineering Science, a Council member of the Natural Sciences and Engineering Research Council of Canada and a member of the Advisory Board on Energy Science and Technology for Natural Resources Canada. Awards include the R.S. Jane Award of the Canadian Society for Chemical Engineering (1995), a Canada Council Killam Fellowship (1999-2001) and a Canada Research Chair (2001-2007).

Rosemary E. Ommer
Director of the Calgary Institutes for Humanities, University of Calgary
Calgary, AB

Rosemary E. Ommer holds a PhD in economic historical geography from McGill University and an MA in historical geography from Memorial University of Newfoundland, and she has researched and taught in Atlantic Canada since the early 1970s. An economic historian and professor of history at Memorial from 1982 until 1999, she also held the position of Research Director of Memorial's Institute for Social and Economic Research (ISER) from 1990-1996. During the 1990s, she served on the SSHRC Council and the Executive of the Vanier Institute for the Family. During 1998-99 she was granted leave from Memorial to work as their SSHRC research facilitator at the University of Victoria. While there, she also taught in the Department of Economics. In 2000 she became P.I. of the SSHRCC-NSERC funded "Coasts Under Stress: the Impact of Social and Environmental Restructuring on Environmental and Human Health in Canada" project -- a joint initiative of the University of Calgary, Memorial University and the University of Victoria.

David B. Shindler
President and CEO of Milestone Medica Corporation, Toronto, a national venture development company specializing in early-stage biomedical technology investment and management.

David Shindler's research expertise is in the field of microbiology and biochemistry. Between 1990 and 1997, he served as Senior Executive and Commercial Director of the Canadian Genetic Diseases Network (CGDN), an internationally recognized trans-Canada consortium of leading researchers and industrial partners, funded by the federal Networks of Centres of Excellence program. During his tenure with CGDN, Dr. Shindler led and negotiated technology deals that resulted in major new start-up ventures and pharmaceutical alliances. From 1988 to 1990, he served as Counsellor - Science and Technology at the Canadian High Commission in London, UK. Between 1980 and 1988, Dr. Shindler was employed by Industry, Science and Technology Canada as Manager of Canada's National Biotechnology Strategy and Secretary to the federal Science Minister's National Biotechnology Advisory Committee. Between 1974 and 1980, he was a research scientist at the National Water Research Institute, Burlington, Ontario. He currently serves as director of several companies, BIOTECanada, and BIRC, and recently served on the Steering Committee of Genome Canada and the NCE Selection Commitees in 1999 and 2000.

Ian Smith
Professor and Director, Applied Computing and Mechanics Laboratory
Institute for Structural Engineering and Mechanics - Federal Institute of Technology
Lausanne, Switzerland

Ian Smith received a BASc in engineering from the University of Waterloo in 1978 and a PhD from the University of Cambridge, England in 1982. He has continuously been involved in applied research, teaching and consulting with industry for over twenty-five years. Currently Dr. Smith is Professor of Structural Engineering and Director of the Applied Computing and Mechanics Laboratory at the Federal Institute of Technology in Lausanne, Switzerland. Research interests include performance based engineering, applied engineering informatics, active structures and global sustainability. He is the editor of the international journal, "Artificial Intelligence in Engineering" (Elsevier) and is on the editorial board of six other international journals.

Jeanne M. Stellman
Professor and Deputy Head, Division of Health Policy and Management
Columbia University
New York, USA

Dr. Stellman has been professor at Columbia University's Mailman School of Public Health for the past two decades. Dr. Stellman is the editor-in-chief of the four-volume fourth edition of the International Labour Office's Encyclopaedia of Occupational Health and Safety, and spent five years developing what is indisputably the world's most comprehensive industrial safety and health reference. She is also the editor of the multidisciplinary journal Women and Health. She is currently the principal investigator of the multi-million dollar U.S. National Academy of Sciences-sponsored project to develop the methodology for estimating veteran exposure to herbicides in Vietnam. Her other research interests are: issues in women's health, particularly occupational health and gender bias in research; sex roles and health; occupational health and safety; organisation of work and occupational health management. Dr. Stellman has been consultant/former assistant director, Cancer Control, Columbia University Comprehensive Cancer Center; founder/president, Foundation for Worker, Veteran and Environmental Health, Inc., founder/former executive director, Women's Occupational Health Resource Center, Columbia University. Dr. Stellman was a member of the NCE health targeted expert panel in 1994.