BIOCAP Canada Foundation

Annual Report 2002/2003

BIOCAP CANADA

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"The way that BIOCAP is doing science will be the way the world does science in the 21st century – incorporating social, economic, and environmental factors is how science serves society."

Peter Hall
Science Advisor
Natural Resources Canada,
Canadian Forest Service
Bio-based Products RDAC
Member

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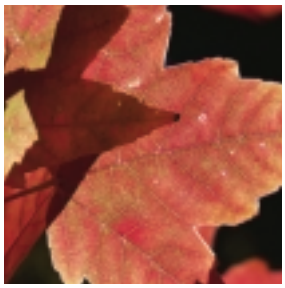
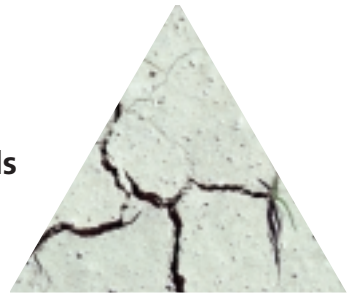




"BIOCAP has provided a vital framework within which researchers from a broad range of institutions and disciplines can network, collaborate, and better focus on some important policy issues and questions. It has also helped improve collaboration between academic and government researchers, on carbon sinks research."

Henry Hengeveld
Senior Science Advisor,
Climate Change,
Environment Canada
Canada's Carbon Cycle
RDAC Member

Chair's Message

With the December 2002 ratification of the Kyoto Protocol, the Canadian Government made climate change a critical priority. In the federal government's Climate Change Plan, Canada's biological systems – especially forests, farmlands, and landfill sites – have been earmarked to provide over 80 Mt CO_2e/yr of emissions reductions, carbon sinks or alternative fuels. This represents about 33% of the 'gap' that has been predicted to exist between Canada's Kyoto target and what our 'business as usual' emissions would be in 2010. In addition, there are substantial provincial climate programs underway, including Alberta's Action Plan.

We live in a country that boasts 7% of the world's land area, 10% of the world's forests, and more than 60 million hectares of agricultural land – our "green advantage" – which provides us with a unique opportunity to address climate change using our natural biosphere and biological systems.

To take advantage of this resource, Canada needed a co-ordinated, multi-disciplinary, and multi-sectoral effort that would result in targeted biosphere research initiatives by Canadian researchers. In 1998 the BIOCAP Canada Foundation was created to pull it all together, harnessing the combined efforts of industry, governments, and universities.

BIOCAP is a national, not for profit research Foundation, and a powerful new model for how industry, government, non-government environmental organizations, and the university community can work together to create a targeted and effective research effort. BIOCAP is mobilizing Canada's talent and expertise to find solutions to the challenges of climate change.

In the past 18 months, the Foundation's research initiatives have focused on Canada's unparalleled capacity to capture greenhouse gases and build a biomass energy resource in the forests we manage, the crops we grow, and the soils we farm. These biological systems can be used to generate emission offsets and carbon sinks for Canadian industry while producing the renewable bio-based energy, chemicals, and materials that will stimulate the rural economy. Converting atmospheric carbon wastes into economic products is a win for the environment, a win for the economy, and a win for the people.

BIOCAP's work to co-ordinate, fund, and communicate bio-based research for climate change is revealing cost-effective solutions to the challenge of managing carbon dioxide emissions and other greenhouse gases and will result in research insights and new technologies that will validate Canada's plan to use the biosphere for 33% of the solution.

For industry heads, government leaders, environmentalists, and university researchers, this unique partnership is generating new opportunities for working together toward a common goal. We are addressing climate change by working with nature as our partner.

Sincerely,
Bob Page
Chair
BIOCAP Board
of Directors

Director's Message

Fiscal year 2002-03 has been one of rapid growth for BIOCAP.

We began the year having recently (Dec. 2001) received $6M in funding under a federal contribution agreement. We ended the year having launched two new national research networks, expanded a third, co-funded a grants program, and brought together six new emerging networks to develop biosphere solutions to the challenges of climate change.

In total, BIOCAP invested $2.1M in university research initiatives, and committed an additional $3.4M to leverage a total of about $22M of research activity. Through these initiatives, BIOCAP provides funding support for research on the biosphere and climate change solutions to more than 70 researchers at 17 universities across Canada. Impressive accomplishments - made possible by an even more impressive roster of individuals and organizations that have supported the Foundation and positioned us to help Canada meet its climate change commitments.

At the top of this list is a group of talented and highly committed individuals who make up the 9-member BIOCAP team. From our house-turned-offices on the campus of Queen's University, they have helped shape a 'network of networks' that spans the country, touches hundreds of Canadian researchers, and connects thousands of stakeholders to a common goal – understanding the role our biosphere can play in reducing greenhouse gases.

Of course, none of this would be possible without the individuals who make up BIOCAP's Research Overview Committee (ROC), its four Research and Development Advisory Councils (RDACs), the Outreach Advisory Committee (OAC), and the members of the BIOCAP Board of Directors. These individuals have devoted both time and resources to assist in defining research needs, prioritizing research initiatives, and providing organizational guidance. Thanks to them, BIOCAP has enjoyed great success in building partnerships for climate change solutions.

Over the next year, we will continue the momentum by working with our existing networks and assisting a number of new networks in getting 'off the ground'. Together, the BIOCAP 'network of networks' will generate the natural science and social science insights as well as new technologies that will help Canada meet its international climate change commitments.

We welcome the involvement of all organizations that share similar goals, and we encourage researchers from all sectors to become involved in our initiatives. This is an exciting time for the biosphere sciences, given that they are now being called upon to provide human society with much more than food, feed, and fibre. Our agricultural and forest ecosystems are being asked to provide environmental values such as emission reductions and carbon sinks, as well as fuels and industrial feedstocks. BIOCAP's research initiatives will help make this possible, while providing economic and environmental benefits to the landowner, producer, industry, and society.

Given the vast biosphere that defines Canada, and the need for the science and technologies that BIOCAP helps identify, we expect that the coming year will bring continued growth and much more success.

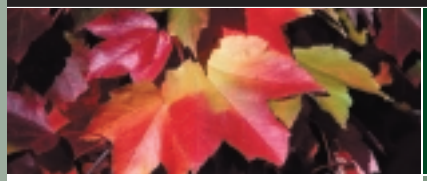
Sincerely,
David B. Layzell
Ph.D., F.R.S.C.
Chief Executive Officer
and Research Director

"BIOCAP has provided essential support to organizing the Fluxnet-Canada Research Network (FCRN) and continues to be one of our key supporters."

Hank Margolis
Professor, Faculty of Forestry and Geomatics, Université Laval
Program Leader, Fluxnet-Canada and Canada's Carbon Cycle RDAC Member

The BIOCAP Model

BIOCAP: Building Partnerships for Climate Change Solutions



BIOCAP CANADA

Stakeholders

Government Policy Makers, Industry, Producer Groups, Environmental NGO's

We work with stakeholder groups to define research needs and priorities.

Granting Agencies

NSERC, SSHRC, CFCAS, NCE

We work with Granting Agencies who provide peer review and co-fund research projects.

Researchers

Universities, Government Agencies, Industry, Environmental NGO's

We work with the research community to develop high quality integrated research projects.

BIOCAP has developed a powerful and unique model for targeting university research support in Canada. The cyclical model centres on the active engagement of and communication with three groups:

1. Stakeholders: to define research needs and priorities.

2. Granting Agencies: to provide peer review and to co-fund programs.

3. Research community: to initiate the research.

The cycle begins by establishing with stakeholder groups what research and development related to biosphere greenhouse gas (GHG) management they feel is needed within three key areas: Forestry and Natural Ecosystems, Agriculture, and Bio-based Products. Once key research needs are established, BIOCAP's Research Overview Committee (ROC) and Research and Development Advisory Councils (RDACs) assist BIOCAP in setting its research priorities.

With a prioritized accounting of research needs, BIOCAP begins the task of sourcing researchers, mainly from Canadian universities, but also from industry, government, and non-governmental organizations. Network Facilitators assist in building a framework for the emerging networks and contribute to the development of high-quality integrated research proposals.

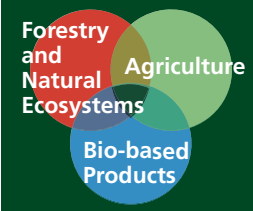
Once BIOCAP is confident in the calibre of the emerging network, work begins to source a third-party granting agency to conduct peer reviews and to co-fund the initiative. After passing the scrutiny of the peer reviewers, the initiative is funded and the new national research network is officially launched.

The final, most critical step in the BIOCAP model, is to extract results and insights from the networks, translate them so as to be relevant to decision makers, and communicate the findings back to the stakeholders to help inform good policy and investment decisions.

Using this model, BIOCAP is generating a 'network of networks' that is examining priority areas of biosphere greenhouse gas research, and ensuring that research results from these networks are effectively communicated to end users.

Growing a Network of Networks

Capitalizing on Canada's university research expertise, we build multiple networks in 3 key areas of biological greenhouse gas management.



Research results and insights are communicated back through the cycle to inform policy and investment decisions and to generate new research opportunities.

Board of Directors (as of March 31, 2003)

Bob Page, (Chair) ✦■
Vice President, Sustainable Development,
TransAlta Corporation

Henry J. Benskin,
Director, Research Branch,
BC – Ministry of Forests

Fraser Dunn,
Director,
Applied Research and Development Branch,
Ontario Ministry of Natural Resources

Marc Denis Everell, ✦
Assistant Deputy Minister,
Meteorological Service of Canada,
Environment Canada

Ralph W.F. Hardy, ●
President,
National Agricultural Biotechnology Council

Helen Howes,
Vice President, Sustainable Development,
Ontario Power Generation

Bruce Hutchinson,✦●■
Associate Vice Principal (Research),
Queen's University

Irwin Itzkovitch,
Assistant Deputy Minister,
Earth Sciences Sector,
Natural Resources Canada

Linton Kulak,✦
Vice President, Sustainable Development,
Shell Canada Limited

Gordon Lambert,
Vice President, Sustainable Development,
Suncor Energy Inc.

William Leiss,
Executive-in-Residence,
McLaughlin Center for Population Health
Risk Assessment,
University of Ottawa

Peter McCann, ●
President,
Ag-West Biotechnology Inc.

Bob Mitchell, ✦■
Executive Director,
Climate Change Strategic Directions,
Alberta Environment

Ken Ogilvie,✦
Executive Director,
Pollution Probe

David Pollock, ■
Executive Director,
Pembina Institute for Appropriate
Development

Tom Richardson,
Acting Assistant Deputy Minister,
Strategic Policy Branch,
Agriculture and Agri-Food Canada

Alan G. Wildeman,
Vice-President (Research),
University of Guelph

David B. Layzell,✦●■
CEO and Research Director,
BIOCAP Canada Foundation

John Telgmann,✦●
Business Manager/Financial Officer,
BIOCAP Canada Foundation

✦ **Executive Committee**
● **Audit and Finance Committee Member**
■ **Human Resource Committee Member**

Left to right: Ralph W.F. Hardy, Bruce Hutchinson, Alan G. Wildeman, Marc Denis Everell, John Telgmann, Bob Page, Alrick Huebener (for Tom Richardson), David B. Layzell, William Leiss, Helen Howes, David Pollock, Ken Ogilvie, Bob Mitchell
Absent: Henry J. Benskin, Fraser Dunn, Irwin Itzkovitch, Linton Kulak, Gordon Lambert, Peter McCann, Tom Richardson

To **Co-ordinate**, Fund, and Communicate national research initiatives to explore how the Canadian biosphere can address the challenges of climate change and greenhouse gas management.

How BIOCAP Co-ordinates Research Initiatives

To provide advice and set priorities for research, BIOCAP has established a Research Overview Committee (ROC) and four Research and Development Advisory Councils (RDACs) in areas of strategic importance to BIOCAP:

1. Canada's Carbon Cycle
2. Afforestation & Agroforestry
3. Agricultural Greenhouse Gas Management, and
4. Bio-based Products

The ROC and RDACs draw on Canada's leading experts from industry, government, universities, and non-governmental organizations to identify research initiatives that are already underway, pinpoint research gaps and priorities, advise in the development of research proposals, and help engage partners to support new and emerging research initiatives.

With the advice from RDACs, BIOCAP identifies researchers in university and government laboratories who can help to address the research needs. Once a network leader and planning committee have been identified, BIOCAP's Network Facilitators work with the group to assist in defining the objectives, research strategy, partners, and other characteristics for a new national network.

BIOCAP supports a series of teleconferences and workshops, to achieve an alignment between the needs and interests of the research users (typically government and industry) and the research being proposed by the emerging network. The teleconferences and workshops are also critical for defining how the proposed network will provide value beyond the individual research projects to be funded.

With the assistance of BIOCAP staff and the Network Leader, the research community is guided through the development of strong and viable network proposals that can attract both BIOCAP support and support from other funding sources.

BIOCAP Network Facilitators are key in this process as they provide critical, early-stage support and valuable advice for the emerging networks. Once the networks are launched, their role switches to one of liaison and communicator between the research community and the research users.

In 2002, BIOCAP held its first competition for new research network initiatives. The Network Facilitators and RDACs worked closely with the applicants to assist them in developing 'letters of intent'. Of more than a dozen inquiries, eight groups submitted letters of intent that were reviewed by the ROC and BIOCAP Board. Six were identified as critical to BIOCAP's goals. These six 'emerging networks', along with BIOCAP's launched networks, are described in the following pages.

"BIOCAP research initiatives will assist Canada in meeting Kyoto targets by removing CO_2 from the atmosphere, providing economic opportunities, increasing the sustainability of forest management, and providing environmental benefits to landowners and the public such as increased water quality, wildlife habitat, and soil health."

Mark Johnston
Senior Research Scientist, Environment Branch, Saskatchewan Research Council
Afforestation & Agroforestry RDAC Chair and ROC Member

8

Launched BIOCAP Networks

Human Dimensions of Biosphere Greenhouse Gas Management
Research Director: Paul Thomassin, McGill University

BIOCAP and the Social Sciences and Humanities Research Council (SSHRC) partnered on a $3.4 million joint venture to establish this national network. The objective of the initiative is to ensure that the human dimensions and policy implications of GHG management and bio-based products are adequately addressed and to complement and extend the natural science and engineering research being undertaken in these areas. BIOCAP and SSHRC co-sponsored a grant competition for nodes in a national research network and for a Research Director. As a result, the following six network nodes were established:

1. *Transformative change in biosphere GHG management* (led by Murray Fulton, University of Saskatchewan)
2. *Socio-economic research network on bio-products and bio-processes* (led by Kurt Klein, University of Lethbridge)
3. *Integrated analysis of mitigation strategies for GHG emissions from agriculture* (led by Surendra Kulshreshtha, University of Saskatchewan)
4. *Institutional development of a domestic emission trading system that includes carbon offsets from the agriculture and forestry sectors* (led by Paul Thomassin, McGill University)
5. *The economics of terrestrial carbon sinks: land use, land use change, and forestry* (led by G. Cornelis van Kooten, University of Victoria)
6. *Cost-effective agricultural management strategies and technologies in mitigating GHG emissions* (led by Alfons Weersink, University of Guelph)

"BIOCAP has recognized the importance of understanding the human dimension in climate change research and has worked tirelessly to develop funding support for socio-economic research that complements the natural sciences research activities that are underway in Canada."

Kurt Klein
Professor, Department of Economics, University of Lethbridge, Agricultural GHG RDAC member, and a Node Leader in the Human Dimensions Network

FluxNet Canada Research Network
Network Leader: Hank Margolis, Université Laval

In April 2002, the Fluxnet-Canada Research Network (FCRN) was awarded research grants totalling $12.7 million over a five year period from the BIOCAP Canada Foundation, the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS), and the Natural Sciences and Engineering Council of Canada (NSERC). Consisting of 43 research scientists representing 13 universities, five Canadian Forest Service research centres, the Meteorological Service of Canada, the British Columbia Ministry of Forests, the Ontario Ministry of Natural Resources, and the Canada Centre for Remote Sensing, FCRN lists an impressive team of Canadian scientists.

FCRN has established a series of 7 flux tower sites across the commercial forest zone of Canada that measure the exchange of CO_2 between the land surface and the atmosphere at 30-minute time scales over multiple years. This is combined with soil and vegetation measurements that allow them to explain the underlying reasons for the overall CO_2 exchange measured from the towers. Flux towers are a key tool for developing scientific understanding of interactions between the biosphere and atmosphere. They provide data that is essential to developing and testing models that will predict the effects of different disturbance and climate scenarios on our carbon cycle.

In the first year of operation, FCRN has a remarkable list of accomplishments to

its credit and will provide essential information for estimating under what conditions our forest and peatlands might become net sources or sinks of CO_2. FCRN will contribute valuable insight into on-going international efforts studying the role of natural ecosystems in the global carbon cycle, help develop strategies for the management of greenhouse gases through the short-term sequestration of atmospheric CO_2, and contribute fundamental scientific information on which Canada's climate change policy will be based.

BIOCAP – Sustainable Forest Management Network Joint Venture on Biosphere GHG Management

Program Leader: Vic Adamowicz, University of Alberta

The BIOCAP Canada Foundation and the Sustainable Forest Management Network (SFMN) initiated a joint research venture to support an integrated research funding effort, with a focus on understanding and characterizing the effects of forest management practices on carbon stock changes and greenhouse gas emissions in forested lands.

There is heightened interest in the role that forests may be able to play in mitigating climate change by reducing greenhouse gas emissions, and enhancing carbon sequestration through forest management activities. The joint BIOCAP/SFMN research projects will contribute important insights to support good policy and investment decisions regarding existing or new forest management activities that contribute most effectively to climate change solutions. Two successfully funded projects will examine:

1. *The influence of forest management, silviculture, and pest management on carbon sequestration*
   (led by David MacLean, University of New Brunswick)
2. *An integrated bioregional approach to sustainable forest management in the western boreal* (led by Fiona Schmiegelow, University of Alberta)

In order to further enhance linkages and stimulate dialogue on the interplay between carbon cycling science and sustainable forest management research, a workshop is being planned in late summer 2003.

BIOCAP's Emerging Networks

In the 2002-03 fiscal year, BIOCAP supported the development of six additional national research networks to meet the needs of government and industry for policy and investment decisions. These 'Emerging Networks' are described below. Over the next 12 to 24 months, BIOCAP staff and committees will be working with these networks to bring them to fruition as fully funded initiatives within BIOCAP's integrated 'Network of Networks'.

Canadian Green Chemistry Network

Network Leader: Tak-Hang (Bill) Chan, McGill University

The Green Chemistry Network will foster innovative collaborations in the natural and social sciences, technology, and public policy necessary to support Canada's move to a bio-based economy. In particular, the network is focused on the conversion of biomass into a sustainable and renewable supply of energy, chemicals, and materials. The research program for this network is organized according to the following five themes:

1. *New technology for chemical processing of biomass*
   (led by Jacek Lipkowski, University of Guelph)
2. *Biotechnology for biomass conversion*
   (led by Stephen Withers, University of British Columbia)
3. *Bioenergy and biofuels*
   (led by Esteban Chornet, University of Sherbrooke)
4. *Biomaterials and biorefinery*
   (led by Robert Marchessault, McGill University)
5. *Systematic assessment for a greener economy*
   (led by Hadi Dowlatabadi, University of British Columbia)

In March 2003, the Green Chemistry Network submitted a full proposal to the Networks of Centres of Excellence (NCE) program.

Green Crop Network

Network Leader: Donald Smith, McGill University

Recent concerns about climate change and the opportunity for agriculture to provide environmental values and a renewable energy supply have greatly increased the demand for scientific insights and new crop development in these areas. The Green Crop Network will focus on developing or selecting crops and their associated micro flora that will improve the sustainability and reduce the environmental footprint associated with crop production. The research objectives of the network are to develop crops that: produce fewer N_2O emissions, enhance soil C stocks, flourish in an elevated CO_2 atmosphere, and provide materials for bio-based products.

The products of the Green Crop Network will feed into the emerging Landscape Scale Cropping Systems Network, which will be studying how management practices affect GHG sources and sinks in cropping systems. The Green Crop Network will also link with other BIOCAP networks such as the Human Dimensions Network and the Green Chemistry Network.

"The support provided by BIOCAP has been invaluable. It simply would not have been possible to develop the Green Crop Network to this point with such speed and efficiency without their expertise in coordination and communications."

Donald L. Smith
Professor, Faculty of Agricultural and Environmental Sciences , McGill University
Leader of the emerging Green Crop Network

Landscape Scale Cropping Systems Network
Network Leader: Daniel Pennock, University of Saskatchewan

The Landscape Scale Cropping Systems Network (LSCS) will contribute to the development of scientifically sound and socially acceptable 'best management practices' that will reduce overall GHG emissions from Canadian cropping systems at the 'landscape scale', a scale that includes adjacent wetlands and marginal lands in addition to the croplands. This network will provide knowledge on the GHG sources and sinks associated with various management practices. This will contribute data to the national inventory of agricultural GHGs while giving valuable arm's length, scientific support for a project-based emissions trading system that will likely be part of Canada's strategy for meeting Kyoto. With BIOCAP support, the LSCS group will be undertaking some field research in summer 2003 and working toward a larger proposal later in the year.

Animal Production and Manure Management Network
Network Leader: Karin Wittenberg, University of Manitoba

The mandate of the Animal Production and Manure Management Network (APMMN) is to understand and quantify the sources and sinks of GHGs associated with beef, dairy, and pork production. This understanding will be used to identify 'best management practices' and new technologies that can mitigate GHGs, while providing additional value to the agricultural producer. Reliable estimates of GHG reductions will also be achieved through these practices. This research will provide results and insights to inform good policy and investment decisions among producers, the agricultural industry, and government.

In FY 2002-03, the BIOCAP Board and ROC recognized the potential for significant emission reductions associated with changes in animal production practices and committed resources for a future network in this area. In March 2003, BIOCAP secured $6000 from the Canadian Cattlemen's Association to support a national workshop, which is being planned for late 2003. BIOCAP is assisting this network in preparing a full proposal for submission to a major funding source during the next fiscal year.

"BIOCAP's help to build the Landscape-Scale Cropping Systems Network will strengthen our linkages to producer groups and make sure they receive the practical information they need to help with GHG mitigation through crop management."

Daniel J. Pennock
Professor, University of Saskatchewan
Leader of the emerging Landscape Scale Cropping Systems Network

Research Network for the Assessment of Greenhouse Gas Emissions from Reservoirs

Network Leader: Marc Lucotte, Université du Québec à Montréal

The Research Network for the Assessment of Greenhouse Gas Emissions from Reservoirs (R-NAGER) will seek to understand the effects of impoundment on the regional carbon cycle. This network will assist in coordinating research across Canada on carbon cycling and GHG emissions from reservoirs, to develop a nation-wide, long-term, credible data set for Canadian reservoirs. These results will be tightly integrated into the development and evaluation of carbon flux models that will contribute to a national GHG inventory. The Network's research results may lead to the development of a framework for the comparison of GHG emissions associated with the development of hydroelectric energy generation versus other energy sources, which will serve to inform policy and investment decisions for energy production.

Canadian Afforestation and Agroforestry Research Network

Network Leaders: Ken van Rees, University of Saskatchewan and Andrew Gordon, University of Guelph

Afforestation activities have been highlighted as a means of reducing GHG emissions and increasing carbon sequestration in the Kyoto Protocol. The objective of the emerging Canadian Afforestation and Agroforestry Research Network is to provide the science to support the development, use, and adaptation of afforestation and agroforestry systems to enhance biosphere carbon stocks while providing either a source of wood fibre or a biomass feedstock for a bio-based economy. The network will explore the sources and sinks for GHGs associated with afforestation practices, the development of growth, yield, biomass, and GHG models, and the tree planting strategies that will optimize growth, carbon sequestration, and value of the biomass produced. The network will be closely linked to the Human Dimensions network that will explore the socio-economic aspects associated with afforestation and agroforestry practices.

"The Animal Production and Manure Management network will address a fundamental need for research to develop technologies for GHG mitigation in the livestock industry. BIOCAP's work in securing financial support and resources will be invaluable to making this research a reality."

Karin Wittenberg
Professor and Department Head, Department of Animal Science, University of Manitoba
Leader of the emerging Animal Production and Manure Management Network

In fiscal year 2002-03, BIOCAP partnered with the Natural Sciences and Engineering Research Council (NSERC) to co-fund BIOCAP-relevant projects in their 2002 Strategic Grants Competition. This competition was designed to stimulate scientific research that complements or extends existing networks, to seed emerging networks, or to encourage new technology development. This partnership resulted in the co-funding of 3 projects from their 2002 competition.

In addition, another BIOCAP-NSERC agreement resulted in a call for proposals for the 2003 NSERC Strategic Grant program in the area of "Biosphere and Climate Change Solutions". The results of this $4.8M competition will be announced in Oct 2003.

BIOCAP/NSERC 2002 Strategic Projects

Adapting forest genetic resource management to climate change

Principal Investigator: Sally Aitken, University of British Columbia

This research is exploring opportunities for mitigating the effects of climate change and enhancing forest C stocks by mixing seed from genetically selected individuals from different populations for reforestation. It will also evaluate the ability of natural populations to adapt to new climatic and elevated CO_2 conditions in the absence of intentional intervention. The results will be used in the development of new forest policies addressing seed use and climate change and new strategies for optimizing use of selected genotypes for uncertain future climates.

Laser atmospheric sensing

Principal Investigator: John Tulip, University of Alberta

This project aims to develop a compact, lightweight, instrument that can be used for unattended open path remote monitoring and will improve the economic feasibility and accuracy of Canada's ability to monitor atmospheric GHG emissions (in particular nitrous oxide). Two of Canada's most important industries, energy and agriculture, are faced by national and international initiatives to lower their GHG emissions. This innovative laser technology will allow for economical measurement of GHGs with up to 1000 times the sensitivity of current detectors. The heightened sensitivity will allow researchers to determine the relative importance of various sources and sinks of GHGs to enable well-informed policy and investment decisions.

The development of methanotrophic biofilters and bioreactors to reduce point source methane emissions, sequester carbon and increase soil fertility

Principal Investigator: Nigel Livingston, University of Victoria

Methane has a global warming potential approximately 21 times that of CO_2 and is consumed in soils and converted to cell carbon by bacteria called methanotrophs. Several species of methanotrophs found in soils are known to have the ability to simultaneously convert atmospheric nitrogen into a chemical form useable by plants for their growth function (nitrogen fixation). By taking soils from a variety of sources – including landfills and agricultural plots and infusing them with methane, this project aims to identify, isolate, and culture populations of methane-oxidizing, nitrogen fixing bacteria that have an enhanced capacity to assimilate methane and increase soil fertility. These bacteria can then be inoculated back into soils, which can lead to substantial GHG emission uptake in soils by converting the carbon in methane to soil carbon, which is in turn utilized by growing crops. This could serve as a biofilter technology to capture methane at landfill sites, or released from housed farm animals and manure storage.

Research Overview Committee

Vic Adamowicz,
Program Leader,
Sustainable Forest Management Network and
Department of Rural Economy,
University of Alberta

Doug Beever,
Manager, Public Relations,
Agrium Inc.

David Burton,
Professor and Climate Change Research Chair,
Department of Engineering,
Nova Scotia Agricultural College

Geoff Munro,
Director General,
Great Lakes Forestry Centre,
Natural Resources Canada

Graham Campbell,
Director General, Office of Energy Research and
Development,
Natural Resources Canada

Michael Goss,
Chair of Land Stewardship,
University of Guelph

Art Jacques,
Chief, Greenhouse Gas Division,
Environmental Protection Service,
Environment Canada

Mark Johnston,
Senior Research Scientist,
Environment Branch,
Saskatchewan Research Council

Wayne Lindwall,
Director, Semiarid Prairie Agricultural Research Centre,
Agriculture and Agrifood Canada

Don McCabe,
Environment Chair, Grain Growers of Canada,
Director, Ontario Corn Producers' Association

Gordon Neish,
Acting Director General,
Bioproducts and Bioprocesses,
Agriculture and Agri-food Canada

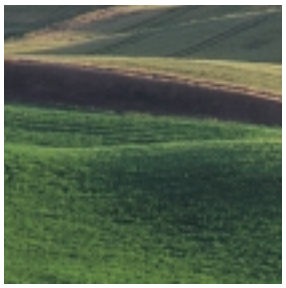
Nigel Roulet,
Professor, Centre for Climate and Global Change
Research and Department of Geography,
McGill University

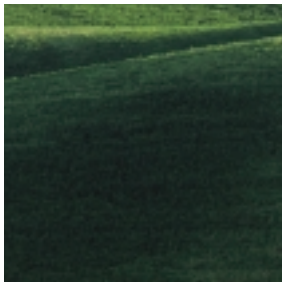
Jack Saddler,
Professor, Forest Products Biotechnology,
Dean, Faculty of Forestry,
University of British Columbia

John M.R. Stone,
Executive Director, (Climate Change)
Meteorological Service of Canada,
Environment Canada

Barb Thomas,
Geneticist and Poplar Farm Research Coordinator,
Alberta-Pacific Forest Industries Inc.

David B. Layzell,
CEO and Research Director,
BIOCAP Canada Foundation





"In addition to key organizational and infrastructure support, BIOCAP has connected GCN with other BIOCAP networks and with researchers across the country. Because of BIOCAP, we truly feel that we are at the hub of cutting edge bio-based research in Canada."

Tak-Hang (Bill) Chan
Tomlinson Professor of Chemistry,
McGill University
Scientific Director,
Canadian Green Chemistry Network (GCN)

Research and development Advisory Councils

Afforestation & Agroforestry Research and Development Advisory Council (RDAC)

Dominique Blain,
Forestry Analyst,
Environment Canada

Eric Boysen,
Policy Advisor,
Ministry of Natural Resources

James (Jim) Fyles,
Associate Professor,
Department of Natural Resource Sciences,
McGill University

Andrew Gordon,
Professor,
Department of Environmental Biology,
University of Guelph

Andre Hucq,
Executive Director, Canadian
Agricultural Energy and End-Use Data and Analysis Centre,
University of Saskatchewan

Mark Johnston (Chair),
Senior Research Scientist,
Environment Branch,
Saskatchewan Research Council

David B. Layzell,
CEO and Research Director,
BIOCAP Canada Foundation

Geoff Munro,
Director General (Ontario Region),
Canadian Forest Service - Great Lakes Forestry

Bruce Neill,
Shelterbelt Centre Manager, Prairie Farm Rehabilitation Administration,
Agriculture and Agri-Food Canada

Ken Plourde,
Director Forest Management,
Alberta-Pacific Forest Industries Inc.

Barb Thomas,
Geneticist & Poplar Farm Research Coordinator,
Alberta-Pacific Forest Industries Inc.

Dan Wicklum,
Canadian Forest Innovation Council

Agricultural GHG Management Research and Development Advisory Council (RDAC)

David Burton (Chair),
Professor and Climate Change Research Chair,
Department of Engineering,
Nova Scotia Agricultural College

Ray Desjardins,
Research Affiliate, Research Planning and Coordination,
Agriculture and Agri-Food Canada

W. John Hastie,
President,
Valdrew Environmental Services Ltd.

John Hermans,
Branch Head, Conservation and Development,
Alberta Agriculture, Food and Rural Development

Jean-Willy Ileka,
Senior Environmental Analyst, Environment Bureau,
Agriculture and Agri-Food Canada

Henry Janzen,
Research Scientist, Environmental Health,
Agriculture and Agri-Food Canada

Kurt Klein,
Professor and Research Chair,
Department of Economics,
University of Lethbridge

David B. Layzell,
CEO and Research Director,
BIOCAP Canada Foundation

Chang Liang,
Project Officer (Agriculture), Greenhouse Gas,
Environment Canada

R.J. (Bob) MacGregor,
Chief, Agricultural and Environmental Policy Analysis,
Agriculture and Agri-Food Canada

Daniel Massé,
Research Scientist, Swine,
Agriculture and Agri-Food Canada

Don McCabe,
Environment Chair, Grain Growers of Canada,
Director, Ontario Corn Producers' Association

Rhonda McDougal,
Associate Scientist,
Ducks Unlimited Canada

Peggy Strankman,
Manager, Environmental Affairs,
Canadian Cattlemen's Association

Claudia Wagner-Riddle,
Associate Professor,
Department of Land Resource Science,
University of Guelph

K.M. (Karin) Wittenberg,
Professor and Department Head,
Department of Animal Science,
University of Manitoba

"As one of Canada's leading research-intensive Universities, Queen's is pleased to provide the home for the BIOCAP Canada Foundation. Through the vision and leadership of Queen's Research Chair holder David Layzell, BIOCAP is making a significant contribution to biosphere research in support of Canada's Kyoto commitment."

Bruce Hutchinson
Associate VP Research,
Queen's University

Bio-based Products Research & Development Advisory Council (RDAC)

Gabrielle Adams,
Director General,
Institute for Biological Sciences,
National Research Council

Robert (Bob) Benson,
Vice-President R&D/Technical Services,
Silvichemicals Group, Tembec Inc.

Graham Campbell, (served until October 2002)
Director General,
Office of Energy Research & Development,
Natural Resources Canada

Hadi Dowlatabadi,
Professor,
Sustainable Development Research Institute,
University of British Columbia

Randal Goodfellow,
President,
BioProducts Canada Inc.

J. Peter Hall, (began serving October 2002)
Science Advisor,
Canadian Forest Service,
Natural Resources Canada

Wilfred (Wilf) Keller,
Research Director, Plant Biotechnology Institute,
National Research Council

David B. Layzell (Acting Chair),
CEO and Research Director,
BIOCAP Canada Foundation

Don McCabe,
Environment Chair, Grain Growers of Canada,
Director, Ontario Corn Producers' Association

Peter McCann,
President,
Ag-West Biotech Inc.

Gordon Neish,
Acting Director General,
Bioproducts and Bioprocesses,
Agriculture and Agri-Food Canada

Don O'Connor,
President,
S&T Squared Consultants Inc.

Jack Saddler,
Professor, Forest Products Biotechnology,
Dean, Faculty of Forestry,
University of British Columbia

Gord Surgeoner,
President,
Ontario Agri-Food Technologies

Geneviève Tanguay,
Vice President Development,
Centre Québécois de valorisation des biotechnologies
(CQVB)

Canada's Carbon Cycle Research and Development Advisory Council (RDAC)

Mike Apsey,
Director,
FORCAST Forintek Canada Corp.

Dominique Blain,
Forestry Analyst,
Environment Canada

Peter Duinker,
Professor & Director,
School of Resource & Environment,
Dalhousie University

Henry Hengeveld,
Senior Science Advisor,
Environment Canada

Werner Kurz,
Senior Research Scientist,
Canadian Forest Service,
Natural Resources Canada

Peter Lafleur,
Professor,
Department of Geography,
Trent University

David B. Layzell,
CEO and Research Director,
BIOCAP Canada Foundation

Marc Lucotte,
Professor & Director,
Center for research in Geochemistry and Geodynamics,
Université du Québec à Montréal

Hank Margolis,
Professor,
Faculty of Forestry and Geomatics,
Université Laval
Program Leader, Fluxnet-Canada

Nigel Roulet (Chair),
Professor, Centre for Climate and Global Change
Research and Department of Geography,
McGill University

How BIOCAP Funds Research Initiatives

BIOCAP is committed to supporting high quality research focused on finding biosphere solutions to the challenges of climate change.

All of the research that BIOCAP supports must contribute - in some way - to informing policy and investment decisions by government and industry. However, the Foundation is focused on ensuring that researchers are able to work arm's length from the direct influence of government and industry on research approaches, or obtained results.

This approach is extremely important to BIOCAP stakeholders in government and industry, who need to know that their policy and investment decisions will be based on science that can withstand international scrutiny.

BIOCAP uses its committee structures to ensure that the research networks and grant programs initiated ask the right questions. The Foundation then relies on a peer review process to identify the networks and projects that will be funded.

The selection of the individuals to serve on the Peer Review Committee is done external to BIOCAP. Through agreements with the national granting councils (NSERC, SSHRC) or other granting agencies (e.g. CFCAS, NCE), the third-party committees are set up to manage the peer review process which BIOCAP's initiatives must pass. In this way, BIOCAP's funding only flows to initiatives that have met or exceeded the high standards set by the granting council or agency.

The advantages of this strategy:

1. It allows BIOCAP staff and committees to work closely with the research community to create proposals that meet the needs of the users as well as the high standards set by the granting councils or agencies.
2. It gives BIOCAP's initiatives access to funds from the granting councils or agencies, thereby leveraging BIOCAP's financial resources to meet our goals.
3. It increases the stature and credibility of the BIOCAP-supported research. Organizations like NSERC and SSHRC have a well-earned respect for their peer review processes, and by partnering with them, BIOCAP supported research gains the international credibility required to meet the needs of government and industry.

In 2002-03 BIOCAP used this funding strategy to leverage a $22M commitment to university research. BIOCAP will continue to work with the funded networks and grantees to ensure that their insights and technologies are communicated back to stakeholders for application by government and industry.

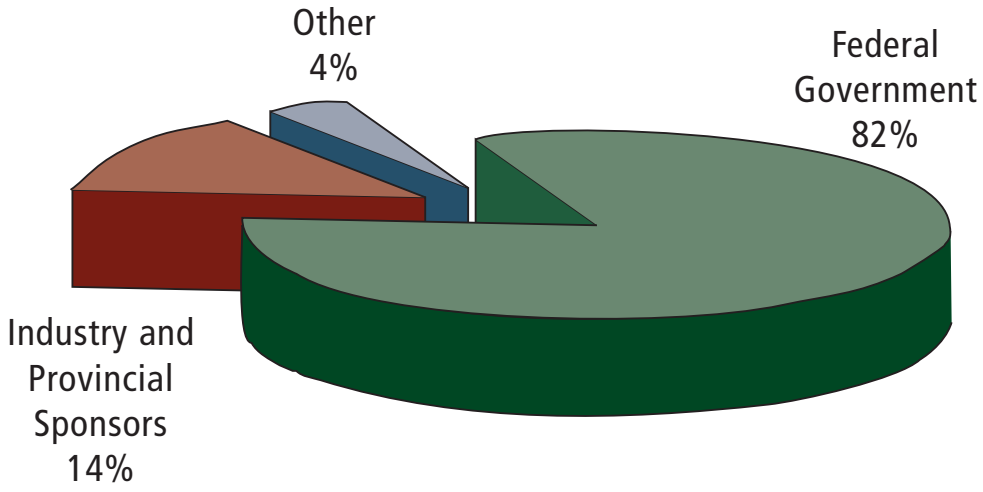
"BIOCAP has provided Canadian research initiatives with an exciting and challenging learning environment for training our young scientists in how to address solutions for Canada's future environmental issues."

Ken Van Rees
Professor, Department of Soil Science, University of Saskatchewan
Leader of the emerging network on Afforestation and Agroforestry

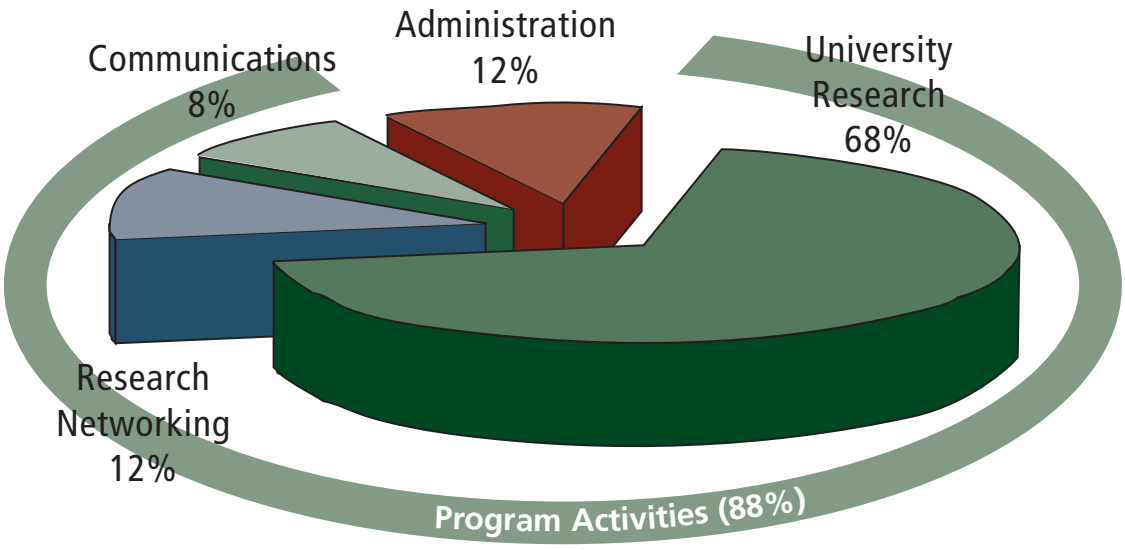
To Co-ordinate, **Fund**, and Communicate national research initiatives to explore how the Canadian biosphere can address the challenges of climate change and greenhouse gas management.

Source and Application of Funds

Revenues by Source - $2,933,733



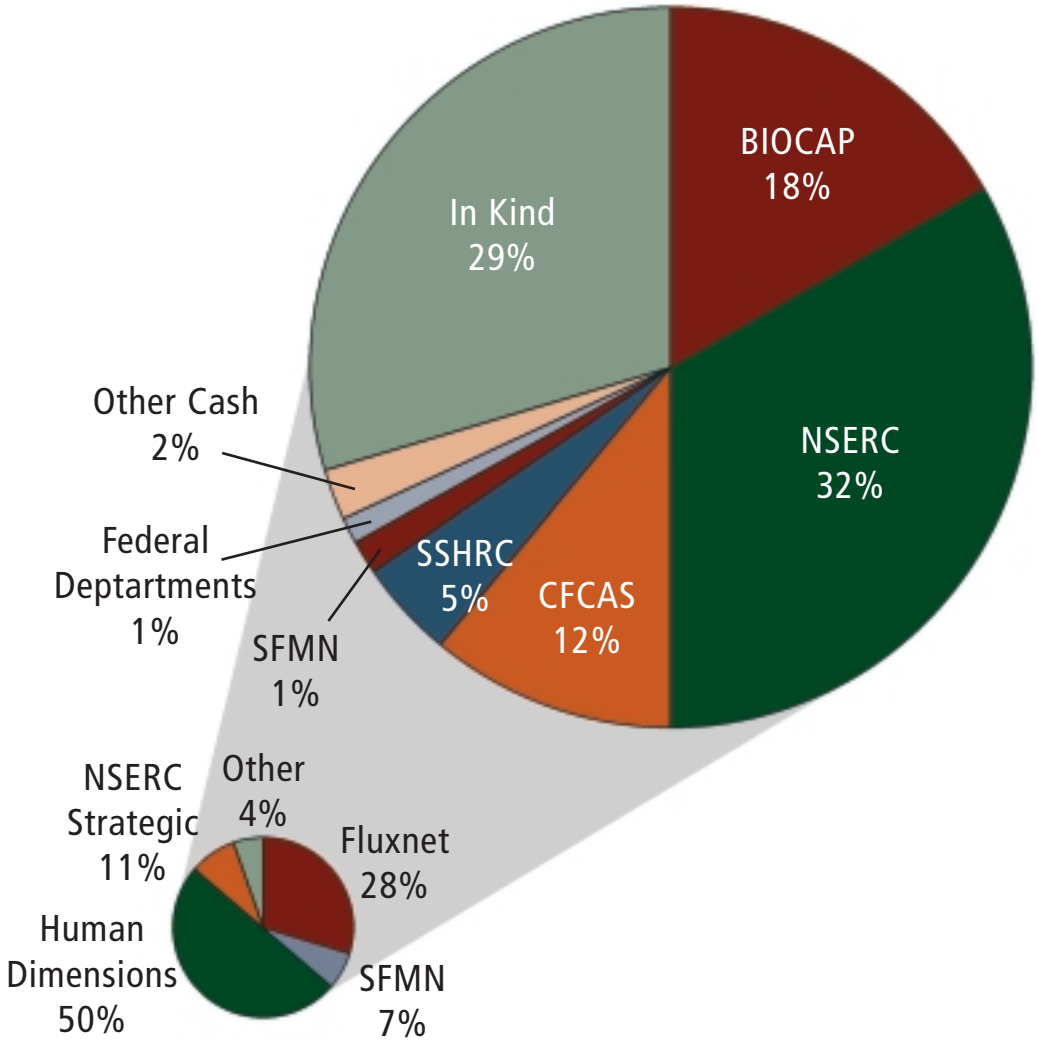
Expenditures by Function - $3,107,421



How BIOCAP Leverages Funding

BIOCAP's FY2002-03 investment was the first in a multi-year BIOCAP commitment that will result in a $22M investment in university research (plus an additional $8.8M in-kind) to develop biosphere solutions to the challenges of climate change.

Total Research Funding Commitment for 2002-2007 - $30.8 Million



BIOCAP's Research Investments in FY 2002-2003 - $2.1 Million

BIOCAP Sponsors

BIOCAP Partners

Abitibi-Consolidated Inc.

***Agriculture & Agri-food Canada**

***Alberta-Pacific Forest Industries Inc.**

Boreal Ecosystems Research Ltd.

Boreal Laser Inc.

Bowater Inc.

Canadian Cattleman's Association

Canadian Forest Products Ltd.

Climate Change, Global Carbon Cycle Greenhouse Gas Mitigation Technology

Corner Brook Pulp and Paper

Ducks Unlimited

***Environment Canada**

Environment Canada – Meteorological Service of Canada

Environment Canada – National Hydrology Research Centre

Fraser Inc.

***Government of Alberta**

***Government of British Columbia**

***Government of Canada**

Government of Newfoundland & Labrador

***Government of Ontario**

***Industry Canada**

J.D. Irving Ltd.

National Institute of Advanced Industrial Science and Technology, Japan

***Natural Resources Canada**

Natural Resources Canada - Canadian Centre for Remote Sensing

Natural Resources Canada – Canadian Forest Service, Northern Forestry Centre

Natural Resources Canada – Canadian Forest Service, Atlantic Forestry Centre

Natural Resources Canada – Canadian Forest Service, Pacific Forestry Centre

Natural Resources Canada – Canadian Forest Service, Laurentian Forestry Centre

Natural Resources Canada – Canadian Forest Service, Great Lakes Forestry Centre

Nexfor Inc.

Parks Canada – Prince Albert National Park

Slocan Forest Products Ltd.

Terre Vista Earth Imaging

Weyerhaeuser Company

***Also a BIOCAP Sponsor**

"Mitigating the economic and climatic impact of greenhouse gasses is a major 21st century national and global challenge and requires a 21st century BIOCAP network approach to succeed."

Ralph W.F. Hardy
President, National Agricultural Biotechnology Council
Member of BIOCAP's Board of Directors and Audit & Finance Committee

BIOCAP's National Impact

BIOCAP's "Network of networks" has engaged researchers from coast to coast.

Canadian Universities

University of British Columbia - Vancouver, British Columbia
University of Victoria - Victoria, British Columbia
University of Alberta - Edmonton, Alberta
University of Lethbridge - Lethbridge, Alberta
University of Saskatchewan - Saskatoon, Saskatchewan
University of Manitoba - Winnipeg, Manitoba
University of Guelph - Guelph, Ontario
McMaster University - Hamilton, Ontario
Queen's University - Kingston, Ontario
University of Toronto - Toronto, Ontario
Trent University - Peterborough, Ontario
Université Laval - Québec, Québec
McGill University - Montréal, Québec
Université de Montréal - Montréal, Québec
Université du Québec à Montréal - Montréal, Québec
University of New Brunswick - Fredericton, New Brunswick
Nova Scotia Agricultural College - Truro, Nova Scotia

Outside Canada

South Dakota School of Mines and Technology - Rapid City, South Dakota

University of Arkansas - Fayetteville, Arkansas

University of New Hampshire - Durham, New Hampshire

University of California, Berkley - Berkley, California

Mount Holyoke College - South Hadley, Massachusetts

Researchers Being Supported Through BIOCAP Initiatives

Adamowicz, V.	University of Alberta
*Aitken, S.	University of British Columbia
Arain, A.	McMaster University
Arp, P.	University of New Brunswick
Baker, L.	McGill University
Barichello, R.	University of British Columbia
Barnes, J.	University of Lethbridge
Baylis, K.	University of California, Berkley
Belcher, K.	University of Saskatchewan
*Black, A.	University of British Columbia
*Bourque, C.	University of New Brunswick
Boutin, S.	University of Alberta
Bubier, J.	Mount Holyoke College
Bull, G.	University of British Columbia
Bunnell, F.	University of British Columbia
Chen, J.	University of Toronto
Clark, S.	Nova Scotia Agricultural College
Cloutier, M.	Université du Québec à Montréal
Ellis, J.	McGill University
Famese, P.	University of Arkansas
*Flanagan, L.	University of Lethbridge
Foote, L.	University of Alberta
Frolking, S.	University of New Hampshire
*Fulton, M.	University of Saskatchewan
Furtan, H.	University of Saskatchewan
Gervais, J-P.	Université Laval
*Grant, R.	University of Alberta
Gray, R.	University of Saskatchewan
Grimstud, K.	University of Guelph
Gulati, S.	University of British Columbia
Guy, R.	University of British Columbia
Hauer, G.	University of Alberta
Hintz, W.	University of Victoria
Hobbs, J.	University of Saskatchewan
Isaac, G.	University of Saskatchewan
Jaeger, W.	University of Alberta
Jeffery, S.	University of Alberta
Johnson, G.	University of Manitoba
Kerr, W.	University of Saskatchewan
*Klein, K.	University of Lethbridge
*Kulshreshtha, S.	University of Saskatchewan
Laaksonen-Craig, S.	University of Toronto
Lafleur, P.	Trent University
Larue, B.	Université Laval
Lavigne, M.	University of New Brunswick
Leroy, D.	University of Lethbridge
*Livingston, N.	University of Victoria
*MacLean, D.	University of New Brunswick
Marceau, S.	University of Lethbridge
*Margolis, H.	Université Laval
*McCaughey, H.	Queen's University
McLean, G.F.	University of Victoria
Meng, F.R.	University of New Brunswick
Moore, T.	McGill University
Munson, A.	Université Laval
Noble, B.	University of Saskatchewan
Novak, M.	University of British Columbia
Offert, R.	University of Saskatchewan
Peddle, D.R.	University of Lethbridge
Peng, C.	South Dakota School of Mines & Technology
Pennock, D.	University of Saskatchewan
Prescott, C.	University of British Columbia
Quiring, D.	University of New Brunswick
Richard, P.	Université de Montréal
Romain, R.	Université Laval
*Roulet, N.	McGill University
Roy, R.R.	University of Victoria
*Schmiegelow, F.	University of Alberta
Stull, R.	University of British Columbia
*Thomassin, P.	McGill University
*Tulip, J.	University of Alberta
Turpin, D.	University of Victoria
*van Kooten, G.C.	University of Victoria
Van Rees, K.	University of Saskatchewan
Vercammen, J.	University of British Columbia
Vertinsky, I.	University of British Columbia
*Weersink, A.	University of Guelph
West, G.	Université Laval
Whitican, M.	University of Victoria
Yang, W.	University of Guelph
Yiridoe, E.	Nova Scotia Agricultural College

*Project Principal Investigators

"BIOCAP research initiatives are also currently supporting the work of over 40 post-doctoral and graduate students across Canada"

Getting the Word Out

The BIOCAP Canada Foundation's research initiatives are made possible in large part by its success in engaging and communicating with a diverse range of stakeholder communities. Guided by the Board of Directors, Outreach Advisory Committee (OAC), ROC, and its RDACs, BIOCAP is building a "Network of Networks" – an ideal model for coordinating a multi-disciplinary university research effort and for facilitating the transfer of information and insights among industry, government, universities, researchers, and environmental groups.

Ensuring that the lines of communication remain open between committees, networks, researchers, and stakeholders is central to the BIOCAP model.

Over the past year, BIOCAP staff worked with more than 100 researchers, countless industry stakeholders, non-governmental partners, and producer groups, and dozens of Federal and Provincial Government representatives. BIOCAP linked the efforts of hundreds of people, all working to find biological solutions to climate change.

In September 2002, the Board of Directors approved the creation of a committee to assist BIOCAP with focusing communications efforts, and in developing ongoing outreach strategies. The OAC met for the first time in October 2002 and has continued to provide advice and guidance through a series of teleconferences throughout the year.

January 2003 saw the launch of a new and improved BIOCAP website and in March 2003 the site was further developed to include secure sections which allow board and committee members to upload and download documents - facilitating the flow of stakeholder and research information.

Also in January 2003, BIOCAP launched the inaugural issue of Carbon Copy, a research newsletter, which was e-mailed to BIOCAP's database of over five thousand researchers and stakeholders across Canada and internationally.

In an ongoing effort to increase face-to-face communication with national stakeholders, BIOCAP staff remained active in presenting at, and participating in, over 50 climate change and research related events and symposiums across Canada and internationally.

Looking forward, BIOCAP's communications activities will undoubtedly increase as research results and insights begin to emerge from the network of networks. As new initiatives are developed and launched, the organization will continue to work on finding the best ways to facilitate communication within and across networks, and back to a growing number of stakeholders.

"If BIOCAP hadn't been in existence, it would have taken another two or three years to get our network to where we are today."

Esteban Chornet
Professor, Department of Chemical Engineering, University of Sherbrooke
Theme leader of the Canadian Green Chemistry Network

To Co-ordinate, Fund, and **Communicate** national research initiatives to explore how the Canadian biosphere can address the challenges of climate change and greenhouse gas management.

Outreach Advisory Committee

Henry J. Benskin,
Director, Research Branch,
BC – Ministry of Forests

Lisa Blais (Acting Chair),
Communications Manager,
BIOCAP Canada Foundation

Rob K. Cross,
Advisor,
Science Promotion,
Policy and International Affairs,
Environment Canada

Helen Howes,
Vice President, Sustainable Development,
Ontario Power Generation

Ken Ogilvie,
Executive Director,
Pollution Probe

David Pollock,
Executive Director,
Pembina Institute for Appropriate Development

David B. Layzell,
CEO and Research Director,
BIOCAP Canada Foundation

Financial Highlights

For the Year Ended March 31, 2003

"BIOCAP has implemented sound financial accounting and reporting in accordance with the most recent advances in governance and accountability standards. The Audit & Finance Committee provides oversight of all financial transactions and ensures that the highest standards of integrity are adhered to. BIOCAP is an exemplary organization that invests public money wisely in research and development that will help Canada meet its commitments to climate change mitigation under the Kyoto Accord."

Peter McCann
President,
Ag-West Biotechnology Inc.
Chair, Audit and
Finance Committee

A. Summarized Statement of Operations (Revenues and Expenditures and Fund Balances), (see page 27):

1) **Revenues** totalled $2,933,733 in FY 2002-03 verses $1,340,597 in FY 2001-02, an increase in large part because FY2002-3 involved a full twelve months of operating with funding from the Federal Contribution Agreement compared to four months in FY 2001-02. Contributions from sponsors amounted to $408,490 this year up from $372,000 the in FY 2001-02. Other revenue from contracts, and in-kind contributions were $113,928 and $90,797 for FY2002-03 and 2001-02, respectively.

Program Activities – 88% of total expenditures:

2) **Research Funding** disbursed to university networks and researchers amounted to $2,032,164 from Federal funds, and $82,000 from industry/provincial sponsor funds for a total research investment of $2,114,164 or 68% of total expenditures. See the diagram on page 20 for information on the leveraging of these funds.
3) **Research Networking** activities totalled $353,770, which included salaries and benefits for Network Facilitators, allocation of in-kind cost for the Research Director, travel, telephone, teleconferencing costs, and external consultant; representing 12% of total expenditures.
4) **Communication** with stakeholders, the scientific community, and the general public through the web site, a newsletter, public launches and media events totalled $258,626, which paid for staff, travel, teleconferences, external contractors, and sponsorships. This represents 8% of expenditures.

Supporting Activities – 12% of total expenditures:

5) **Administration** amounted to $380,861 or 12% of the total expenditures in FY 2002-03. Besides salaries to two staff, the largest expense is $97,543 for net overhead to Queen's to cover use of facilities, assistance with financial, research contract, and human resources administration. Other expenses are for Directors' fees & reimbursable travel expenses to meetings, teleconferences, equipment rental, and office supplies.
6) **The Excess (deficiency) of Revenues over Expenditures for the year,** (fund) Balances (or Net Assets) beginning, and ending balances are shown at the bottom of the Statement.

B. Summarized Statement of Financial Position (Balance Sheet), (see page 28):

7) **Current Assets** totalling $610,068 (see column "D") is composed of various amounts for each fund (columns A,B,C) and in total $334,436 is on deposit at Queen's University, $200,000 is in GICs at the Royal Bank, $64,758 is receivable from Environment Canada and miscellaneous deposits.
8) **Current Liabilities** at $63,416 as at March 31, 2003 is much lower than the $209,910 figure from the previous year-end, primarily due to the fact that we are now paying quarterly for overhead to Queen's University.
9) **Deferred Revenue** of $100,000 represents contributions received from sponsors in FY 2002-03, but designated for use in FY 2003-04.
10) **Net Assets** (or fund balances) is the difference between Assets and Liabilities (i.e. a not-for-profit's equity) which is classified as follows: (a) Capital Assets totalling ($36,910) at the 2003 year-end includes the net book value of computers, equipment, furniture, and fixtures used in operations, (b) $160,809 externally restricted being advances from the Federal Government under the Contribution Agreement carried forward to the next fiscal year, (c) $180,000 internally restricted by the Board of Directors in a Reserve Fund, (d) $105,843 of unrestricted funds available for new programs or activities.

Summarized Statement of Operations

Year Ended March 31, 2003

	"A" BIOCAP Canada Funds @ Queen's University - Kingston	"B"	"C" Outside Queen's (separate legal entity)	"D" Combined All Funds		"E" Combined All Funds
	Env. Can. Queen's / BIOCAP Fund to account for the F.G.C.A.	BIOCAP @ Queen's University Fund in the direct support of the F.G.C.A.	BIOCAP Canada Foundation to manage extend the F.G.C.A.	Managed by BIOCAP Canada Foundation Total 2003 (A+B+C)		Managed by BIOCAP Canada Foundation Total 2002 (comparison)
Revenues:						
Contributions	$2,411,315	198,490	210,000	2,819,805		$1,249,800
Other	352	73,980	39,596	113,928		90,797
	2,411,667	272,470	249,596	2,933,733		1,340,597
Expenditures (by functions):						
Program Activities:						
Research Funding	2,032,164	50,000	32,000	2,114,164	68%	0
Research Networking	211,717	121,232	20,821	353,770	12%	255,232
Communication	175,757	82,869	0	258,626	8%	263,775
	2,419,638	254,101	52,821	2,726,560	88%	519,007
Support Activities (Admin.)	283,495	65,664	31,702	380,861	12%	306,595
	2,703,133	319,765	84,523	3,107,421	100%	825,602
Excess (deficiency) of Revenues over expenditures	(291,466)	(47,295)	165,073	(173,688)		514,995
Balance, beginning of year	465,436	191,814	0	657,250		142,255
Balance, end of year	$173,970	144,519	165,073	483,562		$657,250

- These summarized financial statements have been prepared from information in the complete audited annual general purpose financial statements (which are available upon request) of each of the individual funds, and are consistent with them in all respects. For more details see "Notes to Summarized Financial Statements," pages 29-31.

- F.G.C.A. = Federal Government Contribution Agreement (between Environment Canada and Queen's U.) (and managed by BIOCAP Canada Foundation).

Summarized Statement of Financial Position

Year Ended March 31, 2003

	"A" BIOCAP Canada Funds @ Queen's University - Kingston		"C" Outside Queen's (separate legal entity)	"D" Combined All Funds	"E" Combined All Funds
	Env. Can. Queen's / BIOCAP Fund to account for the F.G.C.A.	BIOCAP @ Queen's University Fund in the direct support of the F.G.C.A.	BIOCAP Canada Foundation to manage extend the F.G.C.A.	Managed by BIOCAP Canada Foundation Total 2003 (A+B+C)	Managed by BIOCAP Canada Foundation Total 2002 (comparison)
Assets					
Current Assets	$200,718	199,261	210,089	610,068	$886,610
Capital Assets	13,161	9,981	13,768	36,910	30,550
	213,879	209,242	223,857	646,978	917,160
Liabilities and Net Assets					
Current Liabilities:					
Accounts Payable and accrued Liabilities	39,909	14,723	8,784	63,416	209,910
Deferred revenue	--	50,000	50,000	100,000	50,000
	39,909	64,723	58,784	163,416	259,910
Net Assets:					
Invested in capital assets	13,161	9,981	13,768	36,910	30,550
Externally restricted	160,809	--	--	160,809	448,351
Internally restricted	--	60,000	120,000	180,000	0
Unrestricted	--	74,538	31,305	105,843	178,349
	173,970	144,519	165,073	483,562	657,250
	$213,879	209,242	223,857	$646,978	$917,160

- These summarized financial statements have been prepared from information in the complete audited annual general purpose financial statements (which are available upon request) of each of the individual funds, and are consistent with them in all respects. For more details see "Notes to Summarized Financial Statements," pages 29-31.

- F.G.C.A. = Federal Government Contribution Agreement (between Environment Canada and Queen's U.) and managed by BIOCAP Canada Foundation).

Notes to Summarized Financial Statements

Year ended March 31, 2003

BIOCAP CANADA describes both BIOCAP Canada Foundation and the BIOCAP Canada Funds at Queen's University at Kingston.

BIOCAP Canada Foundation (the "Foundation") was incorporated July 18, 2000 under the Canada Corporations Act, Part II without share capital. On December 20, 2002, the Minister of Industry issued Supplementary Letters Patent to the change in objects of the corporation from those that were charitable to not-for-profit as provided in by-law no. 2.

BIOCAP Canada is a national university research funding organization, which directly through its own revenues, and through the management of the BIOCAP Canada Funds at Queen's University at Kingston brings together leading researchers and decision-makers from across Canada to find biological-based solutions to the challenge of climate change. There are separate audited financial statements for the BIOCAP Canada Foundation and the BIOCAP Canada Funds at Queen's University at Kingston, which may be obtained upon request. Any excess of revenues over expenditures are to be used to promote the objects of the Foundation. The Foundation is a not-for-profit organization under paragraph 149(1)(i) of the Income Tax Act and, as such, is not subject to federal and provincial income taxes.

1.Significant accounting policies:

(a) **Basis of presentation:**
BIOCAP Canada Funds follows the accrual basis of accounting.

(b) **Fund accounting:**
BIOCAP Canada follows the restricted fund method of accounting for contributions.

Resources are classified for accounting and reporting purposes into funds that are held in accordance with their specified purposes, or legal obligations, or voluntary actions. All contributions are considered available for unrestricted use, unless specifically restricted by the donor or subject to other legal restrictions. BIOCAP Canada maintains three funds as described below:

(i) The Environment Canada – Queen's/BIOCAP Fund at Queen's University represents the research, research networking, communications and support activities funded by the federal government related to the fulfillment of the contribution agreement between the Minister of the Environment and Queen's University which provides a maximum contribution of $6 million over three years. The agreement will expire March 2004. This fund represents externally restricted resources.

(ii) The BIOCAP Queen's Fund accounts for the research, research networking, communications, and support activities funded by sponsors' charitable contributions. This fund represents unrestricted resources.

(iii) The BIOCAP Canada Foundation Operating Fund accounts for the research, research networking, communications, and support activities funded by sponsors' non-charitable contributions. This fund represents unrestricted resources.

(c) **Recognition of revenue:**
Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. All other restricted contributions are recognized as revenue of the appropriate restricted fund in the period received. If there is no corresponding restricted fund, contributions are recognized as revenue in the particular fund in the same period as the related expenses using the deferral method. This is the case for charitable donations by sponsors restricted for a future period.

Notes to Summarized Financial Statements ... continued

(d) **Capital assets:**
Purchased capital assets are recorded at original cost. The original cost does not reflect replacement cost or market value upon liquidation. Contributed capital assets are recorded at fair value at the date of contribution. Repairs and maintenance costs are charged to expense. Betterments, which extend the estimated life of an asset, are capitalized. When a capital asset no longer contributes to the organization's ability to provide services, its carrying amount is written down to its residual value.

Capital assets are amortized on a straight-line basis using the following annual rates:

Asset	Useful life
Computer hardware	3 years
Equipment and furniture	5 years

(e) **Use of estimates:**
The preparation of financial statements in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the period. Actual results could differ from those estimates.

2. Capital assets:

			2003	2002
	Cost	Accumulated amortization	Net book value	Net book value
Computer hardware	$45,282	27,436	17,846	$24,686
Equipment and furniture	25,663	6,599	19,064	5,864
	$70,945	34,035	36,910	$30,550

Cost and accumulated amortization as of March 31, 2002 was $44,359 and $13,809 respectively.

3. Related party transactions:

On December 18, 2001, the Foundation entered into a Memorandum of Understanding with Queen's University at Kingston for BIOCAP Canada Fund's administrative offices and certain services provided by the University. Under the terms of the Memorandum of Understanding, the Environment Canada – Queen's/BIOCAP Fund is required to pay overhead to the University of $97,543 for the fiscal year 2003 (2002 - $114,920). The amount due to Queen's University at Kingston related to overhead as at March 31, 2003 is $30,153 (2002 - $114,920). The Memorandum of Understanding may be cancelled by the Foundation or the University on three month's notice.

4. Inter-fund transfers and internally restricted net assets:

During the year, the Board of Directors internally restricted $180,000 to be used for specific purposes. These internally restricted amounts are not available for other purposes without approval of the Board of Directors.

5. Statement of cash flows:

The changes in cash flows are readily apparent from the financial statements and as such a statement of cash flows would not provide additional useful information.

6. Fair value of financial assets and financial liabilities:

The carrying value of the following accounts: cash, due from Office of Advancement of Queen's University, accounts receivable, deposits, accounts payable & accrued liabilities, and due to Queen's University of Kingston approximate their carrying values due to the relatively short periods to maturity of the instruments.