



The Centre for Research and Innovation in the Bio-Economy Task Force

Final Report

December 5, 2008

Table of Contents

Executive Summary

Introduction	2
The Opportunity	2
Recommendations	2
Recommendation One	2
Recommendation Two	2
Recommendation Three	3
Recommendation Four	3
Recommendation Five	4
Recommendation Six	4
Recommendation Seven	4

Structure of CRIBE

The Opportunity	5
Drivers Behind the Centre	6
CRIBE's Proposed Strategic Direction	6
The Objectives of the CRIBE Initiative	7
Objective One	7
Objective Two	8
Objective Three	8
The Proposed CRIBE Model	8
Governance	8
The CRIBE Presence in Thunder Bay	9
Communication around the CRIBE Initiative	9

Initial Focus for the Centre

The Bio-Refinery Initiative	10
Future Opportunities for CRIBE Investments	11

Keys to Success

International Competition	12
Access to Fibre Supply	12
Attracting the Partners	12

Appendix

Conceptual Model for CRIBE	13
----------------------------	----

Executive Summary

Introduction

The Centre for Research and Innovation in the Bio-Economy Task Force is pleased to present its final report to the Minister of Research and Innovation. There is a unique opportunity to use Ontario's announced \$25-million investment to build a world-class biofibre utilization cluster in Thunder Bay. This cluster would combine the natural attributes of the region, its educational and research strengths with the skills of its workforce to create new economic opportunities and jobs for future generations.

Global competitiveness in this sector is fierce. Ontario must move urgently and aggressively to seize the opportunity to develop the next generation of high-value forest biofibre product and processes, and in doing this, create the next generation of jobs in Northern Ontario.

The task force had its inaugural meeting on May 21, 2008 and has since met ten times to develop the advice and recommendations in this report.

The Opportunity

In the 2008 Budget, the Ontario government announced an investment of \$25 million to create a centre for research and innovation in the bio-economy. On May 21, 2008, the Minister of Research and Innovation announced the creation of a task force to provide advice and recommendations on how Ontario might best proceed with the creation of the Centre for Research and Innovation in the Bio-Economy (CRIBE) in Thunder Bay.

The Centre for Research and Innovation in the Bio-Economy will be an important part of Ontario's strengthened economic infrastructure designed to support growth in the bio-economy, replacing products now made with fossil fuels with those created from renewable resources, such as trees. In this context, CRIBE's activities would work in concert with other Ontario economic development programs (e.g., the Next Generation of Jobs Fund, the Second Career program).

The bio-economy will drive the next generation of new businesses, new markets and high-paying jobs in Northern Ontario and across the province.

The task force's vision is that this centre will attract new companies, jobs, innovation and new prosperity to Northern Ontario. The centre will work to develop the next generation of bio-products, including environmentally friendly substitutes for a range of materials used in Ontario's industries. CRIBE will focus on creating prosperity through research, development and commercialization of fibres, cellulose and other biochemical components – in other words, all parts of the tree and other material in the forests.

Task Force Recommendations

Recommendation One: Based in Thunder Bay, CRIBE should have three primary objectives:

- Develop commercial processes and products derived from Ontario's biofibre resource;
- Develop new economic opportunities for Northern Ontario; and
- Provide assistance to new and refocused business entities working in the bio-economy.

Recommendation Two: The task force recommends, as a critical element of CRIBE's vision, that a pilot bio-refinery initiative should be established in Thunder Bay, specifically:

- Bio-refinery research and development activities should function as a "test bed" for products in the following areas:
 - Transportation fuels and energy;
 - Fibres/fillers/composites; and
 - Chemicals.
- Up to \$8 million should be notionally allocated to support this initiative.

Executive Summary

The task force has noted that AbitibiBowater Inc., in partnership with FPInnovations, has presented a unique opportunity to establish a pilot bio-refinery within their Thunder Bay facility. CRIBE could accept this opportunity under the following conditions:

- Free and open access be provided to the facility for all inventors and businesses for research and development activities. To ensure ease of access, AbitibiBowater Inc. should furnish facilities, utilities, fibre and other raw materials, and staff expertise to the activities of the pilot bio-refinery;
- Intellectual property must be unfettered so that individuals and organizations carrying out research and development activities at the facility maintain future commercial benefits;
- Research and development priorities in the bio-refinery initiative should be focused on products and processes with the highest commercial value, as well as commercialization activities where the greatest benefits accrue to Northern Ontario; and
- CRIBE would hold a leadership role in directing activities of the pilot bio-refinery, as agreed to by the other stakeholders.

Recommendation Three: A significant portion of the \$25 million (i.e., a minimum of \$14 million) should be allocated to:

- Supporting the development of innovative products and processes by local inventors/entrepreneurs;
- Attracting additional investment to the Thunder Bay region, and other locations in Northern Ontario, that complements the vision of CRIBE and provides additional funding for CRIBE activities; and

- Exploring ways of effectively connecting the new bio-economy labour force with research and development activities. CRIBE should, in collaboration with Confederation College, be prepared to invest in activities that assist in identifying and addressing the skills and training requirements of that labour force.

Recommendation Four: CRIBE must work in collaboration with other organizations to realize the CRIBE vision. Specifically, CRIBE should:

- Work with FPInnovations and the local forestry industry on pilot bio-refinery opportunities and other activities that emerge;
- Build on the emerging research strengths at Lakehead University and specifically coordinate its vision with that of the proposed NORD21 research facility and the Bio-refining Research Initiative at Lakehead University; and
- Link with other related local, provincial, national and international bio-economy clusters.

Recommendation Five: CRIBE should be structured in the following manner:

- CRIBE should be structured as a not-for-profit corporation, reporting to a board of directors.
- The directors should be selected for their unique skills to ensure the success of CRIBE. A recruitment process should focus on seeking individuals with broad skills and expert knowledge of the global bio-economy. Senior executives from the Ontario government should participate on the board as observers.
- CRIBE should be a lean, highly skilled organization. The CRIBE task force has not recommended an organizational structure as the development of such a structure is the responsibility of the CEO in concert with the board.
- In the short term, CRIBE should lease office space at Confederation College. In the longer term, the CRIBE offices should be housed in the proposed Lakehead University NORD21 facility to be part of the critical mass of bio-economy expertise at that facility.
- CRIBE should earmark \$3 million of its announced funding for salaries and start-up costs associated with the centre. From this amount, CRIBE should also make a contribution toward the construction and lease of dedicated CRIBE space in the NORD21 facility. This would facilitate the development of strong industry/research relationships. The contribution to the project should be contingent on receiving approval from funding agencies currently reviewing the project.
- The task force has prepared a vision, mission and objectives statement for CRIBE and this should be the starting point of the early planning and business case development for the centre.

Recommendation Six: As a means of encouraging research and development, and attracting new industry into Northern Ontario, the Ministry of Natural Resources should:

- In the short term, work with CRIBE to facilitate a fibre supply for CRIBE research, development and demonstration activities. This is essential to the success of CRIBE.
- In the longer term, consider appropriate mechanisms to make forest fibre available to bio-economy activities.

Recommendation Seven: The task force recommends that the Minister immediately engage an individual to lead the detailed development of the centre, including:

- Establishing the not-for-profit corporation and making recommendations on its corporate structure;
- Negotiating a pilot bio-refinery project with potential partners (e.g., AbitibiBowater Inc. and FPIInnovations);
- Holding information sessions in Northern Ontario and other locations as appropriate;
- Developing the initial business case that addresses recommendations in this report; and
- Working with the Ministry of Natural Resources on the issue of fibre allocation.

Structure of CRIBE

The Opportunity

The task force strongly believes that there are good opportunities available to Ontario, and in particular Northern Ontario, in new uses of forest materials, which comprise one of Northern Ontario's greatest assets. The vision is to move Ontario to the forefront of the commercialization of fuels, energy, fibres, and chemicals from the North's renewable forest materials, replacing similar products today derived from non-renewable fossil fuels.

The move to renewable resources is driven by:

- The limited availability and volatile cost of fossil fuels — driving a need to find alternatives for the generation of energy, the creation of materials like plastics and a host of other industrial processes;
- The desire to move from traditional products to those of higher value with the new, skilled jobs to match;
- Climate change and the need to reduce the carbon footprint of various industries in Ontario; and
- The need to find new global markets for Ontario's forest commodity sector.

The opportunities available to Ontario come in the form of both products and processes. Products might include, among others, transportation fuels such as ethanol, gases for heating and electrical generation, chemicals for industrial and consumer applications, fibre to be used in the manufacture of automobile bodies and interiors, and nano-crystalline cellulose to be used in ultra-strong composites, coatings and finishes. Of equal importance are the processes by which the products may be derived from the biofibre feedstocks.

These products and processes impact a huge part of Ontario's economy and represent a significant opportunity to capture new markets around the world for Ontario companies.

The successful start-up of the Centre for Research and Innovation in the Bio-Economy (CRIBE) will help promote Ontario's leadership in this new and exciting economic sector. CRIBE will help develop the critical new infrastructure needed to move toward higher value uses for the province's abundant and high-quality wood fibre resources. This is complementary to Ontario's existing job creation initiatives and will assist in bringing new economic development to Ontario, especially Northern Ontario.

CRIBE would also build on investments in research capacity made in this sector, for example:

- \$6 million provided to Lakehead University in Thunder Bay to build expertise in the bio-economy related to the boreal forest; and
- \$5.9 million to support the BioCar Initiative, a partnership between the automotive industry and the public sector aimed at accelerating the use of biomass in automotive materials.

The task force believes that the expertise developed by the centre can also be used by related initiatives throughout the province. To that end, CRIBE will need to coordinate its activities with other Ontario government bio-economy related initiatives (e.g., the Sarnia Lambton BioIndustrial Centre, Queen's University's Advanced Research and Innovation Institute, the BioAuto Council, etc.).

Drivers Behind the Centre

CRIBE will build upon Thunder Bay's and Northern Ontario's existing strengths, including:

- The largest forest sector infrastructure, including transport, east of the Rockies;
- The vast tracts of quality forest;
- A strong academic community, linked with other research centres across Ontario;
- Strong links among technology specialists and manufacturers within and outside of Ontario;
- Close proximity to the US marketplace;
- A transportation infrastructure that connects air, road, rail and water; and
- A motivated community, with a ready pool of skilled labour.

To the above CRIBE will add required support for:

- Prototyping/demonstration of new products and/or processes;
- Research, technology, and technology transfer; and
- New business development/marketing.

CRIBE has environmental and economic benefits for the province. Environmentally, CRIBE will help Ontario move from a dependency on non-renewable petroleum resources to renewable biofibre, helping to reduce Ontario's carbon footprint.

Economically, CRIBE will help Northern Ontario, and Ontario generally, create jobs and prosper by:

- Producing new, high-quality research;
- Attracting new companies;

- Creating new markets for existing companies;
- Manufacturing new products; and
- Helping a range of businesses across the province take CRIBE-developed biofibre products and processes to the marketplace.

CRIBE's Proposed Strategic Direction

The proposed vision, mission, principles, and objectives designed to provide strategic direction for the operation of CRIBE are set out below. In consultation with the Minister of Research and Innovation, the statements below may be refined once a chief executive officer and a board of directors have been selected.

Structure of CRIBE

CRIBE must work collaboratively with other organizations to realize its vision. Specifically, CRIBE should:

- Work with FPInnovations and the local forestry industry on pilot bio-refinery opportunities and other activities that emerge;
- Build on the emerging research strengths at Lakehead University and specifically coordinate its vision with that of the proposed NORD21 research facility and the Biorefining Research Initiative at Lakehead University; and
- Link with other related local, provincial, national and international bio-economy clusters.

The Objectives of the CRIBE Initiative

The task force recommends that CRIBE should have three primary objectives:

- **Objective One:** Develop commercial processes and products derived from Ontario's biofibre resource;
- **Objective Two:** Develop new economic opportunities for Northern Ontario; and
- **Objective Three:** Provide assistance to new and refocused business entities working in the bio-economy.

Objective One: Develop commercial processes and products derived from Ontario's biofibre resource.

The task force recommends that the majority of the \$25 million be used to make strategic investments in projects that create new jobs and grow companies in the emerging bio-economy. Specifically, CRIBE should make investments that:

- Support the development of new products and processes by local inventor/entrepreneurs;

CRIBE VISION:

Northern Ontario will be recognized as a global leader in harnessing innovation to turn its wealth of renewable forest biomass into prosperity, for northern communities and the entire province, in a manner that is sustainable and environmentally responsible.

CRIBE MISSION:

- To attract business, capital investment and jobs into Northern Ontario.
- To create new and transformative green businesses and products for global markets.

PRINCIPLES

- Industry relevant – collaboration focused;
- Excellence – globally competitive in R&D, commercialization and commerce;
- Green, environmentally sustainable; and
- Global market focus.

PRIMARY OBJECTIVES

- To diversify and strengthen the economy of Northern Ontario by transforming the area's available forest fibre resources and human resource skills into innovative and higher value-added uses.
- To commercialize research and development findings and transfer new technologies to industries in Canada and globally.
- To develop the forest-based bio-economy in a way that respects, synergistically builds upon and transforms the existing forest economy.
- To nurture and grow businesses supporting the northern bio-economy, and to attract new investment to Northern Ontario.

- Attract additional investment that complements the vision of CRIBE and provides additional funding for CRIBE activities in the Thunder Bay region and other locations in Northern Ontario; and
- Explore ways of effectively linking the new bio-economy labour force and its skills requirements with its research and development activities. CRIBE should, in collaboration with Confederation College, be prepared to invest in activities that identify and address those skills and training requirements.

This will ensure maximum economic benefit (including high-value jobs) to the community and the region. Specifically, CRIBE's primary involvement should be on the commercialization end of the biofibre value chain including prototyping, demonstration projects and marketing intelligence.

The task force recommends, as a critical element of CRIBE's vision, that a pilot bio-refinery initiative should be established in Thunder Bay. Such an initiative would provide a "test bed" for new processes and products that use wood fibre as a raw material.

An early bio-refinery project is under discussion with AbitibiBowater Inc. and FPIInnovations. This initiative's successful work would establish the reputation of CRIBE and draw more entrepreneurs and business capital to the region.

Details for this project as well as a list of other potential bio-economy projects are provided in the Initial Focus for the Centre section of this report.

Objective Two: Developing new economic opportunities for Northern Ontario.

The centre will support the growth of start-ups that commercialize technologies developed through initiatives supported by CRIBE.

CRIBE would gather, analyze, evaluate and disseminate information about the global and regional state of the bio-economy sector. The centre would also determine the needs/desires of industry and the research

community and match them with available Ontario bio-economy expertise.

CRIBE will strategically use its resources to lever additional global investment. The centre would also seek to recruit bio-economic businesses and entrepreneurs to mill communities, especially Thunder Bay.

Objective Three: Provide assistance to new and refocused business entities.

CRIBE is seen as providing full business development and technology services in the form of support, nurturing, mentoring, networking, facilitation, incubation, and transformation as required to those industries seeking to start, relocate to, and grow their businesses in Ontario.

The above is captured in a diagram of the conceptual model for CRIBE in the appendix to this report.

Another potential focus for CRIBE would be to help coordinate bio-economic issues for the province. This would include ensuring the exchange of information/ best practices among existing provincial investments (e.g., Sarnia Lambton BioIndustrial Centre, the Advanced Research and Innovation Institute) and providing support of policy and regulation issues associated with the forest bio-economy sector.

The Proposed CRIBE Model

Governance

The task force recommends that CRIBE be operated as a not-for-profit corporation, reporting to a board of directors.

The directors should be selected for their unique skills to ensure the success of CRIBE. Recruitment should focus on individuals with broad skills and expert knowledge of the global bio-economy.

Senior executives from the Ontario government should participate on the board as observers.

Structure of CRIBE

The task force recommends that the Minister of Research and Innovation immediately engage an individual to lead the detailed development of the centre, including:

- Establishing the not-for-profit corporation and making recommendations on its corporate structure;
- Negotiating a pilot bio-refinery project with potential partners (e.g., AbitibiBowater Inc. and FPIInnovations);
- Holding information sessions in Northern Ontario and other locations as appropriate;
- Developing the initial business case that addresses the recommendations in this report; and
- Working with the Ministry of Natural Resources on the issue of fibre allocation.

The CRIBE Presence in Thunder Bay

The task force recommends that CRIBE be a lean, highly skilled organization. The centre's start-up should initially be led by an individual selected by the Minister of Research and Innovation. At maturity, it is recommended that CRIBE be led by a CEO and a board of directors. Other staff may be hired, seconded or affiliated as necessary. The CRIBE task force has not provided an organizational structure as it believes that the development of such a structure is the responsibility of the CEO, in concert with the board of directors.

In the near term, CRIBE should lease office space, sufficient for the CEO and ancillary staff, at Confederation College. In the longer term, the task force recommends that the CRIBE offices be housed in the proposed Lakehead University NORD21 facility, to be part of the critical mass of bio-economy expertise proposed for that facility.

The task force recommends that CRIBE earmark \$3 million of its announced funding toward:

- Salaries and benefits;
- Start-up costs associated with the centre including expenses related to leasing space at Confederation College; and

- A contribution to the construction and lease of dedicated CRIBE space in the NORD21 facility. This would facilitate the development of strong industry/research relationships. This contribution, however, should be contingent on receiving approval from funding agencies currently reviewing the project.

As CRIBE comes of age, it may recommend expansion to include an innovation park with incubation capacity for small and medium enterprises. Depending on demand, the park would aim to attract businesses and business-support tenants. Location of such a park would depend on where CRIBE could best meld existing and future bio-economic expertise into the 'critical mass' it needs to move forward. CRIBE would not provide "wet lab" space, but would make use of existing facilities in Ontario, both in Thunder Bay and at institutions across the province (e.g., Lakehead University's Biorefining Research Initiative and the Centre for Biocomposites and Biomaterials Processing at the University of Toronto).

CRIBE-supported projects will likely be distributed around the city (e.g., at AbitibiBowater Inc., Lakehead University, and Confederation College) as well as throughout Northern Ontario, to take advantage of existing facilities and expertise.

Communication around the CRIBE Initiative

The task force views CRIBE as a good news story – environmentally and economically. Strategically, CRIBE is designed to help move Ontario from dependence on non-renewable petroleum to investment in renewable, sustainably grown biofibre. Much of CRIBE's research and development will be directed at converting biofibre into useful products, and doing so through processes that are carbon neutral to carbon negative. In addition, it speaks to Ontarians about moving into a new, higher value economy for the North. Communication about CRIBE will need to be sensitive to the ongoing consultations around the Ministry of Northern Development and Mines "Growth Plan for Northern Ontario."

With the acceptance of this report, the task force recommends information sessions be held to:

- Explain the rationale behind CRIBE and the general benefits it has to offer;
- Explain the nature of the CRIBE model;
- Describe the opportunities available for other potential stakeholders to participate in the research and development process; and
- Describe the business-support opportunities for entrepreneurs who might want to invest in bio-economy initiatives.

The task force recommends that information sessions be held in Northern Ontario, and in other locations as appropriate, after the Minister announces acceptance of the task force's final report. To encourage complete representation, the task force recommends that all relevant bio-economic stakeholders be invited to the sessions.

Initial Focus for the Centre

The task force believes it is imperative that, in its early days, CRIBE engage in a marquee project to provide early momentum and commercial success. This will establish CRIBE's reputation and draw entrepreneurs and business capital to Northern Ontario in particular, and to Ontario generally. This would lever additional private-sector investment and help create new jobs in Northern Ontario.

The Bio-Refinery Initiative

In the task force's view, a bio-refinery initiative would be a key initial project for CRIBE. The task force understands that preliminary discussions have taken place between AbitibiBowater Inc., FPIInnovations and the Ministry of Research and Innovation (on behalf of CRIBE). A Letter of Intent discussing the scope of project (including types of projects to be considered and total funding available) has been provided to the ministry.

The initiative, as currently contemplated, would take place at AbitibiBowater Inc.'s facility in Thunder Bay, and would work on the following product lines:

- Transportation fuels and energy;
- Fibres/fillers/composites; and
- Chemicals.

The project cost is expected to be approximately \$16 million, with industry and CRIBE sharing the cost. The industry contribution would include in-kind support (e.g., laboratory and pilot plant facilities, operating costs, raw materials and staff expertise) and cash support (e.g., funding the cost of new staff). Up to \$8 million of CRIBE's announced funding should be notionally allocated to support this initiative.

The task force believes that CRIBE could accept this opportunity under the following conditions:

- Free and open access be provided to the facility for all inventors and businesses for research and development activities. To ensure ease of access, AbitibiBowater Inc. should furnish facilities, utilities, fibre and other raw materials, and staff expertise to the activities of the pilot bio-refinery;
- Intellectual property must be unfettered so that individuals and organizations carrying out research and development activities at the facility maintain future commercial benefits;

Initial Focus for the Centre

- Research and development priorities in the bio-refinery initiative should be focused on products and processes with the highest commercial value, as well as commercialization activities where the greatest benefits accrue to Northern Ontario; and
- CRIBE should have a leadership role in directing activities of the pilot bio-refinery, as agreed to by the other stakeholders.

The initiative will be established under a formal agreement by the partners. FPInnovations' presence in the partnership ensures that the results of the initiative would be connected to the entire forest sector and other industry members across Ontario and Canada (if appropriate), and will allow new participants to become engaged in the process.

Similar related bio-refining projects may be pursued with other suitable partners in the future.

Future Opportunities for CRIBE Investments

The task force recommends that the balance of Ontario's \$25-million initial investment (i.e., a minimum of \$14 million) be invested in other potential bio-economy projects that directly relate to economic growth in the region. The remaining funding should be strategically used to lever additional global investment in Northern Ontario.

The long-term goal of initiatives supported by CRIBE is to create new jobs, and grow companies in the emerging bio-economy. This will ensure maximum economic benefit (including high-value jobs) to the community and the region.

The task force has received advice on other types of projects that CRIBE should engage in over a longer time. Examples of such projects appear at right.

Other Potential CRIBE Projects

- Research, development and implementation projects:
 - Building solutions and innovative bio-composites
 - Next generation pulp and paper solutions
 - Novel biomaterials (e.g., nanotechnologies)
 - Forest biofibre initiatives (e.g., inventory, handling, processing)
 - Forest-to-product value-chain maximization
- Collaborative (with industry/communities) on-the-ground demonstration and pilot projects:
 - Independent bio-refinery (e.g., mobile unit; retrofit existing plant)
 - Nano-crystalline cellulose initiatives (e.g., production; product development)
 - Smaller capacity energy systems (e.g., for isolated communities)
 - Segregation-merchandizing sites (adding value through improved product selectivity)
 - New building systems
 - Transportation systems
- Developing new clients for products and a culture of innovation:
 - Promote industry interest in buying the innovative technologies by emphasizing projects with short-term payback for them
 - Provide technical assistance to foster continuous improvement in woodlands and mills
 - Build capacity within companies receiving the products and technology
 - Develop cross-sector links (i.e., forest to petrochemical; forest to automobile)
 - Develop knowledge hubs and links to other organizations (e.g., to universities, allied industries, other research facilities)

Keys to Success

The task force has noted a number of challenges that need to be considered to ensure the centre's success. A short discussion of each appears below.

International Competition

Global interest in pursuing opportunities in the bio-economy is hot. On the positive side, this widespread interest opens up new opportunities for Ontario businesses within Canada, North America, and beyond.

The task force has been advised that, as of late June, there were searches underway for some 13 senior researchers across North America and Europe. It is possible that a Thunder Bay-based CRIBE may face significant competition in acquiring staff, appropriate partners, and in leveraging funds.

However, it is worth noting that recent investments by the Ontario government aided the successful recruitment of three international researchers to Lakehead University's Biorefining Research Initiative.

Access to Fibre Supply

The task force is of the opinion that, as a province, Ontario has sufficient fibre resources to launch its new commercial bio-economy. However, the existing fibre allocation process needs to allow the efficient delivery of economic fibre resources to new initiatives.

As a means of encouraging research and development activities, and attracting new industry into Northern Ontario, the Ministry of Natural Resources should:

- In the short term, work with CRIBE to facilitate a fibre supply for CRIBE research, development and demonstration activities. This is essential to the success of both the pilot bio-refinery initiative and to CRIBE.
- In the longer term, consider appropriate mechanisms to make forest fibre available to new commercial bio-economic activities. This will also help attract prospective bio-economy businesses. If Ontario cannot dedicate supply to new bio-economy proposals/partners, they may move to more attractive jurisdictions, which can hobble the work of CRIBE.

Ontario must also ensure its regulatory environment is supportive of, and does not impede bringing bio-fibre products and technology to market.

Attracting the Partners

One of CRIBE's inherent strengths is Ontario's 27 million green cubic meters of wood fibre (its forests), available to support new commercial bio-economic initiatives. The success of CRIBE will depend upon its ability to attract commercial partners that want to take advantage of our biofibre resources and that have financial resources to do so.

CRIBE can also provide prospective partners with a network that taps into a critical mass of world-class expertise, and some measured financial resources to support bio-economic development to Ontario's advantage.

The task force also believes that CRIBE has potential for a significant partnership with the federal government. The challenge will be to engage prospective federal partners, and then develop the strategy to bring them to the table on a long-term basis.

Appendix: Conceptual Model for CRIBE



