

# NRC Technology Cluster Initiatives

## COMMUNITY INNOVATION, ECONOMIC GAIN

**T**hrough dynamic and rapidly growing technology cluster initiatives, the National Research Council advances world-class R&D in collaboration with Canadian communities. Using its research facilities as hubs for community innovation, NRC works with universities and industry to inject local drive into the Canadian economy.

## Prince Edward Island— Bioresources

To capitalize on a global nutrition market valued at more than \$182 billion annually—and to address critical health issues affecting Canadians and the population worldwide, NRC has taken bold steps to turn PEI's established expertise in land and marine-based resources (*bioresources*) into a wide range of marketable products focused on disease prevention and therapy.

### Establishing a research hub

NRC technology advisors have been working to build PEI's cluster for the past several years, collaborating with researchers and industry to build commercially viable business opportunities. In 2006, NRC strengthened its presence in the community with its new Nutrisciences and Health research facility that has become a dynamic hub for PEI's emerging cluster, attracting top talent from the worldwide bioresources community. NRC's pioneering researchers are already exploring the impact of nutraceuticals and bioactive ingredients on neurological disorders, obesity-related disorders and infection and immunity. To date, researchers have published a host of articles in leading scientific journals and are involved in many collaborative research projects, including a long-term project on Alzheimer's Disease, with the University of Prince Edward Island.

### Mapping a prosperous future

Growth in PEI's bioresources cluster has been impressive since 2001. That year, NRC participated in a cluster-development roadmap with federal and provincial agencies, the University of Prince Edward Island and several local

Bioresources are renewable, naturally occurring land and marine-based resources. A vibrant and rapidly growing industry has emerged around the application of these resources to new pharmaceuticals, nutraceuticals and dietary supplements.

community invested critical funding to undertake groundbreaking research into renewable bioactives. For its part, NRC has invested \$20 million in world-leading staff, state-of-the-art equipment and innovative research projects. That investment has been leveraged with \$8 million from the Atlantic Canada Opportunities Agency (ACOA), \$3.5 million from the provincial government, as well as a prime location provided by the University of Prince Edward Island. The NRC research facility can accommodate up to 100 staff, including scientists and support staff. It will also provide much needed technology incubation space for private sector companies seeking to develop and commercialize natural health products.

bioresources companies. The roadmap, which included input from more than 100 North American industry and research experts, was a needs-driven, long-term technology planning exercise. It identified the most promising applications for bioresources R&D that would enable ambitious local stakeholders to convert federally funded research into profitable businesses well into the future.

### Uniting stakeholders

The roadmap was designed to involve as much stakeholder input as possible. As a result, the biosciences



## LINKING LOCAL TALENT

Since NRC embarked on its strategy to promote PEI as a worldwide centre for bioresources R&D, local linkages have grown swiftly:

- NRC has attracted top talent to form its core research team and has coordinated adjunct appointments for them with the University of Prince Edward Island.
- Building on existing linkages established by its Industrial Research Assistance Program (NRC-IRAP), NRC is continuing to strengthen relationships between researchers and SMEs within the bioresources cluster.
- NRC has hired technical officers, graduate students and research support staff to facilitate the work of its core research team.
- NRC regularly engages in public speaking events throughout PEI, hosts tours and meetings with associations and bioscience interest groups and promotes the province abroad at international research symposia.
- NRC has become a key member of the PEI BioAlliance, a multi-party organization dedicated to building the commercial potential of biosciences in PEI.

## PROMOTING PEI

NRC held a milestone research forum in 2003 to promote PEI as a major player in the global race to commercialize pioneering nutritional science and health research. The forum not only elevated PEI's position in this burgeoning field, but also paved the way for an international symposium on nutrisciences and health entitled "BioProspecting for Neuroprotectants" to be hosted by NRC in July 2007 in Charlottetown.

## NRC CLUSTER INITIATIVE PARTNERS

- Atlantic Canada Opportunities Agency
- Province of Prince Edward Island (Technology PEI)
- University of Prince Edward Island
- Agriculture and Agri-Food Canada
- PEI BioAlliance

# Transforming technology into business

NRC offers strategic services to businesses that wish to take their innovations to market—helping small businesses succeed.

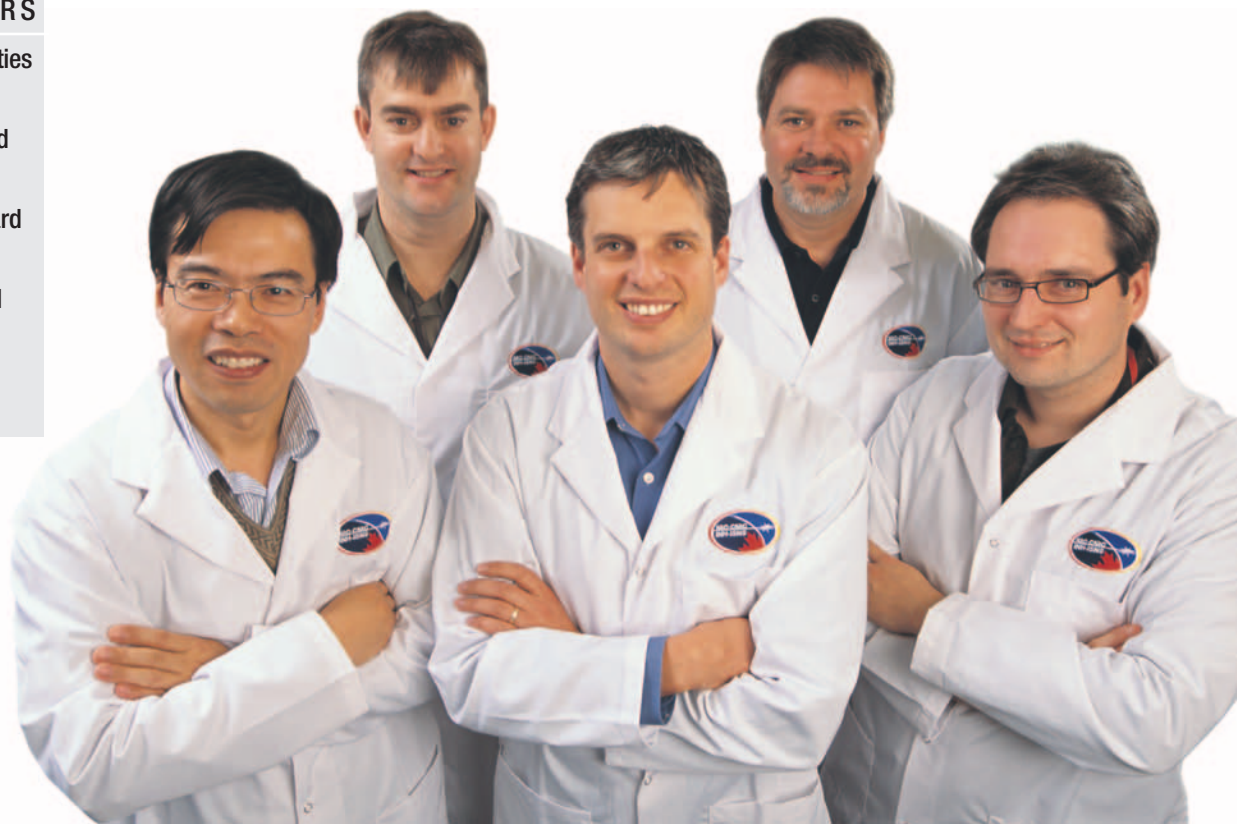
## Assisting with industrial research

The NRC Industrial Research Assistance Program (NRC-IRAP)—a national program aimed specifically at helping small and medium-sized businesses develop technologies for market—contributes technical expertise and funding to all NRC cluster initiatives, including PEI's.

NRC-IRAP has partnered with the PEI BioAlliance to establish a pilot program that offers customized business advisory services to local bioresources companies. Through a network of experts, the team will offer emerging companies critical support for business model development, regulatory processes, exit strategy planning and business execution. They will also pair large 'anchor' companies with small businesses in need of established industrial partners and sophisticated infrastructure.

**"The importance of science and research cannot be overstated. There is much to be gained from having a (NRC) facility of this type, both in terms of knowledge investment and potential commercialization."**

Pat Binns, Premier of Prince Edward Island



## Best available science and technology literature

NRC is a world leader in electronic publishing, and Canada's largest and best resource for scientific, technical and medical information.

NRC Information Centres across Canada offer technical and business users leading-edge information and business-related services. In 2005, the Centre in Charlottetown served nearly 250 NRC and external clients. Users were able to take advantage of:

- pioneering technical information
- literature searches
- cutting-edge industry and market information
- patent information
- rapid delivery of up-to-date full text articles from online sources
- referrals to industry experts or organizations

Bioactives are molecules that can affect our bodies at the cellular level; they are the key to creating a wide variety of products for improving human and animal health.

### CLUSTER FACTS AT A GLANCE

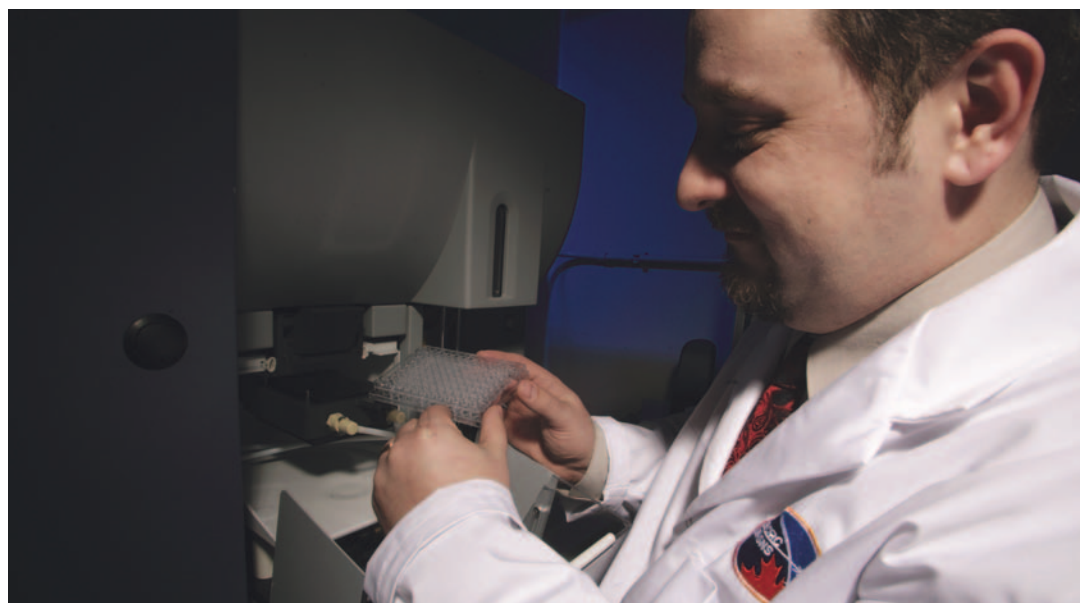
- The North American market for nutritional products was valued at more than \$27 billion in 2000
- The global market is currently valued at over \$100 billion
- PEI is home to more than six major research organizations and a host of private-sector companies with expertise in life sciences
- NRC Nutrisciences and Health can house up to 100 individuals (research and support staff) and it offers incubation space for emerging bioresources companies

### MILESTONES IN COMMUNITY ENGAGEMENT

- 2001—Biotechnology roadmapping exercise begins
- 2002—Roadmap steering committee releases summary and recommendations
- 2003—Federal and provincial governments announce \$31.5 million in funding for a Charlottetown-based nutrisciences and health research facility
- 2003—NRC hosts Inaugural Research Forum in Charlottetown
- 2004—NRC Nutrisciences and Health research program launched in temporary quarters
- 2004—Construction begins on NRC Nutrisciences and Health facility on UPEI campus
- 2004—NRC Nutrisciences and Health launches science outreach program "Like Science?"
- 2005—NRC joins new PEI BioAlliance
- 2005—NRC Nutrisciences and Health core research team established
- 2005—NRC Nutrisciences and Health hosts 'Open for Business' showcase for potential industry links
- 2006—Bioscience businesses begin collaborations with NRC Nutrisciences and Health – over 50% of incubator space is committed before facility opens
- 2006—NRC Nutrisciences and Health collaborates with three recent recipients of ACOA's Atlantic Innovation Fund (AIF):
  - NRC and UPEI worked together to develop the Atlantic Centre for Bioactive Valuation – a company designed to evaluate natural compounds' ability to benefit human and animal health
  - NRC, together with ACOA, was instrumental in attracting two private sector companies to the cluster (AIF recipients) and NRC is closely collaborating with each company
  - These three projects represent a new investment of \$13 million to the cluster
- 2006—Planning begins for NRC's international research conference "Nutrisciences and Health 2007 – Bioprospecting for Neuroprotectants," slated for July 2007

"This initiative has come about through a remarkable and sustained collaboration of the whole community, combining the private sector, government and the university with top-level leadership and broad-based enthusiasm. These are essential ingredients for a successful cluster."

Wade MacLauchlan, President and Vice-Chancellor, UPEI





# NRC Technology Cluster Initiatives

## GLOBAL REACH—LOCAL TOUCH

NRC has played a critical role in the development of emerging and mature cluster initiatives, acting as a catalyst for technological progress and economic growth in every region of Canada. Its successful clustering model encourages and supports local strengths while leveraging NRC's national and international resources, science and technology capabilities, networks and partnerships. This proven approach ensures that each cluster initiative can develop according to its unique needs, opportunities and challenges.

### Committed leadership

Successful cluster initiatives need staying power, often taking decades to mature. The building process must be community-driven and focused, and must have the support of effective networks and committed local champions.

For many years, NRC has distinguished itself as an effective catalyst for cluster initiative development, providing not only R&D expertise, but also the leadership clusters need to move research out of the lab and put it to work for Canada's economy.

NRC stimulates the growth of world-class technology cluster initiatives, putting its leading-edge research to work in innovative communities across Canada.



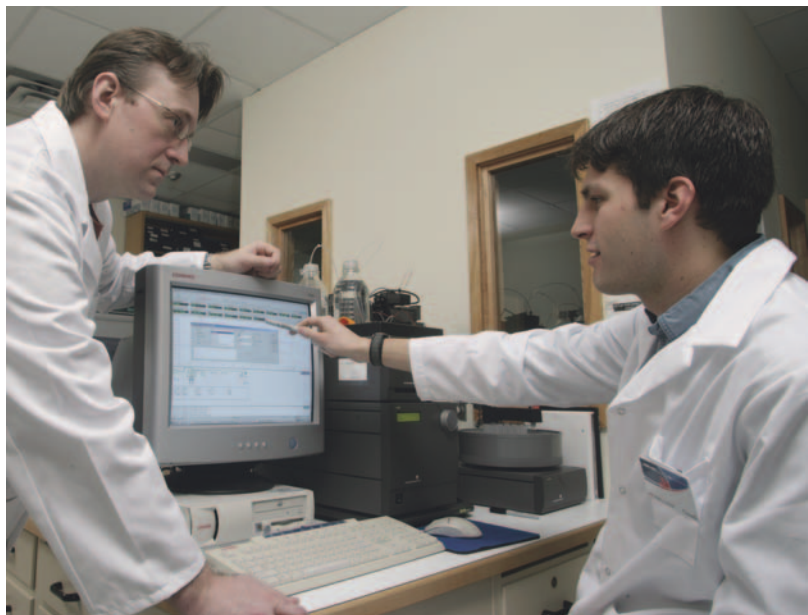
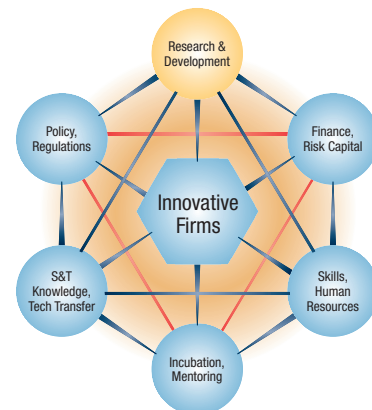
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## Delivering results

Clustering is a term economists have borrowed from science to describe the significant concentration of innovative companies around a nucleus of R&D facilities in a single locale—the ideal environment for innovation to flourish.

A key ingredient is the presence of a science and technology anchor—usually a government research institution or a university—able to work with local companies, transfer technology and spin off new enterprises.

Innovative, knowledge-based firms act as a magnet, attracting others with technical and business expertise to locate and invest in the area. Over time, partners grow into a critical mass of skilled people, capital and entrepreneurial drive.



## GREAT PEOPLE, GREAT MINDS

Recognized globally for cutting-edge research and innovation, the National Research Council helps Canada create a world-class, knowledge-based economy. NRC is home to nearly 4,000 creative and skilled people held in highest regard by their colleagues and collaborators worldwide. NRC employees have earned international acclaim for excellence and for winning innovations – their honours include a Nobel Prize, an Academy Award, and helping Canada capture Olympic Gold.

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