

# UNBC - STRATEGIC RESEARCH PLAN, 2010-2015

## CONTEXT AND PURPOSE

Massive transformations will characterize the Earth's northern regions in the next few generations. Climate change, differentially experienced in northern regions, and the growing demands of an ever-rising global population for the North's rich resources will contribute to environmental alterations and changing resource availability. Challenges of energy and food security, indigenous and broader human rights, and environmental degradation all have distinctly northern expressions. Created at the demand of our region's population to provide access to university education and research in the North of British Columbia, UNBC acknowledges a special responsibility to contribute to the wellbeing of the North's communities, and to the sustainability of the environments that support them.

UNBC has gained national recognition for excellent research performance in the past half-decade, especially in key areas of strategic importance to the wellbeing of northerners. We esteem and encourage research and scholarly activity that is locally motivated and relevant, yet has global effect and recognition. This renewed strategic research plan reaffirms UNBC's founding principles through commitment to four interdisciplinary and interconnected areas of scholarly inquiry of critical importance to our location, as well as to Canada and to the Circumpolar North. In doing so, it elaborates on the values, vision and mission put forth in UNBC's University Plan (2010), including fostering research that is internationally recognized for its quality and impact, and for its orientation to communities' needs.

A strategic research plan provides a roadmap for decisions about the direction of institutional initiatives and the selective allocation of institutional resources. While identifying specific strategic research areas, we recognize the importance of foundational areas of research that underlies the strategic them. We also underscore that we deeply value scholarly excellence at UNBC outside of the strategic and associated foundational areas, as vital to the breadth and diversity that UNBC offers its students and communities. UNBC recognizes that central to our success in achieving our research goals and objectives is our community of faculty members, students, post-doctoral fellows, and support personnel. We laud *all* of our researchers' creativity and continue to develop an environment that inspires imagination, ingenuity and productivity in research and scholarly activity in *all* areas of inquiry.

## MAJOR OBJECTIVES OF THE PLAN

- 1) To strengthen research at UNBC that is of outstanding quality and pioneering in its innovation, especially in strategic interdisciplinary research areas that are of marked importance to our region and similar areas;
- 2) To enhance the training of researchers, by increasing the number of graduate students and by providing a highly stimulating research environment for all of our students (undergraduate and graduate) that establishes UNBC as a leader in the integration of research and teaching;
- 3) To guarantee our researchers access to superior research resources and infrastructure, and to manage these to ensure their effective and efficient use;

- 4) To develop new research relations with communities, businesses, industries, other academic institutions and other partners, regionally, nationally and internationally; and
- 5) To enhance access to the results of our research, through improved knowledge translation, transfer and application, in order to maximize their benefits to society in Northern British Columbia and beyond.

## STRATEGIC RESEARCH AREAS

UNBC's four interdisciplinary strategic research areas are:

- Environment and Natural Resources
- Community Development
- Northern, Rural and Environmental Health
- First Nations and Indigenous Studies

These areas are informed by, and take advantage of, our location and the unique advantages it provides for research. They reflect current strengths of UNBC researchers, who have created foci of excellence, often in response to the needs of our region. As well, they suggest emerging strategic themes for development that are priorities for Northern British Columbia and cognate areas. These priority areas offer opportunities for productive partnerships with our communities, their governments, and the industries and not-for-profit organizations that support these communities.

The strategic areas themselves are inter-related. Indeed, most of our Research Chairs contribute to more than one focus area (Tables 1, 2). Resources deployed for one thematic area often increase the capacity of others.

**Table 1: Distribution of UNBC Research Chairs by Strategic Research Area (2010)**

*(The first, bold-face number in each cell indicates number of Chairs whose primary interest is in the specified strategic research area; the numbers in parentheses indicates number of Chairs who identify the specified research area as an additional area of their research focus. See Table 2 for more detail.)*

	<b>Environment &amp; Natural Resources</b>	<b>Community Development</b>	<b>Northern, Rural &amp; Environmental Health</b>	<b>First Nations &amp; Indigenous Studies</b>
<b>Canada Research Chairs (9 total)</b>	<b>5 NSERC</b> (+3 SSHRC, 1 CIHR)	<b>1 SSHRC</b> (+1 SSHRC, 1 CIHR)	<b>1 CIHR</b> (+3 SSHRC, 1 NSERC)	<b>2 SSHRC</b> (+ 1 CIHR, 1 NSERC, 1 SSHRC)
<b>Other Research Chairs (5 total)</b>	<b>4</b> (+1)	<b>0</b> (+2)	<b>1</b> (+ 1 Northern, Rural & Env. Health)	

A brief description of each of the strategic research areas follows.

### **Environment and Natural Resources**

The University of Northern British Columbia is surrounded by abundant natural resources, and resource extraction and exploitation have traditionally been the foundation of the region's economy. Responsible stewardship of resources and the environment requires an advanced understanding of our rich natural heritage. Moreover, the transformation of traditional extraction-based economies to innovative, global, knowledge-based economies requires advances in many areas, including:

- A highly developed understanding of the fundamental workings of natural systems: their complexity, resilience, adaptive capacity and sustainability;
- Well-balanced and integrated assessment of multiple and often competing values associated with natural resources;
- Identification and integration of sound social, economic and ecosystems principles for resource management and environmental protection;
- Design and application of new technologies for management, extraction, processing, remediation, and many other issues related to the resource base.

The relevance of research on these topics is of profound importance to Canada, and to other areas of the world with similar ecosystems and resource dependencies.

UNBC has developed an international reputation for research that examines both the human and physical dimensions of natural resources and environmental sustainability, engaging scholars from across the spectrum of natural, physical, social sciences and humanities, and from the molecular to the landscape level. We have emphasized multi-disciplinary and inter-disciplinary approaches to research, and to training highly qualified personnel (HQP), as evidenced in our innovative Natural Resource and Environmental Studies graduate degree programs (MA, MNRES, MSc, PhD).

The Aleza Lake Research Forest (co-managed with UBC), the John Prince Research Forest (co-managed with Tl'azt'en Nation), and the Quesnel River Research Centre provide exceptional opportunities for research on the environment and natural resources, as well as in our other strategic research areas of Community Development, Environmental Health, and First Nations Peoples. At our Prince George campus, a pellet furnace heating the Enhanced Forestry Laboratory and a bioenergy gasification system that will heat the campus offer research opportunities on operating systems. A Natural Resources and Environmental Studies Institute fosters collaborative opportunities among UNBC researchers and governmental agencies, resource managers, and communities. UNBC also participates in a Northern Bioenergy Partnership, an industry-led coalition.

Under this strategic research area, and capitalizing on its geographical location, UNBC will continue to enhance the capacity of northern British Columbia, the Province, and the Canadian and Circumpolar North in the sustainable development of its resource sectors. We are currently exploring structures to encourage and support the Province's *Wood First! Initiative*, including the establishment of a Wood Innovation and Design Centre.

#### *Emerging Themes*

Over the next half-decade, UNBC envisages research growth in the following sub-areas (and in the disciplinary areas that support these):

- Bioenergy and Other Clean Energy
- Climate Change
- Contaminants and Environmental Remediation
- Cumulative Assessment
- Ecosystems Services
- Environmental History
- Fisheries
- Integrated Watershed Research
- Wood Innovation (including engineering, design, product diversification & marketing)

### **Community Development**

Communities across Northern British Columbia face a range of social and economic pressures. Frequently dependent on single resource based industries, and subject to the economic vulnerability this engenders in an increasingly globalized market, our communities struggle to remain viable. While expected to engage in 'bottom-up' development, they face a decline in infrastructure (physical, informational, etc.) that would support such development. This same situation confronts rural communities throughout Canada's North and other economically marginalized regions of the globe.

Key areas of research and scholarly activity include:

- A nuanced understanding of the interwoven factors that contribute to some communities remaining resilient in the face of challenges;
- Identification and formulation of place-based sustainable options for economic diversification;
- Analysis of globalization processes that affect the societies, cultures, economies and environments of northern British Columbia and like regions;
- Exploration and development of the culture and cultural economy of small cities and rural communities and their contribution to quality of life;
- Assessing and planning for appropriate services provision (e.g. social work, health care, environmental planning) in northern and rural environments;
- An assessment of how ideas and behaviours are related to the challenges and opportunities for social integration of different racial, ethnic, religious or other groups into northern communities.

Such areas of inquiry relate to overarching issues of the politics of identity, engaged citizenship, social justice and the cultural and social definitions of quality of life, as well as economic development.

UNBC has provided leadership in the area of research on community development in northern British Columbia that has wide application beyond our region. Its Northern Community Development Institute has partnered with numerous communities at their request to address cultural, social and economic development challenges. UNBC's Institute of Social Research and Evaluation carries out quality-of-life research. A Social Science Research Laboratory and a Computer Assisted Survey Research Laboratory facilitate research on community development. Work on comparative community development has focused especially on regions across the Circumpolar North. UNBC has also been a leader in creating a richer arts and culture environment on and off its campuses through scholarly activities and creative performances.

Under this strategic research area, UNBC will improve its understanding of the evolving needs of northern communities from a range of disciplinary perspectives, in order to inform public policy and practice, and community decision-making. UNBC will foster experiences and relationships in local art and culture in an effort to cultivate a better quality of life, stronger community identity, and a healthier cultural environment. We will contribute to the sustainability of communities through research on the role of commerce in economic diversification, social and health services delivery needs and practices, and environmental planning. We are currently exploring the establishment of a New North Foundation, which will connect the needs of communities, businesses, industry, and governments to

researchers, while helping to disseminate research results throughout the region and beyond.

#### *Emerging Themes*

- Commerce and Sustainability in Resource Communities
- Community Research Methodologies
- Creative Cultural Expression and Sense of Place
- 'Green' Entrepreneurship
- Place-based Tourism
- Rural and Cross-cultural Education
- Sustainable Aboriginal Economies

#### **Northern, Rural and Environmental Health**

Canadians who live in rural and northern regions have health status and health outcomes that are markedly worse than those of their urban and southern fellow citizens. Factors that contribute to these disparities include long distances from full-range health care services and providers, life-styles, socio-economic status and environmental sustainability. Such disparities are even greater for First Nations populations, who experience much higher than average morbidity and mortality rates. The health determinants that produce these disparities include individual, community, population and environmental factors, necessitating a broadly comprehensive approach to the study of health. Key research areas include:

- Identification of the determinants of health status in rural and northern communities;
- Understanding of health services and health human resources, and the development of enhanced models of service delivery and health professional education;
- Improvements in the accessibility and effectiveness of health promotion programs across space and across diverse populations;
- Identification and evaluation of cultural issues affecting health and health care delivery, especially in First Nations communities;
- The relationship between health of individuals and populations and the natural, and built environments in which they live.

UNBC has taken advantage of its location to advance multi-disciplinary research on the social, cultural, psychological, and environmental determinants of health in rural communities, including First Nations communities, and on planning and provision of health-care services and preventative health programs that address the challenges of rural location and cultural suitability. Basic research on the biological-based pathways for the treatment of diseases complement these foci. UNBC's biomedical research is providing critical training opportunities for future health professionals, as well as contributing to attracting and retaining researcher-practitioners. Work on linking social and environmental determinants of health to reduce health disparities has received national recognition.

UNBC houses the National Collaborating Centre for Aboriginal Health, the mandate of which is health knowledge synthesis, translation and exchange, in order to empower Aboriginal communities. Through a formalized partnership with the Northern Health Authority of British Columbia, UNBC is developing joint initiatives to use innovation to improve access, enhance quality and reduce costs in health care.

The construction of a Northern Cancer Centre in Prince George will offer new opportunities for research collaboration through the engagement of Northern patients in national and international research protocols, and the development of novel technologies targeted at small or mobile treatment facilities. UNBC is also introducing an interdisciplinary Health Sciences PhD degree.

### *Emerging Themes*

UNBC envisages research growth in the following subareas. While these are of broad import across Canada and globally, UNBC researchers will often distinguish their research by focusing specifically on the often-neglected rural and northern dimensions of such themes:

- Air Quality and Health
- Health and Related Social Services Provision Policy and Best Practices
- Impact on Diseases of Cellular Mechanisms
- Improving Access to Health Care and Health Information
- Linking social and Environmental Determinants of Health to reduce health disparities
- Mental Health and Addictions
- Northern Food Security and Diet-related Health Issues
- Preventative Health Care and Disabilities Management

### **First Nations and Indigenous Peoples**

Northern British Columbia is homeland to a rich diversity of First Nations, including twenty major linguistic groupings, the territories of 16 Tribal Councils and 77 bands, and four Métis organizations. Aboriginal students comprise over 10% of our student body, and demographics suggest a great potential for this number to expand. The university acknowledges a special responsibility to the First Nations of its service area in terms of education and research, as well as in supporting indigenous communities in their self-governance initiatives, and creating meaningful opportunities for knowledge exchange between indigenous and non-indigenous peoples. We recognize the potency a comparative perspective brings to many research questions, and thus include research focusing on broader indigenous studies.

Most First Nations in UNBC's service area are highly dependent on the natural resources of the area, including forests and fisheries. First Nations are challenged by health, education and economic inequities. Key areas of research include:

- Design and application of indigenous-informed resource management strategies;
- Understanding definitions of, and causal factors to, indigenous health and wellness, and contributing to their enhancement;
- Formulation of culturally appropriate models for education curricula and delivery ;
- Assessments and recommendations of self-governance models

UNBC is committed to research that involves indigenous partners at all stages of planning and execution. Our governance system incorporates aboriginal representation. We are proud of our long-standing cooperative relationship with Wilp Wilxo'oskwhl Nisga'a (Nisga'a House of Learning) and our co-management with Tl'azt'en Nation of the John Prince Research Forest. We have pursued a number of community-based research initiatives with First Nations, and have worked with communities to develop formal protocol agreements relating to joint research activities. Research on First Nations community development, aboriginal history, aboriginal resource management, and aboriginal tourism has flowed from First Nation community-initiated projects, and has

provided concrete products and outcomes valued by both researchers and First Nations. As noted above, UNBC also has provided national and international research leadership on aboriginal health.

*Emerging Themes*

- First Nations Epistemologies and Education
- First Nations Health and Healing
- Indigenous Governance and Law
- Indigenous Research Methods
- Orality and Connections with Literary Traditions
- Traditional Land Use Studies

**OBJECTIVE 1: STRENGTHENING UNBC’S RESEARCH CAPACITY**

**Developing the Strategic Research Areas Through Allocation and Support of Research Chairs: Future Research Chair Allocations**

Table 2 indicates the specific foci of UNBC’s research chairs:

**Table 2: Distribution (2010) of UNBC’s Research Chairs by Strategic Research Area - Detail**

*(bold check indicates primary area; non-bold check indicates secondary area[s]; E&NR= Environment and Natural Resources; CD = Community Development; R&EH = Rural and Environmental Health; FN&IS = First Nation and Indigenous Studies)*

	E&NR	CD	R&EH	FN&IS	Appointment	Tenure
<b>Canada Research Chairs</b>						
Soil & Environmental Sciences	√				NSERC Tier 2	2 <sup>nd</sup> Term; Expires 2011
Rural and Small Town Studies	√	√	√	√	SSHRC Tier 2	2 <sup>nd</sup> Term; Expires 2012
Climate Prediction and Predictability	√				NSERC Tier 2	2 <sup>nd</sup> Term; Expires 2014
Northern Hydrometeorology	√			√	NSERC Tier 2	2 <sup>nd</sup> Term; Expires 2015
Avian Ecology	√				NSERC Tier 2	2 <sup>nd</sup> Term; Expires 2015
Forest Entomology & Chemical Ecology	√		√		NSERC Tier 2	2 <sup>nd</sup> Term; Expires 2015
Literature, Culture and Environmental Studies	√		√	√	SSHRC Tier 2	2 <sup>nd</sup> Term; Expires 2015
Comparative Indigenous-State Relations	√	√	√	√	SSHRC Tier 2	1 <sup>st</sup> Term; Expires 2010 (renewal pending)
Health, Ecosystems & Society	√	√	√	√	CIHR Tier 2	1 <sup>st</sup> Term Expires 2014
Unfilled (nomination under preparation)					SSHRC Tier 1	Nomination to be submitted Oct 2010
<b>Other Endowed Chairs</b>						
FRBC-Slocan Endowed Mixed-Wood Ecology Research Chair	√	√				No expiry
FRBC-West Fraser Endowed Growth &	√					No expiry

Yield Research Chair						
Ian McTaggart Cowan Muskwa Kechika Research Professor	√					No expiry
BC Leadership Chair in Aboriginal Environmental Health	√	√	√	√		No expiry
FRBC Landscape Ecology Chair (shared between 2 researchers)	√		√			No expiry

Over the period of this Strategic Research Plan, eight of our Tier 2 Canada Research Chairs will complete their second term; these CRCs should be available for redeployment. UNBC will weigh the benefits of combining Tier 2s into Tier 1s with those of hiring new Tier 2 researchers. Research chair appointments may be targeted for foundational discipline areas on which the strategic research areas depend.

UNBC is committed to increase the number of externally funded research chairs in the strategic research theme areas, in order to further enhance our capacity for research and graduate training in these areas. We will pursue other opportunities for endowed Research Chairs at the federal and provincial levels, as well as through private sponsorship.

***Gender representation***

UNBC is committed to gender equity in employment and in training the next generation of researchers. Women account for 37% of UNBC faculty (national average=34%), as well as 50% of our PhD students and 61% of our Masters students. UNBC ensures that gender considerations are a fundamental component of all faculty searches. Yet we currently have a significant gender imbalance among our Canada Research Chairs: only one of UNBC’s nine CRCs is female. As well, our other research chairs also suffer from an imbalance (of the 5 endowed chairs, one is held by a woman and one is shared by a woman). We acknowledge a responsibility to allocate Research Chairs in a way that ensures gender equity and recognizes the diversity of Canada’s population, and we intend to address this imbalance. UNBC’s recruiting goal is to move toward a situation where at least 30% of our CRCs are female by 2015.

**Other Strategies for Strengthening Research Capacity**

UNBC’s Community Development and Natural Resources and Environmental Studies Institutes play an important role as catalysts for the development of research in two of our strategic areas. Resources to employ support staff will be sought, to enable these institutes to serve more effectively.

An interdisciplinary health research institute will be established in partnership with Northern Health Authority, and discussions will be initiated about founding a First Nations/Indigenous research institute, in order to enhance capacity in these strategic areas.

Strategic planning will be undertaken for UNBC’s three research ‘stations’ (Aleza Lake Research Forest, John Prince Research Forest and Quesnel River Research Centre), that exploits the interdisciplinary and cross-disciplinary opportunities offered by each of these, and the complementarities among them (with respect for partner institutions’ roles).

We will recruit more post-doctoral fellows and visiting scholars to UNBC, and we are exploring opportunities for providing competitive financial incentives to do so.

## **OBJECTIVE 2: TRAINING RESEARCHERS**

Northern British Columbia and indeed Canada's wellbeing depends on the availability of innovative and skilled citizens, with sophisticated understanding of the complexities of the ecosystems and societies in which we live. The training of undergraduate and graduate students and post-doctoral fellows to contribute to our increasingly knowledge-based society is a fundamental mission for UNBC. Our research contributes to critical theoretical and practical challenges that face our region, country and planet: we aim to prepare graduates who are likewise prepared to do the same.

Graduate training is also central to UNBC's continued research intensity. A significant increase in research projects and funding over the past decade has led to an increase in the number of graduate students, which have grown by 75% since 2000, comprising 17% of our total student body in 2009/10. Our students have in turn contributed to the growth in our research productivity.

UNBC will continue to increase its number of research-based graduate students, including PhD students, and the number of post-doctoral fellows hosted. It will increase the number of PhD degrees it offers in fields connected to its strategic research areas. Concomitantly, recognizing how research opportunities contribute vitally to undergraduate students acquiring critical competencies, we will expand such opportunities. Students at all levels will be encouraged and mentored to disseminate their research results, to ensure they develop knowledge transfer skills. Faculty will be provided with opportunities for building capacity in research team management, in order to manage graduate supervisory loads and large collaborative projects efficiently and effectively.

## **OBJECTIVE 3: MANAGING AND ENHANCING RESEARCH RESOURCES**

To sustain and promote research activity at UNBC, we must manage our support programs (e.g. administrative, financial), physical facilities, field operations and equipment in innovative ways that provide the best service and access for faculty and students, and the best value to our communities and partners, while also respecting our goal to be Canada's Green University™.

### ***Physical Resources***

UNBC has been able to develop significant physical infrastructure for research over the past decade, in part due to generous support from Canada Foundation for Innovation in partnership with the British Columbia Knowledge Development Fund, Western Diversification, and other government funding initiatives. Such resources not only improve the research environment of UNBC, but also contribute to the increased research competitiveness of British Columbia and Canada. As researcher numbers grow we will establish transparent plans and procedures for reallocation of research space, and replacement of major equipment and acquisition of new equipment.

The library plays a key role in enhancing research intensity at UNBC. Increased research intensity has allowed our library to be better resourced, through allocation of federal indirect costs and research overhead funds to expand researcher access to data and

publications. We will work with the Geoffrey R. Weller Library to prepare for membership in the Canadian Association of Research Libraries before the end of this Strategic Research Plan's tenure (2015).

### **Financial Resources**

Although research funds, including those from contracts, have grown dramatically over the last decade, UNBC has not enforced its own policy on overhead. This has diminished our ability to support researchers with critical support services in some departments (e.g., Human Resources, Purchasing). We will increase overhead capture, including through education of grant providers about indirect costs of research, and allocate the resultant revenue to expanding research services, in order to meet these pressing needs. We will improve processes for funding the repair and replacement of major equipment, and work to secure funds for new equipment.

UNBC has mechanisms in place to offer seed grants, travel grants, and publication grants to our researchers. We will increase the amounts allocated to these funds, to keep pace with growing researcher numbers and intensity, and increasing costs of research.

### **Administrative Resources**

As research activity has dramatically increased, UNBC's administrative resources committed to research have expanded, but have not always kept pace. External demands on researchers, such as those regarding ethics approvals and other regulatory compliance, are increasing. Expansion of research into new areas also necessitates new services (e.g. ethics support for clinical trials). Research intensity can best be encouraged when researchers are well-supported with services that minimize the time they need to allot to administrative and reporting tasks.

UNBC will work to improve such services, and support the expansion of such services and development of new services as finances allow. The Research Office will attend to changing external regulations and requirements, inform researchers, and adjust policies and processes to comply with such developments.

We will move our research administrative processes from the current paper-based system to a user-friendly electronic system that captures and tracks all the elements of application and management of research awards, and reduces the time demands on our staff for external reports. This will free staff time to work more closely with researchers in the creative phase of the research process.

## **OBJECTIVE 4: ENHANCING PARTNERSHIPS**

Collaborative research partnerships have characterized a significant segment of UNBC's research to date, and continue to be critical to UNBC's mission. Research partnerships include relationships both with researchers at other institutions in Canada and internationally, and with communities, organizations, agencies and industries at the regional level and beyond. UNBC will actively support the building of such partnerships by researchers (faculty members and students).

We will maintain an updated web-based research expertise database to facilitate outsiders' ability to identify partners. We will adjust the emphasis of our university-industry liaison

officer position to focus on relation/partnership building with local industries and other businesses, as well as with other community partners.

Partnerships with various research organizations will also enhance our researchers' access to information, funding opportunities, and facilities. UNBC has recently joined the British Columbia Inter-University Research Data Centre, is a member of the Pacific Institute of Climate Solutions, and will pursue membership in other organizations that support its strategic research areas (e.g., TRIUMF, Pacific Institute for Mathematical Sciences).

#### **OBJECTIVE 5: MOBILIZING KNOWLEDGE**

The translation and transfer of knowledge is a critical role of researchers, and one that is increasingly emphasized and demanded of them. One of UNBC's key mandates is to promote knowledge mobilization. We aspire to excellence in 'traditional' methods of dissemination, such as publishing books, articles and reports, and training students. We will work with the Library to establish a digital institutional repository to increase the accessibility of our research products.

UNBC has also led in integrated knowledge translation, a direct outcome of its community-driven and community-based research partnerships. Relationships formed with our region's communities (including First Nations), businesses, industrial partners, governmental and non-governmental agencies and others give rise to opportunities and demands for tangible and practical outputs and outcomes in non-academic formats (e.g. training workshops, community forums, industrial innovations). Our researchers will continue to play crucial roles in community outreach and public education.

Northern British Columbia has benefited from the influx of expertise and related services (e.g., business entrepreneurship, environmental planning, nursing, social work) that UNBC has brought to the communities which house its campuses. We will provide resources and mentoring to help faculty and students to translate knowledge products and skills, including into commercializable products and services, for the benefit of society.

#### **MEASURING SUCCESS: RESEARCH PERFORMANCE INDICATORS**

To measure progress toward meeting the five objectives articulated above we suggest a set of research performance indicators that will be tracked over time. These include both input measures and output/outcome measures. Mechanisms are in place for collecting information on some of these indicators, but will need to be developed for others.

##### **Input Measures**

- Total research revenues
- Tri-Council grant revenues
- Percentage of faculty members with Tri-Council Grants
- Number of Research Chairs (CRC and endowed chairs)
  - Percentage of female Research Chairs
- Number of graduate students enrolled in research degrees
- Number of post-doctoral fellows
- Number of students employed as research assistants
- Number and proportion of graduate students holding external scholarships/fellowships
- Growth in major equipment inventory

### **Output/Outcome Measures**

- Number of refereed publications by UNBC researchers
- Number of publications with undergraduate students as co-author
- Number of publications with graduate students as co-author
- Number of graduate students completed
- Number of undergraduate and graduate recipients receiving national or international recognition for their scholarly activities
- Number of faculty members receiving recognition awards (national or international awards, honours, citations)
- Number of research conferences and workshops organized by UNBC researchers,
- Number of journals edited by UNBC researchers,
- Number of collaborative research projects with partners (other academic institutions, communities, First Nations, industrial partners, NGOs, etc.)
- Patents pending and registered
- Number of faculty- and student-owned research-based companies initiated
- Number of research-related community outreach events
- Establishment of new research institutes representing Strategic Research Areas

### **PLANNING AND APPROVAL PROCESS**

This second iteration of UNBC's Strategic Research Plan flows from UNBC's revised (2010) University Plan, which was developed after extensive community consultation across UNBC's service region. Starting with the input from those consultations, a draft plan was created. It was first reviewed by UNBC's Research Policy Advisory Council (RPAC, comprised of the VP Academic, VP Research, academic deans, and several of UNBC's leading researchers); input and critique was then solicited from the research community at large, at all UNBC campuses. Once revisions were made, it was brought back to the RPAC for approval, and to the President for endorsement. The document was approved by the Senate Committee on Research and Graduate Studies, then approved by UNBC Senate on 27 October 2010.

This revised Strategic Research Plan will serve as a map for the Vice-President Research and the Office of Research staff in the next half-decade's activities. An associated action plan will detail actions and timelines for meeting the Plan's objectives. The Office of Research will annually evaluate its progress toward meeting these objectives, and the Vice President Research will annually report to UNBC's Senate and Board of Governors on such progress. We recognize that the strategic planning process must also be flexible to accommodate unanticipated opportunities that may arise.