

The University of Northern British Columbia Strategic Research Plan

Purpose:

This plan identifies three interdisciplinary research themes in which UNBC has already established, or is in the process of developing, international leadership and recognition. This plan is also a requirement to make UNBC eligible to apply for faculty appointments under the Canada Research Chairs Program and to maintain eligibility to apply for support from the Canada Foundation for Innovation for infrastructure projects.

The purpose of the Canada Research Chairs Program “is to enable Canadian universities to create outstanding research opportunities that will attract the global research stars of today and the research stars of tomorrow.” Through this program the federal government intends to “help universities focus their strategies to emphasize research fields in which they have a comparative advantage” thereby enabling them to establish “world-class centres of research excellence.” Among the secondary objectives of the program, the government seeks “to ensure the effective use of research resources through institutional strategic planning and inter-institutional and intersectoral collaboration.”

To achieve these purposes, the CRC program requires that universities submit “strategic research plans describing how the chairs will be deployed,” that the chairs be “in priority areas identified by universities in their strategic research plans,” and that the proposed chairs be filled “by individuals who meet the program’s rigorous criteria of excellence.”

The UNBC Planning Context:

In January 1997, the UNBC Senate and Board of Governors approved the university’s strategic plan, *Planning for Growth*. As set out in that plan, the mission of the university, as a “university in the north, for the north,” is to “improve the quality of life in its region, the province and beyond, by attaining the highest standards of undergraduate and graduate teaching, learning and research.” This plan is an elaboration of the *Planning for Growth* document specifically with respect to research, and the Senate of UNBC approved it on 30 August 2000.

With respect to research, *Planning for Growth* identifies research activity as “integral to UNBC’s teaching mandate at both the undergraduate and graduate levels.” It affirms that “opportunities to participate in research initiatives are vital to educating senior undergraduate and graduate students.” It also notes that research “serves the community and contributes to both the quality of life and the economy of the north.”

Among the guiding principles governing UNBC’s approach to university research is its

commitment to the cultivation of learning, interdisciplinarity, innovation, and responsiveness. Under learning, the university declares its support for “research initiatives and the integration of research and teaching so that students can both profit from, and participate in, the development of new knowledge and discoveries.” Under interdisciplinarity, the university declares its intent to challenge the barriers to learning that traditional disciplinary and cultural boundaries often present and to make interdisciplinarity simply “the way the University intends to conduct its academic business.” Under innovation, the university commits that “much of the university’s research will be at the intellectual frontier with the ultimate goal of generating tangible returns to society.” Finally, under responsiveness the university states that through its research it “will continue to contribute to the social, cultural, and economic development of the north, and to an improved environment and health for its people.”

Among the people of northern British Columbia, UNBC has also assumed “a special responsibility to serve the needs of the First Nations.” In light of this mandate, university faculty have engaged in a range of community based research initiatives with the First Nations and negotiated a number of protocol agreements relating to shared research activities and the dissemination of research results.

It is important to note that UNBC’s commitment to research is governed by the requirements of its broader mission to be a “university in the north, for the north,” a university responsive to the needs of its region, a university committed to using its intellectual resources to enhance the quality of life of the peoples and communities it serves, and a university with a special mandate to serve the needs of the First Nations and aboriginal peoples of the north.

In almost everything it does, UNBC has a strong focus on northern issues. This focus, along with the university’s mandate to serve First Nations, informs the nature and direction of UNBC’s Strategic Research Plan.

Given a strong commitment to research from the outset of its existence (UNBC commenced full-time operations in 1994) it is no wonder that the university has emerged as a strong centre of research. UNBC is exceptional among the small universities in Canada in the range of graduate programs that it offers. Over 350 graduate students are currently enrolled in 14 masters and 2 doctoral programs. In the 1999 Maclean’s university rankings, UNBC stood second out of twenty-one primarily undergraduate universities in per capita SSHRC grants - surpassing three Medical Doctoral universities and five Comprehensive universities in the process - and twelfth in per capita NSERC/MRC grants. Four research institutes have been established. Their mandates are for land use planning, women’s health, child welfare, and social indicators research and evaluation. The university has also attracted substantial funding from British Columbia provincial research funds and has been very successful in the Canada Foundation for Innovation Program for research infrastructure funding. It is with some justification, therefore, that UNBC describes itself as

a research-intensive small university.

Recent UNBC Actions in Support of Research Excellence

To reinforce its identity as a research intensive university, UNBC makes strong efforts to enable faculty members and students to perform their work at an internationally recognized standard. Examples of these efforts over the past three years include:

- established and filled the position of Vice President Research to provide leadership and to profile the importance of research at UNBC;
- expanded capacity for laboratory-based research by nearly 100% through the approval, planning (currently ongoing) and construction of a new building on the Prince George campus to be completed in 2002;
- leased a building to expand space available to conduct and support research;
- successfully attracted endowment funds for Chairs in Forest Growth and Yield and in Mixed Wood Ecology (approx. \$6.5M);
- submitted proposals, currently under consideration, for five additional endowed chairs (disabilities management, landscape ecology, forest genetics, fisheries ecology, fisheries habitat - total \$20.5M);
- established two research forests, one in partnership with the Tl'azt'en Nation (12,000ha NE of Fort St. James), the other in partnership with the University of British Columbia (10,000ha, east of Prince George at Aleza Lake). The research forests secure a land base for long-term studies, they establish strong working collaborations with key partners, and they facilitate excellence in the training of highly qualified personnel;
- successfully attracted funds from CFI, BCKDF and industry partners for an enhanced forestry laboratory, a high performance computing center, advanced DNA analytical facilities, and a Doppler sodar system for atmospheric research;
- increased seed funding and reduced teaching loads for new faculty to enable them to devote time and resources to establishing strong research programs;
- increased funding available to ongoing faculty members for research support by over \$50,000/yr;
- increased institutional funding for graduate support by close to 50% in the 2000-2001 budget year to roughly \$700,000/yr;
- increased faculty research travel support by approximately 50% in the 2000-2001 budget year to roughly \$100,000;
- increased graduate student travel funds by close to \$10,000;

- established collaboration with the University of Calgary and the University of British Columbia Faculties of Medicine to submit proposals to the CAHR, CHIPP, RRHII and CANARIE funding programs for research in the areas of rural, remote and northern health. The objective of these combined efforts is to increase the capacity of communities, health care providers, educators and researchers to apply evidence-based and innovative improvements to rural and remote health services delivery and health policy;
- designated special funding to hire a chair of the community health graduate program, faculty positions in biotechnology and medical GIS, and research support positions for the enhanced forestry laboratory;
- faculty participation in CURA projects on sustainable communities research and in the NCE on Sustainable Forestry;
- with the support of the BC provincial government and NSERC, established a University-Industry Liaison Office, and hired an Intellectual Property Manager;
- established a web-based and searchable research database;
- participated in the Canadian National Site Licensing Project to give UNBC researchers electronic access to a wide array of scientific literature; and
- made the highest per-capita expenditure on library resources of any small university in Canada (total of roughly \$1M/yr).

UNBC Research Themes

In identifying the major themes of its strategic research plan, UNBC is guided by the high value it places on fostering a culture of learning that involves research activities, on promoting interdisciplinarity, on being innovative, and being responsive to the region it serves. The university has deliberately selected research themes that either relate to existing areas of research strength, or to areas where the university foresees significant future potential and is seeking to build research capacity to an international caliber. In both cases, the university is identifying niches where it can attain the goal of the Canada Research Chairs Program to establish "world class centres of research excellence" in collaboration with other universities.

In outlining these thematic areas, this plan will indicate the scope and nature of the current level of research activity at the University of Northern British Columbia as well as the potential for enhanced development in these areas through the appointment of Canada Research Chairs and through the Canada Foundation for Innovation.

Natural Resources and the Environment

The university is situated in a resource-rich part of Canada, and the traditional basis of the economy in UNBC's mandated region is resource extraction and exploitation. Forestry is the largest economic driver in both the region and in the province. Further, interior and northern forests of British Columbia are gaining in importance as coastal harvest rates decline. In the northeast of the province, the production of oil and gas contributes significantly to the economy. Fisheries remain an important part of the coastal economy. As well, mining, agriculture, and resource-based tourism continue to be critical economic drivers. New resource industries (for example, aquaculture, hemp production) are developing and will benefit greatly from the application of appropriately targeted research.

In the very short time that the University of Northern British Columbia has existed it has developed an international reputation for research strength in disciplines related to natural resources and the environment. The rapid establishment of strength in this area is attributable to two principal factors. First, many dynamic and productive faculty were attracted to UNBC by the opportunity to participate in the development of a new university at a time when few other faculty positions were available. Consequently the pool of talent at UNBC is outstanding. During the coming era of intense competition for excellent researchers it will be important for UNBC to retain some of the stars it attracted in a buyer's market. Second, UNBC teaching programs in natural resources and the environment were designed from the outset to be highly interdisciplinary. This ensures that students graduating from the programs have a good knowledge and appreciation of the social, cultural, ethical, economic, and political dynamics of resource exploitation and land use. The emphasis on interdisciplinarity has been very successful, and it has strongly carried over to research activities. Therefore, UNBC faculty are at the leading edge of a number of innovative and dynamic research areas that bridge traditional disciplinary boundaries. Examples include projects in integrated resource management which incorporate an array of complex socio-economic, cultural and political values. The university places high priority on expanding the strengths that have been developed to date.

Sustainable and responsible stewardship of resources requires an advanced understanding of our rich, natural heritage. The economic relevance of research in this area is of profound importance to Canada and it is of global significance to persons living in resource-dependent communities. The transformation of traditional resource-based economies to innovative and competitive global, knowledge based economies requires at a minimum: sound knowledge of the fundamental workings of natural systems; design and application of new technologies for management, extraction, decision-making, and many other factors; an integrated and well-balanced assessment of all values associated with resources; and the identification and integration of sound economic and social principles. UNBC intends to nominate individuals for Canada Research Chairs who will lead in the advancement of research in these areas.

The roughly one third of Canadians who live in rural, remote, and northern regions have a health status and health outcomes which are markedly worse than those of their urban counterparts. Some of the factors correlated with reduced health status and outcomes are known. They are the resource industries in which people are employed, the long distances from full range health care services and providers, and the life style and social and economic status of persons living in northern communities. However, research is urgently required to establish cause-effect foundations for the practice of evidence-based health care and health delivery policies.

It is now widely recognized that health care in Canada has evolved into a two-tier system of health services provision and health outcomes. Citizens in rural, remote and northern communities overwhelmingly fall into a second tier of relative have-nots. This disparate situation is further exacerbated among northern and rural First Nations populations. As UNBC faculty Greenwood and Shawana note, "Social status indicators suggest that aboriginal people in Canada are among the poorest of the poor. Their mortality, morbidity, suicide, accidental death and unemployment rates are consistently disproportionately higher than for others in Canadian society. The same is true for the numbers of aboriginal children in care of child welfare authorities, aboriginal people in penal institutions and those in long term facilities. Despite the fact that the number of aboriginal people in Canada has nearly doubled in the last quarter century, social status indicators for the most part have remained constant." When the access and health care problems of rural and remote Canadians are added to the generally worse situation of aboriginal people, then the First Nations of the north can be described reasonably as members of a third tier.

Research into the determinants of health in rural and remote communities, into better delivery of health-care services, into the effectiveness of preventative health programs, and into cultural issues affecting health-care delivery in First Nations' communities are areas of high priority for UNBC.

Health care policies and practices that are informed by research and based in the experience and characteristics of rural and remote regions need to be established to correct existing disparities. Health planners and policy makers in rural and remote regions have fewer context-specific resources available to them for making health service decisions and for developing health delivery programs than do their urban counterparts. As a university with the mandate to do research and teaching in the northern two-thirds of British Columbia, UNBC is well positioned to undertake innovative and much-needed health research, and to foster a culture of effective community-based health research in our region. The results of this research will have national and global significance to persons living in rural and remote regions. The research also holds the promise of being portable to urban areas: solutions that work well in the challenging conditions of sparsely-distributed populations far from centers of expertise may well be applicable in more densely populated areas.

Faculty members in a number of academic programs currently produce health-related research of excellent quality. The university has built a very strong network of ties with community groups and health delivery agencies. UNBC takes a broad approach to health research because good health is culturally and socially determined and not just the result of providing health services. Much current research is on the social, environmental, and economic determinants of health and on quality of life studies.

Despite the progress that the university has made in health-related research fields, further capacity building and leadership in these areas is necessary. Leadership from outstanding senior scholars is required to provide the drive and disciplinary strength to lead to major advances in research capacity. Therefore, the university anticipates making one or more nominations of Canada Research Chairs in the disciplines related to rural, remote, and northern health.

Sustainability of Communities

While the sustainability of communities clearly relates to the first two research areas identified in this document, it is also more broadly based. Research on sustainable communities involves culture, social relations, and values. Community sustainability researchers engage a wide range of disciplines including the humanities and social sciences. This is because there is more to the sustainability of communities than the health of their natural resources and the health of individuals. As a number of studies of resource communities have illustrated, communities without sustainable economies are sometimes so spiritually and culturally rich that they continue to thrive without a strong economic base. Yet, other one-industry communities are examples of social pathology and psychological anomie. Clearly, economic wealth alone is insufficient to sustain the complex needs of the individuals who work and live in such communities.

A key determinant of the sustainability of historically resource-based communities is their capacity for economic diversification. However, the factors which influence the ease and rapidity with which communities diversify their economic base (some quickly, some slowly, some not at all), and the factors that relate to social integration of different racial, ethnic, religious, or other groups in the same community, are not well understood.

UNBC has a group of very strong young researchers investigating these questions and others. The resulting research is vital for social justice, public policy, and economic development. To further support this important area of inquiry, the university will nominate some of its allocation of Canada Research Chairs in the research areas that support the general thrust of understanding the factors that facilitate sustainable communities.

Institutional Support for Research Chairs

As a young and relatively small university UNBC recognizes the outstanding opportunity that appointment of Canada Research Chairs represents. Therefore it will provide Chairs significant support. This will include, but not be limited to:

- Reduced teaching responsibilities, expected to be at roughly 50% of regular duties, negotiated on a case-by-case basis. The university places value on teaching activity by Chairs, especially at the graduate and senior undergraduate levels, to ensure that the disciplinary and intellectual skills of Chairs, and their passion for leading-edge inquiry, be transmitted to new researchers. Equally the university recognizes that research activities of the Chairs will require significant blocks of unfettered time, and therefore UNBC will limit and appropriately target formal teaching involvement.
- Providing infrastructure support beyond that available through CFI, again on a negotiated case-by-case basis. UNBC recognizes that key advances in research are sometimes constrained by availability of infrastructure, especially in a remote and relatively small community, and it will work either to facilitate the acquisition of the items needed or to facilitate access to sites where infrastructure and collaborators are available.
- Providing support for travel to work with collaborators at other universities or research sites or, preferentially, to bring collaborators and research partners to UNBC. It is recognized that research partnerships and consortia are increasingly important in rapidly evolving and complex disciplines, and especially in technology-driven research areas.
- Hiring new faculty members, where possible and appropriate, in the research areas of the Chairs or in complementary areas to ensure that critical mass and synergy are facilitated in the theme areas that have been identified. This form of support will also apply, where possible and appropriate, to the hiring of research and other staff, and in providing support for graduate students and post-doctoral fellows. It is the intention of UNBC to facilitate development of research cadres of sufficient size and expertise to attain the critical mass that will facilitate internationally significant advances. It is expected that Chairs will play a significant leadership role in the development and work of these cadres.
- Providing support for the leadership role of Chairs in their research disciplines by assisting with colloquia, workshops, conferences, and other fora for dissemination and discussion.
- Establishing formal research protocols, where appropriate and/or necessary, with other universities, institutions, population groups, or research agencies to facilitate the work of Chairs.
- Giving emphasis to protecting and developing intellectual property that is developed by the Chairs, and assisting with the commercial development of innovations which stem

from their work or the work of their research teams.

Conclusion

The research approach of the University of Northern British Columbia is built on interdisciplinarity, complementarity, synergy, and on a healthy balance of basic and applied research programs. As a small university, UNBC has focused on building cross-disciplinary teams of scholars, working in complementary areas to respond to complex, contemporary research questions of regional, national and international significance.

The University's three priority research themes each address substantive and complementary research questions that are of critical importance to all Canadians. The interdisciplinarity and complementarity of approach and methodology inherent in the themes is designed to extract a maximum amount of benefit from the fairly modest resources of a new and relatively small university. To date this has been an extremely successful strategy as demonstrated by success in national and provincial grant competitions, in the support that has been established by four research institutes, and in the vigor and productivity of an ambitious array of graduate programs. Building on this success through the establishment of key Canada Research Chairs will enhance the productivity, relevance and international caliber of UNBC research programs. The University will evaluate success with respect to Canada Research Chairs not only in terms of standard measures including research funding, publication quality and rate, training of highly qualified personnel, citation rates, and international reputation. It will also evaluate success in terms of the engagement of our community, industry, and other partners, in the work of the Chairs, and the value that our wider constituency places on the work of the Chairs.

The University of Northern British Columbia defines itself in terms of research excellence. It welcomes the highly competitive opportunities that have recently been made available for research expansion. Therefore it will continue to make strategic and effective investments in research with the resources it has available, and it looks forward to the increased capacity for research achievement and productivity that will result.