



Cape Breton University  
Annual Research Report  
2018

## Introduction

In September, 2018 Cape Breton University (CBU) launched a Strategic Plan for 2019-2024. This important document follows an intense period of self-examination and reflection amongst CBU members and the community at large. What emerged was a vision of the university rooted in both the Island and the world, and dedicated to quality learning and living. The five pillars of the Strategic Plan are: Invest in our students; Champion the Island's prosperity; Indigenize the *L'nu* way; Globalize with a difference; and Empower faculty and staff. In addition, 2017-18 saw another self-study: the Maritime Provinces Higher Education Council (MPHEC)-mandated Quality Assurance Review of the Office of Research and Graduate Studies. These two processes and their resulting documents will no doubt inform the direction and support for research at CBU in the coming years. They are part of the ongoing attention and focus that we are paying to growing and supporting university-wide research culture at CBU.

This document is the sixth Annual Research Report for Cape Breton University. The Annual Research Report uses the fiscal year as the reporting period to be compiled when the Canadian Association of University Business Officers' (CAUBO) annual financial reports are released. The report is written in winter 2018/2019, but covers the period from **April 1, 2017 to March 31, 2018**. While data in the report is shown in year-by-year graphic and tabular breakdowns, much of the data is also reported in three-year rolling totals. These figures better indicate trends in CBU's research climate and tend to take account of large individual grants that can have an inordinate effect on a single year's total.

CBU's research activities are wide-ranging and are therefore difficult to measure using one set of numbers or measurable in isolation. In order to provide as clear a picture as possible, the Annual Research Report uses statistics and data from a number of sources. The data examined reports on a variety of activities including success in obtaining research funding, dissemination of research findings along with commercialization and industry engagement. This report also highlights some of the research successes at the Verschuren Centre for Sustainability in Energy and the Environment (VSCEE) and, for the first time, we are reporting VCSEE funding separately in order to underscore the contribution the VCSEE makes to CBU. In addition to quantitative matrices, the Annual Report also includes a number of stories about our research that exemplify the kind of innovative work being done at CBU. Together, the data and the narratives are a fulsome representation of the excellent research being done at CBU.

Financial data were taken from the CAUBO website and procured from the CBU Finance Office in preparation of the 2018 CAUBO report. Industry engagement metrics were taken from the annual Springboard Atlantic reports.

### 1. Research Highlights

The past year has brought many new research accomplishments. The following profiles offer a few examples of these outstanding achievements.

#### **The 2018 Winner of the President's Award for Excellence in Research: Dr. Stewart McCann**

The 2018 recipient of the President's Award for Excellence in Research is **Dr. Stewart McCann**. Dr. McCann is a Professor of Psychology in the School of Science and Technology and has demonstrated a consistent and highly impressive record of research productivity throughout his career. Dr. McCann has co-edited three books and published over 60 peer-reviewed journal articles including publications in the *Journal of Personality and Social Psychology*, one of the most prestigious journals in his discipline. His co-edited books have sold over 10,000 copies, and his

textbooks were required course readings at over 20 Canadian universities. Some of the most prominent scholars in psychology have publicly commended Dr. McCann's expertise and sought his contributions for conferences and publications. The extensive, worldwide adoption of his research testifies to its breadth, depth, and influence. Dr. McCann is a widely recognized and highly respected researcher whose scholarly reputation attests to the quality and influence of his work. The attention given to his ideas outside of academia is exceptional and confirms the practical significance of his findings. His outstanding research coupled with his consistent support and mentorship for colleagues and students has, and continues to, enrich CBU's research culture.

### **Mary Beth Doucette, Assistant Professor and Purdy Crawford Chair in Aboriginal Business**

Mary Beth Doucette is keenly aware of the need for increased understanding between Aboriginals and non-Aboriginals. She is a doctoral student in Management at St. Mary's University (Halifax) as well as Assistant Professor and Purdy Crawford Chair in CBU's Shannon School of Business. When asked how her studies could positively affect our shared land, Doucette replied, "I am hopeful that my research will make a small contribution to understanding and improving the relationship between Canadians and Aboriginal communities." Doucette began this work when she was an MBA student in Community Economic Development at CBU. With a focus on interactions between Mi'kmaq and Canadians, she now examines how people in organizations use policies and procedures to share knowledge in culturally informed ways. One exciting result of Doucette's research is a co-edited book (with Dr. K. G. Brown and Dr. J. E. Tulk), *Indigenous Business in Canada: Principles and Practices* (2016). The book shows the effect that history and policy have on business education as it relates to Aboriginal business and communities. Doucette is currently working on a five-year research project called "A Shared Future." Its aim is reconciliation between diverse groups and with the environment. It is led by Dr. Heather Castleden at Queen's University and supported by an international group of academics, community leaders, government members and representatives from non-governmental organizations. Doucette explains she likes this project because "It focuses on development through mentorship and applies action research strategies that are based in *Etuaptmuk/Two-Eyed Seeing*."

### **Dr. Beth Mason, CEO Verschuren Centre for Sustainability in Energy and the Environment**

Cape Breton is a "living laboratory" of water, marine life and renewable resources. Situated at the heart of the Island, on the CBU campus, is the Verschuren Centre for Sustainability in Energy and the Environment. The Verschuren Centre helps to improve local industry sectors grow the region's economy and develop the Island's communities. Dr. Beth Mason, the Verschuren Centre's CEO since 2017, has had an interest in agriculture and food production for a long time. She recalls, "I used to spend every hour I could on farms throughout my childhood from the time I could walk there alone." Dr. Mason brought a multidisciplinary background in industrial process and business to the Verschuren Centre. Since her arrival, she has developed its renewable energy program and established its Bio-products research program. This program enrolls Master of Science and Bachelor of Science (Honours) students and supports research projects and publications. As a researcher, Dr. Mason sees value in "waste." Specifically, she is interested in using agri-marine co-products to bring improved profitability to industry partners while protecting the environment. Value creation from industry co-products, such as marine waste, generates new, natural products for plant health, aquaculture nutrition and human functional foods, thereby closing the loop on resource use, creating what is known as a circular economy. How is the Verschuren Centre achieving its goals? Dr. Mason explains that, "The introduction of new natural products onto the market will bring improved health and well-being in food and feed production nationally and introduce sustainable technologies to the market here in our province."

## **Dr. Bernard Mulo Farenkia, Professor of French and Linguistics**

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Language is a mighty tool. Being aware of its power can help us be more sensitive and compassionate when we talk about other cultures or to people who speak other languages. Dr. Bernard Mulo Farenkia, Professor of French and Linguistics in the Department of Communication and Languages, explains its potential, “Words can construct or destroy identities and relationships. Life and death are in the power of the tongue.” Dr. Mulo Farenkia’s research largely focuses on politeness strategies across languages and cultures. As he explains, “What is polite in Canadian French wouldn’t be the same in France, in Cameroon and so on.” Mulo Farenkia’s passion for language is partly due to his having lived, studied and taught on three continents: Africa, Europe and North America. He began life in Cameroon, where he completed his undergraduate degree. He then moved to Germany for his doctoral and postdoctoral work. Now, he is based in Canada. Living in multiple countries and studying many languages, including English, French and German, has given Mulo Farenkia the insight and confidence to analyze how language is used in diverse cultural contexts. One extremely important lesson he has learned from his encounters is, “There are different ways to do the same thing.” What can his work bring to the community? In an age that is obsessed with stamping out differences, never has it been so important to be appreciative and respectful of cultural and linguistic diversity. Mulo Farenkia’s teaching and research aim to do just this.

## **Catalina Belalcazar, MBA Candidate in Community Economic Development**

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When Catalina Belalcazar, an MBA student in Community Economic Development at CBU, was 5, she turned to her school Principal to seek support for another child whose doll had been taken away by a teacher. This was the beginning of Belalcazar’s lifelong commitment “to support one another to conquer obstacles and become our best versions.” Belalcazar’s passion for change drove her to apply for the Canada Graduate Scholarship – Master’s Program from the Social Sciences and Humanities Research Council (SSHRC), which she was awarded in 2018. This scholarship supported her major research project: putting into action and analyzing an “education information centre” for soccer coaches of an adult league in Colombia (her childhood home). This “hub” will have information, education and networking opportunities for coaches of “masters athletes” (competitive athletes typically over 35) to help them more effectively contribute to the lives of aging adults. Belalcazar, who also holds a Bachelor of Arts Community Studies degree from CBU, has helped various CBU scholars with locally-oriented projects and research, including: the effect of “naturalized playgrounds” (playgrounds that are improved by the addition of natural elements) on children at a Cape Breton elementary school; the Nation2Nation Speaker Series (an environment for promoting respectful relations among local Indigenous and non-Indigenous people); a Peace and Friendship Garden; the Unama’ki Cape Breton Outdoor Network; and the Cape Breton Nordic Ski Club. Belalcazar believes with all her heart that social transformation starts with communities being empowered and that all humans have the strength and imagination to participate in that change.

## **2. Research Funding**

A direct comparison of research funding between universities is not always possible because the situation at every university is unique. However, despite the challenges of comparing universities, this practice is still meaningful as it allows us to get a sense of CBU’s standing in relation to similar institutions both regionally and nationally.

As a comparison group, we chose universities with mainly undergraduate programs on the basis that they may be ‘peers’ of CBU because they provide a similar range of programs, or are of a

similar size in terms of overall student numbers (full time equivalent enrolment numbers between 2,000 and 6,000). In addition, the lack of ready access to graduate studies as research support and assistants in many ways shapes the research programs and progress that is possible at CBU. We have selected a number of Atlantic institutions as well as a few from farther afield. These are: Acadia University (NS), Bishop's University (QC), Brandon University (MB), Mount Allison University (NB), Mount Saint Vincent University (NS), Nipissing University (ON), Saint Francis Xavier University (NS), Saint Mary's University (NS), and Université de Moncton (NB).

The data for these individual universities are presented in non-identifiable form in the following tables and charts. The total research funding presented below was taken from Table 3.1 of the annual CAUBO reports. The number of faculty at each university was taken from the Statistics Canada University College Academic Staff Survey<sup>1</sup> in the absence of any current consistent sources of such information.

*\*For the tables below, please note that SU = Small Universities*

**Table 2.1A Research Intensity – Annual Research Funding per Faculty Member <sup>a</sup>**

	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18 <sup>b</sup>
<b>CBU</b>	\$ 22,335	\$ 23,407	\$ 29,470	\$ 34,498	\$ 42,245	\$ 49,453	\$ 49,317
<b>A</b>	\$ 12,263	\$ 15,719	\$ 13,877	\$ 15,007	\$ 13,861	\$ 13,377	
<b>B</b>	\$ 10,092	\$ 10,764	\$ 12,359	\$ 12,136	\$ 13,099	\$ 13,342	
<b>C</b>	\$ 22,331	\$ 20,062	\$ 20,473	\$ 22,174	\$ 21,039	\$ 21,493	
<b>D</b>	\$ 26,506	\$ 27,142	\$ 28,087	\$ 28,192	\$ 29,401	\$ 31,293	
<b>E</b>	\$ 13,588	\$ 13,721	\$ 14,903	\$ 14,372	\$ 14,404	\$ 13,539	
<b>F</b>	\$ 29,767	\$ 33,535	\$ 36,729	\$ 37,927	\$ 40,020	\$ 38,767	
<b>G</b>	\$ 26,017	\$ 28,902	\$ 35,431	\$ 38,481	\$ 43,582	\$ 45,513	
<b>H</b>	\$ 33,363	\$ 33,147	\$ 34,691	\$ 35,997	\$ 34,444	\$ 33,793	
<b>I</b>	\$ 32,966	\$ 35,010	\$ 38,196	\$ 36,928	\$ 37,782	\$ 37,835	
<b>Average <sup>c</sup></b>	\$ 24,375	\$ 25,601	\$ 28,145	\$ 29,123	\$ 30,556	\$ 31,238	
<b>CBU Rank</b>	6	6	5	5	2	1	

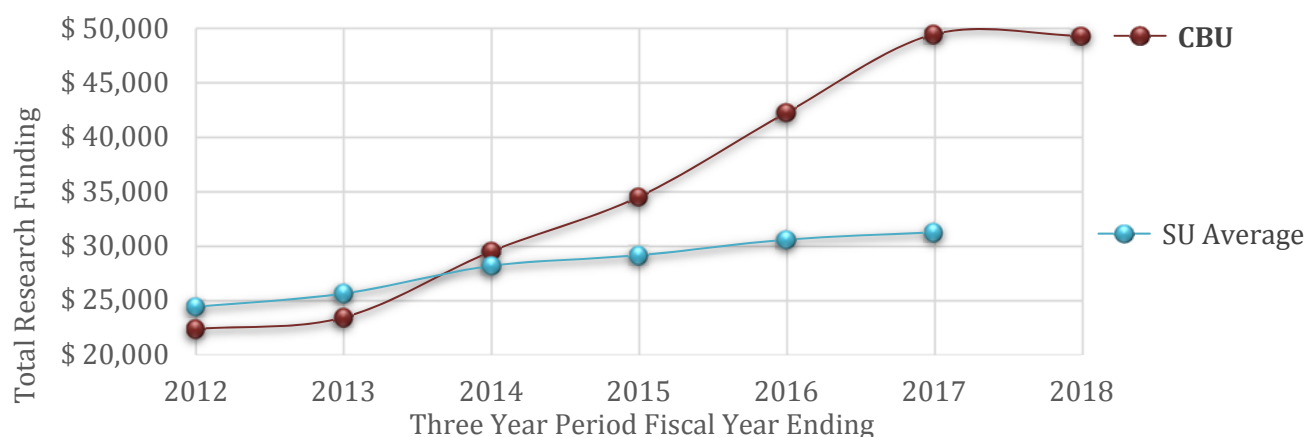
<sup>a</sup> Average over the three-year period indicated.

<sup>b</sup> 2017-18 data for other universities will be available in June 2019.

<sup>c</sup> Average is calculated as a sum of the total research funding for the Small Universities (SUs) over total faculty members for the SUs in the comparative group.

**Chart 2.1A Research Intensity – Annual Research Funding per Faculty Member**

<sup>1</sup> The survey was discontinued after 2010-11 and released again in 2016-17. Several institutions updated their faculty numbers for all the previous years in the 2016-17 survey, and the updated data were used in this report which may result in slight disparities between the previously published CBU's Research Reports. For other universities, data for 2011-12 were updated, and those were used to estimate the data for 2012-13 and 2013-14 fiscal years, while the faculty numbers for 2014-15 and 2015-16 are taken from the 2016-17 survey results. This leads to slight inaccuracies in the comparisons. The number of university academic staff members for Cape Breton University's reporting includes CBUFA faculty only.



**Table 2.1B Research Intensity – Annual Research Funding per Faculty Member by Year**

	2011	2012	2013	2014	2015	2016	2017	2018 <sup>a</sup>
<b>CBU</b>	\$ 16,179	\$ 30,932	\$ 23,111	\$ 34,368	\$ 46,017	\$ 46,350	\$ 55,992	\$ 45,608
<b>A</b>	\$ 17,482	\$ 11,833	\$ 17,842	\$ 11,956	\$ 15,222	\$ 14,404	\$ 10,505	
<b>B</b>	\$ 9,483	\$ 11,724	\$ 11,085	\$ 14,269	\$ 11,053	\$ 13,974	\$ 15,000	
<b>C</b>	\$ 19,016	\$ 20,897	\$ 20,274	\$ 20,248	\$ 26,000	\$ 16,870	\$ 21,610	
<b>D</b>	\$ 24,291	\$ 28,837	\$ 28,298	\$ 27,128	\$ 29,152	\$ 31,924	\$ 32,803	
<b>E</b>	\$ 11,648	\$ 16,352	\$ 13,164	\$ 15,194	\$ 14,758	\$ 13,261	\$ 12,600	
<b>F</b>	\$ 28,142	\$ 35,011	\$ 37,452	\$ 37,726	\$ 38,603	\$ 43,731	\$ 33,968	
<b>G</b>	\$ 22,621	\$ 30,375	\$ 33,710	\$ 42,208	\$ 39,525	\$ 49,012	\$ 48,000	
<b>H</b>	\$ 31,313	\$ 32,171	\$ 35,957	\$ 35,947	\$ 36,088	\$ 31,299	\$ 33,992	
<b>I</b>	\$ 27,858	\$ 38,883	\$ 38,290	\$ 37,416	\$ 35,078	\$ 40,853	\$ 37,574	
<b>Average<sup>b</sup></b>	\$ 22,071	\$ 27,081	\$ 27,651	\$ 29,703	\$ 30,016	\$ 31,949	\$ 31,750	
<b>CBU Rank</b>	8	4	6	5	1	2	1	

<sup>a</sup> 2018 data for other universities will be available in June 2019.

<sup>b</sup> Average is calculated as a sum of the total research funding for the Small Universities (SUs) over total faculty members for the SUs in the comparative group.

**Chart 2.1B Research Intensity – Annual Research Funding per Faculty Member by Year**

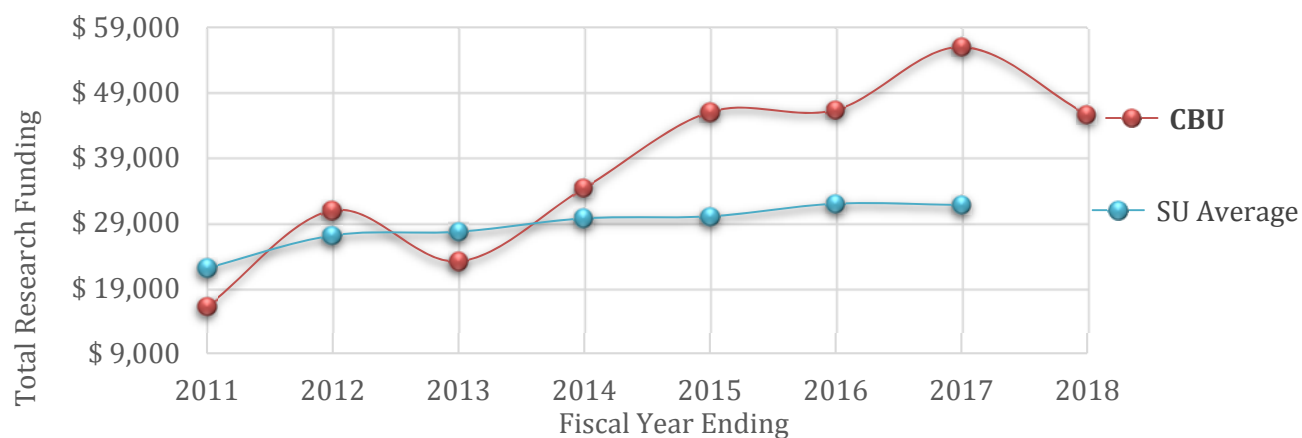


Table 2.1 A and Table 2.1 B show the average annual funding per faculty member over the three-year period and annual research funding by year, respectively, for the peer group between 2010 and 2017. At CBU, data is available for the 2016-18 period as well. The trend over the last four years has seen CBU's research funding incrementally increase above the peer group average, and

CBU's funding per faculty member puts our position within our peer group at the first place for the fiscal year 2016-17. This table shows a decrease in research funding per faculty member during the most recent fiscal year 2017-18; specifically, a decrease of over \$10,000 of annual funding per faculty from 2016-17 to 2017-18. However, such peaks and vales can be expected in a year-to-year examination of funding. For example, the three year averages in Table 2.3 show a more even picture.

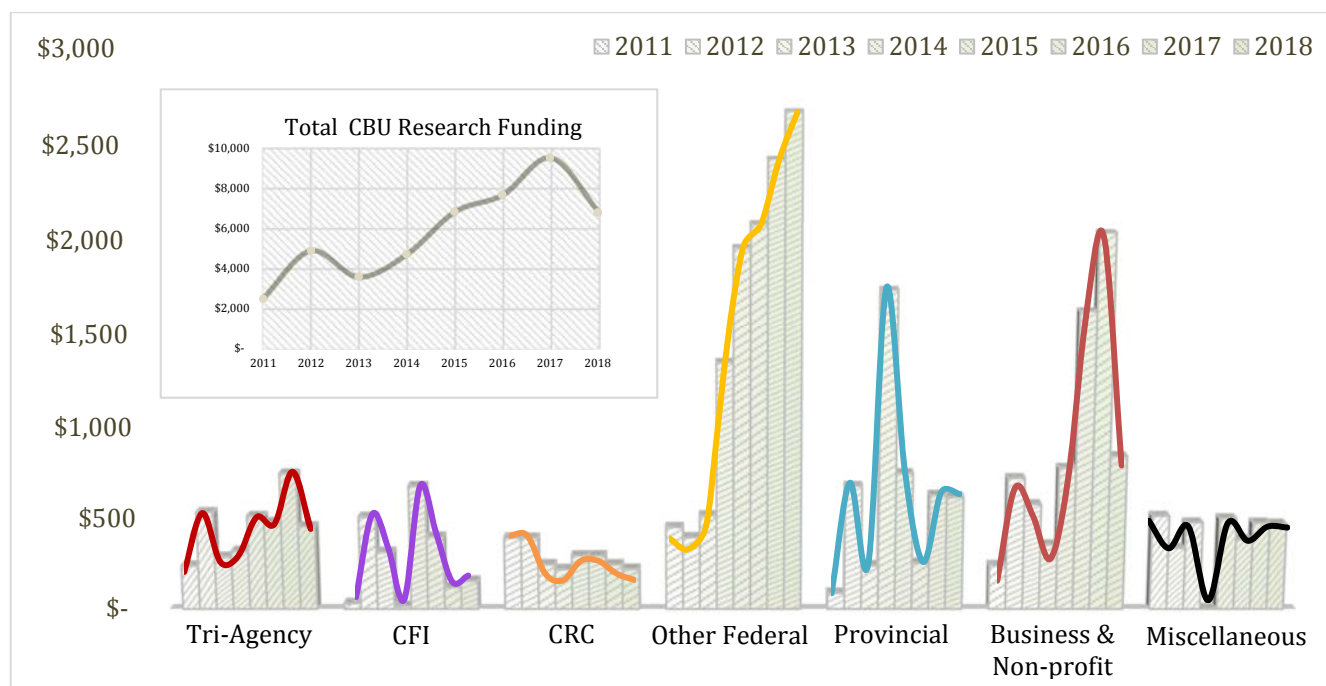
In addition to considering the total research funding, it is also informative to analyze the distribution of CBU research funding. Table 2.2 shows the breakdown of CBU research funding by source.

**Table 2.2 CBU Research Funding by Year (in 000's)**

<b>Funding Source</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>SSHRC</b>	\$53	\$384	\$ 81	\$187	\$320	\$230	\$371	\$238
<b>NSERC</b>	\$186	\$153	\$179	\$138	\$202	\$257	\$233	\$225
<b>CIHR</b>	\$4	\$6	\$33	\$0	\$0	\$0	\$150	\$0
<b>CFI</b>	\$31	\$517	\$320	\$16	\$686	\$405	\$121	\$157
<b>CRC</b>	\$400	\$400	\$250	\$223	\$300	\$300	\$250	\$225
<b>Other Federal</b>	\$459	\$402	\$525	\$1,353	\$1,965	\$2,091	\$2,429	\$2,676
<b>Provincial</b>	\$89	\$686	\$245	\$1,743	\$756	\$259	\$637	\$626
<b>Not-for-Profit Grants</b>	\$56	\$181	\$140	\$199	\$129	\$467	\$671	\$432
<b>Business Contracts</b>	\$190	\$548	\$446	\$162	\$656	\$1,162	\$1,373	\$416
<b>Donations</b>	\$0	\$0	\$0	\$0	\$0	\$100	\$0	\$0
<b>Miscellaneous</b>	\$522	\$342	\$485	\$0	\$508	\$291	\$484	\$477
<b>Total Tri-Agency</b>	\$243	\$543	\$293	\$325	\$522	\$487	\$754	\$463
<b>Total Federal</b>	\$1,133	\$1,862	\$1,388	\$1,917	\$3,473	\$3,283	\$3,554	\$3,521
<b>Total</b>	\$1,990	\$3,619	\$2,704	\$4,021	\$5,522	\$5,562	\$6,719	\$5,473

NOTE: Averages and percentage figures may not add to totals due to rounding.

**Chart 2.2 CBU Research Funding by Year (in 000's)**



**Table 2.3 Cape Breton University Annual Research Funding <sup>a</sup> (in 000's)**

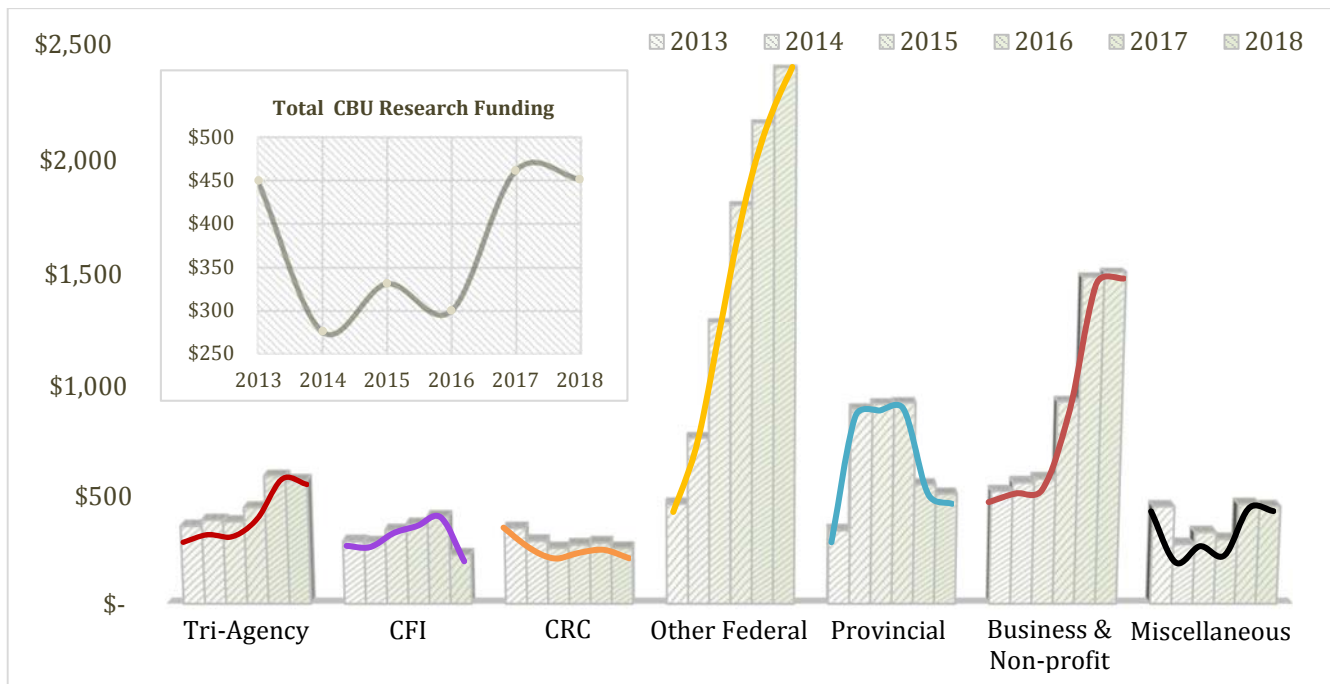
Funding Source	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18
<b>SSHRC</b>	\$173	\$217	\$196	\$246	\$307	\$280
<b>NSERC</b>	\$173	\$157	\$173	\$199	\$231	\$238
<b>CIHR</b>	\$14	\$13	\$11	\$0	\$50	\$50
<b>CFI</b>	\$289	\$284	\$341	\$369	\$404	\$228
<b>CRC</b>	\$350	\$291	\$258	\$274	\$283	\$258
<b>Other Federal</b>	\$462	\$760	\$1,281	\$1,803	\$2,161	\$2,399
<b>Provincial</b>	\$340	\$891	\$915	\$919	\$551	\$507
<b>Not-for-Profit Grants</b>	\$126	\$173	\$156	\$265	\$422	\$523
<b>Business Contracts</b>	\$395	\$385	\$421	\$660	\$1,064	\$984
<b>Donations</b>	\$0	\$0	\$0	\$0	\$33	\$33
<b>Miscellaneous</b>	\$450	\$276	\$331	\$266	\$428	\$417
<b>Total Tri-Agency</b>	\$360	\$387	\$380	\$445	\$588	\$568
<b>Total Federal</b>	\$1,461	\$1,722	\$2,259	\$2,891	\$3,437	\$3,453
<b>Total</b>	\$2,771	\$3,448	\$4,082	\$5,035	\$5,934	\$5,918

<sup>a</sup> Average over the three-year period indicated

NOTE: Averages and percentage figures may not add to totals due to rounding.

**Chart 2.3 CBU Annual Research Funding Three-Year Average (in 000's)**





**Table 2.4 CBU and VCSEE Research Funding in 2017-2018 Fiscal Year (in 000's)**

Funding Source	2016-17 & 2017-18 variance CBU total	2017-2018 CBU total	2017-2018 VCSEE <sup>a</sup>	2017-2018 VCSEE % <sup>a</sup>
SSHRC	\$(133)	\$238	\$0	0
NSERC	\$(8)	\$225	\$72	32
CIHR	\$(150)	\$0	\$0	0
CFI	\$36	\$157	\$0	0
CRC	\$(25)	\$225	\$0	0
Other Federal	\$247	\$2,676	\$1,494	56
Provincial	\$(11)	\$626	\$499	80
Not-for-Profit Grants	\$(239)	\$432	\$257	59
Business Contracts	\$(957)	\$416	\$322	77
Donations	\$0	\$0	\$0	0
Miscellaneous	\$(7)	\$477 <sup>b</sup>	\$590 <sup>b</sup>	124
<b>Total Tri-Agency</b>	<b>\$(291)</b>	<b>\$463</b>	<b>\$72</b>	<b>16</b>
<b>Total Federal</b>	<b>\$(33)</b>	<b>\$3,521</b>	<b>\$1,565</b>	<b>44</b>
<b>Total</b>	<b>\$(1,246)</b>	<b>\$5,473</b>	<b>\$3,233</b>	<b>59</b>

<sup>a</sup> Funds brought from the Verschuren Centre for Sustainability in Energy and the Environment.

<sup>b</sup> The VCSEE amount is included in the total CBU amount; the CBU total is less than the VCSEE amount due to a high level of internal transfer within this category.

NOTE: Averages and percentage figures may not add to totals due to rounding.

Overall, from 2011-13 to 2016-18, the total research funding has grown from \$2.7 to just under \$6 million. Up until 2013, that total had stabilized around \$2.8 million, but a significant jump in the last few years has caused this number to nearly double. Table 2.2 shows that for the last four years, CBU's total research funding has in fact been in excess of \$5.4 million, and from 2015 to 2017, CBU's research funding has been consistently above average research funding for the peer

group universities. Additionally, the major increase in the research funding in 2016-17 fiscal year has placed CBU in the list of Canada's top 50 research universities 2018.<sup>2</sup>

From 2011-13 to 2016-18, the annual Tri-Agency funding at CBU has increased from \$360,000 to \$568,000, with the majority (ranging 88% to 100% over the 7-year period) coming from NSERC and SSHRC combined funding. Although increasing slightly each year, with the exception of the most recent 2017-2018 fiscal year, CBU's Tri-Agency funding continues to account for a smaller percentage of the total research funding. As competition for Tri-Agency funding increases, it becomes more of a challenge for a small and primarily undergraduate university to compete for funding. CBU has been below the peer group average over the last seven years in terms of Tri-Agency funding. Organizations like ACCRU (the Alliance of Canadian Comprehensive Research Universities) continue to advocate and strategize for smaller universities. See, for example, the "Canadian Government Pre-Budget Consultation in Advance of the 2019 Budget" report submitted to the Standing Committee on Finance of the House of Commons, which argues for the need to recognize the important role of undergraduate research as a larger part of Canada's research environment.

We only started to use our current Canadian Foundation for Innovation (CFI) JELF small institution allocation of \$400,000 this year, which explains why our reported CFI funding decreased during the 2018 cycle. We expect a slight increase in CFI funding next fiscal year. The funding received from the Nova Scotia government through the Research Nova Scotia Trust (our provincial matching body for CFI funding) has decreased in 2016-18 in correlation with the CFI funding as we depleted the three-year cycle funding envelope, and did not draw major funds from the new funding envelope. Looking forward, we have implemented a new internal CFI competition and intend to access the entirety of our new allocation. CFI has changed parameters for the type of applications they fund, and so future projects will have an increased emphasis on collaboration with multiple applicants and users.

Canada Research Chairs (CRC) funding decreased from \$350,000 in 2011-13 to \$258,000 in 2013-15 and increased slightly to during 2014-17, but it is back at \$258,000 in 2016-18. CBU has been presently allocated four Canada Research Chairs: one Tier 1 Chair and three Tier 2 Chairs, utilized as five Tier 2 Chairs.<sup>3</sup> Changes in the allocation are directly due to changes in the total Tri-Agency funding CBU secures, and the increase in CBU's Tri-Agency funding in recent years resulted in additional CRC allocation. CBU has currently filled two Chair positions, but we expect the other three vacant Chairs will be filled within next two years.

Other federal research funding continues to grow, reaching \$2,399,000 in 2016-18, which is over five times more than in 2011-13. This reflects the trend of CBU researchers seeking funding from federal sources other than the Tri-Agency in recent years. The federal government funding for research constitutes the major source (over 50%) of research funding at CBU, a trend similar for other small universities in our peer group.

The increase in business enterprise contracts and not-for-profit research grants over 7-year period can be attributed to the significant increase in VCSEE industrial contracts. Over the last fiscal year, CBU has seen a sharp decrease in business funding (decrease of \$957,000). This is a result of several major industry research projects coming to an end. For example, BW Bioenergy research project and Yava Green Mining project both ended in 2016-2017. Nevertheless, the Verschuren Centre as the major regional research hub contributed over 59% of the total CBU's research funding in 2017-2018. Business enterprises, industry partner contracts, provincial

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<sup>2</sup> RESEARCH Infosource Inc. 2018.

<sup>3</sup> Total of Tier I and Tier II Chairs with Tier I counting as two Tier II Chairs.

funding (Atlantic Canada Opportunities Agency, ACOA), not-for-profit research grants, and federal funding (other than Tri-Agency) are over 60% attributed to the research activity at the Centre.

### 3. Industry Engagement

Industry engagement is an area of exciting research and innovation for CBU. Our researchers, across disciplines, are connected with many local and regional partners as we work to extend the reach of our impact. The leadership from faculty experts and CBU researchers often offer students at both the undergraduate and graduate level the opportunity to get involved in applied research projects.

Industry collaboration projects have continued to grow moving into new areas with initial projects often evolving into longer term collaborations. These collaborations provide our partners with access to labs and expert resources that can often be difficult to procure outside of a university. The Verschuren Centre for Sustainability in Energy and the Environment is an important engine and resource when it comes to industry engagement at CBU. The VCSEE leverages knowledge, expertise, and equipment in order to drive applied resource that is beneficial to the region. To support applied research, we continue to benefit from access to a number of provincial and federal programs such as those offered by Springboard Atlantic Inc., Nova Scotia Business Inc., Divert NS, NSERC, federal, provincial and municipal government departments, Innovacorp, NRC/IRAP, and Mitacs.

**Table 3.1. Industry Engagement Activities**

Activity	2013-14	2014-15	2015-16	2016-17	2017-18
<b>NRC-IRAP Projects</b>	14	13	22	21	16
<b>Tri-Agency Partnership Grants</b>	3	6	6	12	8
<b>Provincial Funded Industry Projects</b>	4	5	6	7	8
<b>R&amp;D Contracts (no sponsored funding)</b>	14	10	9	17	17
<b>ACOA AIF Projects /subcontract</b>	1	1	1	1	1
<b>Industry Workshops</b>	9	9	12	14	9

Researchers from across the institution have contributed to projects both large and small by providing expertise in the social sciences and humanities, business and science disciplines aimed directly at partner research and development questions. To support existing collaborators and to encourage new partnerships, we continue to lead regular industry-university workshops, seminars and educational sessions on campus and within the community. These sessions are led by internal and external experts and are designed to increase the expertise within the community, while developing new opportunities for collaborations.

### 4. Knowledge Dissemination and Mobilization

CBU researchers continue to use a variety of methods for knowledge mobilization to share their research findings, and attract awards and nominations. During the 2017 reporting period, CBU researchers disseminated their work through forums that included: articles; books and book chapters; conference presentations, posters and proceedings; keynote and invited talks; as well as community event presentations. In addition, they shared their research through social media, websites, blogs, and displays. CBU researchers also engaged in policy creation, provided expert advice to media and made television and radio appearances.

While the numbers of scholarly articles published annually has increased significantly in the last three years, CBU continues to be ranked low in its comparison group. Nevertheless, it is important

to note that the difference in number of publications per faculty member by year between institutions ranked slightly above CBU is 0.02 and 0.8. In fact, of the entire comparison group, only two institutions have an average of one or more publications/faculty/year. Thus, although this will continue to be an area to work on, the discrepancy between CBU and its competitors is not overly significant. The trends in the numbers of scholarly articles published per faculty per year over the three-year average correlate closely with the amounts of Tri-Agency funding trends.

**Table 4.1. Knowledge Mobilization – Academic Publications per Faculty Member by Year**

University	2011	2012	2013	2014	2015	2016	2017	2018
<b>CBU</b>	0.45	0.42	0.35	0.42	0.50	0.63	0.54	0.63
<b>A</b>	0.39	0.39	0.29	0.38	0.46	0.94	0.76	0.65
<b>B</b>	0.28	0.46	0.50	0.58	0.58	0.75	0.94	0.71
<b>C</b>	0.44	0.58	0.48	0.66	0.79	0.78	0.92	0.88
<b>D</b>	0.73	0.80	0.96	0.99	0.81	1.15	1.06	1.08
<b>E</b>	0.32	0.24	0.33	0.32	0.40	0.52	0.57	0.47
<b>F</b>	0.66	0.60	0.81	0.69	0.80	1.15	1.13	0.94
<b>G</b>	0.34	0.40	0.53	0.52	0.69	0.80	0.91	0.84
<b>H</b>	0.92	0.87	0.97	1.08	1.09	1.02	1.15	1.22
<b>I</b>	0.57	0.63	0.82	0.99	0.89	1.15	1.05	0.97
<b>Average</b>	0.52	0.55	0.64	0.69	0.73	0.90	0.93	0.87
<b>CBU Rank</b>	5	7	8	8	8	9	10	9

<sup>a</sup> Average is calculated as a sum of the total research publications for the Small Universities (SUs) over total faculty members for the SUs in the comparison group.

## 5. Research Environment

There is significant research momentum at CBU that crosses disciplines, institutes, and academic schools. Much research at CBU is, in fact, marked by collaborations across fields and involves partnerships among researchers at CBU, colleagues at other institutions, and partners from businesses, industries, non-profit organizations, community groups and others. Our small size invites unique cross-disciplinary collaborations. Students, including undergraduate research assistants, are a central part of the university's research engine. CBU students have great opportunities to work on research projects of the applied or fundamental variety; sometimes as preparation for graduate studies, and other times to expose them to methodologies or topics that will be useful in careers.

In addition, some CBU faculty, especially those in the Verschuren Centre, are training Master and Doctoral students or Post-Doctoral Students through collaborative projects and adjunct positions at other institutions. These productive relationships lead to publications in high-ranking journals.

Professionalization opportunities for our student researchers abound. Student engagement also includes opportunities to develop the communication skills necessary to present their work to other researchers within and outside their field as well as to audiences beyond the academy. For example, students can present their work in the Summer Student Lecture Series, at sessions during CBU's Annual Research Month or participate in the Thesis SnapShot Series which allows students to refine and workshop their major research projects into a short research pitch.

Communication of research is of great important at CBU, where we are generating a strong culture of camaraderie and support amongst student and faculty researchers. We have seen strong turn-outs at the Sabbatical talks in the past year and are pleased to continue the Inaugural Lectures series. These lectures are delivered by newly appointed full professors during which they can share insights from their career accomplishments to their CBU colleagues as well as citizens in the

local community. This year, we celebrated researchers at an Appreciation Reception hosted by the Office of Research and Graduate Studies.

### **Internal Funding**

The CBU research environment also provides support to researchers via its internal grant process which is overseen by the ORGS and provides funding for both Start-up and Research, Innovation, Scholarship, and Exploration (RISE) Grants. Start-up grants, aimed at new tenure-track faculty, provide up to \$2,000. During 2017/18 two projects were granted start-up support. RISE grants are managed in a calendar year, with funding rounds held up twice a year (spring and fall terms) to fund a maximum of \$8,000 per applicant per calendar year. Twenty-four projects were funded during the 2017-18 RISE competition rounds with \$163,736 in total internal research funding being awarded to CBU researchers.

### **6. Concluding Remarks**

CBU continues to function as an engine of innovation and community development, with research programs that enrich the local Cape Breton environment and others that reach across the world. Our partners in the community, in industry, and across academic and other sectors continue to reach out to CBU for expertise across disciplines. The research culture at CBU encompasses everything from six-figure science and industry projects to faculty working with little more than a library card and a laptop. At CBU we celebrate all scholarship. CBU researchers have proven that their research is crucial, influential and necessary on local, national and international levels. As a small institution with a primarily undergraduate focus, we need to remain strong advocates for increased research support for fundamental and applied research. With the transition from a Dean of Research, Teaching and Graduate Studies to a newly appointed (Dec 2018) Associate Vice-President, Academic & Research, we hope that CBU will continue to be an important voice at the table regionally and nationally. Working alongside our peer institutions and community partners, we will continue to tell the story of the fundamental and high-impact research that takes place at universities like ours.

### **List of Abbreviations**

ACOA AIF	Atlantic Canada Opportunities Agency – Atlantic Innovation Fund
CAUBO	Canadian Association of University Business Officers
CBUFA	Cape Breton University Faculty Association
CFI	Canada Foundation for Innovation
CIHR	Canadian Institutes of Health Research
CRC	Canada Research Chair
NRC-IRAP	National Research Council – Industrial Research Assistance Program
NSERC	Natural Sciences and Engineering Research Council
NSGEU	Nova Scotia Government Employees Union
NSRIT	Nova Scotia Research and Innovation Trust
ORGS	Office of Research & Graduate Studies
RP	Research Policy
SSHRC	Social Sciences and Humanities Research Council
VCSEE	Verschuren Centre for Sustainability in Energy and the Environment