



# ANNUAL REPORT 2017/18





COUNCIL OF CANADIAN ACADEMIES

## THE ACADEMIES

RSC The Royal Society of Canada The Academics of Arts, Hamanities and Sciences of Canada

## The Royal Society of Canada (RSC)

Founded in 1882, the RSC comprises the Academies of Arts, Humanities and Sciences, as well as Canada's first national system of multidisciplinary recognition for the emerging generation of Canadian intellectual leadership: The College of New Scholars, Artists and Scientists. Its mission is to recognize scholarly, research, and artistic excellence, to advise governments and organizations, and to promote a culture of knowledge and innovation in Canada and with other national academies around the world. THE CANADIAN ACADEMY OF ENGINEERING Loadentip is Equipment Adder

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## The Canadian Academy of Engineering (CAE)

The CAE is the national institution through which Canada's most distinguished and experienced engineers provide strategic advice on matters of critical importance to Canada. The Academy is an independent, self-governing, and non-profit organization established in 1987. Fellows are nominated and elected by their peers in recognition of their distinguished achievements and career-long service to the engineering profession. Fellows of the Academy, who number approximately 600, are committed to ensuring that Canada's engineering expertise is applied to the benefit of all Canadians.

Canadian Academy of Health Sciences Académie canadienne des sciences de la santé



## The Canadian Academy of Health Sciences (CAHS)

CAHS recognizes excellence in the health sciences by appointing Fellows based on their outstanding achievements in the academic health sciences in Canada and on their willingness to serve the Canadian public. The Academy provides timely, informed, and unbiased assessments of issues affecting the health of Canadians and recommends strategic, actionable solutions. Founded in 2004, CAHS now has 659 Fellows and appoints new Fellows on an annual basis. The organization is managed by a voluntary Board of Directors and a Board Executive.

ANNUAL REPORT 2017/18

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# MESSAGE FROM THE CHAIR OF THE BOARD

The past year has been a characteristically busy one at the CCA, with the launch of several new assessments, continued work on high profile and important projects, and the addition of new members to both the Board of Directors and the Scientific Advisory Committee. Towards the end of the year also came the welcome announcement of renewed federal funding for CCA in Budget 2018.

The assessments released this year spanned a wide variety of topics, including subnational science policy, the value of marine shipping to Canada, and transportation and the aging population. On April 10, 2018, CCA also released its highly anticipated assessment, *Competing in a Global Innovation Economy: The Current State of R&D in Canada.* The report is the fourth edition on the state of S&T and industrial R&D assessment series by the CCA.

In September 2017, we announced a new project on the socio-economic impact of antimicrobial resistance on Canadians and the healthcare system. It's a timely project on a critical issue affecting all Canadians. Work continued on our other projects: integrated approaches to natural resource management in Canada, policing in Indigenous communities, innovation management training, and medical assistance in dying.

It is thanks to the guidance of our Scientific Advisory Committee and Board members that we are able to assemble the multidisciplinary, multisectoral expert panels that undertake these assessments. The Academies – the Royal Society of Canada, the Canadian Academy of Engineering, and the Canadian Academy of Health Sciences – provide key guidance and input throughout the assessment process, including expert panel nominations and dissemination processes. Many experts are also Fellows of the Academies. I am especially appreciative of the spirit of collaboration that the Board has adopted this past year.

This year, we are bidding farewell to five members of the Board of Directors: Carol P. Herbert, FCAHS; Maryse Lassonde, O.C., O.Q., FRSC, FCAHS; Pierre Lortie C.M., FCAE; Jeremy McNeil, FRSC; and Axel Meisen, C.M., FCAE. A sincere personal thanks to each of them for being very valuable contributors and colleagues on the Board. I welcome the opportunity to work with the new members joining the Board: Paul Allison, FCAHS: David Dodge, O.C., FRSC; Chad Gaffield, O.C., FRSC; Eddy Issacs, FCAE; Jawahar (Jay) Kalra, FCAHS; and Bartha Maria Knoppers, O.C., O.Q., FRSC, FCAHS.



Three members of our Scientific Advisory Committee have completed their terms: Susan A. McDaniel, FRSC, Chair of the Committee for four years and member of the Committee since the inception of CCA; Lorne Babiuk, O.C., FRSC, FCAHS; and Daniel Krewski. We happily welcomed Eliot A. Phillipson, O.C., FCAHS, into the role of Chair. Additionally, the Committee gained six new members: David Castle; Sophie D'Amours, O.C., FCAE; Jackie Dawson; Malcolm King, FCAHS; Barbara Neis, C.M., FRSC; and Nicole A. Poirier, FCAE. Thank you to each of them for agreeing to take on this commitment.

We are grateful for our community of experts, over 1,000 strong, whose important contributions make our work possible. We look forward to the coming year, and continuing to assess evidence and knowledge to inform public policy and decision-making in Canada.

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Margaret Bloodworth, C.M. Chair, Board of Governors Council of Canadian Academies

# MESSAGE FROM THE PRESIDENT AND CEO

Over the past 13 years, the CCA has established itself as a trusted organization for conducting objective assessments of the state of knowledge on topics of importance to Canada and Canadians. This Annual Report highlights recent assessments that add to a reservoir of knowledge and evidence that CCA has been filling for some time. Our work occurs within a larger context of science and evidence generally. Canada saw the appointment of a new Chief Science Advisor, the establishment of Superclusters across the country, and a



historic federal budget that invested billions of dollars into fundamental science and infrastructure. We were delighted that this budget included additional funding to CCA "to ensure the Government has access to world-class independent scientific assessments to inform policy developments in priority areas."

The diversity of topics addressed in CCA assessments is reflective of CCA's capacity and of the continued need for expertise to assess evidence that informs decisions.

Older Canadians on the Move responded to demographic, geographic, and technology trends in Canada that policymakers need to prepare for. We may be aging and greying faster as a country, but we're also more mobile and active, and our country is becoming more interconnected. This assessment looks to that future.

Science Policy: Considerations for Subnational Governments began as a small project to help the Government of Alberta think more carefully about the key considerations that could be used to inform provincial science policy. It has now been shared with federal and provincial counterparts, research organizations, and policy groups deliberating about the value of having a "local" science policy.

Competing in a Global Economy was a benchmarking study that updated the evidence from prior studies about Canada's research and innovation environment, providing data that can be used to guide policy discussion and investment decisions. This assessment also marked the first time we've created a special web page to enable readers to better visualize our data – a tentative first step into the world of knowledge mobilization and open science that we will be developing in the coming year.

As for the future, 2018-2019 promises to be an active one for CCA. Expert panels will address diverse, priority-driven topics: strategies for assessing climate change risks, the socio-economic costs of antimicrobial resistance, policing in Indigenous communities, approaches to teaching innovation management, and the use of integrated natural resource management strategies. It will also see the completion of one of our most challenging projects: a three-part assessment on key topics arising from Medical Assistance in Dying which was referred by Health Canada and Justice Canada/Attorney General following from the passage of Bill C-14. CCA has convened an expert panel of more than 40 individuals – our largest ever – to examine three areas of consideration that were not addressed in federal legislation: mature minors, advance requests, and mental disorders as the

sole underlying condition. There are unavoidable ethical, social, and political issues embedded in MAID – the task of this panel is to examine what is known (and what isn't) in an objective way that is sure to inform an ongoing conversation in Canada.

None of our work could be done without the contributions of hundreds of panel members and peer reviewers who have volunteered their time, or without the leadership of the Royal Society of Canada, the Canadian Academy of Health Sciences, and the Canadian Academy of Engineering whose fellows sit on CCA panels, and the CCA Board and Scientific Advisory Committee. Supporting all of this activity is a staff of incredibly motivated and skilled professionals committed to helping CCA be fully responsive to the assessment requests we receive.

We look forward to the coming year.

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**Eric M. Meslin, PhD, FCAHS** President and CEO Council of Canadian Academies

# MESSAGE FROM THE PRESIDENTS OF THE ACADEMIES

Dear Friends and Colleagues,

A number of years ago, Canadian leaders across diverse fields developed innovative strategies for enabling and facilitating researchbased thinking and planning about the urgent questions of the day. Today, we are delighted to share with you the 12<sup>th</sup> Annual Report of the CCA, founded by Canada's three national academies – the Canadian Academy of Engineering, the Canadian Academy of Health Sciences, and the Royal Society of Canada – and supported by the Government of Canada.

In fulfilling its mandate to deliver assessments of the current state of knowledge on questions posed by government departments, the CCA has now become a world leader in responding compellingly to public demand for insights and evidence on complex topics. This year, CCA assessments of current research findings ranged from a systematic review of studies on the impact of an aging population to those on questions of commercial marine shipping and regenerative medicine. In this context, we support enthusiastically the active role of Fellows of all the Academies on the impressive panels of experts who conducted each assessment. Many thanks to those who gave so generously of their time and expertise, and thereby illustrated the profound value of knowledge assessment as essential to our efforts to make a better future.

Similarly, in our role as Directors of the CCA, we congratulate the CCA staff on their rigorous and innovative support for each assessment as well as on their efforts to share them widely as key input for decision-making not only among federal supporters but also across Canada and beyond.

Today in a rapid-changing era when, surprisingly, public debate about complex issues is sometimes disconnected from relevant research findings, the role of assessment is more important than ever.

We look forward to further collaboration to fulfill this role, and we invite all of you to engage with us in our collective pursuit of a better future for Canada and the world.







**Chad Gaffield, FRSC** President, Royal Society of Canada

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Linda Rabeneck, FCAHS President, Canadian Academy of Health Sciences

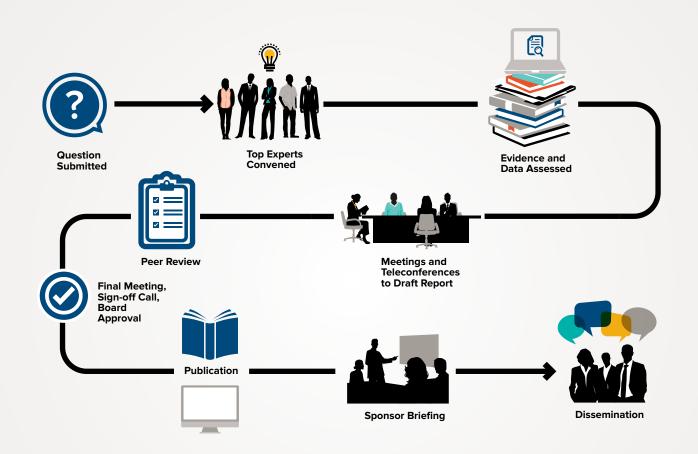
**Douglas Ruth, FCAE** President, Canadian Academy of Engineering

# WHO WE ARE AND WHAT WE DO

The Council of Canadian Academies is an independent, not-for-profit organization that convenes the best experts in their respective fields to assess the evidence on complex scientific topics of public interest, in order to inform decision-making in Canada. Led by a Board of Directors and guided by a Scientific Advisory Committee and the Academies, the CCA's work encompasses a broad definition of science, incorporating the natural, social, and health sciences as well as engineering and the humanities.

Assessments are conducted by multidisciplinary and multi-sectoral panels of experts from across Canada and abroad who volunteer their time and lend their expertise and knowledge to the CCA. The overarching goal of CCA assessments is to evaluate the best available evidence on particularly complex issues where the science may be challenging to understand, contradictory, or difficult to assemble. This often means identifying emerging issues, gaps in knowledge and research, Canadian strengths, and international trends and practices. Upon completion, assessments provide government decision-makers as well as researchers and stakeholders with high-quality information and evidence to develop informed and innovative public policy. Assessments can be referred to the CCA (or "sponsored") by foundations, non-governmental organizations, the private sector, or any level of government.

The CCA assessment process is guided by a professional staff and is completed through in-person meetings, teleconferences, and many hours of research. To protect the independence of the assessment process, Sponsors do not participate in the production of assessments, review drafts of reports, or propose any changes to reports before their release. This process ensures the highest integrity and objectivity of the work. All reports undergo formal peer review and are made available to the public free of charge in both official languages.



# YEAR IN REVIEW



CCA announces the appointment of the Expert Panel on Medical Assistance in Dying, chaired by the Honourable Marie Deschamps, C.C., *Ad. E.*, former Justice of the Supreme Court of Canada and Adjunct Professor at McGill University and Université de Sherbrooke.

## APRIL 27

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A new report, *The Value of Commercial Marine Shipping to Canada*, estimates the national economic value of commercial marine shipping at approximately \$30 billion.

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## **NOVEMBER 1–3**

CCA participates in the Canadian Science Policy Conference and hosts a panel session: Leveraging Federal Science: How Provinces Can Make a Difference in Strengthening Canadian Knowledge Production.



## JULY 21

CCA announces the appointment of Expert Panel on Innovation Management Education and Training chaired by John R. McDougall, FCAE, President, DALCOR Innoventures Ltd., and former President of the National Research Council of Canada.



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## 2017

## **APRIL 19**



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A new report, Science Policy: Considerations for Subnational Governments, affirms the importance of explicit science policies at the subnational level.



CCA welcomes three new members to its Board of Directors:

- David Dodge, O.C., FRSC
- Jawahar (Jay) Kalra, MD, FCAHS
- Bartha Maria Knoppers, O.C., O.Q., FRSC, FCAHS





## AUGUST 31

CCA welcomes two new members to its Board of Directors:

Chad Gaffield, O.C., FRSC



## **SEPTEMBER 13**

CCA announces launch of new assessment on the socio-economic impact of antimicrobial resistance.



## **NOVEMBER 21**

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CCA welcomes Paul Allison, FCAHS, to its Board of Directors.





the assessment on Innovation Management Education and Training.



## **NOVEMBER 29**

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CCA holds meetings and annual joint reception for Board of Directors and Scientific Advisory Committee in Ottawa.





CCA welcomes Jackie Dawson to its Scientific Advisory Committee.

## **APRIL 10**







A new report, Competing in a Global Innovation Economy: The Current State of R&D in Canada, provides the latest data and information on Canada's track record in fundamental research, applied research and experimental development, industrial R&D, and the relationship of these research efforts to wealth creation and prosperity through innovation.

# ASSESSING MIDENCE

In fiscal year 2016/17, CCA completed three reports, with one more published in April 2018. We also began or continued work on an additional six projects. An overview of each project is presented below.



8 Washing Suarray Contrast Report



TITLE Science Policy: Considerations for Subnational Governments

**RELEASE DATE** April 2017

**SPONSOR** Government of Alberta APRIL, 2017

#### BIG GAINS POSSIBLE WITH EXPLICIT PROVINCIAL SCIENCE POLICIES: CCA REPORT

#### **Research Money**

Provinces that develop and deploy explicit science policies benefit from greater coordination, alignment and clarity of their science-based activities, which in turn help leverage federal support. Other than Québec and the territories which have developed explicit science policies, those of Canada's other subnational governments are implicit in nature and often conflate science and innovation resulting in less than optimum outcomes, according to a new report from the Council of Canadian Academies.

#### Charge

What are the necessary considerations when creating science policy at the subnational level?

#### Why This Matters

In Canada, science is as much a provincial endeavour as it is a national one. Science has the potential to inform policy development and enhance public welfare in areas such as security, health, the environment, education, and social policy. Investments in science can create new economic opportunities and help develop the knowledge and social capital of specific regions. Realizing these benefits, however, requires effective science policies across all levels of government.



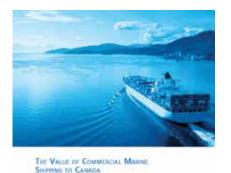
The topic of Subnational Science Policy was the focus of a well-attended session at the 2017 Canadian Science Policy Conference. Session speakers included Jeff Kinder, David Schwarz, Krista Connell, Rémi Quirion, and Eric M. Meslin.

#### Findings

Overall, the workshop report affirms the importance of explicit science policies at the subnational level. While all governments have implicit science policies, the report emphasizes that explicit science policies help to articulate the value and objectives of support for science, enhance government coordination and alignment, and increase transparency. Making science policy explicit at the subnational level can also aid in leveraging federal support for science.

Key findings include:

- The rationale for creating an explicit science policy at the subnational level is compelling.
- Science and innovation policies are distinct, but inextricably linked, for all levels of government.
- Subnational governments play many of the same roles as national governments in supporting science.
- A comprehensive framework for a science policy can be built around five core elements: people, infrastructure, research, science culture, and knowledge mobilization.
- Cross-sectoral and cross-governmental coordination and cooperation are central to an effective subnational science policy.
- A subnational science policy can bring clarity to provincial research priorities.
- Committing long term to a subnational science policy is important for maintaining and developing the science system.



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TITLE

The Value of Commercial Marine Shipping to Canada

RELEASE DATE May 2017

#### SPONSOR

Clear Seas Centre for Responsible Marine Shipping

#### Charge

What is the social and economic value of commercial marine shipping to Canada and its regions? How will global trends related to shipping affect future shipping activity in Canada?

#### Why This Matters

As a maritime nation, Canada's economy, culture, environment, and security have long been interlinked with commercial marine shipping. Critical to Canada's historical development, marine shipping continues to be vital to international trade and the development of communities. It is often the only means by which food and essential goods reach Canada's island, remote, and northern communities. While it is evident that marine shipping is of critical importance to Canada, its value had never been comprehensively assessed.

#### MAY, 2017

#### THE SOCIAL AND ECONOMIC VALUE OF COMMERCIAL MARINE SHIPPING TO CANADA

#### **PortEconomics**

The social and economic value of commercial marine shipping to Canada was the theme of a report that was published this week by the Council of Canadian Academies. The report is the outcome of the work of a 10-member Expert panel chaired by PortEconomics member Mary R. Brooks.

#### JUNE, 2017

#### REPORT DOCUMENTS VALUE OF CANADIAN SHIPPING

#### The Maritime Executive

A new study commissioned by Clear Seas Centre for Responsible Marine Shipping and conducted by the Council of Canadian Academies, concludes that marine shipping is of great value to Canadians in all regions.

#### **Findings**

- By moving goods and people, marine shipping has played a formative role in Canada's history. Today, despite other competing modes of commercial transportation, marine shipping remains an important part of Canada's economy and culture.
- The GDP of Canada's marine shipping industry is about \$3 billion. The positive national economic impact of commercial marine shipping, however, is estimated at approximately \$30 billion due to its role in facilitating international trade.
- The negative environmental impacts of marine shipping in Canada are mostly declining. Commercial marine shipping produces only 1% of Canada's GHG emissions.
- The regional and local impacts of marine trade and shipping employment are unevenly distributed across Canada. Some negative cultural, environmental, and security impacts tend be concentrated locally.
- Commercial marine shipping is evolving in response to global and domestic social trends. The overall effect of these trends will likely increase future shipping activity in Canada.



An overview of Canada's major international trade flows in 2015. The dollar value indicates total marine trade (i.e., sum of marine exports and imports).



OLDER CANADIANS ON THE MOVE



TITLE Older Canadians on the Move

RELEASE DATE December 2017

**SPONSOR** Transport Canada



Expert Panel on the Transportation Needs of an Aging Population

#### Charge

How can technology and innovation help the Canadian transportation system (under the legislative authority of Parliament) adapt to the needs of an aging population?

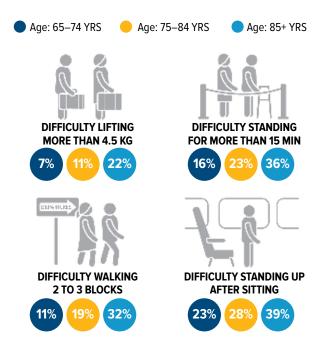
#### Why This Matters

Long lineups, poor signage, and garbled announcements over a loudspeaker can be a nuisance for any traveller. But for older adults, they can present significant roadblocks in their journey, whether taking a cross-country trip by train, or a bus ride to an appointment. Demand for an inclusive transportation system that meets the unique and varied needs of this growing demographic is only going to increase. Currently, one in six people in Canada is 65 or older. That number is expected to climb to one in four by 2036.

#### **Findings**

- New technological innovations are not the only solutions to make travel obstacle-free; sometimes the best solutions are simple, inexpensive, and already exist. Increased customer service personnel, inclusivity training, designated lineups, and ample seating in stations and terminals are some simple initiatives that could have a significant impact.
- New technologies or innovative adaptations such as flat-plate baggage claim devices and apps that support wayfinding are also options for improving the travel experience.
- Considering the "door-through-door journey" is vital as it draws on the concept of a multimodal and national system that considers how older travellers in Canada will navigate their journey, from planning the trip to arriving at their chosen destination.

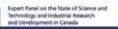
 Three "pathways" to help facilitate door-through-door journeys for older adults and improve the inclusivity of the Canadian transportation system are as follows: advancing human and social resources; advancing technology and infrastructure; and advancing policy. Each pathway has an important research and development and innovation component, whether it be through the development of new technologies or the testing and implementation of research-driven solutions in real-world settings.



Older adults in Canada have difficulty performing certain tasks.



COMPETING IN A GLOBAL INNOVATION ECONOMY: THE CURRENT STATE OF R&D IN CANADA



TITLE

Competing in a Global Innovation Economy: The Current State of R&D in Canada

**RELEASE DATE** April 2018

**SPONSOR** Innovation, Science and Economic Development Canada

#### APRIL, 2018

CANADA STRUGGLING TO CAPITALIZE ON RESEARCH AND DEVELOPMENT SECTOR

#### **Globe and Mail**

The latest report on the state of research and development in Canada calls to mind Lewis Carroll's Red Queen, who famously had to keep running at top

speed to stay in one place. The problem is that Canada's innovation efforts may not amount to even that much, as other countries surge forward with investments that leverage science and technology and reap the economic rewards.

#### **APRIL**, 2018

#### WE NEED TO MAKE CANADA A TRUE INNOVATION NATION

#### **Hill Times**

There are, to be sure, bright spots in Canada-in the innovation ecosystems of Toronto-Waterloo, Montreal, Vancouver, Ottawa, and Québec City, and in the growth of venture capital funding, as well as in the attraction of foreign stars in science for Canada Research Chairs. But much of the activity in the innovation ecosystems is the result of activity by Google, Microsoft, and other Big Tech players and not through the development and scaling up of Canadian companies.

#### Charge

What is the current state of science and technology and industrial research and development in Canada?

#### Why This Matters

In the 21st century, national prosperity, competitiveness, and well-being are inextricably linked to a country's capacity for R&D and innovation. Canada is competing intensely alongside other countries to foster the next wave of research advances and innovations.

Ensuring that Canada remains competitive in this evolving landscape requires effective support informed by periodic assessments of the latest evidence on R&D performance. This is the fourth edition in the state of S&T and industrial R&D assessment series by the CCA.

#### **Findings**

- Canada remains a leading global contributor to research, and is making important contributions across a wide range of fields.
- Canada's international standing as a leading performer of research is at risk due to a sustained slide in private and public R&D investment.
- Canada is not producing research at levels comparable to other leading countries on most enabling and strategic technologies.
- Canadian research is comparatively less specialized and less esteemed in the core fields of the natural sciences and engineering.

- Canadian industrial R&D spending is declining and concentrated in industries that are intrinsically less R&D intensive. Despite poor overall performance, Canada has pockets of R&D strength across several industries.
- The barriers between innovation and wealth creation in Canada are more significant than those between R&D and innovation. The result is a deficit of technology start-ups growing to scale in Canada, and a loss of economic benefits.
- Data limitations continue to constrain the assessment of R&D activity and excellence in Canada, particularly in industrial R&D and in the social sciences, arts, and humanities.



The report was first presented at a plenary session at the Research Money conference on April 10, 2018 to 150 attendees.



Expert Panel on Innovation Management Education and Training

# Innovation Management Education and Training

The ability of managers and executives to lead and organize the innovation process within a business is critical to the success of that business. However, business innovation in Canada has historically been much slower than that of other advanced countries. The main goal of this project is to develop an evidence base on how to best teach innovation management skills. The focal point will be the teaching practices offered by business schools, both in Canada and internationally, and how these correspond to the demand for innovation management skills in the private sector.

#### Charge

The following questions helped to guide a facilitated workshop:

- What are the key skills (including traits, behaviours, and practices) required to manage innovation?
- What are the leading practices for teaching these skills in business schools, other academic departments, colleges/polytechnics, innovation intermediaries and industry?

#### SPONSOR

Innovation, Science and Economic Development Canada

#### EXPECTED RELEASE

Fall 2018

## **Medical Assistance in Dying**

In December 2016, the Minister of Health, the Minister of Justice, and the Attorney General of Canada asked the CCA to examine three types of requests for medical assistance in dying that were identified as particularly complex and worthy of further study in the introduction to the Government of Canada's legislation in early 2016: requests by mature minors, advance requests, and requests where mental illness is the sole underlying medical condition. In undertaking these reviews, the CCA will compile and assess information and evidence to inform the ongoing policy discussion surrounding medical assistance in dying in these three circumstances.

#### Charge

What is the available evidence on, and how does it inform our understanding of, medical assistance in dying (MAID) in the case of mature minors, advance requests, and where mental illness is the sole underlying medical condition, given the clinical, legal, cultural, ethical, and historical context in Canada?

#### SPONSOR

Health Canada and Justice Canada

#### EXPECTED RELEASE Late 2018

Late 2018



Expert Panel on Medical Assistance in Dying



Expert Panel on Integrated Natural Resource Management

## Integrated Natural Resource Management

Canada is endowed with a diversity of resources. In some regions, energy, forestry, and mining activities, for example, may all occur simultaneously and in close proximity. While each of these activities may on its own have well-understood environmental, social, and economic impacts, when considered together, the overall impact can be complex and significant. Historically, resource management decisions were made on a project-by-project basis, but there is a growing interest in deploying more integrated approaches that consider the full set of activities occurring in an area, in order to better support decision-making and the sustainable use of all resources.

In recent years, integrated natural resource management has been gaining momentum in Canada. However, progress and barriers are difficult to assess and evaluate. This new CCA assessment will bring together a disparate knowledge base to shed new light on how both science and traditional knowledge can be best applied to enhance the management of natural resources in Canada. It will focus on land-based resource management, including agricultural production. Freshwater systems (surface and groundwater) affected by land-based activities are also within the scope of the assessment.

#### Charge

What is the state of knowledge and practice of integrated approaches to natural resource management in Canada?

SPONSOR

Natural Resources Canada

**EXPECTED RELEASE** Early 2019

## Policing in Indigenous Communities

Police services in Indigenous communities may face a series of challenges including remoteness, limited access to social services, and scarce resources. At the same time, there are opportunities to strengthen community ties, improve safety outcomes, and enhance the cultural responsiveness of policing in these communities. This assessment will expand on the CCA's 2014 study, *Policing Canada in the 21st Century: New Policing for New Challenges*, to explore the distinctive context of policing in Indigenous communities, and to examine promising and leading practices that could be applied to meet these challenges.

#### Charge

Building on the research study *Policing Canada in the* 21<sup>st</sup> Century: New Policing for New Challenges, what could be drawn from the current evidence and knowledge about the present and future role of police services in Indigenous communities in Canada? What are some promising and leading practices in policing that could be applied in Indigenous communities?

#### SPONSOR

Public Safety Canada

## 

Early 2019



Expert Panel on Policing in Indigenous Communities

Climate change is a complex, cross-cutting issue that poses risks to environmental, social, and economic systems. Given the scale of climate change—in terms of cost, consequences, and the pervasiveness of its impact—an effective response and the efficient use of public resources require identifying and addressing the most significant risks. As such, the Treasury Board Secretariat, has asked the CCA to examine the top climate change risks facing both Canada and the federal government.

#### Charge

What are the top climate change risks facing both Canada and the federal government, and their relative significance, and which have the most potential to be minimized by adaptation measures?

#### SPONSOR

Treasury Board Secretariat

EXPECTED RELEASE

Mid-2019

#### APRIL 30, 2018

#### CCA LAUNCHES NEW PROJECT ON CLIMATE CHANGE RISKS

CCA is pleased to announce that it has been asked by the Treasury Board Secretariat to examine the top climate change risks facing both Canada and the federal government, and their relative significance. This assessment will also consider which of these risks have the most potential to be minimized by adaptation measures.



Expert Panel on the Potential Socio-Economic Impacts of Antimicrobial Resistance in Canada

# Potential Socio-Economic Impacts of Antimicrobial Resistance

The era of antimicrobial use began in the 1920s, with the discovery of penicillin by Alexander Fleming, who cautioned even at that time against the inevitability of antimicrobial resistance (AMR). As anticipated, antimicrobial effectiveness has declined over time, and AMR is emerging. As antimicrobial resistant organisms become more prevalent, it is important to understand how this impacts Canadians, particularly vulnerable populations. As such, the Public Health Agency of Canada has asked the CCA to examine the current state of knowledge on the socio-economic impact of antimicrobial resistance on Canadians and the Canadian health care system.

#### Charge

What is the socio-economic impact of antimicrobial resistance (AMR) for Canadians and the Canadian health care system?

**SPONSOR** Public Health Agency of Canada

EXPECTED RELEASE Late 2019

# ANNEX 1 CORPORATE PROFILE

The Council of Canadian Academies is a not-for-profit organization registered under the *Canada Not-for-Profit Corporations Act.* It began operation in 2005. The CCA has three founding Academies: the Royal Society of Canada, the Canadian Academy of Engineering, and the Canadian Academy of Health Sciences.

#### Assessments

Proposed assessment topics requested by the Government of Canada are selected through a cross-government competitive process and submitted to the CCA for consideration. The criteria used to evaluate proposed assessments are listed below. These criteria are also suggested for assessments conducted for the private sector, non-profits, other non-governmental organizations, and provincial and municipal governments.

#### **Government Criteria**:

- The proposal is relevant to the agenda of the sponsoring department/agency and to Canada's policy agenda.
- The assessment topic is timely, and the timeframe for assessment is consistent with the needs of the sponsoring department/agency and of Canada.
- The value provided by the CCA is unique.
- The assessment topic is a science-based question that has been coordinated with relevant departments/agencies and external stakeholders.

#### **CCA Criteria:**

- The topic is of importance to Canada and its citizens.
- The appropriate expertise can be assembled and the required timeline can be met.
- The existing state of knowledge merits the assessment.
- Science underpins the question and its response.

#### **Other Criteria:**

- The report is likely to be widely consulted within and outside government (i.e., other levels of government or organizations have a demonstrated interest in the outcome of the assessment).
- The topic is uniquely relevant to Canada.
- The topic is an international issue for which a Canadian assessment is important at this time.

The CCA's Board of Directors, assisted by a Scientific Advisory Committee, oversees the integrity of the assessment process. The Board formally approves assessment questions, expert panel membership, report review processes, and the public release of reports.

To protect the independence of the assessment process, the sponsor of an assessment does not participate in conducting the assessment, review drafts of the report, or propose any changes to the report before its release. Assessment reports undergo a formal peer review process to assure quality and objectivity. The Board is responsible for authorizing the public release of final assessment reports, and is advised in this regard by a report review monitor who ensures that expert panels give full and fair consideration to the comments of the external reviewers of every CCA report. Reports are posted on the CCA's website, www.scienceadvice.ca, in both official languages, and can be downloaded free of charge to ensure their availability to the public.

#### Funding

The CCA was established with an investment by the Government of Canada in the form of a 10-year grant worth \$30 million. This founding grant was intended to support core operations of the CCA through to March 31, 2015. In the April 2015 federal budget, this commitment was renewed with an additional contribution of \$15 million over five years. In the March 2018 federal budget, an additional \$9 million was committed over three years commencing in 2020. Conditions on the use of the funds provided by the government are set out in a formal funding agreement between the CCA and the Government of Canada. The CCA also conducts assessments outside of the federal government agreement. These assessments are referred to the CCA by non-profits, non-governmental organizations, the private sector, or provincial and municipal governments.

#### **Structure and Governance**

The CCA is governed by a 12-member Board of Directors. The Board is responsible for setting the strategic direction of the organization, ensuring that the CCA fulfills its mandate, and overseeing the CCA's operations.

Each founding Academy nominates two directors. The three members elect two directors from the general public. The remaining four directors are nominated by the Minister of Innovation, Science and Economic Development and are formally elected by the Members at the Annual General Meeting.

Governance of the CCA is supported by four committees of the Board of Directors:

- Executive Committee
- Audit, Finance, and Risk Committee

- Nominating and Governance Committee
- Human Resources and Compensation Committee

The work of the CCA is also supported by a Board-appointed Scientific Advisory Committee that provides advice on the substance and procedures of expert assessments, particularly on the following aspects:

- generating potential subjects for future assessments;
- evaluating the suitability of subjects proposed to the CCA for expert assessment;
- setting the terms of reference for the independent expert panels that carry out the assessments;
- seeking out potential members for expert panels; and
- overseeing the process of peer review of draft assessment reports.

Day-to-day operations of the CCA are carried out by a small staff team, under the direction of a full-time President and CEO. Staff provide support to expert panels with research, writing, and overall management of logistics for the assessments and the production of reports. Staff also support the work of the Scientific Advisory Committee, particularly with analyzing proposed assessment topics, identifying panel membership, and managing the report review process.

Members of the Board of Directors, Scientific Advisory Committee, and staff are listed in Annex 2.

#### Statement of Investment Policy

The Statement of Investment Policy was formally approved by the Board of Directors and is available on the CCA website.

#### Financial Statements: Fiscal Year Ended March 31, 2018

The CCA retained the Ottawa-based accounting firm Parker Prins Lebano to audit the financial results for the fiscal year 2017/18. The CCA's financial statement for 2017/18 is provided in Annex 4. Parker Prins Lebano, an independent financial auditor, wrote the CCA on May 28, 2018 confirming that, based on its audit findings, all expenses associated with the Agreement were eligible in nature.

#### **Human Resources**

The CCA focuses its human resource activity on the values outlined in the strategic plan. Those values are: excellence, independence, integrity, collaboration, and innovation.

## ANNEX 2 BOARD OF DIRECTORS, SCIENTIFIC ADVISORY COMMITTEE AND STAFF

## **BOARD OF DIRECTORS**

(As of March 31, 2018)

#### Margaret Bloodworth, C.M., Chair

Former Federal Deputy Minister and National Security Advisor (Ottawa, ON)

#### Paul Allison, FCAHS\*\*

Dean, Faculty of Dentistry, McGill University (Montréal, QC)

#### Tom Brzustowski, O.C., FRSC, FCAE

Member of the Board of the Institute for Quantum Computing, University of Waterloo; Member of the Board, Waterloo Global Science Initiative (Waterloo, ON)

#### David A. Dodge, O.C., FRSC\*\*

Senior Advisor, Bennett Jones LLP (Ottawa, ON)

#### Chad Gaffield, O.C., FRSC\*\*

Professor of History and University Research Chair in Digital Scholarship, University of Ottawa; President, Royal Society of Canada (Ottawa, ON)

#### Jawahar (Jay) Kalra, MD, FCAHS\*\*

Professor, Department of Pathology and Laboratory Medicine and Member, Board of Governors, University of Saskatchewan (Saskatoon, SK)

#### Carol P. Herbert, FCAHS\*

Professor Emerita, Family Medicine, Western University; Past-President of the Canadian Academy of Health Sciences (London, ON)

## Bartha Maria Knoppers, O.C., O.Q., FRSC, FCAHS\*\*

Full Professor and Director, Centre of Genomics and Policy, Faculty of Medicine, Human Genetics, McGill University (Montréal, QC)

## Maryse Lassonde, O.C., O.Q., FRSC, FCAHS

Scientific Director, Quebec Natural Sciences and Technology Granting Agency; Past-President, Royal Society of Canada (Montréal, QC)

#### Pierre Lortie, C.M., FCAE

Senior Business Advisor, Dentons LLP; Past-President of the Canadian Academy of Engineering (Montréal, QC)

#### Jeremy McNeil, C.M., FRSC\*

Helen Battle Professor of Chemical Ecology, Department of Biology, Western University (London, ON)

#### Axel Meisen, C.M., FCAE\*

Former Chair of Foresight at Alberta Innovates – Technology Futures (AITF) (Edmonton, AB)

#### Lydia Miljan

Associate Professor of Political Science and Chair of the Arts and Science Program, University of Windsor (Windsor, ON)

#### Linda Rabeneck, FCAHS

Vice President, Prevention and Cancer Control at Cancer Care Ontario; President-elect, Canadian Academy of Health Sciences (Toronto, ON)

#### Douglas Ruth, FCAE\*\*

Professor and Dean Emeritus, Associate Dean (Design Education), NSERC Chair in Design Engineering, and Director of the Centre for Engineering Professional Practice and Engineering Education, University of Manitoba; President of the Canadian Academy of Engineering (Winnipeg, MB)

## SCIENTIFIC ADVISORY COMMITTEE

(As of March 31, 2018)

#### Eliot A. Phillipson, O.C., FCAHS, Chair

Sir John and Lady Eaton Professor of Medicine Emeritus, University of Toronto (Toronto, ON); Former President and CEO, Canada Foundation for Innovation (Ottawa, ON)

#### Susan A. McDaniel, FRSC, Chair\*

Director, Prentice Institute; Canada Research Chair (Tier 1) in Global Population and Life Course; Prentice Research Chair in Global Population and Economy; Professor of Sociology, University of Lethbridge (Lethbridge, AB)

#### Lorne Babiuk, O.C., FRSC, FCAHS\*

Vice-President (Research), University of Alberta (Edmonton, AB)

#### David Castle\*\*

Vice-President Research and Professor, School of Public Administration; adjunct appointment Gustavson School of Business, University of Victoria (Victoria, BC)

#### Sophie D'Amours, O.C., FCAE\*\*

Rector of the Université Laval (Quebec City, QC)

#### Jackie Dawson\*\*

Canada Research Chair in Environment, Society and Policy, and Associate Professor, Department of Geography, University of Ottawa (Ottawa, ON)

#### Chad Gaffield, FRSC\*

Professor of History and University Research Chair in Digital Scholarship, University of Ottawa (Ottawa, ON)

#### Jean Gray, C.M., FCAHS

Professor Emeritus, Medical Education, Medicine, and Pharmacology, Dalhousie University (Halifax, NS)

#### John Hepburn, FRSC

Vice-President, Research, CIFAR (Toronto, ON)

#### Eddy Isaacs, FCAE

President, Eddy Isaacs Inc.; Strategic Advisor, Engineering, University of Alberta (Edmonton, AB)

#### Gregory S. Kealey, C.M., FRSC

Professor Emeritus, Department of History, University of New Brunswick (Fredericton, NB)

#### Malcolm King, FCAHS\*\*

Scientific Director, Institute of Aboriginal Peoples' Health at Canadian Institutes of Health Research (Saskatoon, SK)

#### Daniel Krewski\*

Professor of Epidemiology and Community Medicine and Scientific Director of the McLaughlin Centre for Population Health Risk Assessment, University of Ottawa (Ottawa, ON)

#### Stuart MacLeod, FCAHS

Professor of Pediatrics (Emeritus), University of British Columbia (Vancouver, BC); Adjunct Professor, Community Health and Epidemiology, Dalhousie University (Halifax, NS)

#### Barbara Neis, C.M., FRSC\*\*

John Paton Lewis Distinguished University Professor, Memorial University of Newfoundland (St. John's, NL)

#### Nicole A. Poirier, FCAE\*\*

President, KoanTeknico Solutions Inc. (Beaconsfield, QC)

## **STAFF OF THE COUNCIL OF CANADIAN ACADEMIES**

(As of March 31, 2018)

Eric M. Meslin, PhD, FCAHS President and CEO

Erin Bassett, PhD Research Associate

Jennifer Bassett, PhD\*\*\* Research Associate

Janet Bax, MA Project Director

Amanda Bennett, PhD Research Associate

Dane Berry, MPP Research Associate

Anna Buczek, BScH Outreach and Communications Specialist

Tom Bursey, MBA, FCPA, FCMA, ICD.D Vice President, Corporate Services and CFO

Rebecca Chapman, PhD\*\*\* Research Associate

Tijs Creutzberg, PhD Director of Assessments

Hilary Davies, M.E.S., B.Ed., B.Sc. Research Associate

Madison Downe, MSc Project Coordinator

Marc Dufresne, MSc Senior Bilingual Publications Specialist

Jonathan Harris, MSc, MPP\*\* Research Associate

Janet Hendry, MSc, PEng\*\* Research Associate

Andrea Hopkins, MA Lead, Assessment Coordination and Planning



Teresa lacobelli, PhD Research Associate

Matthew Ivanowich, PhD Researcher

Joanne Linnay, MSc, MES Project Coordinator

Suzanne Loney, MA\*\*\* Research Associate

Kelly Loverock, MA Website and Communications Specialist

Camilla Mällberg, MSc Project Coordinator

**Frédérique Mantha, BA** Communications and Publishing Coordinator

Jérôme Marty, PhD Project Director

Anita Melnyk, PhD Research Associate Emmanuel Mongin, PhD Project Director

Nancy Neil, BGS Executive Assistant to the President

Samantha Rae Ayoub, MA Communications and Publishing Director

Joe Rowsell, MPhil Project Manager

Alexandra Sebben, MPC\* Communications and Outreach Coordinator

Christina Stachulak, MSc\*\* Senior Advisor to the President

Lennart Trouborst, MSc Researcher

Jill Watkins, PhD Project Director

Weronika Zych, MSSc Senior Project Coordinator

#### Ranges of remuneration

For the fiscal year ending March 31, 2018 compensation was within the following salary ranges: Council Management (Officers) – President [213,161 to \$318,931]; Vice President and CFO [\$135,203 to \$205,416]; and Director of Assessments [\$110,231 to \$173,759].

\*joined the CCA in fiscal year 2017/18 \*\*left the CCA in fiscal year 2017/18 \*\*\*maternity and/or parental leave for part of fiscal year 2017/18

# ANNEX 3 EXPERT PANEL MEMBERS

The CCA convenes the best experts in their respective fields to evaluate the existing evidence and provide objective assessment of the science underlying key policy issues. Our work would not be possible without these experts, who volunteer their time, energy, and knowledge to serve as expert panellists and reviewers. Over the years we have been privileged to work with over 1,500 experts. Those who volunteered as a CCA expert this past year are listed below.

## Science Policy: Considerations for Subnational Governments— Steering Committee & Workshop Participants

Joy Johnson, FCAHS, Chair of the Steering Committee and Workshop, Vice President Research, Simon Fraser University (Burnaby, BC)

Paul Dufour, Steering Committee Member, Adjunct Professor, Institute for Science, Society and Policy, University of Ottawa (Gatineau, QC)

Janet Halliwell, Steering Committee Member, President, J.E. Halliwell Associates Inc. (Salt Spring Island, BC)

Kaye Husbands Fealing, Steering Committee Member, Chair and Professor, School of Public Policy, Georgia Institute of Technology (Atlanta, GA) Marc LePage, Steering Committee Member, President and CEO, Genome Canada (Ottawa, ON)

Allison Barr, Director, Office of the Chief Scientist, Ontario Ministry of Research, Innovation and Science (Toronto, ON)

**Eric Cook**, Executive Director and CEO, Research Productivity Council (Fredericton, NB)

Irwin Feller, Professor Emeritus, Pennsylvania State University (State College, PA)

Peter Fenwick, Member, A100 (Calgary, AB)

**Richard Hawkins**, Professor, University of Calgary (Calgary, AB)

Jeff Kinder, Director, Federal Science and Technology Secretariat (Ottawa, ON)

Robert Lamb, Chief Executive Officer, Canadian Light Source Inc. (Saskatoon, SK)

John Morin, Director of Policy, Planning and External Relations, Western Economic Diversification Canada (Edmonton, AB)

**Nils Petersen**, Professor Emeritus, University of Alberta (Edmonton, AB)

**Grace Skogstad**, Professor, University of Toronto (Toronto, ON)

**Dan Wicklum**, Chief Executive, Canada's Oil Sands Innovation Alliance (Calgary, AB)

## The Value of Commercial Marine Shipping to Canada—Expert Panel

Mary R. Brooks, Chair, Professor Emerita, Rowe School of Business, Dalhousie University (Halifax, NS)

Kristian Behrens, Canada Research Chair in Regional Impacts of Globalization and Full Professor of Economics, Université du Québec à Montréal (UQAM) (Montréal, QC) **David Cardin**, Advisor, Canadian Transportation Act Review Panel (Rockwood, ON)

Jackie Dawson, Canada Research Chair in Environment, Society and Policy, and Associate Professor, Department of Geography, Environment and Geomatics, University of Ottawa (Ottawa, ON) **Trevor Heaver**, Professor Emeritus, Sauder School of Business, University of British Columbia (Vancouver, BC)

Douglas House, C.M., Honourary Research Professor, Department of Sociology, Memorial University (St. John's, NL) John Lawson, President and Principal, Lawson Economics Research, Inc. (Ottawa, ON)

**Charles Menzies**, Professor, Department of Anthropology, University of British Columbia (Vancouver, BC) Peter G. Noble, FCAE, Principal Advisor, Noble Associates, Inc.; Past-President, Society of Naval Architects and Marine Engineers (Spring, TX) Siri Pettersen Strandenes, Professor, Norwegian School of Economics (NHH) (Bergen, Norway)

#### Older Canadians on the Move—Expert Panel

Neena L. Chappell, C.M., FRSC, FCAHS, Chair, Professor Emeritus, Institute on Aging & Lifelong Health and Department of Sociology, University of Victoria (Victoria, BC)

Maureen Ashe, Associate Professor, Department of Family Practice, University of British Columbia; Centre for Hip Health and Mobility; Canada Research Chair in Community Mobility (Vancouver, BC)

Howard Bergman, FCAHS, Chair, Department of Family Medicine, and Professor, Departments of Family Medicine, Medicine and Oncology, McGill University (Montréal, QC)

**David Timothy Duval**, Associate Professor, Faculty of Business and Economics, University of Winnipeg; Associate, University of Manitoba Transport Institute (Winnipeg, MB) Geoff Fernie, C.M., FCAHS,

Institute Director, Research, Toronto Rehabilitation Institute—UHN; Professor, Department of Surgery and Institute of Biomaterials and Biomedical Engineering, University of Toronto (Toronto, ON)

#### Katharine M. Hunter-Zaworski,

Associate Professor, School of Civil and Construction Engineering, Oregon State University (Corvallis, OR)

Lorne Mackenzie, Director, Regulatory Affairs, WestJet Airlines (Calgary, AB)

Lynn McDonald, Scientific Director, National Initiative for the Care of the Elderly; Professor, Faculty of Social Work, University of Toronto (Toronto, ON)

David Metz, Honorary Professor, Centre for Transport Studies, University College London (London, United Kingdom) Alex Mihailidis, Professor, Department of Occupational Science and Occupational Therapy, University of Toronto; Scientific Director, AGE-WELL NCE Inc. (Toronto, ON)

Parminder Raina, Scientific Director, McMaster Institute for Research on Aging; Professor, Department of Health Research Methods, Evidence, and Impact, McMaster University; Canada Research Chair (Tier 1) in GeroScience, Raymond & Margaret Labarge Chair in Research and Knowledge Application for Optimal Aging (Hamilton, ON)

Marian L. Robson, Senior Associate, Global Public Affairs (Vancouver, BC)

#### S. C. (Chan) Wirasinghe, FCAE,

Professor, Department of Civil Engineering, University of Calgary (Calgary, AB)

## Competing in a Global Innovation Economy: The Current State of R&D in Canada—Expert Panel

Max Blouw, Chair, Former President and Vice-Chancellor of Wilfrid Laurier University (Waterloo, ON)

Luis Barreto, President, Dr. Luis Barreto & Associates and Strategic Advisor, NEOMED-LABS (Concord, ON) Catherine Beaudry, Professor and Canada Research Chair in Creation, Development and Commercialization of Innovation, Department of Mathematical and Industrial Engineering, Polytechnique Montréal (Montréal, QC)

**Donald Brooks, FCAHS**, Professor, Pathology and Laboratory Medicine, and Chemistry, University of British Columbia (Vancouver, BC) Madeleine Jean, Vice-President, Business Development and Operations, Prompt (Montréal, QC)

Philip Jessop, FRSC, Professor, Inorganic Chemistry and Canada Research Chair in Green Chemistry, Department of Chemistry, Queen's University; Technical Director, GreenCentre Canada (Kingston, ON) **Claude Lajeunesse, FCAE**, Corporate Director and Chairperson of the Board of Directors, Atomic Energy of Canada Ltd. (Magog, QC)

**Steve Liang**, Associate Professor, Geomatics Engineering, University of Calgary; Director, GeoSensorWeb Laboratory; CEO, SensorUp Inc. (Calgary, AB) **Robert Luke**, Vice-President, Research and Innovation; Associate Professor, Faculty of Liberal Arts & Sciences and School of Interdisciplinary Studies, OCAD University (Toronto, ON)

**Douglas Peers**, Dean of Arts and Professor, Department of History, University of Waterloo (Waterloo, ON)

John M. Thompson, O.C., FCAE, Retired Executive Vice-Chairman, IBM Corporation (Toronto, ON) Anne Whitelaw, Vice Provost, Planning and Positioning; Associate Professor, Department of Art History, Concordia University (Montréal, QC)

David A. Wolfe, Professor, Political Science and Co-Director, Innovation Policy Lab, Munk School of Global Affairs, University of Toronto (Toronto, ON)

## Integrated Natural Resource Management—Expert Panel

Cassie Doyle, Chair, Strategic Advisor and former CEO, Canadian International Resources and Development Institute (Vancouver, BC)

Fikret Berkes, FRSC, Distinguished Professor Emeritus, Natural Resources Institute, University of Manitoba (Winnipeg, MB)

Stan Boutin, FRSC, Science Co-Director, Alberta Biodiversity Monitoring Institute; Professor and Alberta Biodiversity Conservation Chair, Biological Sciences, University of Alberta (Edmonton, AB)

Matt Carlson, Ecologist, ALCES (Ottawa, ON)

**Thomas Dietz**, Professor, Sociology and Environmental Science and Policy, Assistant Vice President for Environmental Research, Michigan State University (East Lansing, MI)

**George Greene**, Founding Chair, Stratos Consulting (Ottawa, ON)

Bram Noble, Professor, Department of Geography and Planning and School of Environment and Sustainability, University of Saskatchewan (Saskatoon, SK)

Nancy Olewiler, Professor, School of Public Policy, Simon Fraser University (Vancouver, BC)

Rachel Olson, Team co-lead, Traditional Knowledge and Use Studies, Firelight Group (Vancouver, BC) Martin Olszynski, Assistant Professor, Faculty of Law, University of Calgary (Calgary, AB)

Kirstie Simpson, Senior Adviser Sustainable and Integrated Resource Management, Energy, Mines and Resources, Yukon Government (Whitehorse, YT)

Ione L. Taylor, Executive Director, Earth and Energy Resources Leadership, Department of Geological Sciences and Geological Engineering, Queen's University (Kingston, ON)

Alain Tremblay, Senior Environmental Advisor, Hydro-Québec (Montréal, QC)

## Medical Assistance in Dying—Expert Panel

Hon. Marie Deschamps, C.C., Ad. E., Chair of the Expert Panel, Former Justice of the Supreme Court of Canada and Adjunct Professor, McGill University (Montréal, QC) and Université de Sherbrooke (Sherbrooke, QC)

#### **MATURE MINORS:**

Dawn Davies, Working Group Chair,

Associate Professor, Department of Pediatrics, John Dossetor Health Ethics Centre, University of Alberta (Edmonton, AB) Gail Beck, O.Ont., Clinical Director, Youth Psychiatry Program, The Royal (Ottawa, ON)

Carrie Bourassa, Chair, Northern and Indigenous Health, Health Science North Research Institute, and Scientific Director, Institute of Indigenous Peoples' Health – Canadian Institute of Health Research (Sudbury, ON)

Franco A. Carnevale, Professor, Ingram School of Nursing, McGill University (Montréal, QC) Joanna Chung, Medical Psychology, Division of Hematology/Oncology/Bone Marrow Transplant, BC Children's Hospital (Vancouver, BC)

Joan Gilmour, Professor, Osgoode Hall Law School, York University (Toronto, ON)

Hon. Stephen Goudge, Q.C., O.Ont., Counsel, Paliare Roland (Toronto, ON)

Mary Ellen Macdonald, Associate Professor, Faculty of Dentistry, McGill University (Montréal, QC) Jean-Pierre Ménard, Ad. E., Lawyer, Ménard, Martin, Avocats (Montréal, QC)

**Cheryl Milne**, Executive Director, David Asper Centre for Constitutional Rights, Faculty of Law, University of Toronto (Toronto, ON)

Ubaka Ogbogu, Assistant Professor, Faculties of Law and Pharmacy & Pharmaceutical Sciences, University of Alberta (Edmonton, AB)

**Bryan Salte**, Associate Registrar and Legal Counsel, College of Physicians and Surgeons of Saskatchewan (Saskatoon, SK)

Kimberley Widger, Assistant Professor, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto (Toronto, ON)

Randi Zlotnik Shaul, Director, Department of Bioethics, The Hospital for Sick Children (Toronto, ON)

#### **ADVANCE REQUESTS:**

Jennifer L. Gibson, Working Group Chair, Sun Life Financial Chair in Bioethics; Director of the University of Toronto Joint Centre for Bioethics; Associate Professor of Health Policy, Management and Evaluation and Clinical Public Health, Dalla Lana School of Public Health; and Director of the World Health Organization Collaborating Centre for Bioethics, University of Toronto (Toronto, ON)

Benjamin L. Berger, Professor and Associate Dean (Students), Osgoode Hall Law School, York University, (Toronto, ON)

Martha Donnelly, Geriatric Psychiatrist, Associate Professor Emeritus, Department of Psychiatry, University of British Columbia (Vancouver, BC)

Alika Lafontaine, Northern Medical Lead (Aboriginal Health), Alberta Health Services; Assistant Clinical Professor, University of Alberta; Collaborative Team Lead, Indigenous Health Alliance (Grand Prairie, AB) Trudo Lemmens, Professor and Scholl Chair of Health Law and Policy, Faculty of Law, University of Toronto (Toronto, ON)

Susan MacDonald, Associate Professor, Medicine and Family Medicine, Memorial University of Newfoundland (St. John's, NL)

Sheila A.M. McLean, Emeritus Professor, Law & Ethics in Medicine, Glasgow University (Glasgow, Scotland)

**Dorothy Pringle, O.C., FCAHS**, Professor Emeritus, University of Toronto (Toronto, ON)

Patricia (Paddy) Rodney, Associate Professor, School of Nursing, and Faculty Associate, W. Maurice Young Centre for Applied Ethics, University of British Columbia; Research Associate, Providence Health Care Ethics Services (Vancouver, BC)

Harvey Schipper, Professor of Medicine, University of Toronto (Toronto, ON)

Samir Sinha, Director of Geriatrics, Sinai Health System and University Health Network (Toronto, ON)

Tim Stainton, Professor, School of Social Work, University of British Columbia (Vancouver, BC)

Ross Upshur, Professor, Department of Family & Community Medicine and Dalla Lana School of Public Health, University of Toronto; Associate Director, Lunenfeld Tanenbaum Research Institute; Scientific Director, Bridgepoint Collaboratory for Research and Innovation, Sinai Health System (Toronto, ON)

Agnes van der Heide, Researcher, Erasmus MC, University Medical Center Rotterdam (Rotterdam, The Netherlands) MENTAL ILLNESS:

Kwame McKenzie, Working Group Chair, Director Health Equity, Centre for Addiction and Mental Health; Professor of Psychiatry, University of Toronto; CEO, Wellesley Institute (Toronto, ON)

Melissa K. Andrew, Associate Professor of Medicine (Geriatrics), Dalhousie University and Nova Scotia Health Authority (Halifax, NS)

Yves Beauchamp, C.Q., FCAE, Vice-Principal Administration and Finance, McGill University (Montréal, QC)

Jennifer A. Chandler, Bertram Loeb Research Chair, Full Professor, Centre for Health Law, Policy and Ethics, Faculty of Law, University of Ottawa (Ottawa, ON)

**Pierre Deschamps, C.M.**, Member of Research Group on Health and Law, McGill University (Montréal, QC)

Jocelyn Downie, C.M., FRSC, FCAHS, University Research Professor, Faculties of Law and Medicine, Dalhousie University (Halifax, NS)

Martin Drapeau, M.P.s., Professor, Counselling Psychology and Psychiatry, McGill University (Montréal, QC)

**Colleen M. Flood, FRSC**, Director, Centre for Health Law Policy and Ethics, Professor and Research Chair in Health Law, University of Ottawa (Ottawa, ON)

Arthur W. Frank, FRSC, Professor Emeritus, Department of Sociology, University of Calgary (retired) (Calgary, AB) and Professor II, VID Specialized University (Oslo, Norway)

K. Sonu Gaind, Associate Professor, University of Toronto (Toronto, ON)

Mona Gupta, Associate Professor and Psychiatrist, Centre hospitalier de l'Université de Montréal (CHUM), Université de Montréal (Montréal, QC) Scott Y.H. Kim, Senior Investigator, National Institutes of Health (Bethesda, MD)

Brian L. Mishara, Director, Centre for Research and Intervention on Suicide, Ethical Issues, and End-of-Life Practices (CRISE), Université du Québec à Montréal (Montréal, QC) Tanya Park, Assistant Professor, Faculty of Nursing, University of Alberta (Edmonton, AB)

Suzanne Stewart, Director, Waakebiness-Bryce Institute for Indigenous Health, University of Toronto (Toronto, ON)

### **Policing in Indigenous Communities—Expert Panel**

**Kimberly R. Murray, Chair,** Assistant Deputy Attorney General, Indigenous Justice Division, Ministry of the Attorney General (Toronto, ON)

Jimmy Sandy Akavak, O.Nu., Director of Marketing, Nunavut Eastern Arctic Shipping; Former Sergeant, Royal Canadian Mounted Police (Iqaluit, NU)

Harley Crowshoe, Senior Advisor, Indigenous Health Program (South Zone), Alberta Health Services (Lundbreck, AB)

Mylène Jaccoud, Professor, School of Criminology, University of Montréal (Montréal, QC) Laurence Kirmayer, FRSC, FCAHS, James McGill Professor and Director, Division of Social and Transcultural Psychiatry, Department of Psychiatry, McGill University; Director, Culture and Mental Health Research Unit, Lady Davis Institute, Jewish General Hospital (Montréal, QC)

**Eileen Luna-Firebaugh**, Professor Emeritus, American Indian Law and Policy, University of Arizona (Tucson, AZ)

Naiomi Metallic, Assistant Professor and Chancellor's Chair in Aboriginal Law and Policy, Schulich School of Law, Dalhousie University (Halifax, NS) Kent Roach, C.M., FRSC, Professor and Prichard-Wilson Chair in Law and Public Policy, Faculty of Law, University of Toronto (Toronto, ON)

Philip Stenning, Adjunct Professor, Griffith Criminology Institute, Griffith University (Queensland, Australia); Honorary Professor, University of KwaZulu-Natal (Durban, South Africa)

John William Syrette, Chief of Police, Anishinabek Police Service (Garden River, ON)

Norman E. Taylor, President, The Global Network for Community Safety Canada Inc. (Oshawa, ON)

## Innovation Management Education and Training— Expert Panel & Workshop Participants

John R. McDougall, FCAE, Chair, Expert Panel, President, DALCOR Innoventures Ltd. (Edmonton, AB)

#### Deborah Ancona, Expert Panel,

Seley Distinguished Professor of Management, Professor of Organization Studies, and Director, MIT Leadership Center at MIT Sloan School of Management (Cambridge, MA)

#### Colleen Collins, Expert Panel,

Vice-President, Canada West Foundation (Calgary, AB)

#### C. Brooke Dobni, Expert Panel,

Professor of Management, Edwards School of Business, University of Saskatchewan (Saskatoon, SK) Laurent Simon, Expert Panel, Full Professor, Entrepreneurship and Innovation Department, HEC Montréal (Montréal, QC)

Max Blouw, Immediate Past-President, Wilfred Laurier University (Waterloo, ON)

**Richard Boudreault, FCAE**, Chairman, Sigma Energy Storage (Montréal, QC)

Judy Fairburn, FCAE, Board Chair, Alberta Innovates (Calgary, AB)

Tom Jenkins, O.C., FCAE, Chair of the Board, OpenText Corporation (Waterloo, ON) Sarah Kaplan, Professor, Director of the Institute for Gender and the Economy, Rotman School of Management, University of Toronto (Toronto, ON)

Jean-Michel Lemieux, Senior Vice President of Engineering, Shopify Inc. (Ottawa, ON)

Elicia Maine, Professor; Academic Director, i2I, Beedie School of Business, Simon Fraser University (Vancouver, BC)

Kathy Malas, Innovation Centre Manager, CHU Sainte-Justine (Montréal, QC) John L. Mann, FCAE, Owner, Mann Consulting (Blenheim, ON)

Jesse Rodgers, CEO, Volta Labs (Halifax, NS)

**Creso Sá**, Professor, University of Toronto (Toronto, ON)

Dhirendra Shukla, Professor and Chair, University of New Brunswick (Fredericton, NB)

Dan Sinai, Senior Executive, Innovation, IBM Canada (Toronto, ON) Valerie Walker, Vice President, Talent and Skills, Business Council of Canada (Ottawa, ON)

J. Mark Weber, Eyton Director, Conrad School of Entrepreneurship and Business and Technology Centre, University of Waterloo (Waterloo, ON)

## The Potential Socio-economic Impacts of Anti-Microbial Resistance—Expert Panel

B. Brett Finlay, O.C., O.B.C., FRSC, FCAHS, Chair, Peter Wall Distinguished Professor, University of British Columbia (Vancouver, BC)

John Conly, MD, FCAHS, Professor and Co-Director, Snyder Institute for Chronic Diseases, University of Calgary (Calgary, AB)

Peter Coyte, Professor of Health Economics, University of Toronto (Toronto, ON)

Jo-Anne R. Dillon, FRSC, FCAHS, Head, Department of Microbiology and Immunology, University of Saskatchewan (Saskatoon, SK)

**Greg Douglas, DVM**, Vice President, Animal Care, Maple Leaf Foods (Mississauga, ON) **Ellen Goddard**, Professor and Co-operative Chair, Agricultural Marketing and Business, University of Alberta (Edmonton, AB)

Louisa Greco, Senior Advisor, RTS Practice, McKinsey & Company (Toronto, ON)

Lindsay E. Nicolle, MD, FCAHS, Professor Emeritus, University of Manitoba (Winnipeg, MB)

**David Patrick, MD**, Professor, Faculty of Medicine, University of British Columbia (Vancouver, BC)

#### John F. Prescott, DVM, FCAHS,

University Professor Emeritus, Department of Pathobiology, University of Guelph (Guelph, ON)

#### Amélie Quesnel-Vallée,

Canada Research Chair in Policies and Health Inequalities, McGill University (Montréal, QC)

Richard Smith, Dean of Faculty, Public Health and Policy, London School of Hygiene & Tropical Medicine (London, United Kingdom) Dean of Faculty, Public Health and Policy, London School of Hygiene & Tropical Medicine (London, United Kingdom)

Gerry Wright, FRSC, Director, Michael G. DeGroote Institute for Infectious Disease Research, McMaster University (Hamilton, ON)

# ANNEX 4 FINANCIAL STATEMENTS

MARCH 31, 2018

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## **INDEPENDENT AUDITORS' REPORT**

To the Board of Governors,

#### **COUNCIL OF CANADIAN ACADEMIES**

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the COUNCIL OF CANADIAN ACADEMIES, which comprise the Statement of Financial Position as at March 31, 2018, and the Statements of Changes in Net Assets, Operations and Cash Flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

## Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

#### Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the organization's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the COUNCIL OF CANADIAN ACADEMIES as of March 31, 2018, and its financial performance and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

PI Pi Cobro

Parker Prins Lebano Chartered Professional Accountants Professional Corporation

Authorized to practice public accounting by the Chartered Professional Accountants of Ontario

Ottawa, Canada May 28, 2018

## STATEMENT OF FINANCIAL POSITION AS AT MARCH 31, 2018

ASSETS	2018	2017
CURRENT		
Accounts receivable (note 7)	\$ 205,278	\$ 441,877
Prepaid expenses (note 8)	 45,901	11,260
	251,179	453,137
DEFERRED COMPENSATION FUND - CASH (note 11)	1,143,849	1,077,469
CAPITAL (note 4)	106,819	153,275
	\$ 1,501,847	\$ 1,683,881
LIABILITIES		
CURRENT		
Bank indebtedness (note 12)	\$ 72,411	\$ 223,553
Accounts payable	205,965	115,905
Deferred revenue	64,896	157,476
Deferred grant contributions (notes 6 and 10)	_	66,380
Current portion of long-term debt (note 5)	14,726	28,372
	357,998	591,686
LONG-TERM DEBT (NOTE 5)		
Unrestricted net assets	-	14,726
	357,998	
NET ASSETS		
Unrestricted net assets	(106,819)	(153,275)
Net assets invested in capital assets	106,819	153,275
Deferred compensation fund (note 11)	1,143,8499	1,077,469
	1,143,849	1,077,469
	\$ 1,501,847	\$ 1,683,881

On behalf of the Board:

David A. Dodge, O.C., FRSC Director

The accompanying notes are an integral part of the financial statements.

## STATEMENT OF CHANGES IN NET ASSETS FOR THE YEAR ENDED MARCH 31, 2018

UNRESTRICTED NET ASSETS	2018	2017
Balance, beginning of year	\$ (153,275)	\$ (150,158)
Excess of revenue over expenditure	_	_
Add: amortization	71,037	82,639
Less: amount invested in capital assets	(24,581)	(85,756)
Recognition of deferred contributions	66,380	106,381
Allocation to deferred compensation fund	(66,380)	(106,381)
BALANCE, END OF YEAR	\$ (106,819)	\$ (153,275)
NET ASSETS, INVESTED IN CAPITAL ASSETS		
Balance, beginning of year	\$ 153,275	\$ 150,158
Invested during the year	24,581	85,756
Less: amortization	(71,037)	(82,639)
BALANCE, END OF YEAR	\$ 106,819	\$ 153,275
DEFERRED COMPENSATION FUND (note 11)		
Balance, beginning of year	\$ 1,077,469	\$ 971,088
Allocation from deferred contributions (note 11)	66,380	106,381
BALANCE, END OF YEAR	\$ 1,143,849	\$ 1,077,469

## STATEMENT OF OPERATIONS FOR THE YEAR ENDED MARCH 31, 2018

REVENUE		2018	2017
Investment income	\$	11,296	\$ 10,302
Add: grant revenue	2	5,550,000	3,450,880
Revenue from other sources	1	,694,949	687,925
		5,256,245	4,149,107
EXPENDITURE			
Amortization		71,037	82,639
Assessment consultants		87,045	159,979
Central operations		203,640	286,563
Governance		133,398	113,801
Panel meetings	1	,025,808	520,602
Publications		182,407	154,790
Rent		291,802	266,493
Salaries and benefits	2	6,261,108	2,562,350
Other activities		_	1,890
	5	5,256,245	4,149,107
EXCESS OF REVENUE OVER EXPENDITURE FOR THE YEAR	\$		\$ _

## STATEMENT OF CASH FLOWS FOR THE YEAR ENDED MARCH 31, 2018

		2018	2017
CASH FLOWS FROM (USED FOR) OPERATING ACTIVITIES	5		
Excess of revenue over expenditure for the year	\$	-	\$ _
Items not requiring an outlay of cash:			
Amortization		71,037	82,639
Allocation to deferred compensation fund		66,380	106,381
		137,417	189,020
Net change to non-cash items related to operations:			
Accounts receivable		236,599	(15,461)
Prepaid expenses		(34,641)	6,391
Accounts payable		90,060	(2,692)
Deferred revenue		(92,580)	(78,319)
Deferred contributions		(66,380)	(106,381)
		270,475	(7,442)
CASH FLOWS FROM (USED FOR) INVESTING ACTIVITIES			
Purchase of capital assets		(24,581)	(85,756)
CASH FLOWS FROM FINANCING ACTIVITIES			
Advance of long-term debt		(28,372)	43,098
NET DECREASE IN CASH		217,522	(50,100)
CASH, BEGINNING OF YEAR		853,916	904,016
CASH, END OF YEAR	\$	1,071,438	\$ 853,916
CASH CONSISTS OF:			
Deferred compensation fund – cash	\$	1,143,849	\$ 1,077,469
(Bank indebtedness) cash		(72,411)	(223,553)
	\$	1,071,438	\$ 853,916

The accompanying notes are an integral part of the financial statements.

## NOTES TO FINANCIAL STATEMENTS **MARCH 31, 2018**

#### **ORGANIZATION'S** 1 **PURPOSE**

The Council of Canadian Academies is a not-for-profit organization incorporated in April 2002 under the Canada Corporations Act and began operations in 2005.

The Council's main purpose is to provide a source of credible, independent, expert assessments and evidence-based advice on the science that is relevant to matters of public interest, and to provide a voice for Canadians on behalf of the sciences on the national and international scene.

## 2. SIGNIFICANT ACCOUNTING POLICIES

These financial statements have been prepared in accordance with Canadian accounting standards for not-for-profit organizations, and reflect the following policies:

#### **Capital Assets**

Capital assets consisting of furniture and fixtures, computer equipment and software, and leasehold improvements are stated at cost. Amortization has been provided on the diminishing balance or straight-line basis as follows with half of amortization taken in the year of acquisition:

Furniture and fixtures Computer and software Leasehold improvements 10 years

30% per annum 45% per annum

#### **Revenue Recognition**

The organization follows the deferral method of accounting for contributions. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

#### FINANCIAL INSTRUMENTS 3.

Financial instruments reflected in the statement of financial position consist of cash, investments, accounts receivable and accounts payable. The Council does not hold or issue financial instruments for trading purposes and does not hold or issue derivative financial instruments.

## 4. CAPITAL ASSETS

	COST	CUMULATED ORTIZATION	2018 NET BOOK VALUE	2017 NET BOOK VALUE
Furniture and fixtures	\$ 391,001	\$ 373,764	\$ 17,237	\$ 24,625
Computer and software	615,917	528,602	87,315	124,117
Leasehold improvements	103,499	101,232	2,267	4,533
	\$ 1,110,417	\$ 1,003,598	\$ 106,819	\$ 153,275

The accompanying notes are an integral part of the financial statements.

## NOTES TO FINANCIAL STATEMENTS MARCH 31, 2018 (continued)

## 5. LONG-TERM DEBT

Loan, bearing interest at 5%, repayable in blended monthly payments of \$2,490.21 over 20 months beginning February 1, 2017.

	2018	2017
Loan	\$ 14,726	\$ 43,098
Less current portion	14,726	28,372
	\$ _	\$ 14,726

## 6. DEFERRED GRANT CONTRIBUTIONS

Prior year grant revenue that was received in excess of expenses was deferred to offset expenses in future years.

## 7. ACCOUNTS RECEIVABLE

Accounts receivable consist of trade receivables of \$8,527 and GST receivable of \$196,751 for a total of \$205,278.

## 8. PREPAID EXPENSES

Prepaid expenses consist of hotel deposits of \$16,779, D&O liability insurance of \$3,153, prepaid postage of \$32, prepaid quarterly lease charge on photocopier of \$2,716, a commercial insurance policy of \$758, and travel amounts of \$22,463, for a total of \$45,901.

## 9. COMMITMENTS

The organization entered into a four year lease commencing February 1, 2016, as well as office equipment contracts. The annual payments over the next three years are as follows:

F/Y 2019	\$211,264
F/Y 2020	\$153,035
F/Y 2021	\$3,919

## 10. ECONOMIC DEPENDENCE

In March 2006, the Council received a founding grant in the amount of \$30,000,000. The grant was intended to support core operations of the Council for 10 years. The remaining funds within the Council can be used at the Council's discretion. The Council received a further \$15 million over 5 years starting in 2015-16 with mandates on its use as prescribed by the funding agreement.

## 11. DEFERRED COMPENSATION FUND

Based on the original funding agreement, an internally restricted fund was established to set aside funds for potential severance liabilities. The amount included in the deferred compensation fund relating to staff time during the original funding agreement is \$877,633 as at March 31, 2018. Council Management continues to risk manage this situation by working closely with the Audit, Finance and Risk Committees accruing additional potential severance liabilities of \$266,216 relating to staff time subsequent to the original agreement period, thus bringing the total deferred compensation fund to \$1,143,849 (2017 \$1,077,469).

## 12. BANK INDEBTEDNESS

The sum of the balances in the various bank accounts for the year totals \$1,071,438; this consists of cash allocated to the deferred compensation fund of \$1,143,849 with the net residual amount disclosed as bank indebtedness.

## 13. COMPARATIVE FIGURES

Certain of the comparatives figures have been reclassified in order to conform with the current financial statement presentation.



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