NRC-CNRC

RESPONSE. RECOVERY.

2020-2021 ANNUAL REPORT





At the National Research Council of Canada (NRC), we have a long history of answering the country's call in times of need—and did so again in 2020–21 when the COVID-19 crisis struck.

Teams from across our organization stepped up and worked together to combat the pandemic, conducting research and supporting innovation in ways that have made an immediate difference in the lives of Canadians.

At the same time, we maintained a view to the future, anticipating the next challenges our country is likely to face. We continued our vital work on climate change, new energy technologies, adaptation and mitigation that will help create a safe, prosperous and sustainable Canada of tomorrow.

This report captures both sides of that story: our immediate response to COVID-19 and our work to ensure Canada's long-term recovery once the pandemic is over.



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The NRC played two very different but equally important roles in 2020–21. First and foremost, our researchers devoted their expertise to meeting the most urgent pandemic needs, contributing to the government-wide response to COVID-19. In taking that action, we also kept in mind the country's long-term recovery from the pandemic, laying the foundation to "build back better"—whether that means strengthening domestic capacity to handle the next health challenge that may come or creating the conditions for a greener, more sustainable economy and society.

Like nearly every organization in Canada, we did this while embracing new ways of working. As the majority of our people shifted to remote work and embraced digital collaboration both internally and with partners around the world, we began to see the NRC not as a place but a platform—one with fewer boundaries and far more possibilities.

At the heart of that platform is our people. They proved their strong sense of mission and commitment to public service last year. Solving problems is in their DNA—and the harder the problem, the more it seems to drive them. It was not surprising to see teams pivot quickly and come together to focus on new and urgent challenges, or for NRC staff across the country to raise their hands to support colleagues in other parts of the organization who needed help.

Our multi-disciplinary nature and deep expertise allowed us to support and deliver made-in-Canada solutions for personal protective equipment, testing kits, swabs and vaccines over the course of the year. We also helped build up Canadian manufacturing and innovation capacity in these areas that will last well beyond this pandemic itself, supporting the country's economic recovery. This included providing small and medium-sized companies across Canada with the financial assistance they needed to keep their doors open, their people employed and momentum going on new ideas and innovations.

The other critical advantage we brought to the year is our position as a connector. Our networks and relationships throughout government and with industry and academia gave us visibility into Canada's best science, technology and

innovation capabilities—not just those found within our own walls. That reach helped us play a strong part in supporting other departments such as the Public Health Agency of Canada (PHAC) and Innovation, Science and Economic Development Canada (ISED).

Despite the pandemic and the changes it brought, we continued to deliver on our core mission and values. I want to recognize the efforts of employees across the entire organization, from research to common and corporate services, who worked tirelessly to deliver so many critical initiatives for Canadians in this unprecedented time. Like this country itself, our people are resilient. And as I and other senior leaders within the NRC sign anti-racism pledges and place a greater focus on mental health within our organization, part of our ongoing commitment to creating a healthy and inclusive work environment, we are going to help our people be even more resilient going forward.

To the employees of the NRC, thank you all for your commitment to Canada, to supporting one another and for persisting through everything we have faced together this past year. There's light at the end of the tunnel—and I am pleased to say that the ingenuity and innovation of the NRC has helped guide us through.

Mitch Davies, President



OUR VISION

A better Canada and world through excellence in research and innovation.

OUR VALUES

Integrity: Behaving at all times ethically, honestly and objectively; being impartial and transparent with our colleagues, collaborators, stakeholders, clients and the people of Canada; and exercising sound stewardship of our resources.

Excellence: Pursuing excellence in all that we do: in our research and innovation, in our collaborations, in execution of our programs, in our support to firms and in our delivery of our common corporate services.

Respect: Valuing and respecting the knowledge, expertise and diversity of our colleagues, our

workplace, our collaborators, our stakeholders and our clients to have an impact on Canada and the world.

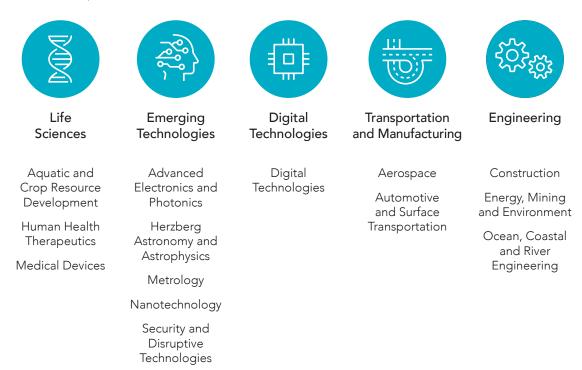
Creativity: Harnessing our imagination, passion for excellence, scientific exploration, technology and innovation to generate new knowledge, new technologies, new business processes and new collaborations for a better NRC and a better world.

OUR MISSION

To have an impact by advancing knowledge, applying leading-edge technologies and working with other innovators to find creative, relevant and sustainable solutions to Canada's current and future economic, social and environmental challenges.

OUR RESEARCH CENTRES

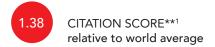
Our research spans 14 research centres across 5 divisions, with facilities in 22 locations across Canada.



SCIENTIFIC ACHIEVEMENTS









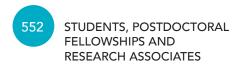




PEOPLE



2,229 scientists, engineers and technicians



FACILITIES

180 BUILDINGS 22 SITES 558,000 m²

FACILITIES ACROSS CANADA

^{*}Calendar year 2020

^{**} Three-year average (2018 to 2020 calendar years)

¹ The citation score is the three-year average Field-Weighted Citation Impact (FWCI) of NRC publications. The FWCI is a standardized measure of citations in a particular field that is normalized to 1.0.

CLIENTS









NRC INDUSTRIAL RESEARCH ASSISTANCE PROGRAM (NRC IRAP)









FINANCIALS (unaudited results)

\$154.6M TOTAL REVENUES \$1,648.7M TOTAL EXPENDITURES \$840M GRANTS AND CONTRIBUTIONS EXPENDITURES

^{* 22%} client feedback response rate

 $^{^{\}star\star}$ Collaborative Science, Technology and Innovation Program



Meeting Canada's needs during the COVID-19 pandemic called on every facet of the NRC. Since March 2020, teams in research centres across the country have drawn on each other's facilities, expertise and deep connections to industry and academia to protect the health and safety of Canadians. Through new initiatives such as the Pandemic Response Challenge Program and the Industrial Research Assistance Program (NRC IRAP)-Innovative Solutions Canada (ISC) COVID-19 Challenge Program, we have also provided millions in funding to innovators from coast to coast so they could rise to the challenge, too.

BUILDING CANADA'S CAPACITY TO MANUFACTURE PPE

1111

Canada's supply of personal protective equipment (PPE) ran dangerously low in the early days of the pandemic, when most surgical masks and respirators were still being imported from other countries. To ensure those imports were safe for frontline healthcare workers, researchers from the Metrology Research Centre and the Construction Research Centre collaborated with teams across the NRC to establish a unique-in-Canada testing lab. This lab evaluated the performance and efficiency of more than 5,000 PPE samples, enabling decisions to be made on the use of more than 120 million PPE items. The Metrology Research Centre also established a testing lab network involving 40 private and provincially funded labs across the country, along with 12 new domestic PPE manufacturers, to further increase Canada's overall testing capacity.

Because relying on an imported supply was not ideal, made-in-Canada solutions were urgently needed. NRC IRAP invested in several companies to strengthen Canada's domestic PPE manufacturing capacity, such as Roswell Downhole Technologies, which quickly reconfigured its oil-and-gas sector manufacturing equipment to produce polypropylene filters for disposable masks and respirators. We also provided facilities and expertise to companies such as Dorma Filtration, which is using advanced 3D printing and injection moulding techniques to develop reusable masks that are more effective than N95s and less expensive to produce.

A MADE-IN-CANADA SUPPLY CHAIN FOR COVID-19 TEST KITS

Before the pandemic, Canada also imported most of the components used in virus test kits—which also quickly ran into short supply as demand for them surged. We rallied to help create made-in-Canada components for COVID-19 test kits, including viral genome extraction reagents, antigens and enzymes, plastics, magnetic beads, test kit consumables and funded 10 firms through NRC IRAP

Specifically, we worked with companies across Canada to produce enough reagents and plastic consumables for 33 million COVID-19 tests. Researchers from the Medical Devices Research Centre and Automotive and Surface Transportation Research Centre helped manufacturing and technologies companies retool their operations to produce nasal swabs, which Canada can now manufacture up to two million every week. We started making components of COVID-19 testing kits in our own facilities as well. The Human Health Therapeutics Research Centre converted its microbial fermentation plant into a liquid reagent production site and, together with the Aquatic and Crop Resource Development Research Centre and Energy, Mining and Environment Research Centre, has produced close to 60,000 litres of buffers for the Public Health Agency of Canada (PHAC)—enough for seven million COVID-19 tests.

HELPING DEVELOP MUCH-NEEDED VACCINES

The supply chain many Canadians were most concerned about was vaccine production. NRC IRAP invested more than \$41 million to advance early stage R&D of seven Canadian vaccine candidates and seven therapeutic candidates to prevent and treat COVID-19. Another \$113 million will be awarded by 2023 to the most promising of those candidates. In addition, NRC IRAP provided \$4.5 million in funding to support the work of three Canadian biomanufacturing firms.

Beyond funding, the NRC has provided expertise to help test, develop and produce several vaccine candidates. Early in the pandemic, the Human Health Therapeutics Research Centre partnered with VBI Vaccines to rapidly advance a virus-like particle vaccine for COVID-19 and other coronaviruses, and supported the University of Saskatchewan's Vaccine and Infectious Disease Organization – International Vaccine Centre (VIDO-InterVac) project to accelerate the development of a protein subunit vaccine. Both vaccine candidates use our proprietary cell line, HEK293-SF-3F6, in the manufacturing process and are currently in Phase 1 clinical trials.

To facilitate essential serology testing (detecting antibodies produced in response to an infection, which can help determine if an individual has developed an immune response to a virus), we were the first public sector organization to release a standardized COVID-19 spike protein reagent. Our Human Health Therapeutics and Metrology Research Centres also produced diagnostic antibodies for use in testing kits. Together, these reagents and antibodies are being used by several academic, government and private labs for tens of thousands of tests to monitor immunity in COVID-19-infected patients, with the results helping to correlate the effectiveness of current vaccines and develop future vaccines. At least half of all sample testing supported by the Government of Canada's COVID-19 Immunity Task Force uses NRC reagents. In addition, one Canadian company, Biolytica, developed its own commercial diagnostic kit using our reagents.

SUPPORTING THE BUSINESSES THAT DRIVE CANADA'S ECONOMY

Small and medium-sized businesses are the backbone of the Canadian economy, employing millions of people across the country. Since April 2020, NRC IRAP's Innovation Assistance Program (IAP) has provided \$405.2 million in wage subsidies to help more than 2,200 businesses maintain their operations and keep some 24,000 jobs on payroll.

Not every company could continue with business as usual during the pandemic. That is why NRC IRAP also set up a new type of advisory service to help companies pivot—to transform their operations to produce PPE or to shift from physical to virtual work—with webinars and direct consultations reaching thousands of businesses across Canada.

In total, NRC IRAP delivered nearly twice the amount of funding and support it would provide Canadian businesses in a normal year. A new online portal to accept IAP applications, backed by a substantial web server upgrade, was key to ensuring NRC IRAP could keep pace with the unprecedented demand for its services.

"The IAP wage subsidy programs gave us the boost and runway we needed during our most uncertain times in 2020. Through that funding, we retained our staff, developed our business, planned for expansion and achieved growth milestones. It took major worries away from our minds as entrepreneurs, giving us the confidence to identify and seize growth opportunities for our business."

Ahmed Badruddin, CEO, Citylitics Inc.

RISING TO THE CHALLENGE

Through the Pandemic Response Challenge Program, researchers from across the NRC—including the Human Health Therapeutics, Medical Devices, Digital Technologies and Metrology Research Centres—in collaboration with academic and industry partners, led 50 R&D projects in four areas critical to front-line pandemic response:



rapid detection and diagnosis



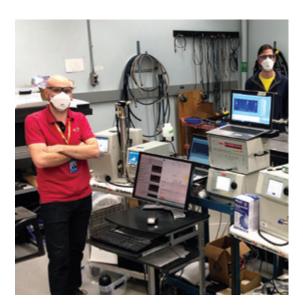
therapeutics and vaccines



digital patient care and pandemic analytics



enabling adaptive responses



The NRC IRAP-ISC COVID-19 Challenge Program provided financial support to help small and medium-sized businesses refine and sell products or solutions focused on urgent pandemic-related needs:



low-cost sensors for patient monitoring



point-of-care and home diagnostic kits



made-in-Canada filtration material for N95 respirators and masks

NRC IRAP also invited small and medium-sized businesses to pitch a panel of experts from federal and provincial governments on their technologies and ideas for sanitization, disease tracking, therapeutics, patient monitoring and more. After 23 virtual sessions and pitches from 76 companies, 10 firms were funded—with three technologies going on to receive Health Canada certification.

• • ALL HANDS ON DECK

Teams throughout the NRC pivoted last year to contribute to the pandemic response in any way they could. Our Metrology Research Centre adapted techniques for measuring black carbon emissions to track aerosol particles passing through N95 mask filtration material, catalyzing Canada's domestic PPE-testing capabilities. The Construction Research Centre stepped in with expertise and lab equipment to ensure PPE were "conditioned" within the required, precise parameters for accurate and reliable testing. Health Canada also received support to develop a pre-approval protocol for disinfectants from NRC IRAP and several NRC research centres, including Aquatic and Crop Resource Development; Automotive and Surface Transportation; Metrology; and Energy, Mining and Environment.



A RAPID SHIFT TO REMOTE WORK, A SAFE RETURN TO THE WORKPLACE

The decision to revise our emergency preparedness and business continuity plans as the pandemic loomed in early 2020 paid off, ensuring we could make a seamless transition to remote work. Acquiring an additional 2,500 virtual private network (VPN) licences, investing in digital collaboration software, adopting digital signatures and electronic records, and providing staff with portable equipment as needed helped our teams stay connected, engaged and productive as the pandemic began.

Staff across the NRC—in our Client Service Centre, in our Communications, Human Resources, Security, Knowledge and Information Technology Services, Health, Safety and Environment, and Real Property Planning and Management Branches—all played vital roles supporting our remote workforce and those working on-site to perform essential tasks such as maintaining research equipment and facilities. Even after restoring our on-site workforce from 3% in March 2020 to nearly 35% a year later, we had zero transmissions of COVID-19 within our facilities due to stringent health and safety protocols at our labs and regular health and safety guidance and direction communicated across the organization.

••• BUSINESS-SUSTAINING LAB ACCESS

As we scaled up our operations and brought more employees back into our facilities, we also re-opened our Life Sciences labs to Canada's small and medium-sized businesses. Some of them may not have survived the pandemic had they not been able to continue their critical R&D activities inside our dry and wet labs, which most businesses do not have available in-house.



Despite the limitations created by the pandemic, we hired more than 500 students throughout the year—helping minimize the impact on their educations and careers.



Our Aerospace Research Centre worked with Boeing and GPS on the use of bipolar ionization to limit the spread of viruses throughout aircraft interiors—for a safer, healthier post-COVID air travel experience. And with its ability to recreate airport terminal spaces as well as the aircraft cabin environment, our Centre for Air Travel Research is well-equipped to study surface decontamination and airborne disinfection. One start-up accessed the Centre's mock airport facility to test autonomous robots that use high-frequency ultraviolet-C (UVC) light to destroy infectious diseases.

A YEAR OF RESPONSE

How the NRC contributed to the fight against COVID-19

NEW GOVERNMENT FUNDING ALLOCATED TO THE NRC TO ADDRESS THE PANDEMIC

\$792.7 M



\$170 M Life Sciences



\$52.5 M Innovation



\$570.2 MBusiness

SUPPORTING THE NEXT GENERATION OF RESEARCHERS

500+

student work placements

\$7.5 M

for STEM Career Kickstarter program to hire post-doctoral, graduate and undergraduate students into the NRC

\$15 M

to support NRC IRAP Youth Employment Program

\$405.2 M

in NRC IRAP wage subsidies to protect 24,000 jobs

PERSONAL PROTECTIVE EQUIPMENT



104

Canadian companies answered the call to develop made-in-Canada filtration material

120 M

PPE items entered the Canadian marketplace supported by NRC testing

COVID-19 TEST KITS



2 M

swabs per week now made in Canada



400

COVID-19 testing kits produced and shipped across Canada weekly

56,000 L

of buffer produced for diagnostic reagents

CHANGING THE WAY WE WORK









INDUSTRIAL RESEARCH ASSISTANCE PROGRAM (NRC IRAP)-INNOVATIVE SOLUTIONS CANADA (ISC) COVID-19 CHALLENGE PROGRAM

\$11 M

in funding for 23 near-to-market projects

PANDEMIC RESPONSE CHALLENGE PROGRAM

18 days

program up and running

\$15 M

in funding for 50 R&D projects

INVESTING IN INNOVATIVE COMPANIES



2,200

companies received-NRC IRAP funding and support



2,800

companies received NRC IRAP COVID-19 advisory services



\$150 M

in NRC IRAP support for companies developing vaccines and therapeutics





"Recovery" is about more than bouncing back from COVID-19. It is about creating an economy and society that is ready for whatever comes next, whether another pandemic or the longer-term challenge of climate change. That requires equal doses of preparation and innovation, both of which were at the heart of our work last year—all with the aim of helping Canada "build back better" for a more resilient, sustainable future.

A MORE CLIMATE-RESILIENT CANADA

Beyond the pandemic, climate change is the single greatest challenge facing Canada and the world. We continued our efforts in 2020–21 to mitigate climate change impacts while adapting communities and infrastructure to be more resilient to fires, floods and severe weather.

In partnership with the Xerox Research Centre of Canada, we opened the Advanced Materials Research Facility in Mississauga, Ontario: a national clean energy hub that will host foundational research on materials, fuels and feedstocks for a cleaner, more sustainable Canadian energy and chemical industry.

The renewal of the Climate-Resilient Buildings and Core Public Infrastructure (CRBCPI) initiative with Infrastructure Canada will extend important work to embed climate resiliency into building and infrastructure design, guides and codes. This includes research by our Construction Research Centre and Ocean, Coastal and River Engineering Research Centre to investigate the use of nature-based solutions to mitigate river and coastal flooding, and the development of national wildland-urban interface guidelines to protect homes and property from wildfires.

Our newly launched Ocean research program brings researchers from five NRC research centres together to make Canada's coasts more resilient by reducing erosion risks, cutting emissions from the marine shipping sector, identifying and extracting pollutants and plastics from water, and more in support of the blue economy.

Our Aerospace Research Centre pooled their talents and expertise with the Energy, Mining, and Environment Research Centre, Design and Fabrication Services, and the Construction Research Centre to convert a Cessna 337 civil aircraft to hybrid-electric power. This project is building invaluable e-aircraft knowledge and expertise in the field of sustainable aviation with the aim of assisting the aerospace industry with the design, test and validation of electric propulsion systems, in addition to supporting Transport Canada in developing criteria to certify electric systems and configurations for emerging aircraft.

We also continued to make our own operations more sustainable, tabling our first-ever Departmental Sustainable Development Strategy in October 2020. The strategy covers 2020 to 2023 and outlines how we will help address federal sustainable development goals to make government greener by reducing emissions and waste, promoting clean growth, implementing sustainable procurement practices, research into modern and resilient infrastructure and more. We have reduced emissions from our facilities by 47% compared to 2005 levels, surpassing the Government of Canada's target of 40% well ahead of schedule—and this strategy will help us keep that momentum going in the years to come.

PREPARING FOR FUTURE PANDEMICS

To ensure Canada can produce vaccines domestically in the future, last July we broke ground on a new Biologics Manufacturing Centre (BMC) in Montreal. The BMC was completed on budget and ahead of schedule in June 2021, including all interior design and fit-up of the equipment. Once Good Manufacturing Practices (GMP)-certified, the BMC will have a production capacity of approximately 4,000 litres a month, which translates to about two million doses of a vaccine per month. The first doses to be manufactured at the BMC may be those from Novavax, which signed a memorandum of understanding with the NRC in February 2021 to pursue options to produce its COVID-19 vaccine.

Manufacturing capacity is not the only way to fight a pandemic. Technology can help, too, as our work with artificial intelligence (AI) and machine learning demonstrated last year. Innovative methods being developed through our AI for Design Challenge Program could speed up the process for discovering new molecules for drug development by 90% so life-saving therapies and vaccines can be put in place faster.





STRONGER SECURITY, STRONGER COMPANIES

As businesses look ahead to the future, cybersecurity becomes increasingly important. Last year, NRC IRAP began providing cybersecurity training to its companies to keep them one step ahead of the latest threats. NRC IRAP also launched a pilot program to help companies embed ethical approaches into the way they do business.

PARTNERING WITH INDIGENOUS COMMUNITIES IN THE ARCTIC

Our Arctic research program and Arctic and Northern Challenge Program have been working on several projects addressing various areas of importance to Indigenous communities in Canada's north, including:



reducing permafrost degradation



making shipping operations safer in ice-covered waters



developing new techniques for sewage treatment in challenging Arctic conditions



reinforcing ice roads for a longer operational lifespan



detecting and cleaning up oil spills in the Arctic We are also partners in the Naurvik initiative, which aims to develop a local food production system in the Arctic. In collaboration with the Arctic Research Foundation, the Canadian Space Agency, Agriculture and Agri-Food Canada, and the community of Gjoa Haven, Nunavut, our Aquatic and Crop Resource Development Research Centre is leading the initiative on behalf of the NRC with the support of the Energy, Mining and Environment and Construction Research Centres to enable year-round production of fresh fruit and vegetables using renewable energy and controlled environment technologies.

••• HEALTH BEYOND COVID-19

We continued work to improve Canadians' physical and mental health through projects and programs such as:

- The new Aging in Place Challenge Program, which aims to improve the quality of life of older adults through innovations that support preventive home and community-based care.
- The ongoing Disruptive Technology Solutions for Cell and Gene Therapy Challenge Program, which is advancing technologies to make cell and gene therapies more affordable and accessible to Canadians, while also engaging various ecosystem stakeholders to define how such therapies could be effectively delivered to Canadians.
- An interactive digital tool for addressing sub-clinical mental health issues, developed in collaboration with the Centre for Addiction and Mental Health, which will provide a clinicallyrelevant interactive exercise to help Canadians cope with anxiety and stress.
- Developer guidelines for creating virtual care software that addresses accessibility and inclusivity, developed in collaboration with the Ontario College of Arts and Design University.



EXPLORING NEW FRONTIERS

While innovation is essential to solving big challenges, it is also a critical tool for discovery and advancement. Last year, we continued to work with Canada's quantum ecosystem on strategies to maintain the country's leadership in quantum science and technologies. This included finishing the development of our new Internet of Things: Quantum Sensors Challenge Program. Set for launch later in 2021, this program focuses on harnessing the extreme sensitivity of quantum systems to develop sensors far more precise than any existing today—for example, to detect pockets of valuable minerals without disturbing any of the surrounding land. And as part of our High-throughput and Secure Networks Challenge Program, we have launched partnerships and collaborations to develop and transfer innovations to industry that will benefit Canadians, such as quantum-based cybersecurity.

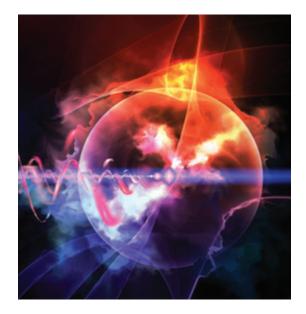




Photo credit: NASA/Chris Gunn

When the James Webb Space Telescope goes into orbit in fall 2021, three of the 266 research projects on board will be from the NRC—so Canadian scientists will be among the first to collect data from the most advanced space telescope ever built.





Increasing the diversity of our workforce and creating a more inclusive NRC continued to be a priority in 2020–21. Diversity and inclusion fuel innovation by bringing more voices to the table—and we endeavour to be a workforce that is representative of the country we serve.

MAKING A COMMITMENT TO A DIVERSE, INCLUSIVE AND ANTI-RACIST NRC

We need to foster a welcoming and supportive workplace where everyone has a true sense of belonging and can be at their best. All members of our senior executive committee signed a Commitment of Action toward a Diverse, Inclusive and Anti-Racist NRC, a pledge that confirms our personal and collective commitment to learn, reflect and take steps to drive positive and enduring change. We also launched three web portals with resources for employees, managers and supervisors: an anti-racism portal and an equity, diversity and inclusion (EDI) portal, as well as one focused on improving mental health.

Recognizing that our internal systems and structures have room for improvement in this regard, in fall 2020 we launched a thorough review of our employment practices with a view to identifying systemic barriers. Our goal is to ensure an EDI lens is applied to all aspects of recruitment, retention and promotion. The results of this review will inform the development of our new three-year EDI strategy for 2021–24.

CELEBRATING THE INSIGHT AND INGENUITY OF WOMEN IN STEM

Women at the NRC and across the federal government have been major contributors to the pandemic response as well as to the innovative solutions being developed to address the environmental and socio-economic challenges facing Canadians. The Turning Challenges into Opportunities symposium, held on the International Day of Women and Girls in Science (February 11, 2021), was an opportunity to celebrate the achievements of women in science,

technology, engineering and mathematics (STEM). The virtual format allowed more than 1,400 participants from 40 organizations in the federal science and innovation community to attend—the most ever—and the poster session featured close to 90 projects led by women from the NRC and other government agencies. In addition to this symposium, we worked with Hacking Health to organize two virtual sessions, attended by 200 people, to increase awareness of young female scientists working in health technologies.

We also launched a pilot program for Quebec-based NRC employees to mentor women in STEM, offering one-on-one mentoring and group training sessions on topics such as conflict resolution. Quarterly meet-ups as well as virtual cafés took place every other week where women could discuss everything from impostor syndrome to dealing with young kids when working at home. Based on the pilot's success, the Mentoring@the NRC program is now available to all employees across Canada.

65%

of students hired in 2020–21 identified within one or more employment equity designated group

42%

of students hired in 2020-21 identified as visible minorities

125

mental health and wellness sessions delivered to NRC employees in 2020–21

AWARDS AND HONOURS



Several NRC researchers and scientists were recognized throughout the year for the excellence of their work and career-long contributions to their respective fields.

INDIVIDUAL AWARDS AND RECOGNITIONS

Dr. Pavel Cheben – Fellow, International Society for Optics and Photonics

Dr. Pavel Cheben – Fellow, Royal Society of Canada

Dr. Phil De Luna – Mission Innovation Champion for Canada

Stephen Downes – Finalist, Science Breakthrough of the Year, Falling Walls

Dr. Chun Fang Shen – Finalist, Science Breakthrough of the Year, Falling Walls

Dr. Laura Ferrarese – Fellow, Royal Society of Canada

Dr. Benjamin Gerard – Finalist, Science Breakthrough of the Year, Falling Walls

Dr. Sergey Gusarov – Director Reserve Award, U.S. National Energy Research Scientific Computing Center

Dr. Harold Jennings – Magellan Award, Government of Chile

Dr. Ebrahim Karimi – Herzberg Medal, Canadian Association of Physicists

Arnold Kell – Research Innovation Award, IntelliFLEX Canadian Printed and Flexible Electronics Symposium **Greg Lopinski** –1906 Award, International Electrotechnical Commission

Dr. Zhenguo Lu – Finalist, Science Breakthrough of the Year, Falling Walls

Christian Marois – Fellow, Guggenheim Memorial Foundation

Ralph M. Paroli – Walter C. Voss Award, ASTM International

Paul Trudeau – Research Innovation Award, IntelliFLEX Canadian Printed and Flexible Electronics Symposium

Charles Vidal – Pip Rudkin Individual Award, Unmanned Systems Canada Association

Jens Schmid – Fellow, The Optical Society

TEAM AWARDS AND RECOGNITIONS

Automotive and Surface Transportation Research Centre and Security and Disruptive Technologies Research Centre – Crystal Cabin Award, City of Hamburg

Canadian Hydrogen Intensity Mapping Experiment (CHIME) – Governor General's Innovation Award

Nanotechnology Research Centre – Science Co-op Employer Recognition Award, University of British Columbia



SENIOR LEADERSHIP

(composition as of May 1, 2021)



Mitch Davies President



Geneviève Tanguay Vice-President, Emerging Technologies



Michel Dumoulin Vice-President, Engineering



Maria Aubrey Vice-President, Special Projects and Biologics Manufacturing Centre Project



Dan WaynerDepartmental
Science Advisor and
Chief Science Advisor



David LiskVice-President,
Industrial Research
Assistance Program (IRAP)



Ibrahim Yimer Vice-President, Transport and Manufacturing (acting)



François Cordeau Vice-President, Business and Professional Services



Lakshmi Krishnan Vice-President, Life Sciences (acting)



Emily Harrison Vice-President, Human Resources; Equity, Diversity and Inclusion Champion



Jean-François Houle Vice-President, Pandemic Response Challenge Program



Dale MacMillan Vice-President, Corporate Services and Chief Financial Officer, and interim Secretary General

COUNCIL MEMBERS (composition as of May 1, 2021)



Douglas W. Muzyka
Chair of the NRC Council,
Former Senior Vice-President and
Chief Science and Technology
Officer, E.I. DuPont de Nemours
and Company,
Indian River, Nova Scotia



Mitch Davies President, National Research Council Canada, Ottawa, Ontario



Karen Bakker
Professor and Canada
Research Chair,
University of British Columbia,
Vancouver, British Columbia



Norma Beauchamp Former President and Chief Executive Officer, Cystic Fibrosis Canada, Toronto, Ontario



Pierre Rivard
Executive Chairman
and Co-Founder,
TUGLIQ Energy Corp.,
Montréal, Quebec



Susan Blum Associate Vice-President, Research and Innovation, Saskatchewan Polytechnic, Saskatoon, Saskatchewan



Ray Hoemsen
Former Executive Director,
Research Partnerships &
Innovation, Red River College,
Winnipeg, Manitoba



Carolyn Cross
Founder, Chairman and
Chief Executive Officer,
Ondine Biomedical Inc.,
Vancouver, British Columbia



Steven Murphy
President and
Vice Chancellor,
Ontario Tech University,
Oshawa, Ontario